

# 7th Street Bridge

CAG Meeting

July 30, 2014



# Agenda for Today's CAG

## 10:00-12:00

- Housekeeping and introductions – Judith Buethe
- Welcome and project update - David Leamon, PE/Hans Strandgaard, PE
- Revised project alternatives – Brent Lemon, PE
- Final traffic study results – Brent Lemon, PE (Delivering for John Gard)
- Bridge alternatives and project costs – Chris Serroels, PE
- Environmental update – Matthew Franck
- Public outreach and schedule– Judith Buethe and Hans Strandgaard, PE
- Open question and discussion



# Project Status

- Public Scoping Meeting was held in October 2013
- Last Community Advisory Committee meeting in January 2014, reviewed project alternatives
- Public Presentation of the draft alternatives was completed in February 2014
- Alternatives were revised based on public comments
- Today's Meeting will review progress to date
- Environmental studies complete at year's end
- Bridge Aesthetic Workshop date in 2014/2015
- Public Comment Period on the Draft EIR in Jan-Feb, 2015



# Overall Schedule

- Develop Alternatives 2013-2014
- Environmental Studies 2013-2014
- Draft Project Report Late 2014
- Environmental Docs complete 2015
- Bridge Aesthetic Workshop 2014-2015
- Type Select Bridge 2015
- Final Design 2015-2016
- Right-of-Way 2016
- Construction 2017-2019(2020)





# Existing Roadway Network





# Existing Facility



- 2-Lane facility
- Crows Landing/7<sup>th</sup> Intersection
- Reverse curve on south side



# UPRR Tracks



- Adjacent on east side
- B Street At-Grade crossing
- Future track accommodation





# Existing Features - South End



- Industrial businesses & mini-market adjacent to Crows Landing
- Sunrise Mobile Home Community
- Zeff Road access
- Utility poles on east side





# Existing Features - North Side

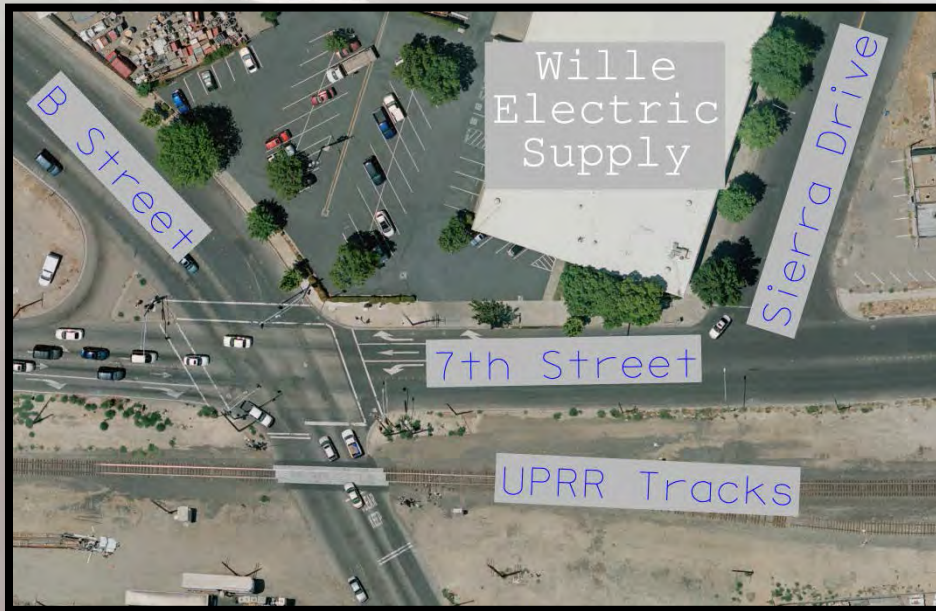


- High skew
- “B” Street At-Grade RR crossing
- Truck turns
- Right of way impacts
- Sierra drive access



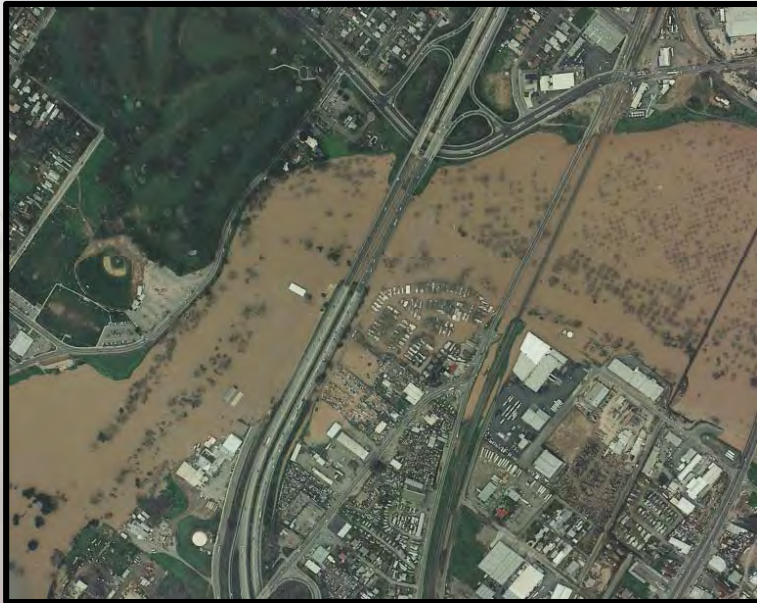
# Wille Electric Supply Building

- Northwest corner of intersection
- Pinch point at Sierra Drive
- Large overhang





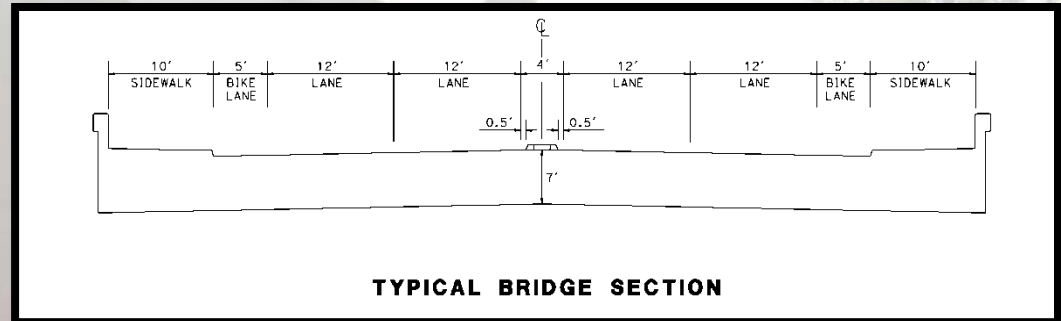
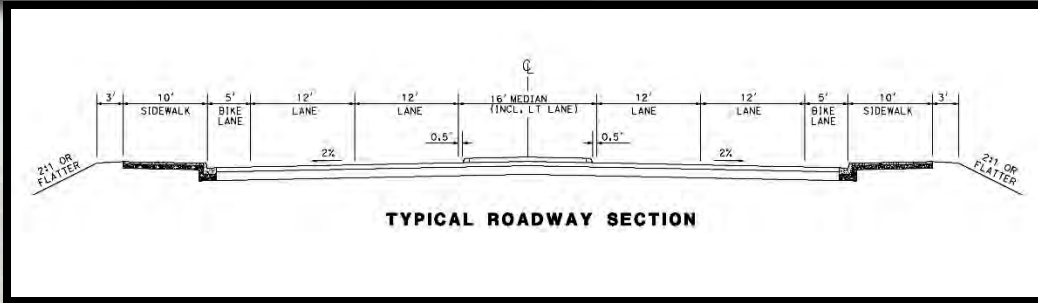
# Flood Criteria



- Floodway Criteria
  - Central Valley Flood Protection Board
  - 100-Year + 3' (Adjacent bridges provide equal or greater clearance)



# Proposed Facility



- 4-Lane facility
- Lane drops at conforms
- Posted 35 mph speed limit on 7th Street
- Accommodate trucks (turning movements & weight)





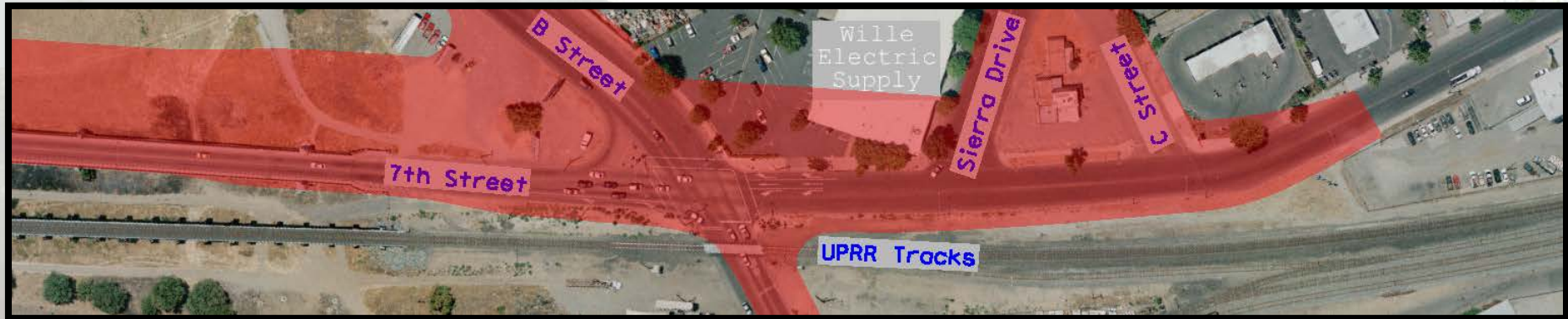
# All Alternatives - South End



- Route continuity
  - Preference to major traffic movements (Alts 1,3, & 4)
  - Reconstruct intersection (Alt 2)
- Close Zeff Road access
- Impacts to business particularly on west side
- New access for Sunrise Mobile Home Community



# All Alternatives - North End



- High skew
- “B” Street At-Grade RR crossing
- Truck turns
- Eastbound “B” Street free right
- Redirect Sierra Drive to C Street



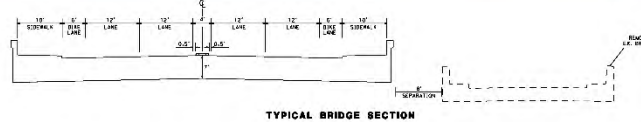
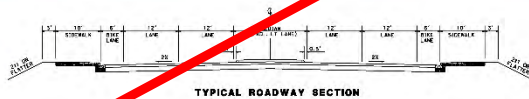
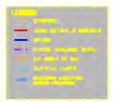
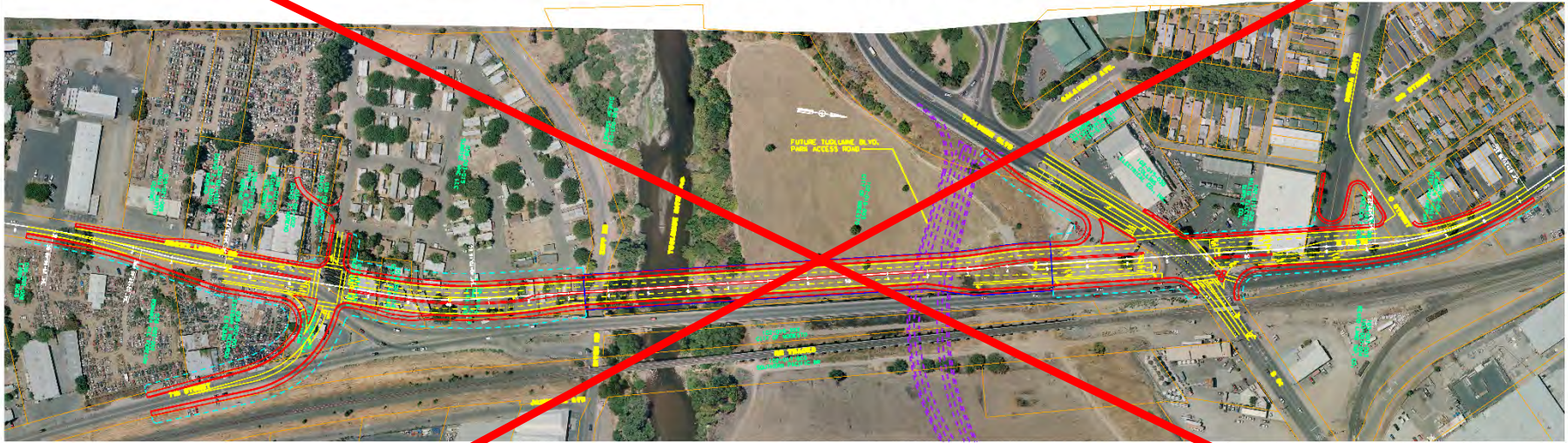


# Alternative 1 - Deleted Downstream Bridge

07 / 25 / 2014

## 7th STREET BRIDGE REPLACEMENT GEOMETRIC APPROVAL DRAWING (ALT. 1)

SCALE: 1" = 100'



APN	OWNER	TOTAL AREA SQ. FT.	TAKE AREA SQ. FT.	TAKE TYPE
038-003-001	Extension & Records Extension	65,175.49	20,811.45	PARTIAL
038-003-002	Extension & Records Extension	188,883.72	7,880.81	PARTIAL
038-003-003	W. Telle	16,786.52	16,786.52	FULL
038-003-004	Fortino & Sonoma	17,453.38	17,453.38	FULL
038-003-014	Fortino & Sonoma	10,416.30	10,416.30	FULL
038-003-015	Cesar Alvarez	15,068.96	15,068.96	FULL
038-003-016	Surfco Inc. LLC	431,849.41	117,857.26	PARTIAL/SUBDIVIDE
038-003-002	W. Telle	16,786.52	16,786.52	PARTIAL
102-015-029	White Electric Supply Co.	72,126.96	21,622.15	PARTIAL/BUILDING TAKE
102-015-003	City of Modesto	676,051.41	21,548	PARTIAL
103-007-003	Beard Lane Ind. Co.	125,210.50	2,532.33	PARTIAL
103-007-004	Beard Lane Ind. Co.	125,210.50	2,532.33	PARTIAL
103-008-004	Beard Lane Ind. Co.	125,210.50	2,532.33	PARTIAL
103-008-005	Beard Lane Ind. Co.	125,210.50	2,532.33	PARTIAL



# Alternative 1 - Deleted Downstream Bridge

- Advantages
  - Simple construction
- Disadvantages
  - Greater encroachment onto private property
  - Leaves large gap between new bridge and UPRR (not consolidated)
  - Not the least cost alternative

*...therefore, eliminate from further, detailed consideration*





# Alternative 2 Split to Accommodate Different Bridge Types

- Alternative 2 was developed to reduce right-of-way takes on south end of project, less impact to Sunrise Village Mobile Home Park
- Caltrans wanted each bridge type to have its own alternative
- Alternative 2A has a long-span tied arch span over the river
- Alternative 2B is an all precast girder option that has more supports in the water



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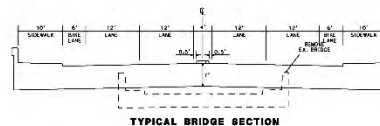
**7th STREET BRIDGE REPLACEMENT  
GEOMETRIC APPROVAL DRAWING (ALT. 2A/2B)**

CURVE DATA				
No.	R	$\Delta$	T	L
1	810.00	18° 03' 33.3"	338.28'	338.43'
2	2000.00	18° 03' 33.3"	338.28'	338.43'
3	3600.00	18° 03' 33.3"	338.28'	338.43'
4	2100.00	18° 03' 33.3"	338.28'	338.43'
5	1400.00	15° 04' 05.00"	60.35'	519.31'
6	510.00	24° 02' 29.19"	68.60'	213.99'
7	308.00	18° 03' 33.3"	338.28'	338.43'
8	308.00	18° 03' 33.3"	338.28'	338.43'



The diagram illustrates a typical roadway section with the following dimensions from left to right: 1.7' shoulder, 10' SIDEWALK, 6' FINE LANE, 12' LANE, 12' LANE, 18' MEDIAN (INCL. 1' LANE), 12' LANE, 12' LANE, 6' FINE LANE, 30' SIDEWALK, and 1.7' shoulder. The road is shown on a 2% upward grade. The centerline is marked with a dashed line, and the lane widths are indicated by arrows. The median is labeled '18' MEDIAN (INCL. 1' LANE)'. The side sidewalks are labeled '10' SIDEWALK' and '30' SIDEWALK'. The shoulders are labeled '1.7' SHOULDER'.

**TYPICAL ROADWAY SECTION**



APN	OWNER	TOTAL RAE \$00	TAXE AREA \$ 1	TAXE TYPE
038-002-001	Falabon & Records, Dallas	45,173.49	15,212.21	PARTIAL
038-002-002	Bonny All Foreleg	189,883.72	5,012.73	PARTIAL
038-002-008	Lorred	81,324.41	1,521.50	PARTIAL
038-003-005	Unkowne Tarrs	18,748.53	1,396.03	PARTIAL
038-003-006	Torrins & Johnn Kashiin	17,403.58	17,403.58	TALL
038-003-013	Felling & Johnn Kashiin	16,546.86	1,150.50	TALL
038-003-014	Claro Alvarado	15,048.96	2,262.30	PARTIAL/SUBJECTIVE
038-003-015	Surles LLC LLC	61,844.94	1,658.90	PARTIAL
038-001-002	David T. Moreno	20,336.56	141.00	PARTIAL
102-0-5-029	White Electric Supply Co.	5,217.11	5,217.11	PARTIAL
001-001-003	W. J. McCall	476,000.00	83,607.00	PARTIAL

EXISTING BRIDGE WILL BE DEMOLISHED AND TRAFFIC WILL BE TEMPORARILY RE-ROUTED AROUND 5TH STREET.



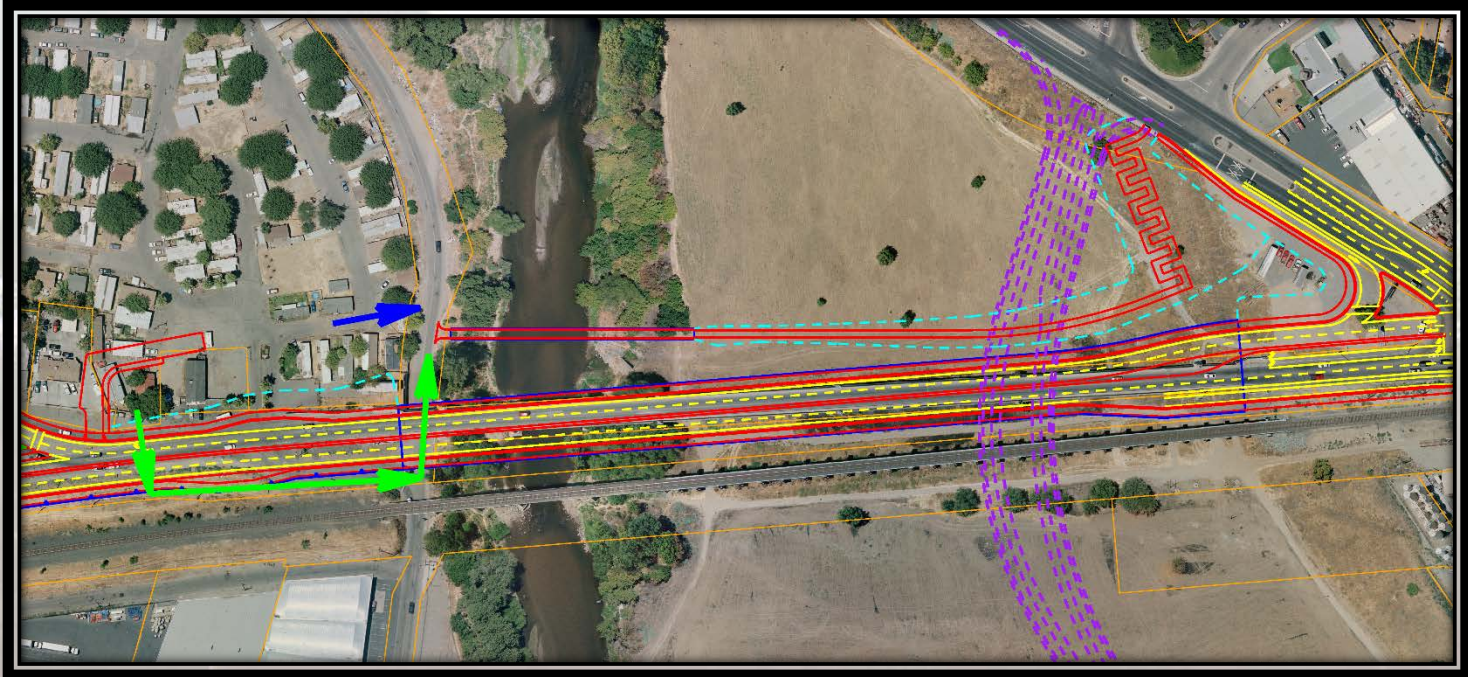


# Alternative 2A/2B - Existing Alignment

- Maintains Crows Landing intersection configuration
- Diverts traffic to 9th Street during construction
- Constructs entire bridge at one time
- Lesser right of way impacts
- Widens B Street at-grade RR crossing for trucks



# Alternative 2A/2B - Pedestrian Access During Construction

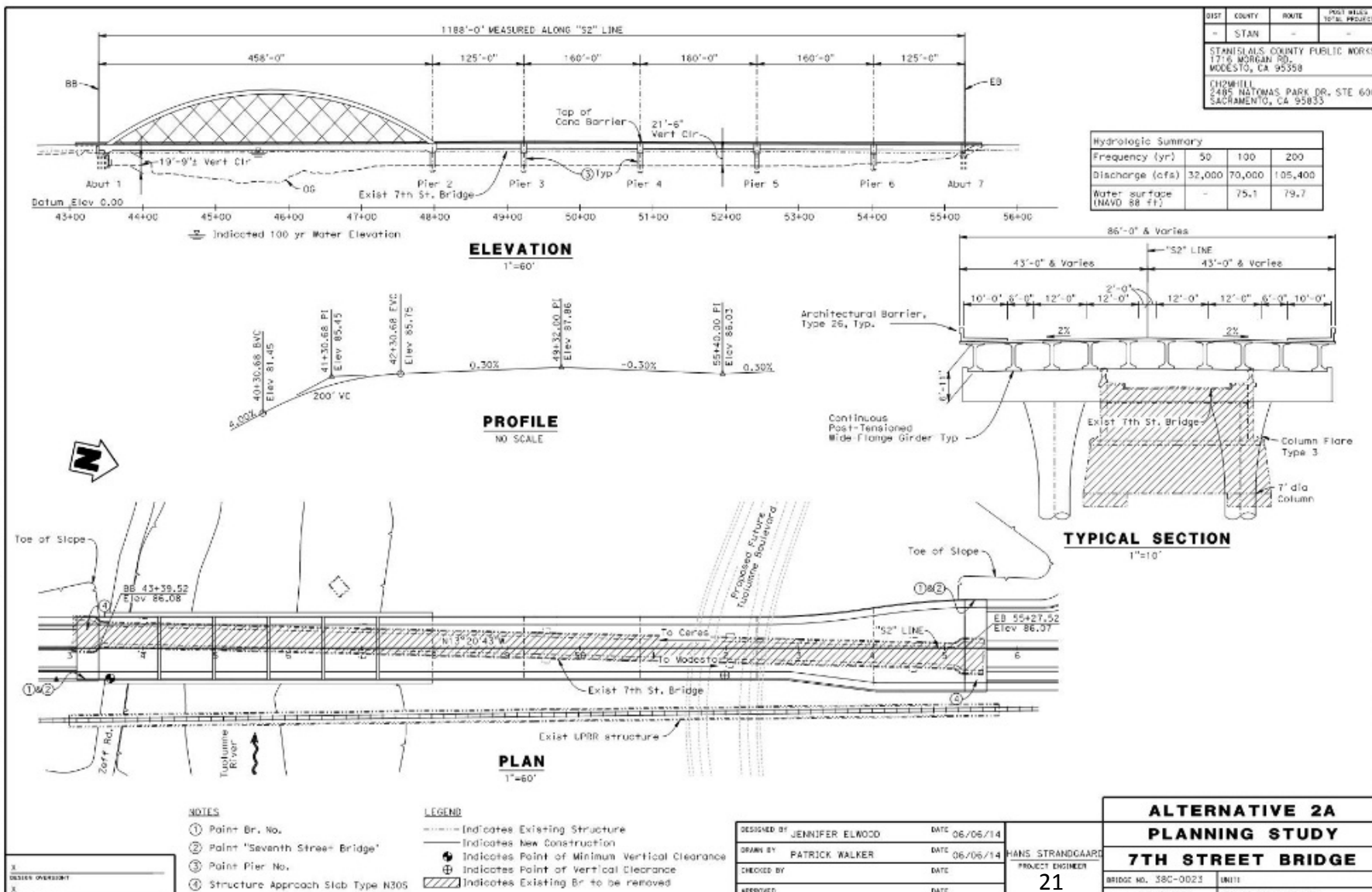


- Temporary bridge crossing
- Seasonal Move-In/Move-Out
- ADA accessible





# Bridge Alternative 2A



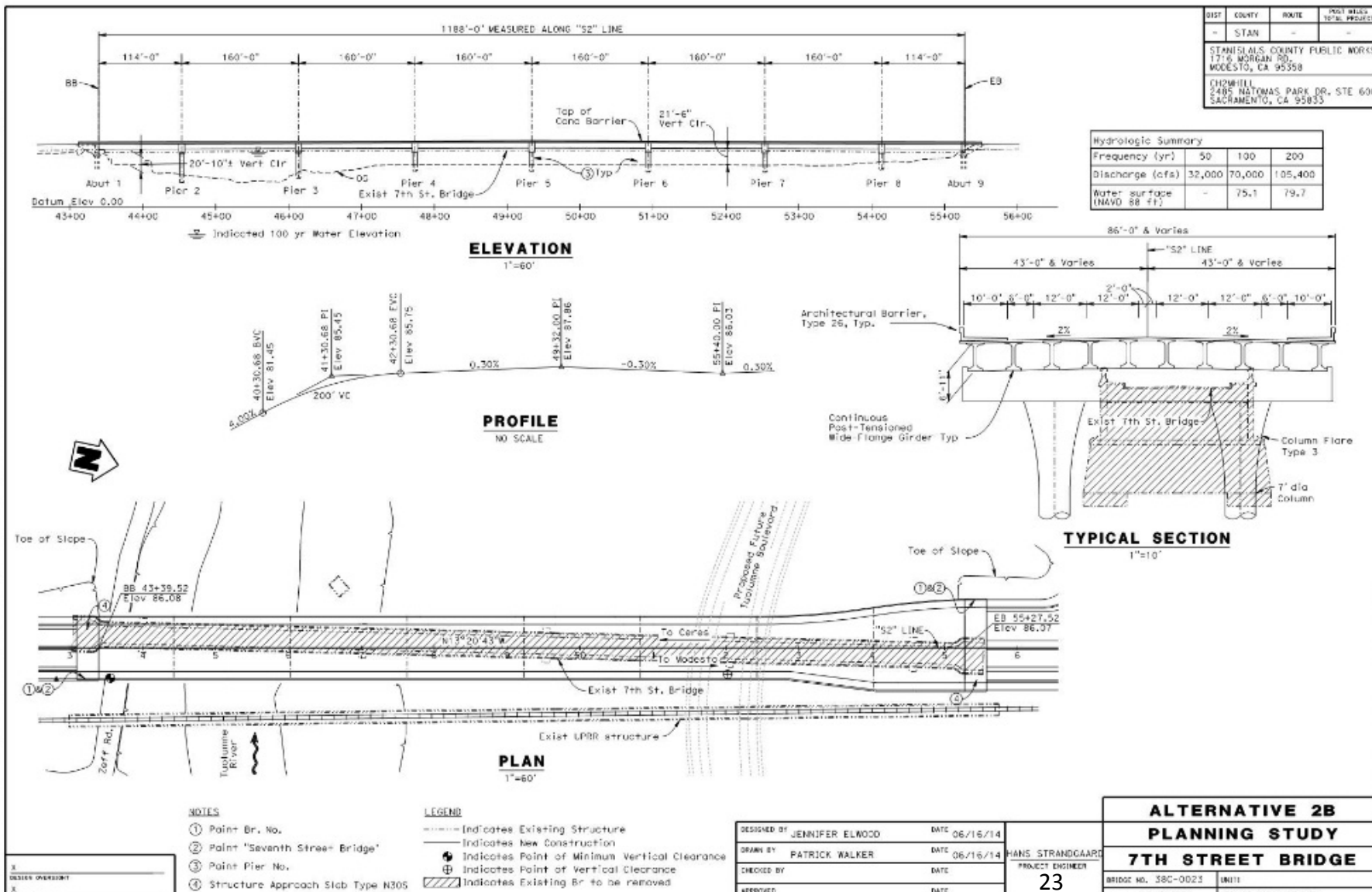
# Bridge Alternative 2A

- 4-lane, complete replacement structure
- Arch span over river
- Precast girder approach spans for cost effectiveness
- 2-stage construction





# Bridge Alternative 2B



# Bridge Alternative 2B

- 4-lane, complete replacement structure
- Full-length precast girder spans for cost effectiveness
- 2-stage construction



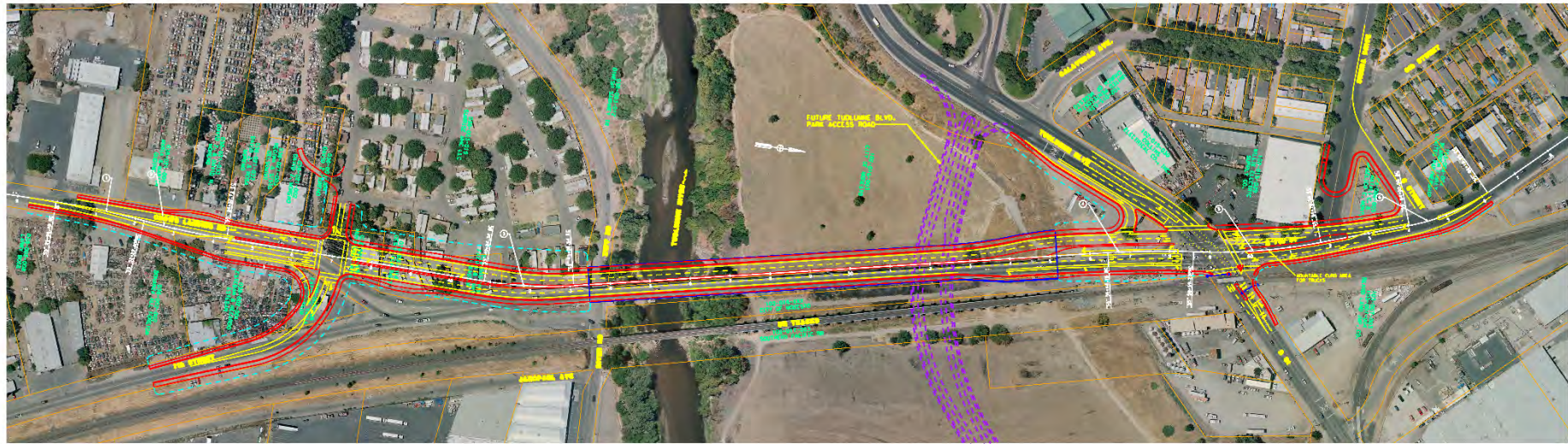


# Alternative 3 - Existing Alignment (Staged)

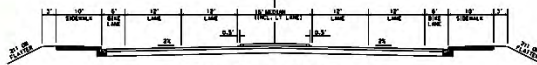
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## 7th STREET BRIDGE REPLACEMENT GEOMETRIC APPROVAL DRAWING (ALT. 3)

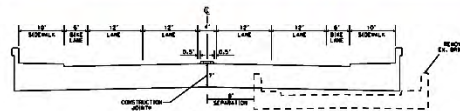
CURVE DATA					
NO.	R	Δ	P	T	L
1	2000.00	90° 00' 15.31"	113.08	223.92	
2	1000.00	90° 00' 15.31"	113.08	223.92	
3	1000.00	90° 00' 15.31"	113.08	223.92	
4	2100.00	90° 00' 15.31"	113.08	223.92	
5	1000.00	90° 00' 15.31"	113.08	223.92	
6	150.00	124° 01' 29.19"	108.60	213.89	



SCALE: 1" = 100'



TYPICAL ROADWAY SECTION



TYPICAL BRIDGE SECTION

APN	OWNER	TOTAL AREA SQ. FT.	TAKEN AREA SQ. FT.	TAKE TYPE
238-002-001	Estacion & Records Estacion	65,112.49	20,611.46	PARTIAL
238-002-002	Guaranga All Foreign	169,853.73	1,860.81	PARTIAL
238-003-005	Munimmed Tappa	18,796.53	18,796.53	FULL
238-003-006	Pattino & Yonjo Rosalee	17,863.36	17,863.36	FULL
238-003-013	Pattino & Yonjo Rosalee	10,616.30	10,616.30	FULL
238-003-014	Cesar Alvarado	15,068.90	15,068.90	FULL
238-003-015	Sumrise INC LLC	431,849.41	129,951.84	PARTIAL/ADJUTIVE
238-021-002	Devco 2, Inc	20,336.34	453.34	PARTIAL
102-015-029	White Electric Supply Co.	79,406.12	5,317.11	PARTIAL/BUILDING TAKE
102-016-003	City of Modesto	676,037.43	66,982.38	PARTIAL
102-016-004	City of Modesto	84,100.04	2,033.50	PARTIAL

BRIDGE WILL BE BUILT IN 2 STAGES MAINTAINING TRAFFIC ALONG 7TH STREET DURING CONSTRUCTION.



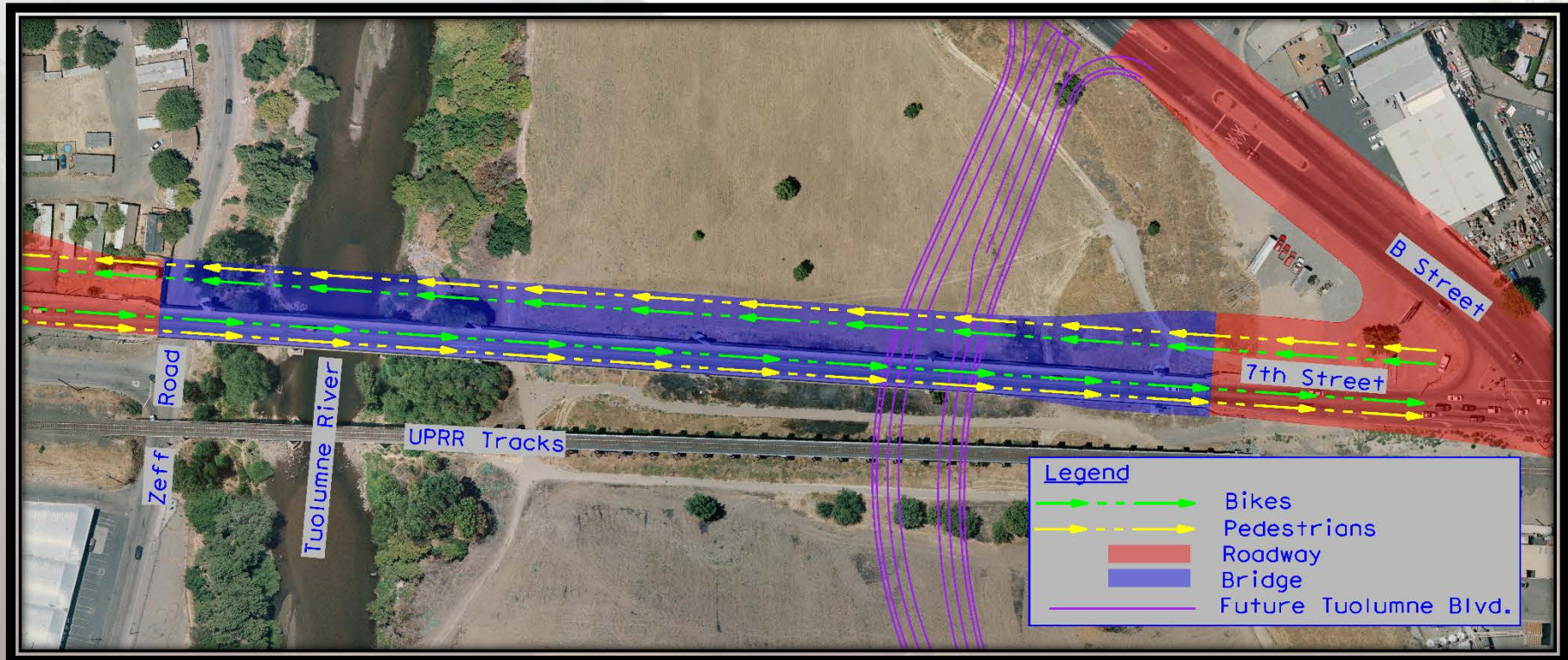
# Alternative 3 - Existing Alignment (Staged)

- Maintains traffic along 7th Street corridor
- Constructs bridge in 2 stages
- Lesser right of way impacts than Alt 1
- Widens B Street at-grade RR crossing for trucks



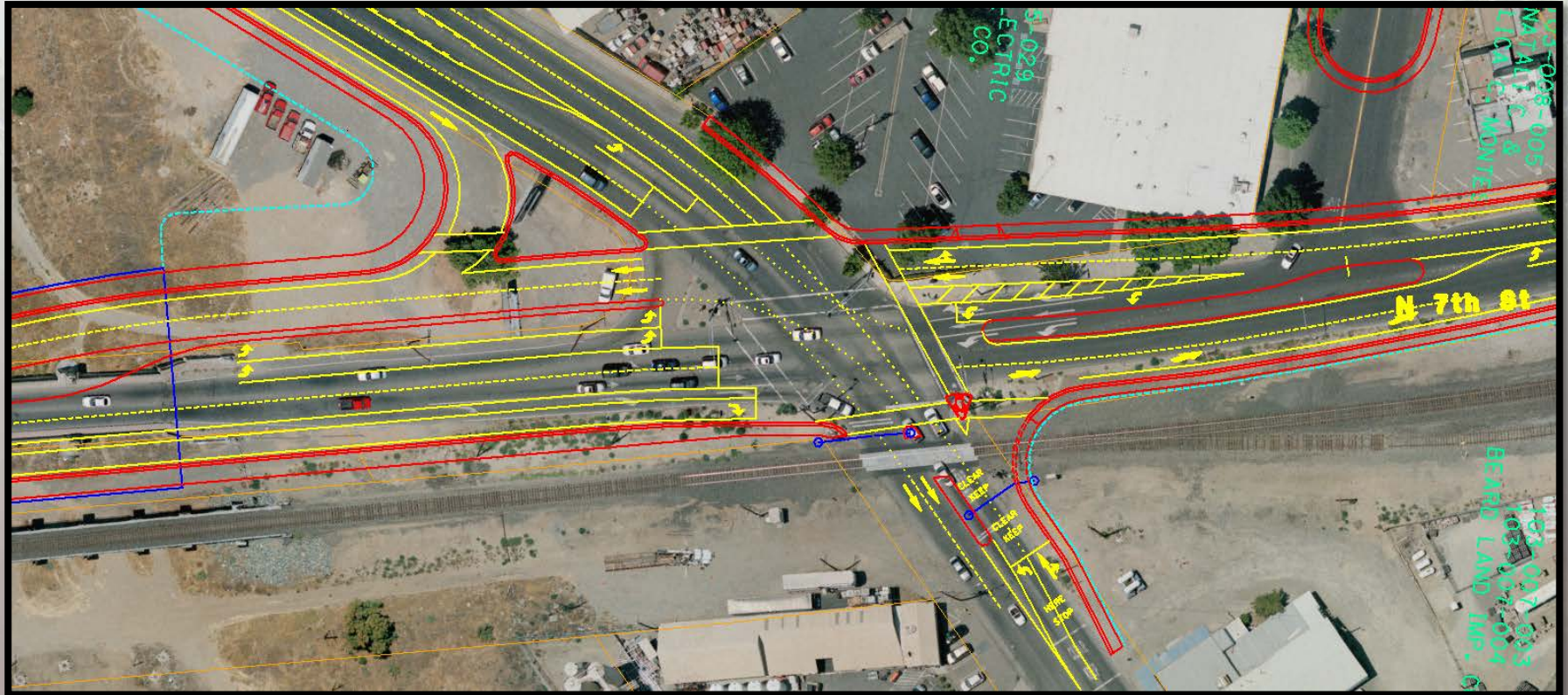


# Alternative 2A/2B & 3 - Bike/Pedestrian Access





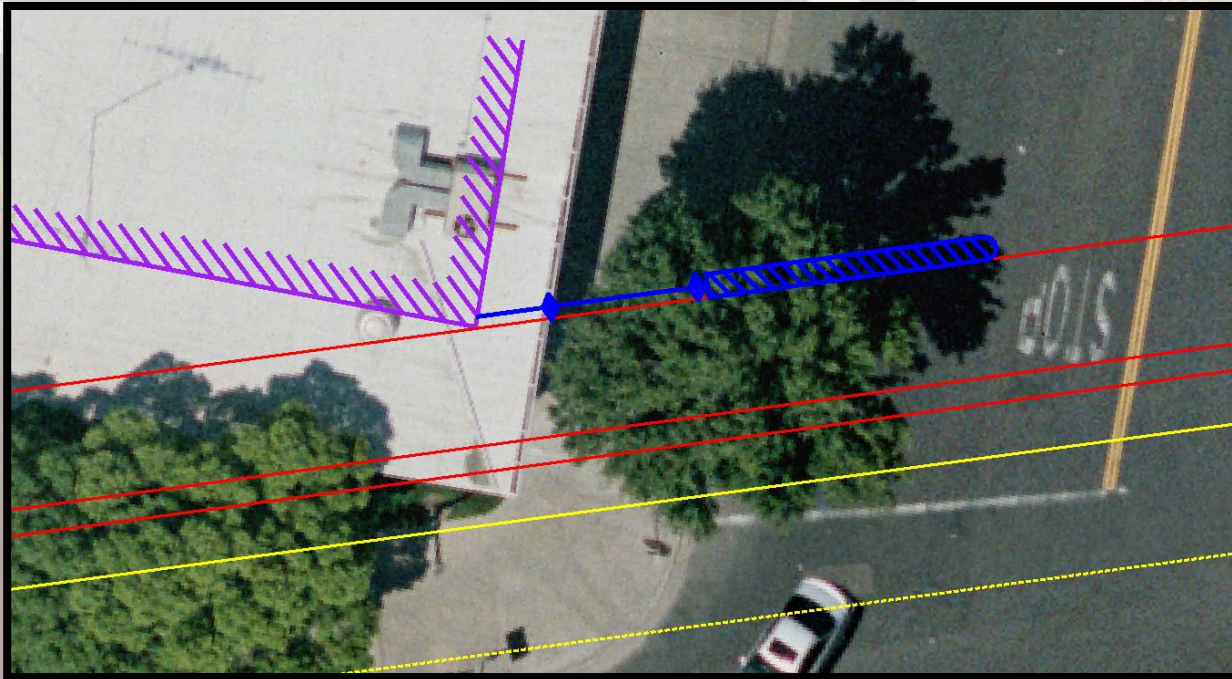
# Alternative 2A/2B & 3 - B Street Intersection





# Wille Building Alts 2A/2B,3, & 4

- Requires overhang modifications
- Building structure impacts
- Protect building corner



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# Bridge Alternative 3

- 4-lane, complete replacement structure
- Full-length concrete box girder
- 2-stage construction



# Alternative 4 - Rehabilitate Existing Bridge

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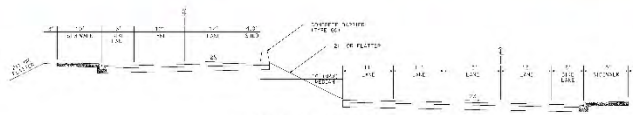
## 7th STREET BRIDGE REPLACEMENT GEOMETRIC APPROVAL DRAWING (ALT. 4)

SCALE: 1" = 100'

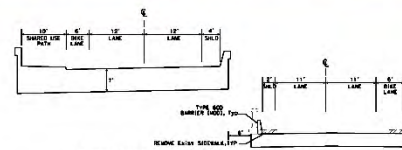


CLIP 101.5

STATION	DATE	BY	REVISION
100+00	07/25/14	JP	1.0.0
100+00	07/25/14	JP	1.0.1
100+00	07/25/14	JP	1.0.2
100+00	07/25/14	JP	1.0.3
100+00	07/25/14	JP	1.0.4
100+00	07/25/14	JP	1.0.5
100+00	07/25/14	JP	1.0.6
100+00	07/25/14	JP	1.0.7
100+00	07/25/14	JP	1.0.8
100+00	07/25/14	JP	1.0.9
100+00	07/25/14	JP	1.0.10



TYPICAL ROADWAY SECTION



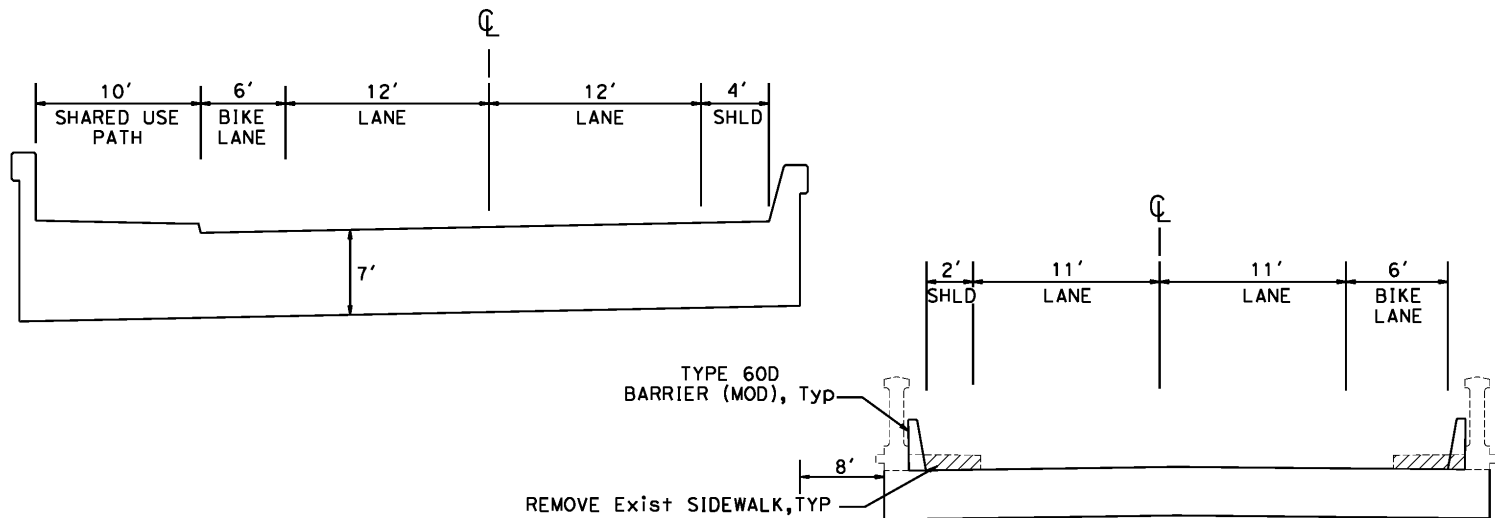
TYPICAL BRIDGE SECTION (ALTERNATIVE 4)

APN	OWNER	TOTAL AREA (SQ. FT.)	TOTAL AREA (SQ. FT.)	TAKE TYPE
033-009-001	Estadex & Record, Estadex	85,123.45	20,811.46	PARTIAL
033-009-002	Benjamin M. Farley	189,283.75	1,882.81	PARTIAL
033-009-003	Murphy & Sons	18,788.23	18,788.23	FULL
033-009-004	Farina & Sons	17,403.38	17,403.38	FULL
033-009-005	Farina & Sons	10,616.30	10,616.30	FULL
033-009-006	Farina & Sons	15,068.08	15,068.08	FULL
033-009-007	Farina & Sons	431,848.41	108,984.41	PARTIAL/SUBSIDIZE
033-009-008	David J. Moreno	20,126.38	48.25	PARTIAL
033-009-009	Willa Electric Supply Co.	79,066.12	5,823.43	PARTIAL/SUBSIDIZE TAKE
033-009-010	City of Modesto	878,271.43	105,400.93	PARTIAL
033-009-011	City of Modesto	54,100.86	1,361.02	PARTIAL
033-009-012	Boone Lane Ind. Co.	228,210.80	2,332.35	PARTIAL
033-009-013	Boone Lane Ind. Co.	228,210.80	2,332.35	PARTIAL
033-009-014	Boone Lane Ind. Co.	228,210.80	2,332.35	PARTIAL





# Alternative 4 - Rehabilitate Existing Bridge



**TYPICAL BRIDGE SECTION (ALTERNATIVE 4)**



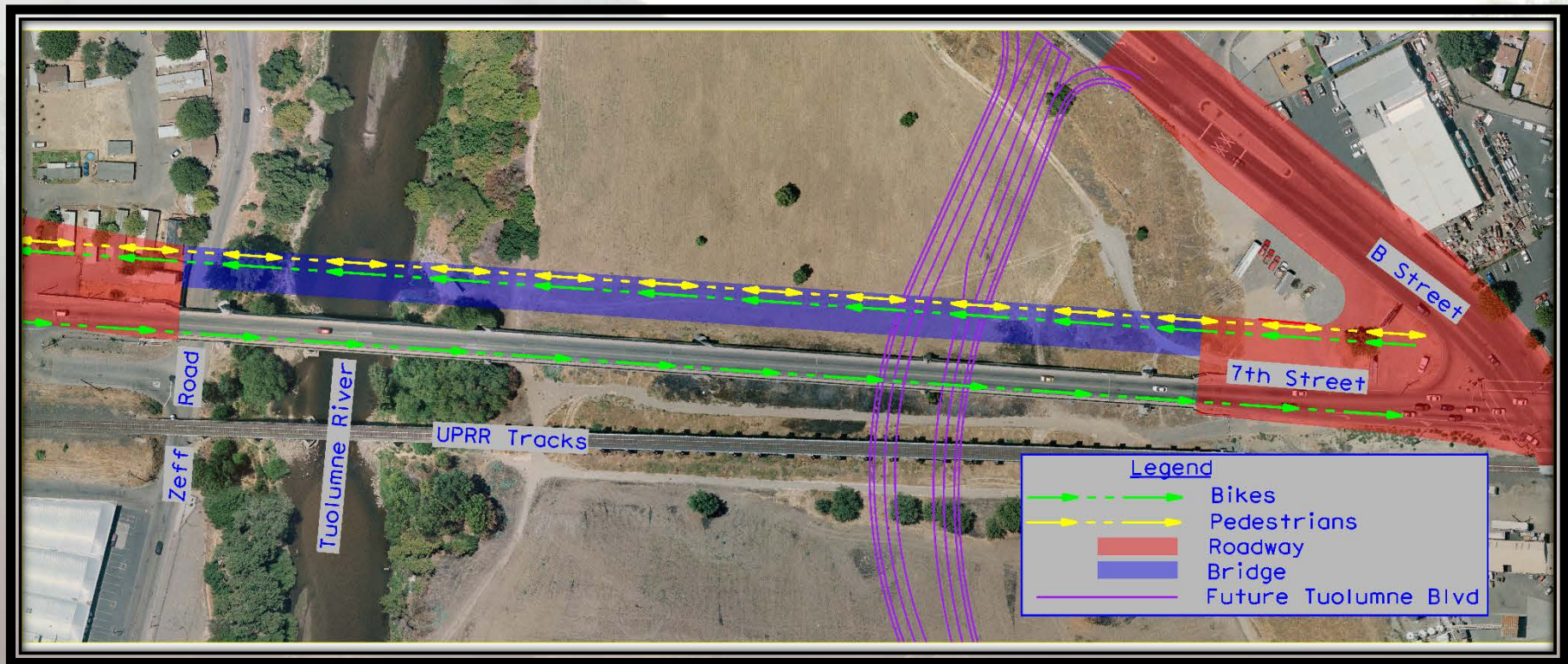
# Alternative 4 - Rehabilitate Existing Bridge

- Maintains traffic along 7th Street corridor
- Constructs bridge in 2 stages
- Lesser right of way impacts
- Widens B Street at-grade RR crossing for trucks
- Pedestrians on new bridge only



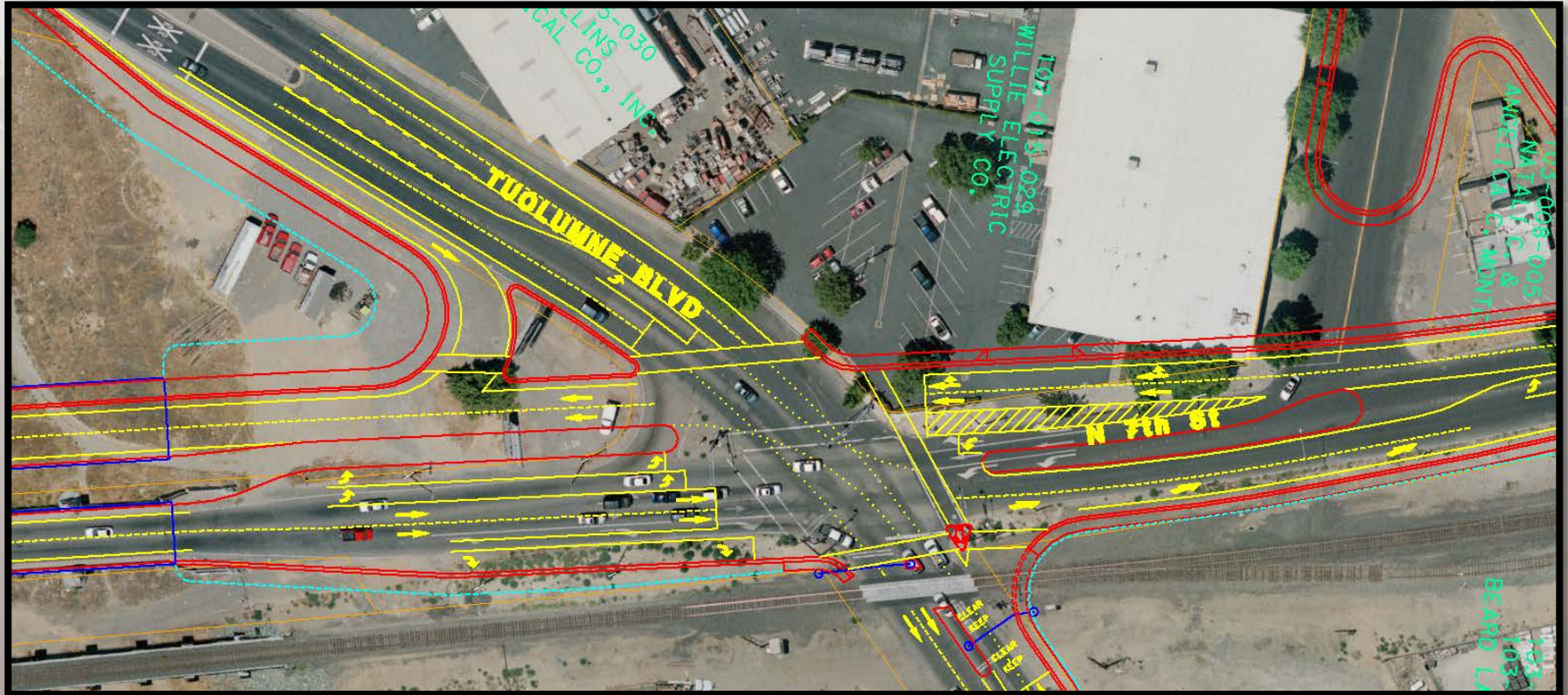


# Alternative 4 - Bike/Pedestrian Access





# Alternative 4 - B Street Intersection





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7th Street Bridge Project



# Bridge Alternative 4

- 2-lane new structure
- Full-length precast box girder
- 2-stage construction





# Traffic Study

## Recap of Previous Findings

- Existing conditions
- Truck traffic
- Expected traffic growth



# Traffic



Eastbound Traffic on Tuolumne Blvd.

***Intersection currently operates  
at Level of Service (LOS) D***

Northbound Traffic on 7<sup>th</sup> Street





# Traffic

## Average Daily Traffic (ADT) – Existing Conditions



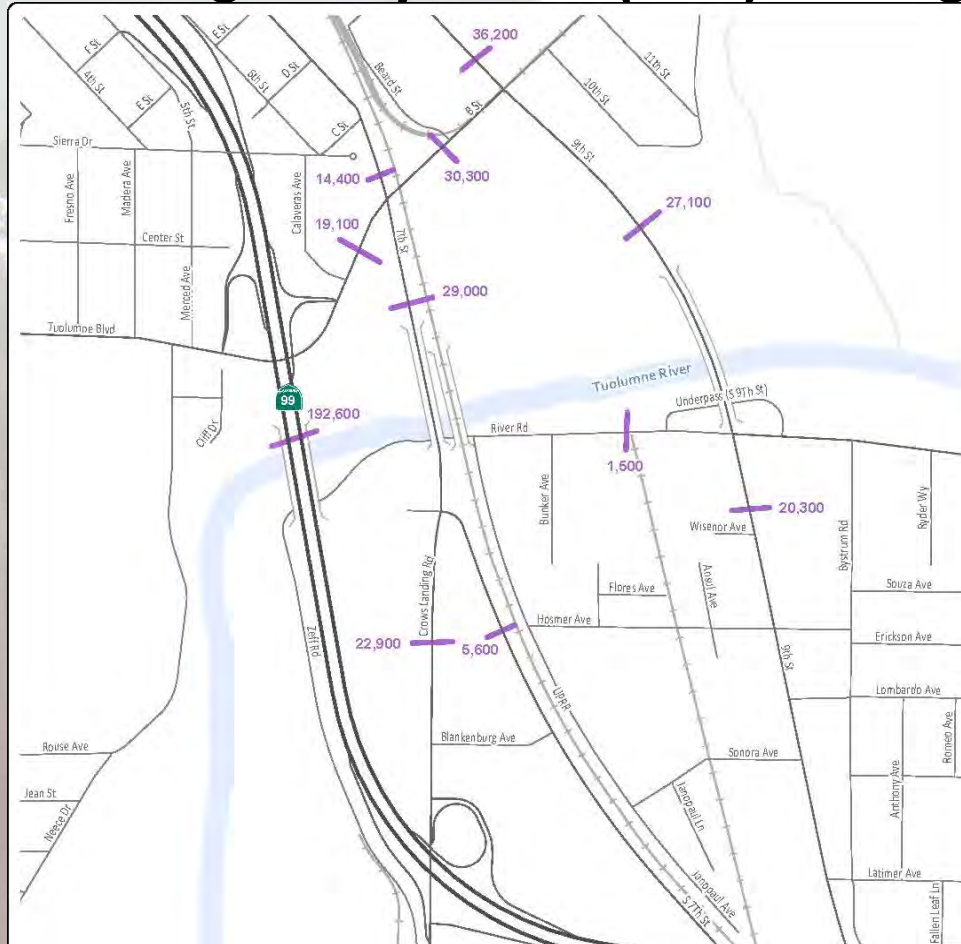
<1% trucks on 7<sup>th</sup> Street Bridge

7% trucks on 9<sup>th</sup> Street Bridge



# Traffic

## Average Daily Traffic (ADT) – Design Year Conditions



Additional Capacity is Needed to Accommodate Planned Growth





# Traffic

## Illustration of proposed lane configurations at 7<sup>th</sup>/B St intersection



## Traffic Operations Results

- Opening Day Conditions
  - Unacceptable operations with no improvements.
  - Acceptable operations with new four-lane bridge and improvements at 7<sup>th</sup>/B and 7<sup>th</sup>/Crows Landing.
- Design Year Conditions





# Traffic

## INTERSECTION OPERATIONS –DESIGN YEAR CONDITIONS

Intersection	Peak Hour	No Project		Plus Project	
		Delay	LOS	Delay	LOS
7 <sup>th</sup> St / H St	AM	17	B	18	B
	PM	23	C	49	D
7 <sup>th</sup> St / G St	AM	21	C	21	C
	PM	17	B	19	B
SR 99 SB Ramps / Tuolumne Blvd	AM	18	B	21	C
	PM	26	C	148	F
SR 99 NB Ramps / Tuolumne Blvd	AM	19	B	11	B
	PM	44	D	28	C
7 <sup>th</sup> St / Sierra Dr	AM	94 (>180)	F (F)	Does Not Exist	
	PM	116 (>180)	F (F)		
7 <sup>th</sup> St / Tuolumne Blvd/B St	AM	91	F	54	D
	PM	199	F	76	E
9 <sup>th</sup> St / B St	AM	110	F	118	F
	PM	99	F	123	F
7 <sup>th</sup> St / River Rd	AM	49 (>180)	E (F)	Does Not Exist	
	PM	110 (>180)	F (F)		
7 <sup>th</sup> St / Crows Landing Rd	AM	11 (75)	B (F)	13	B
	PM	>180 (>180)	F (F)	18	B
SR 99 NB Ramps / Crows Landing Rd	AM	8	A	22	C
	PM	57	E	24	C
SR 99 SB Ramps / Crows Landing Rd	AM	6	A	11	B
	PM	23	C	21	C



# Traffic

## INTERSECTION OPERATIONS –DESIGN YEAR CONDITIONS

Intersection	Peak Hour	No Project		Plus Project	
		Delay	LOS	Delay	LOS
7 <sup>th</sup> St / H St	AM	17	B	18	B
	PM	23	C	49	D
7 <sup>th</sup> St / G St	AM	21	C	21	C
	PM	17	B	19	B
SR 99 SB Ramps / Tuolumne Blvd	AM	18	B	21	C
	PM	26	C	148	F
SR 99 NB Ramps / Tuolumne Blvd	AM	19	B	11	B
	PM	44	D	28	C
7 <sup>th</sup> St / Sierra Dr	AM	94 (>180)	F (F)	Does Not Exist	
	PM	116 (>180)	F (F)		
7 <sup>th</sup> St / Tuolumne Blvd/B St	AM	91	F	54	D
	PM	199	F	76	E
9 <sup>th</sup> St / B St	AM	110	F	118	F
	PM	99	F	123	F
7 <sup>th</sup> St / River Rd	AM	49 (>180)	E (F)	Does Not Exist	
	PM	110 (>180)	F (F)		
7 <sup>th</sup> St / Crows Landing Rd	AM	11 (75)	B (F)	13	B
	PM	>180 (>180)	F (F)	18	B
SR 99 NB Ramps / Crows Landing Rd	AM	8	A	22	C
	PM	57	E	24	C
SR 99 SB Ramps / Crows Landing Rd	AM	6	A	11	B
	PM	23	C	21	C





# Traffic

## DESIGN YEAR OPERATIONS AT 7<sup>TH</sup>/B STREET – PROJECT ALTERNATIVES

Intersection	Peak Hour	Plus Project		Shorter Turn Pockets		Single NB Left-Turn Lane	
		Delay	LOS	Delay	LOS	Delay	LOS
7 <sup>th</sup> St / Tuolumne Blvd/B St	AM	54	D	54	D	47	D
	PM	76	E	88	F	109	F

## DESIGN YEAR OPERATIONS AT 7<sup>TH</sup>/CROWS LANDING – PROJECT ALTERNATIVES

Intersection	Peak Hour	ROW Minimization Alternative		Traditional Four-Way Intersection	
		Delay	LOS	Delay	LOS
7 <sup>th</sup> St / Crows Landing Rd.	AM	13	B	14	B
	PM	18	B	30	C



# Traffic

## NETWORK WIDE PERFORMANCE– DESIGN YEAR CONDITIONS

Measure of Effectiveness	No Project		Plus Project	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Vehicle Hours of Delay (VHD)	323	830	281	544
Total Vehicles Served	11,625	12,135	12,140	13,686
Avg. Delay per Vehicle(Min per vehicle)	1.7	4.1	1.4	2.4





# Environmental

- Key Dates
  - All technical studies complete by mid-September
  - Date for signed FONSI: July 15, 2015
  - Administrative Draft EIR (CEQA Only) due this fall
  - Public Draft EIR released in January 2015
  - EIR process complete 6-8 weeks prior to FONSI



# Bridge

- Previously presented deficiencies and justification for replacement
- Work since then includes:
  - Developed bridge type alternatives
    - Precast concrete wide flange super girders
    - Cast-in-place concrete box girder
    - Tied-arch span over river
  - Seismic analysis of alternatives
  - Cost estimating of alternatives





# Bridge

- Bridge alternatives studied with respect to:
  - Freeboard requirements, 3' over 100 yr flood
  - Scour considerations
  - Seismic requirements including liquefaction
  - Ability to integrate aesthetics into the design



# Bridge Cost Estimates

- Cost estimates of Alternatives (bridge only)
  - **Alternative 2A:** 4-lane, arch river span, precast girder approaches, no staging
    - \$53.9 million
  - **Alternative 2B:** 4-lane, full length precast girders, no staging
    - \$23.3 million
  - **Alternative 3:** 4-lane, full length box girder, staged
    - \$32.3 million
  - **Alternative 4:** Retrofit/rehabilitate existing bridge plus 2-lane, full length precast girder, retrofit follows precast bridge completion
    - \$33.3 million





# Construction Cost Estimates

<u>Alternative #</u>	<u>Description</u>	<u>Construction Cost</u>
2A	Exist. Alignment(Arch Span)	\$67.6 Million
2B	Exist. Alignment(Precast)	\$37.0 Million
3	Staged Construction	\$48.0 Million
4	Rehabilitate Existing Bridge	\$47.5 Million



# Alternatives Discussion

- Desire to carry forward a small range of alternatives (no more than four, and preferably less)
- This is first cut at packaging alignment and bridge options into a reasonable range of alternatives for study





# Arched Span with Approaches



# Other Agenda Items

- Schedule Next CAG Meeting



# Construction Durations

- All alternatives begin construction March 2017 with any in-water work only allowed June 15 to October 15,
- - **Alternative 2A:** 4-lane, arch river span, precast girder approaches, no staging, complete October 2019 **(2.5 years)**
  - **Alternative 2B:** 4-lane, full length precast girders, no staging, complete December 2018 **(1.75 years)**
  - **Alternative 3:** 4-lane, full length box girder, staged, complete October 2019 **(2.5 years)**
  - **Alternative 4:** Retrofit/rehabilitate existing bridge plus 2-lane, full length precast girder, precast bridge must be complete before beginning retrofit of existing bridge, complete March 2020 **(3 years)**

