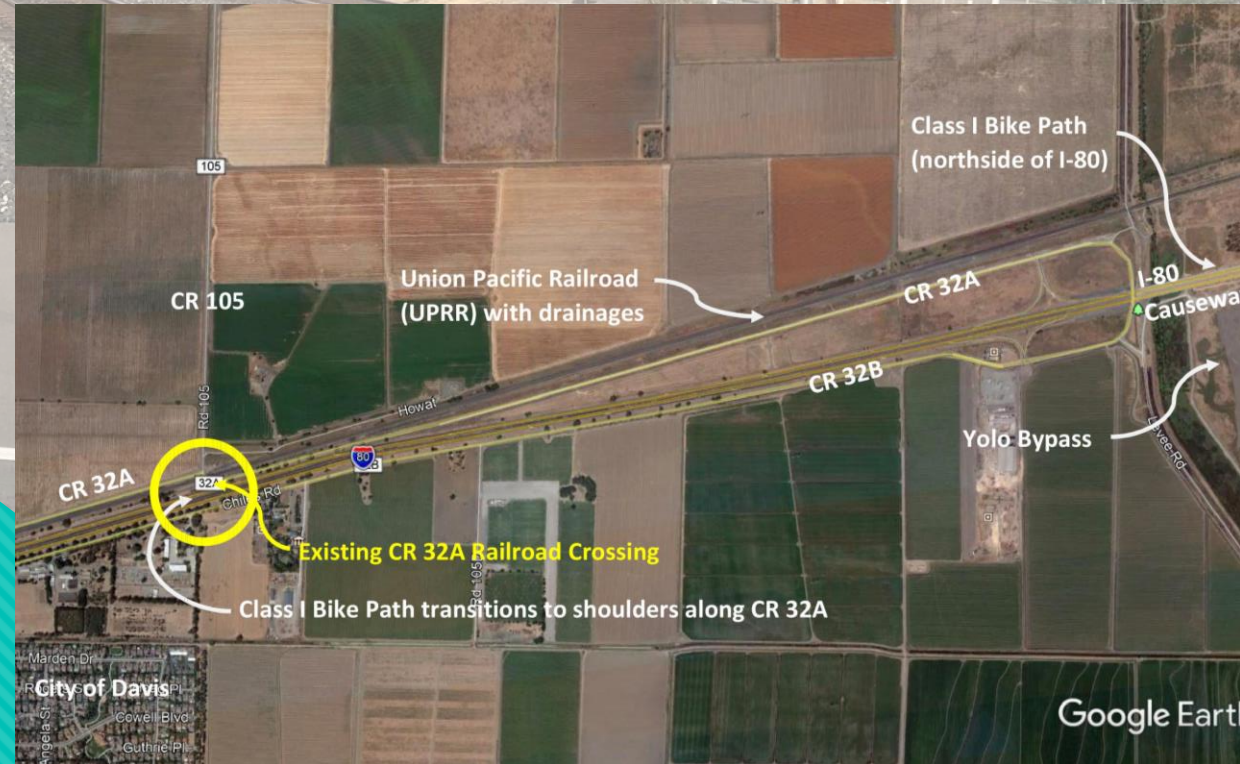


# County Road (CR) 32A Railroad Crossing Relocation Project Study Report

A presentation to the Board of Supervisors  
November 9, 2021

## Agenda

- Project Background
- Purpose and Need
- Design Constraints
- Alternatives Considered
- Preferred Alternative
- Next Steps for Funding



# Project Background

**County and City of Davis obtained a Community Design Grant from SACOG March 20, 2019**

- MOU (Yolo C. Agreement 16-61) with SACOG, the County and the City of Davis, April 26, 2019
- RFP for Project Study Report and Project Development Support issued by County in July 2019
- Notice to proceed to TYLin on October 8, 2019
- Public Meetings held in August and November 2020 including a Bike Focus Meeting
- Multiple Stakeholder Meetings held with the Project Development Team including: City of Davis, Farm Bureau, UPRR, CPUC, Bike Davis
- 30%, 60%, 90%, Draft Final and Final Project Study Report circulated for comments
- Final Report issued for approval September 2, 2021

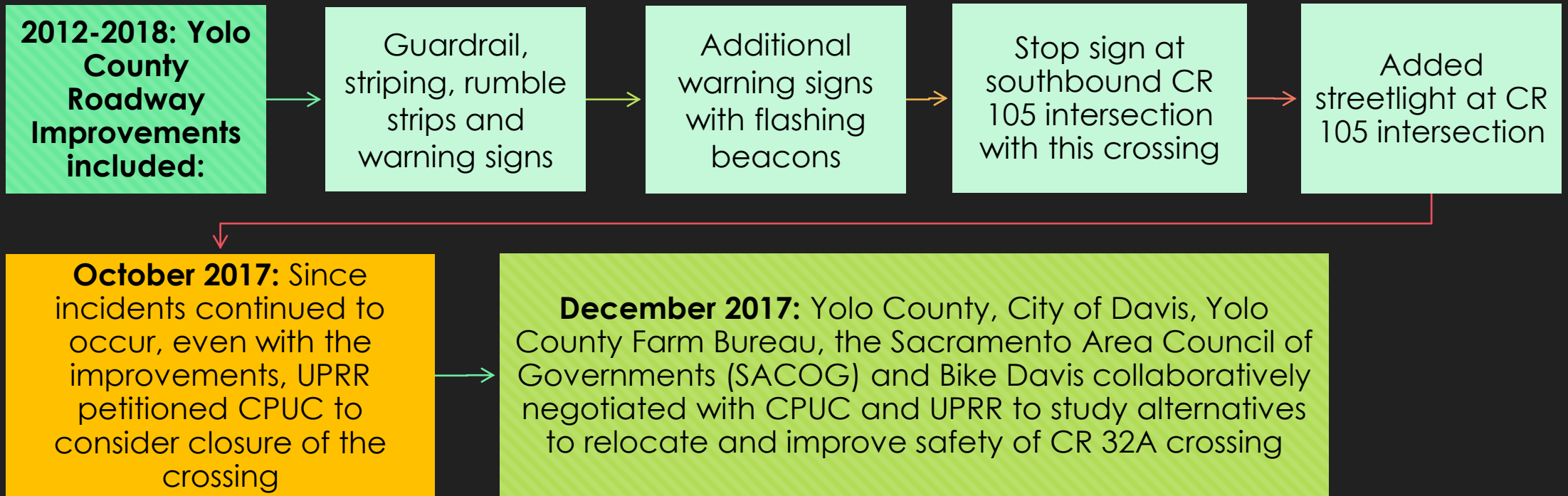
# Study's Purpose is to...

**Investigate alternatives to relocate the CR 32A railroad crossing to improve safety and address the current conflicts experienced between trains, vehicles, and bicycles**

# Project Need

- Current crossing location prohibits standard roadway geometric design
- Westbound incidents have resulted in some vehicles sliding off the roadway into the active railroad corridor
- Traffic safety measures have not reduced the occurrence of incidents at this crossing
- Traffic is expected to increase on CR 32A due to anticipated development within a mile of the existing crossing
- CR 32A provides a critical route for over-sized farm equipment to access land north and south of Interstate 80 (i-80), for bicycle access between Davis and Sacramento, and for waste hauling to the Yolo County Landfill

# Project Background





# Project Area Constraints



# Project Area Opportunities and Considerations

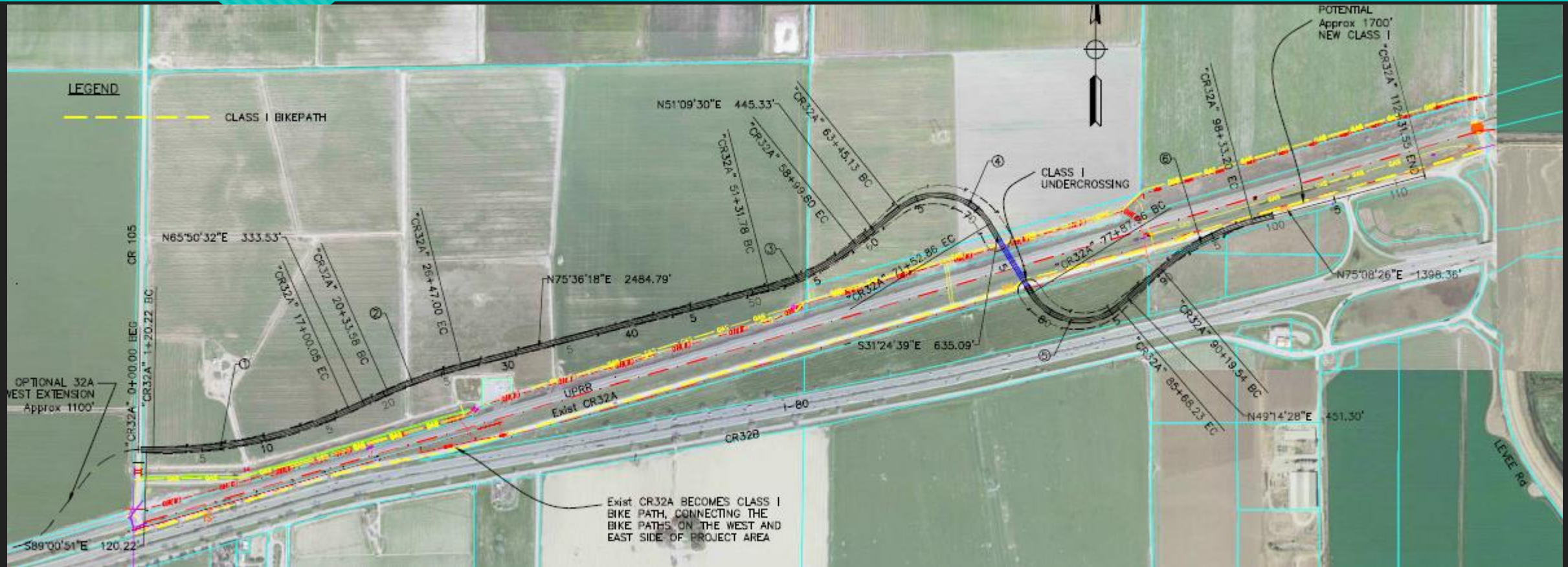
**Seven alternatives were initially considered through the report development process...an eighth alternative was later added**

- 4 Alternative Overcrossing concepts (bridges over the tracks)
- 2 Alternative At-grade Crossing concepts (improved intersections with automatic gates)
- 2 Alternative Undercrossing concepts (tunnels under the tracks)

## **Key Project Design Considerations:**

- Roadway geometry (changes in grade, turning radii, design speed)
- Stacking distance relative to the east bound I-80 on-ramp
- Vertical clearance for railroad overcrossing must be 23 feet
- Undercrossing requires pumping plant to remove drainage; in addition, siphons would be needed for agricultural/storm drainages to pass under the depressed roadway
- Consider impacts to existing biking facilities and possible safety enhancements
- Avoid impacts to gas substation, farmlands and environmental resources
- Avoid high cost utility relocations
- Minimize right-of-way needs
- Funding unknown – construction costs may dictate project alternative or exploration of phased construction

# Alternative 8, added as a result of comments, became the preferred alternative of the stakeholder group and also scored highest



# Advantages of Alternative 8

- Curvilinear alignment and vertical curve will act as a form of traffic calming for motorists, encouraging slower driving.
- Crosses the tracks almost perpendicularly, which reduced bridge costs
- Slower 40mph design speed is safer for cyclists using the roadway compared to higher speed alternatives.

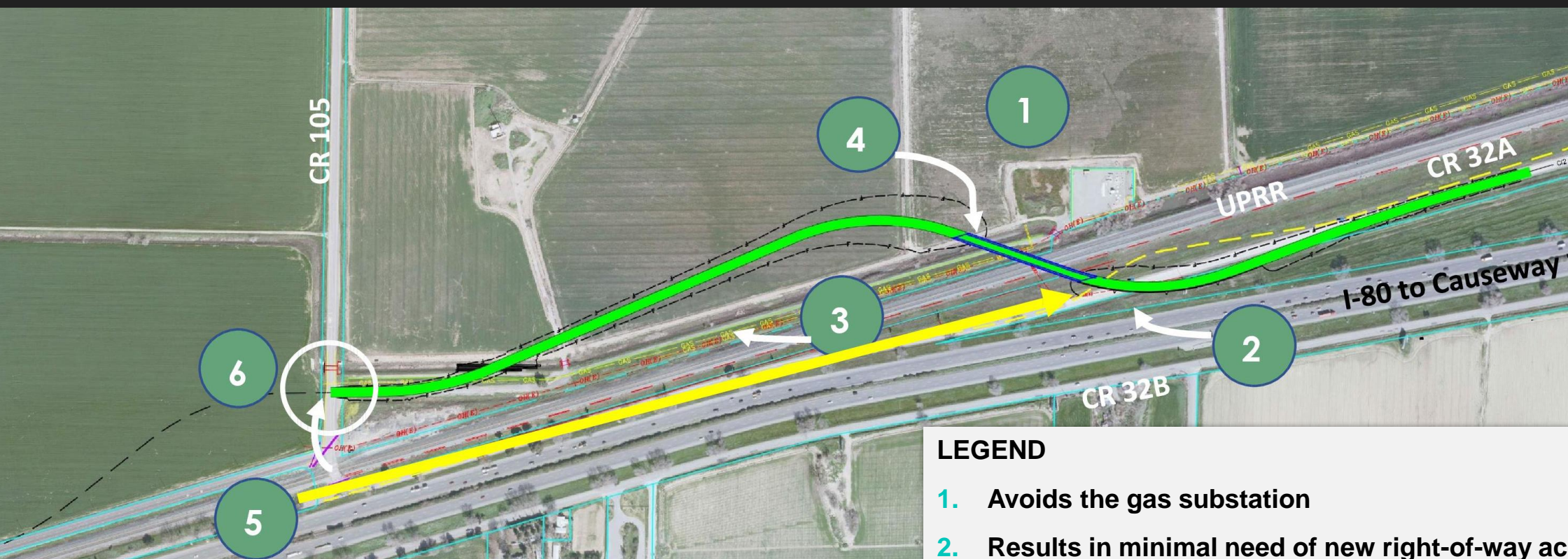


Similar Grade Separation Project in Lathrop, CA

# Next Steps

- Begin pursuing funding for Alternative 8
- Prepare to develop grant applications for the U.S. DOT Consolidated Rail Infrastructure and Safety Improvements Program (*existing – up to \$1 billion annually*) and the Railroad Crossing Elimination Program (*pending - \$800 million annually*)

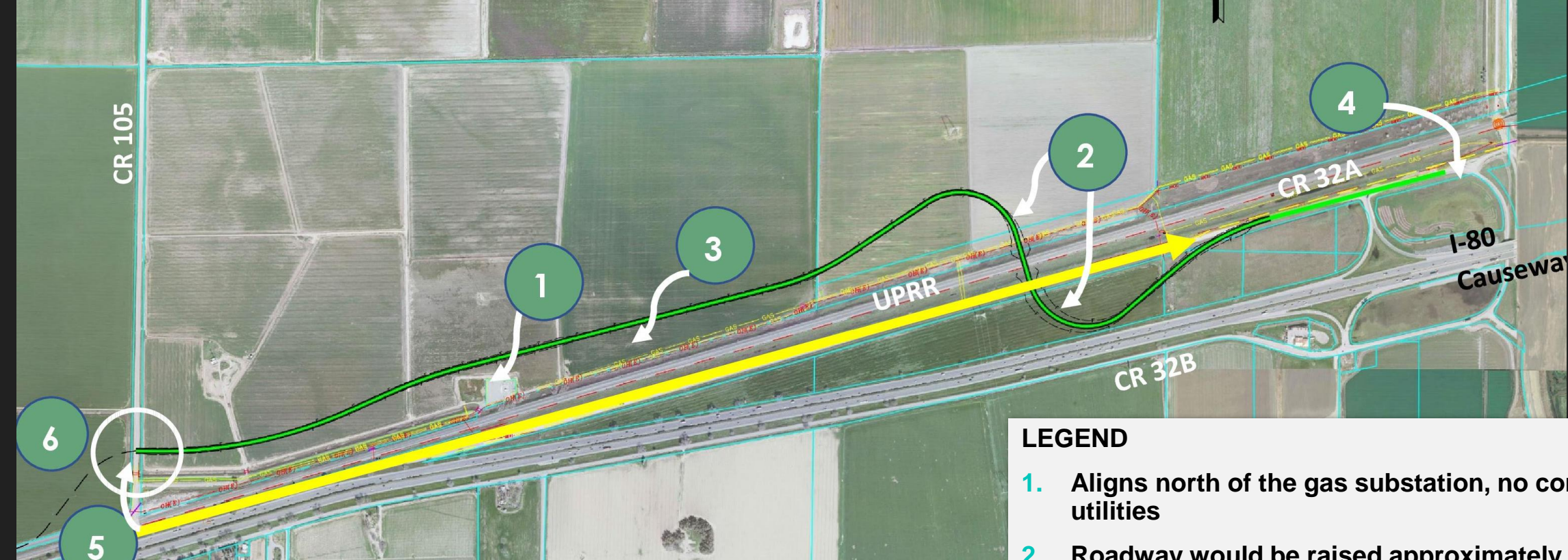
# Back-Up Slides



- LEGEND**
1. Avoids the gas substation
  2. Results in minimal need of new right-of-way acquisition
  3. Avoids impacting most utilities, except may require relocating overhead power lines
  4. Skewed crossing is relatively short bridge structure but still may conflict with gas pipeline and railroad right-of-way
  5. Class I bike path would be extended approximately 1.5 miles up to the new crossing location using the existing CR 32A that will be abandoned. The path would pass under the new CR 32A alignment, and the remainder of the bike path from the overhead crossing to the causeway will remain a class II until further development
  6. Shifts CR 32A intersection with CR 105 slightly north

# Alternative 1: Overhead Crossing, Design Speed 50 MPH

Crossing shifted approx. 0.5 mile east  
Skewed crossing

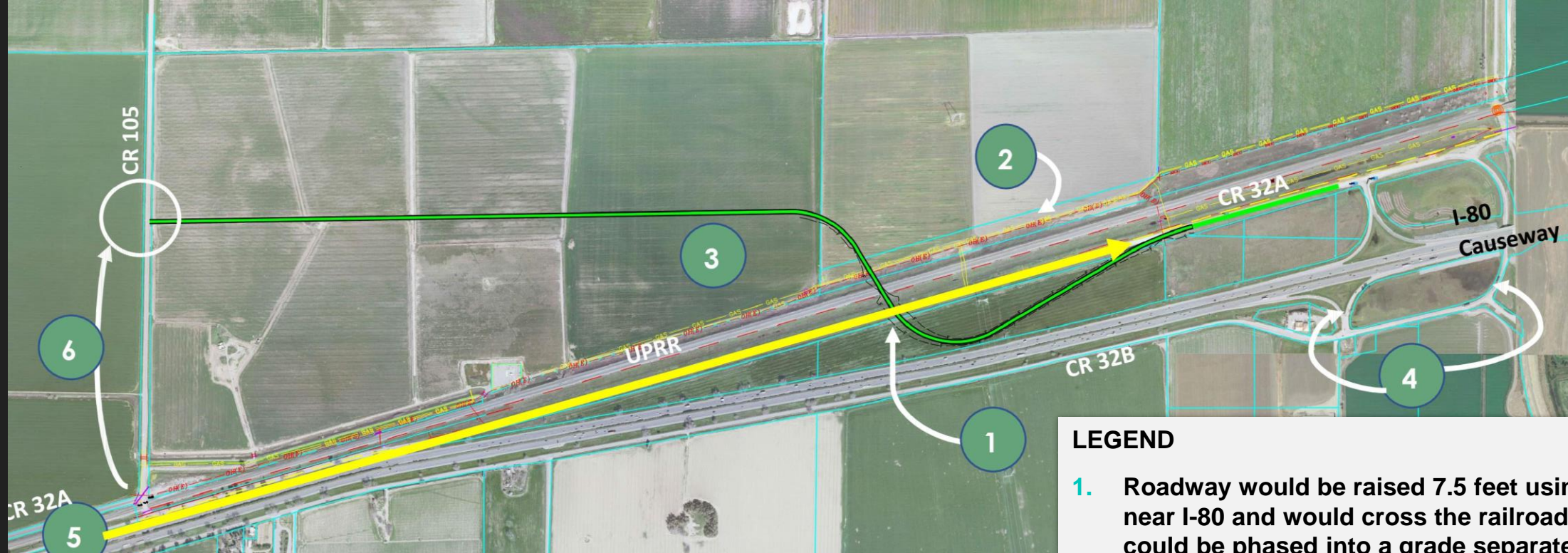


#### LEGEND

1. Aligns north of the gas substation, no conflict with utilities
2. Roadway would be raised approximately 7.5 feet using retaining walls to cross the railroad at-grade
3. Requires extensive ROW acquisition and would leave remnant farmlands between new CR 32A and UPRR that would be difficult to continue farming
4. Queuing distance is approximately 5,500 feet to the east bound I-80 on-ramp
5. Class I bike path would be extended approximately 2.1 miles longer using the existing CR 32A roadway and the path would pass under the new CR 32A alignment through a large culvert pipe
6. Shifts CR 32A intersection with CR 105 slightly north

## Alternative 2: At-grade Crossing, Design Speed 40 MPH

Crossing shifted approx. 1.7 miles east  
Perpendicular crossing at railroad

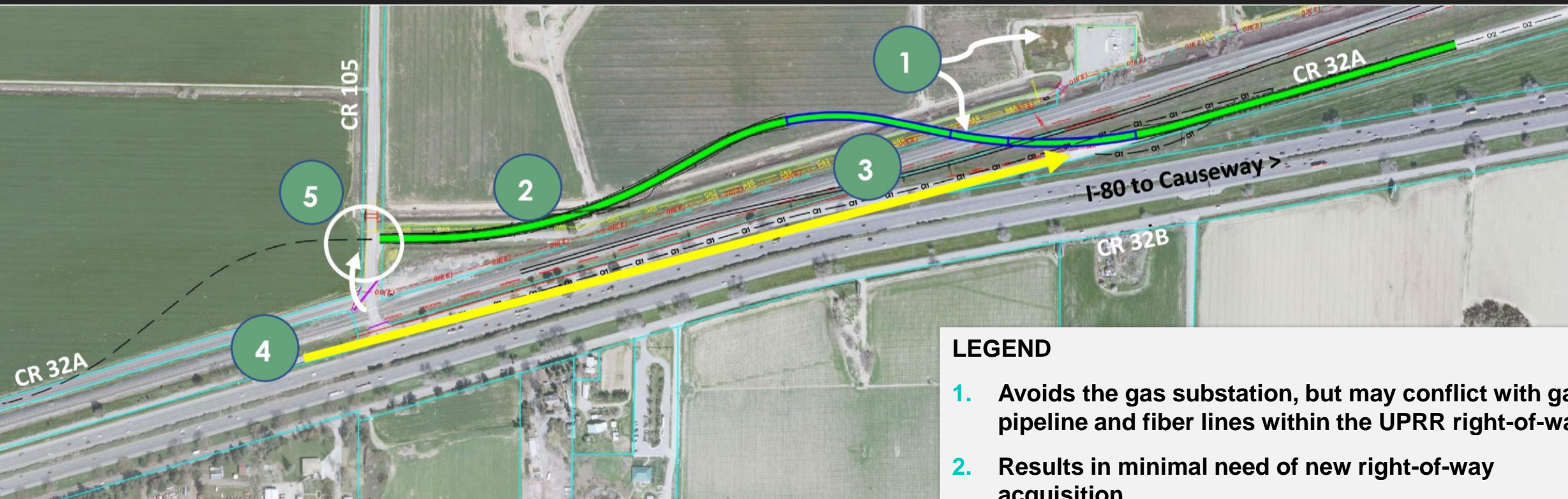


#### LEGEND

1. Roadway would be raised 7.5 feet using retaining walls near I-80 and would cross the railroad at-grade which could be phased into a grade separated overcrossing
2. No conflict with utilities
3. Requires new right-of-way, but alignment allows for farming to continue on either side of CR 32A
4. Queuing distance is approximately 7,000 feet to the east bound I-80 on-ramp
5. Class I bike path would be extended approximately 2.1 miles longer using the existing CR 32A roadway and the path would pass under the new CR 32A alignment through a large culvert pipe
6. New intersection at CR 105 would be about 0.4 miles north of the current crossing

## Alternative 3: At-grade Crossing, Design Speed 45 MPH

Crossing shifted approx. 1.6 miles east  
Nearly perpendicular crossing at railroad

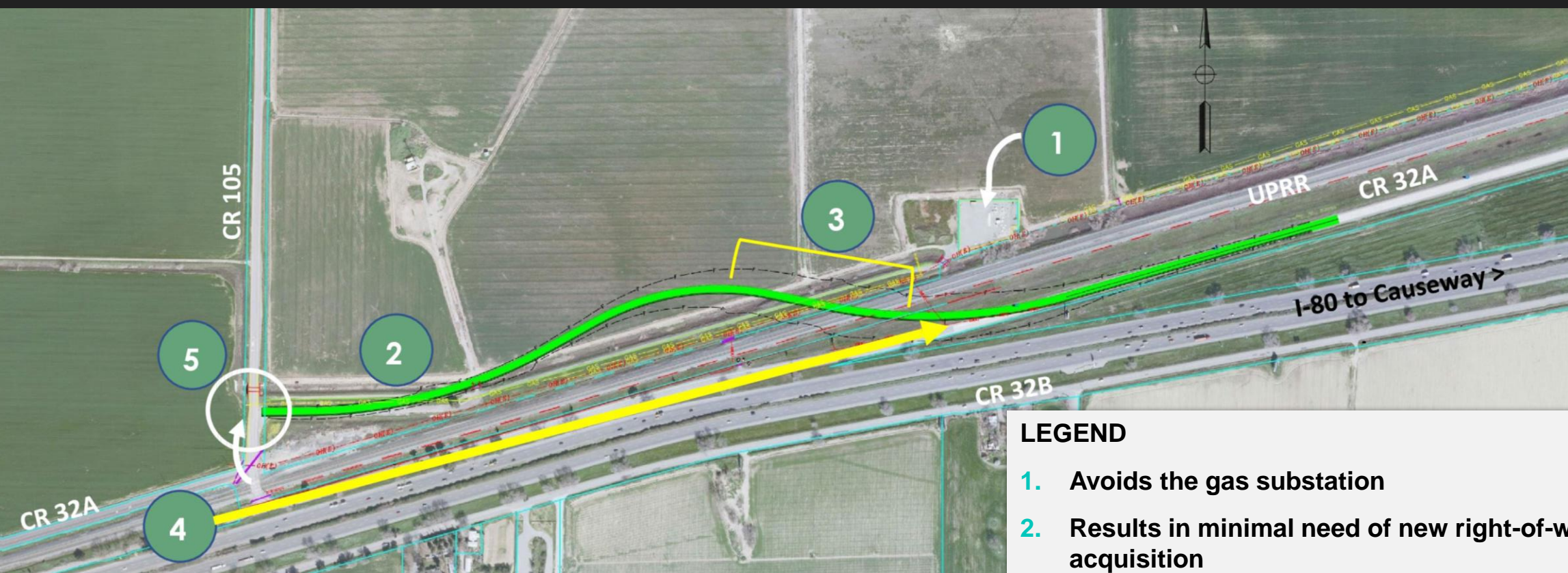


#### LEGEND

1. Avoids the gas substation, but may conflict with gas pipeline and fiber lines within the UPRR right-of-way
2. Results in minimal need of new right-of-way acquisition
3. Pumping plant needed to remove storm water from undercrossing; siphons needed to move agricultural/storm ditch water under new roadway
4. Class I bike path would be extended approximately 0.33 mile longer using the existing CR 32A roadway and would convert to Class II path where it rejoins the vehicular roadway on CR 32A
5. Shifts CR 32A intersection with CR 105 slightly north

## Alternative 4: Undercrossing, Design Speed 55 MPH

Crossing shifted approx. 0.5 mile east  
Skewed crossing

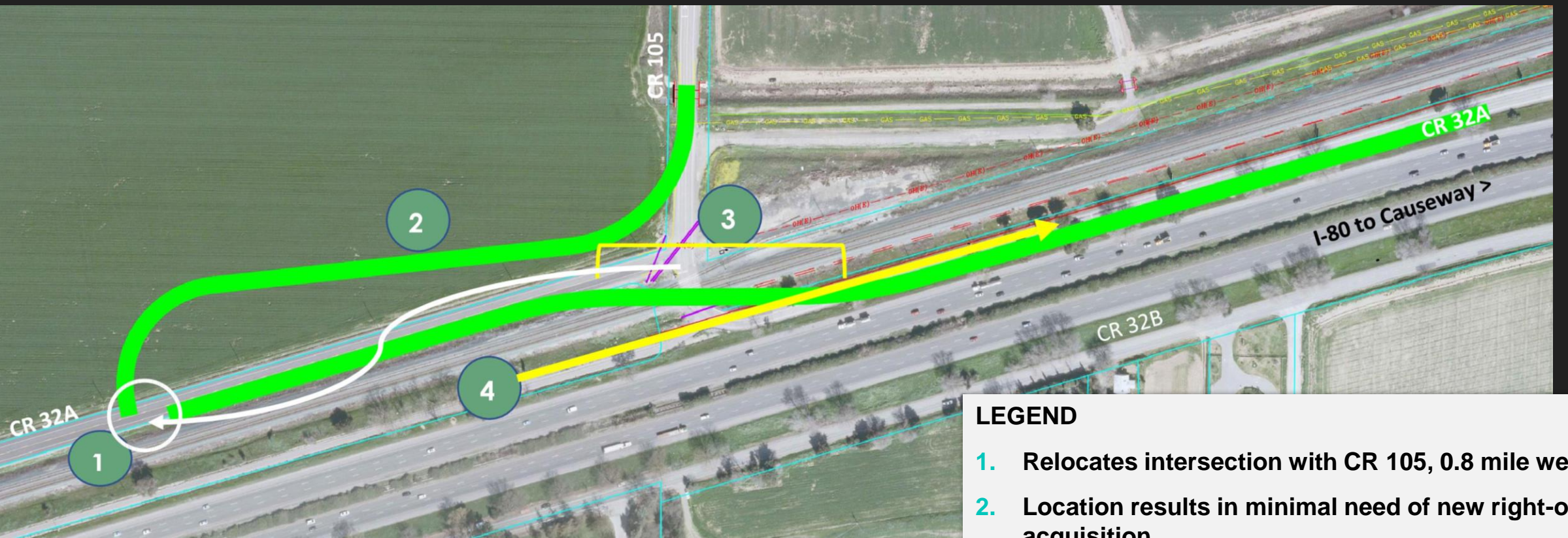


**LEGEND**

- 1. Avoids the gas substation
- 2. Results in minimal need of new right-of-way acquisition
- 3. **Skewed crossing results in very long bridge structure which requires bridge columns that may conflict with gas pipeline or fiber lines within UPRR right-of-way**
- 4. Class I bike path would be extended approximately 0.44 mile longer using the existing CR 32A roadway and would convert to Class II path where it rejoins the vehicular roadway on CR 32A
- 5. Shifts CR 32A intersection with CR 105 slightly north

**Alternative 5: Overhead Crossing,  
Design Speed 55 MPH**

Crossing shifted approx. 0.5 mile east  
Skewed crossing

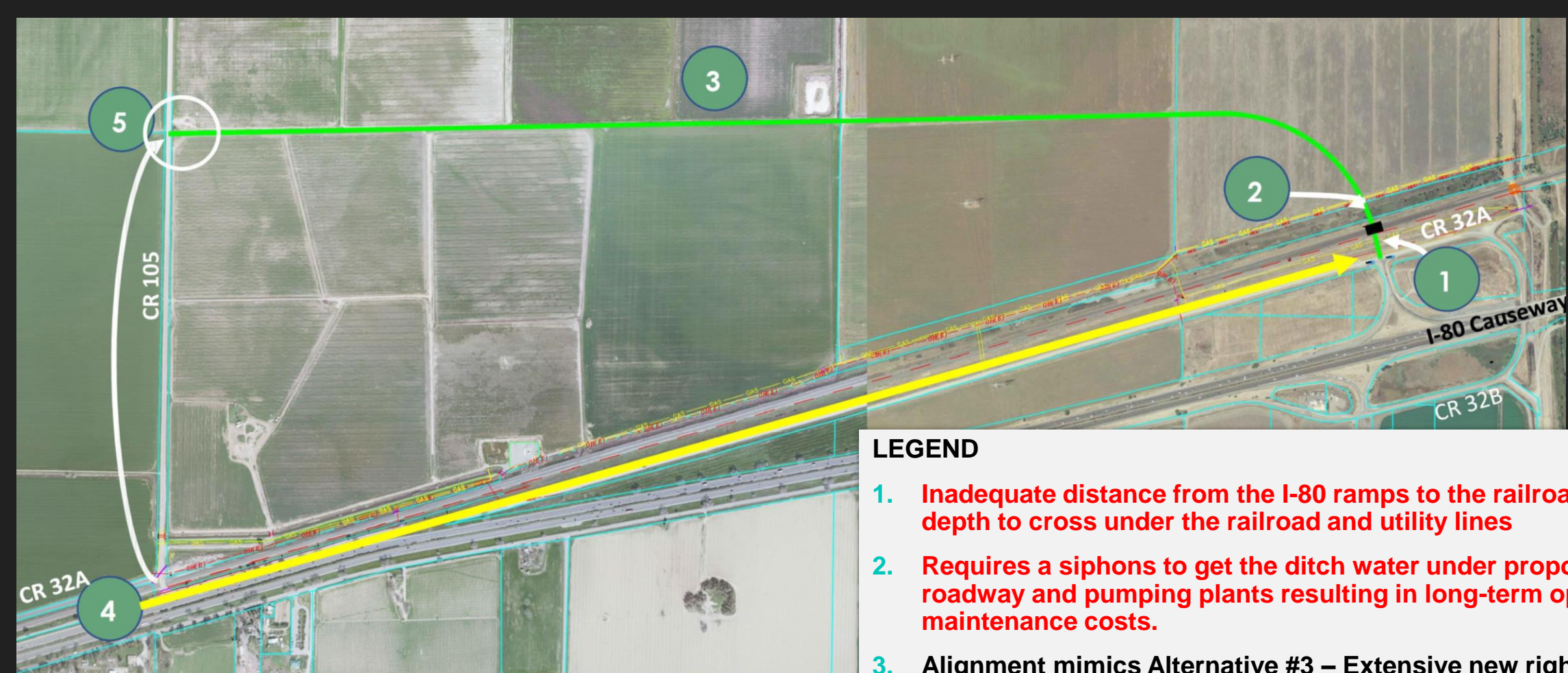


### LEGEND

- 1. Relocates intersection with CR 105, 0.8 mile west
- 2. Location results in minimal need of new right-of-way acquisition
- 3. **Skewed crossing results in very long bridge structure which requires bridge columns that may conflict with gas pipeline or fiber lines within UPRR right-of-way**
- 4. Class I bike path would be lengthened approximately 0.33 miles, and would convert to Class II path where it rejoins the vehicular roadway on CR 32A

## Alternative 6: Overhead Crossing, Design Speed 55 MPH

No shift in crossing location  
Skewed crossing



## LEGEND

1. Inadequate distance from the I-80 ramps to the railroad to meet depth to cross under the railroad and utility lines
2. Requires a siphons to get the ditch water under proposed new roadway and pumping plants resulting in long-term operation and maintenance costs.
3. Alignment mimics Alternative #3 – Extensive new right-of-way, but alignment allows for farming to continue on either side of CR 32A
4. Class I bike path would use existing CR 32A for entire length (approximately 2.1 miles), pass over new depressed roadway to the I-80 bike path
5. New Intersection at CR 105 would be about 0.6 miles north of the current crossing

# Alternative 7: Undercrossing, Design Speed 55 MPH

Crossing shifted approx. 1.8 miles east  
Perpendicular crossing

# RANKING

## Alternatives Comparison Matrix

Project: CR32A Project Study Report  
 Project Element Comparison of Alts 1,2,3 and 8

### Performance Criteria Weighting Factors

	B	C	D	E	F	G	H	Performance Criteria	Overall Score	Calculated Weighting	Adjusted Weighting
A	A	A	A	A	A	A	A	Safety Improvement	19	37	35
	3	3	2	3	2	3	3				
B	B	D	B	F	G	H	Bicycle Alignment	3	6	5	
	1	1	2	2	2	1					
C	C	C	F	G	H	ROW Cost	2	4	5		
	1	1	2	1	1						
D	D	F	G	H	Agricultural Impacts	3	6	10			
	2	3	2	2							
E	F	G	H	Maintenance	0	0	5				
	3	2	1								
F	F	F	RR Acceptance	12	23	15					
	1	1									
G	G	Capital Cost	8	15	15						
	1										
H	H	Grant Funding	5	10	10						
									100	100	

**Relative Importance Score:**  
 1 = Slightly more important  
 2 = Moderately more important  
 3 = Much more important

### Alternatives Ranking

Performance Scoring
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# RANKING

## Alternatives Comparison Matrix

**Project:** CR32A Project Study Report

**Project Element Comparison of Alts 1,2,3 and 8**

**Scores:**

- 1 = Low
- 2 = Low-Medium
- 3 = Medium
- 4 = Medium-High
- 5 = High

Alternatives	Weighting:	Safety Improvement	Bicycle Alignment	ROW Cost	Agricultural Impacts	Maintenance	RR Acceptance	Capital Cost	Grant Funding	Score	Rank
		35	5	5	10	5	15	15	10		
Alt 1		4	2	3	3	2	4	1	3	310	2
Alt 2		2	4	1	1	2	1	2	1	170	3
Alt 3		1	3	3	2	3	1	3	1	170	3
Alt 8		5	3	1	1	1	5	1	2	320	1