91 Express Lanes Intermediate Access Study

Study Overview & Agenda

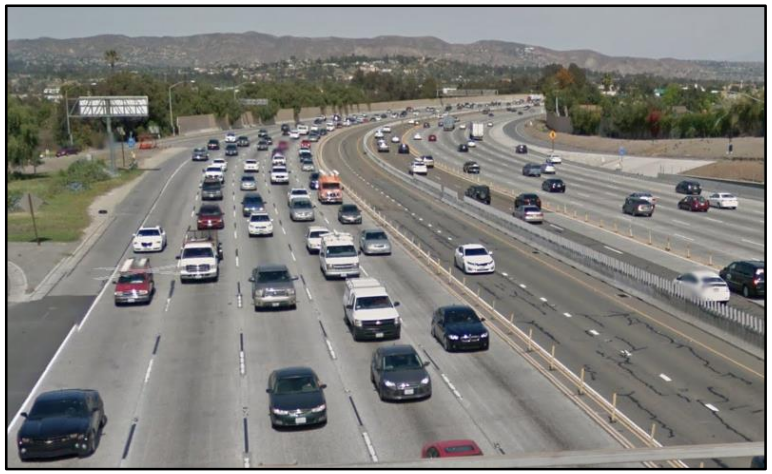
- Potential intermediate access point locations
- Multiple alternatives considered
- Two most promising
  - Direct access ramps at Fairmont Blvd.
  - At-grade access at Fairmont Blvd.
- Engineering impacts
  - Right-of-way
  - Feasibility
- Traffic operation impacts
  - 91 Express Lanes
  - General purpose lanes
- Conceptual financial analysis

Example of a Direct Access Ramp:
I-90, Bellevue, WA

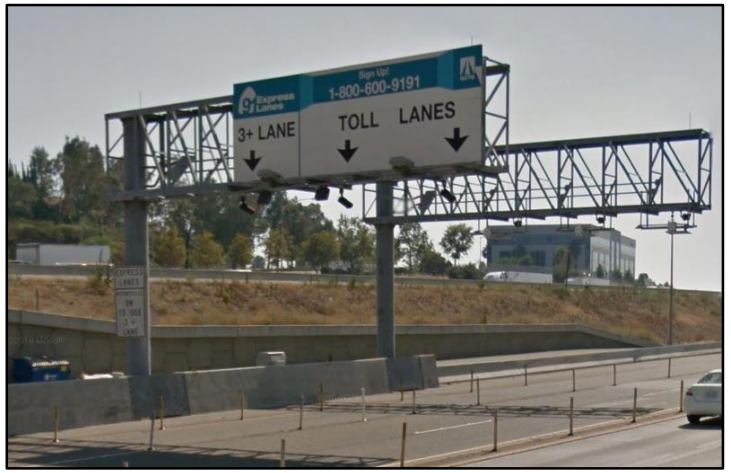
Example of an At-Grade Access:
I-495, Fairfax County, VA

Background

- Study the feasibility of an intermediate access point to the 91 Express Lanes for both eastbound and westbound directions.
- Up to 330,000 daily vehicles travel SR-91 in Orange County
  - General purpose lanes: ~290,000
  - 91 Express Lanes: ~40,000
- Fifth general purpose lane added in 2012 (SR-55 to SR-241)
- More projects planned along SR-91 based on the current SR-91 Implementation Plan
  - Includes a diamond interchange at Fairmont Blvd.



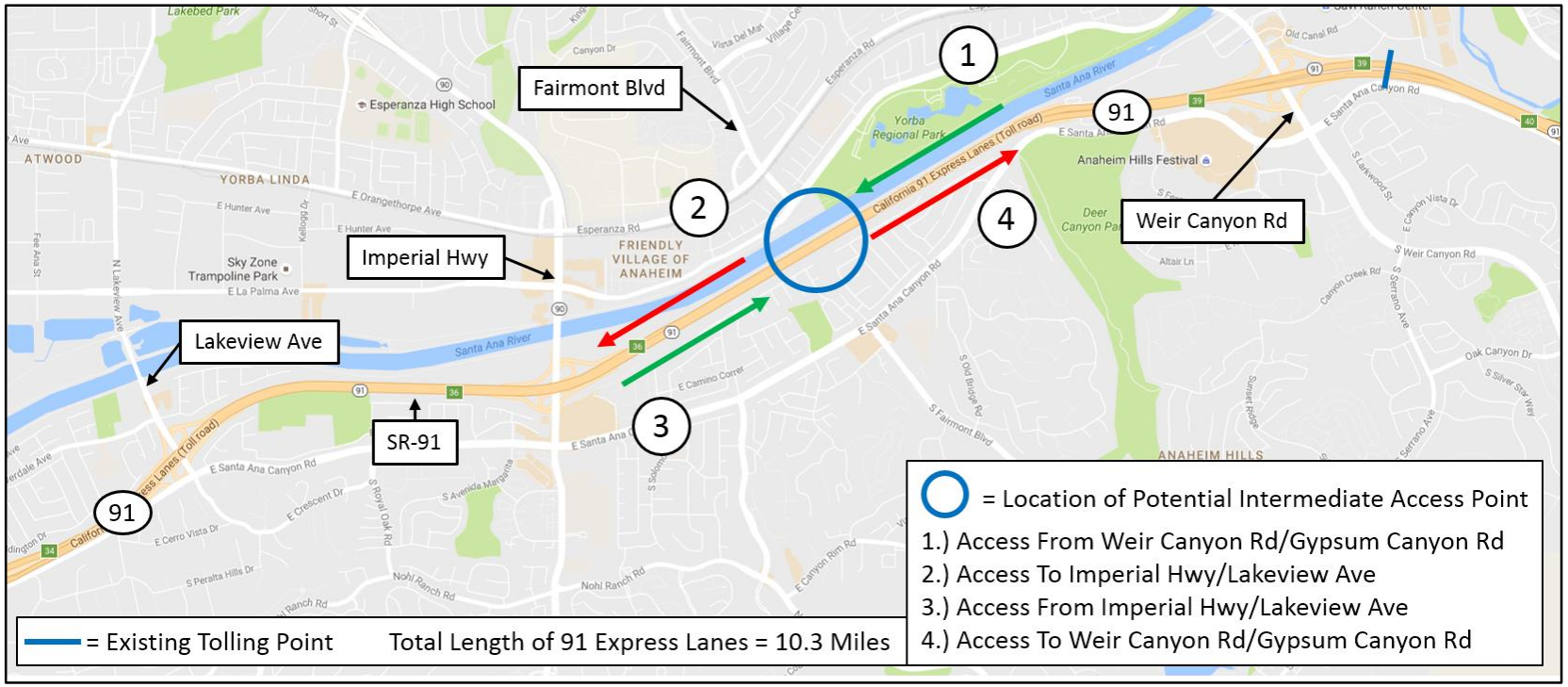
Westbound SR-91



Existing WB 91 Express Lanes Toll Gantry

Potential Intermediate Access Location

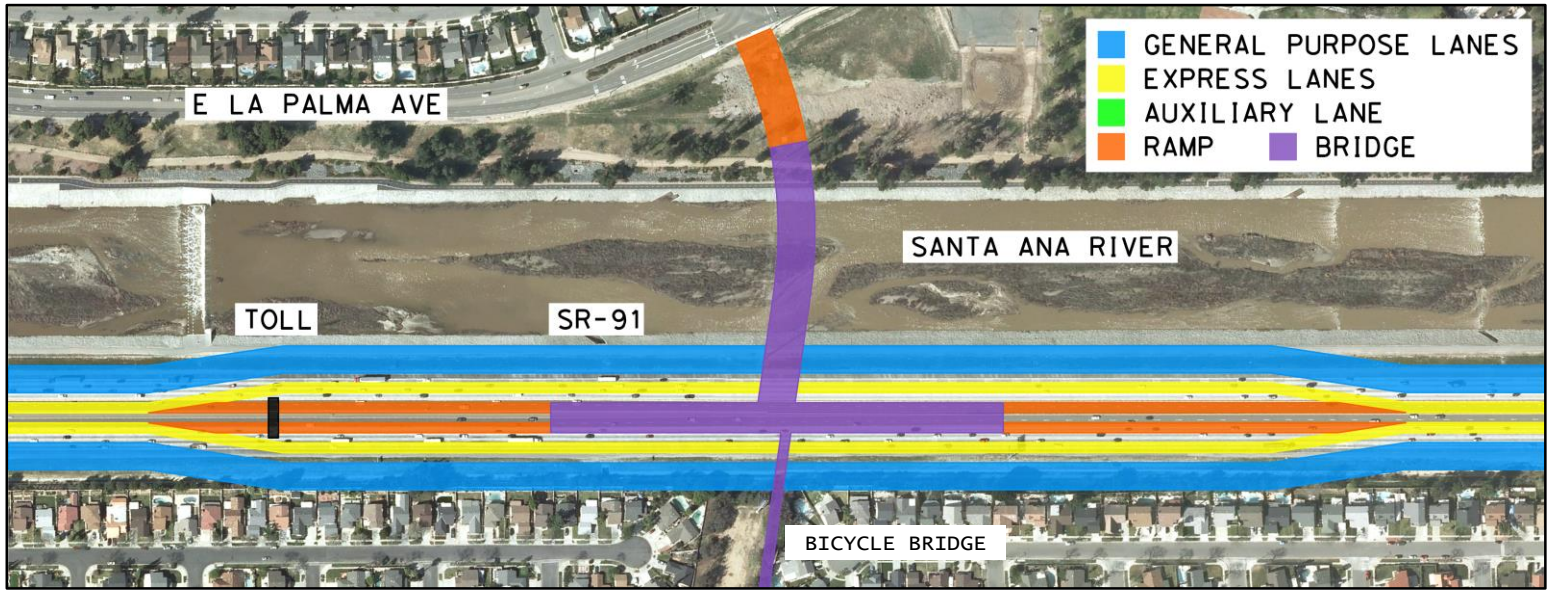
Fairmont Boulevard between Imperial Highway and Weir Canyon Road is the most reasonable location for an intermediate access point.



Alternative 1 – Fairmont DAR to 91 Express Lanes

Opportunities

- New direct 91 Express Lanes access to/from northerly Fairmont Blvd.
- New connector does not create SR-91 general purpose lane weaving conditions
- Fairmont Blvd. extension right-of-way available



Issues

- Construction cost: $95 Million (2015)
- Requires structure over Santa Ana River
- 91 Express Lanes require widening for orderly operations
- New ramps require widening that may impact SR-91 outside shoulders and 91 Express Lanes enforcement area
- Retaining walls avoid residential takes along northbound SR-91
- Toll policy will require modification to provide segment based tolling

Alternative 2 – At-Grade Access to 91 Express Lanes

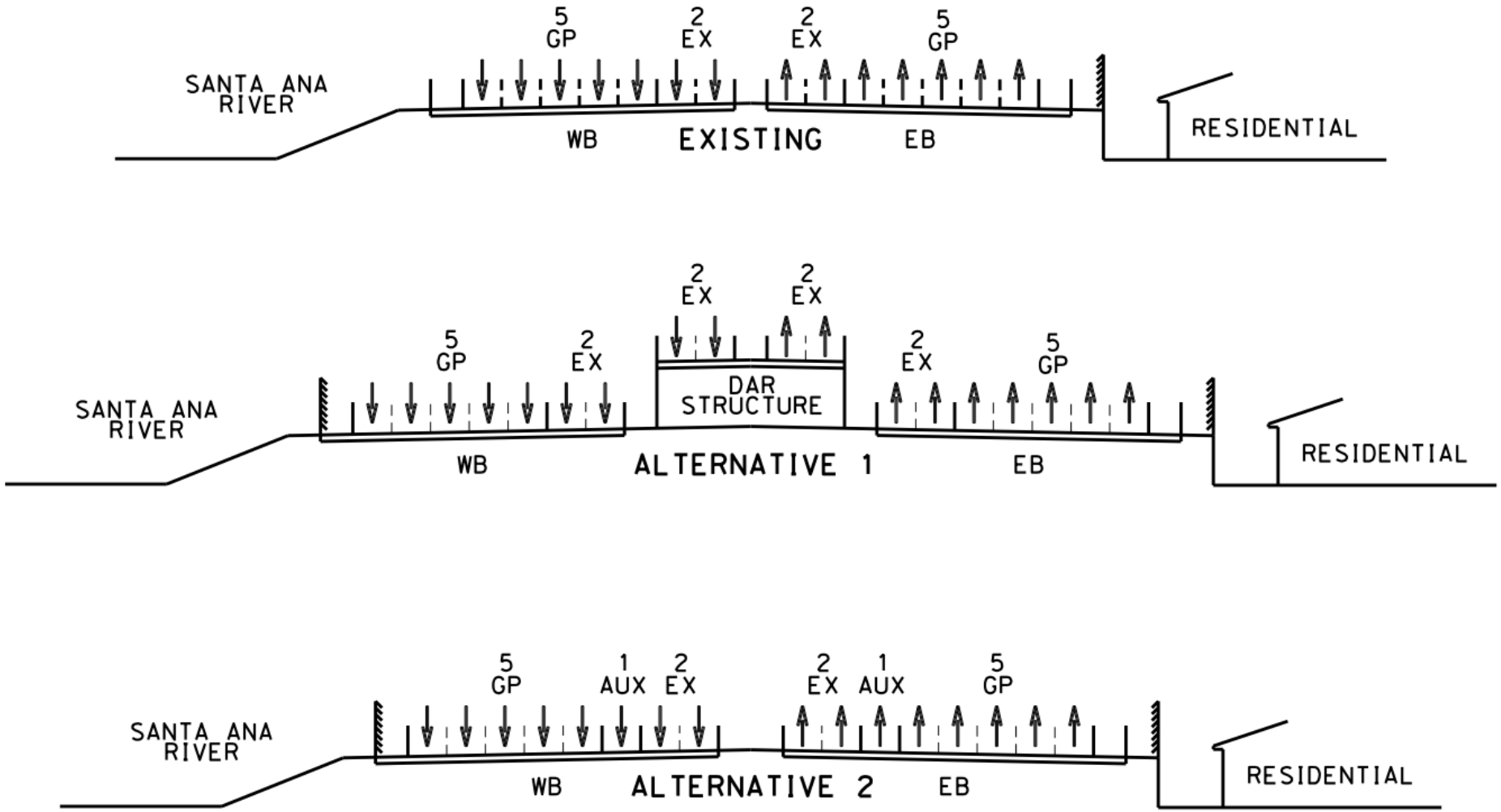
Opportunities

- New access to 91 Express Lanes from SR-91 general purpose lanes
- Minor right-of-way impact
- Similar access method to other regional managed lane facilities
- Lower initial construction costs

Issues

- Construction Cost: $47 Million (2015)
- New tolling point east of Imperial Highway
- Toll policy will require modification for segment pricing
- Potential to create weaving conditions between 91 Express Lanes and SR-91 general purpose lanes
- 91 Express Lanes require widening for orderly operations and additional widening for new tolling gantries

Alternative Sections



Traffic Operations Impacts: Methodology

- 91 Express Lanes and general purpose lanes operations were modeled
  - Westbound AM peak
  - Eastbound PM peak
- Standard modeling tools
  - Orange Country Transportation Analysis Model (OCTAM) travel demand model
  - VISSIM microsimulation: measures of effectiveness including speeds and throughput volume
- Intermediate access point is priced according to 91 Express Lanes rates
  - Westbound ingress/eastbound egress would only pay ½ the 91 Express Lanes rates
  - Westbound egress/eastbound ingress would pay the full 91 Express Lanes rates
- Each alternative studied for 2040 conditions
  - Compared against 2040 No-build conditions without a Fairmont Blvd. access to 91 Express Lanes
  - AM Peak: 5:00 – 9:00AM
  - PM Peak: 3:00 – 7:00PM

Traffic Operations Impacts: Overall Findings

- 91 Express Lanes will operate near OCTA's operational capacity in the No-Build condition during peak hours.
- Capacity will be limited for new traffic to enter/exit the 91 Express Lanes at new access point.
- The number of vehicles using an intermediate 91 Express Lanes access point will be less than 150 vehicles/hour per ingress/egress movement in either direction.
- No substantial difference between the No-Build and Build conditions.
- Alternative 1 will cause a small amount of traffic to shift from Imperial Hwy/Weir Canyon Rd interchanges to Fairmont DAR.

Traffic Operations Impacts: Overall Findings

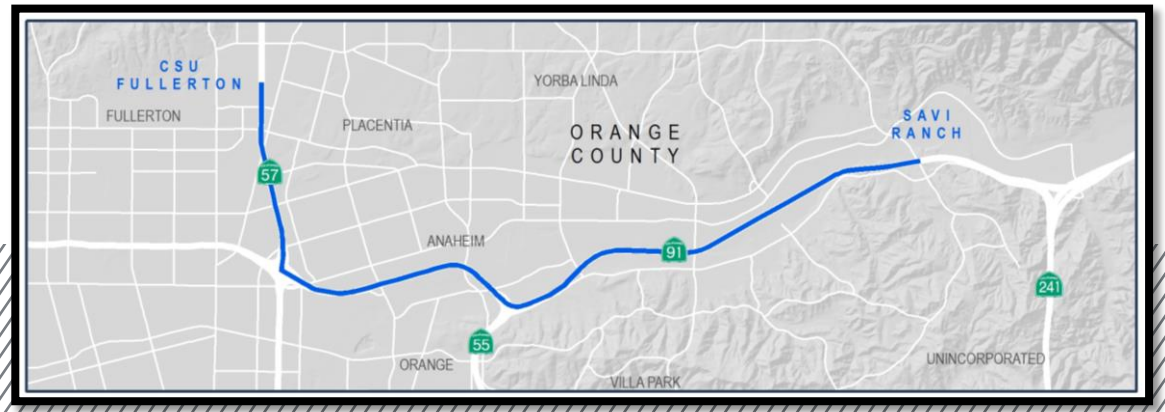
Operational Comparisons (2040 Conditions)

Operational Metric	No-Build	Build Alternative 1	Build Alternative 2
AM Peak Period (5 - 9 AM)			
Average Speed (mph) - WB Express Lanes	66.6	67.0 **0.6%**	65.8 **-1.2%**
Average Speed (mph) - WB GP Lanes	27	27 **0.0%**	27 **0.0%**
Percent demand served in study area	81.5%	81.8% **0.3%**	82.0% **0.5%**
PM Peak Period (3 - 7 PM)			
Average Speed (mph) - EB Express Lanes	62.6	61.6 **-1.6%**	62.4 **-0.3%**
Average Speed (mph) - EB GP Lanes	48	51 **6.3%**	50 **4.2%**
Percent demand served in study area	94.0%	94.1% **0.1%**	94.1% **0.1%**

Traffic Operations Impacts: Overall Findings

2040 AM Peak Westbound travel time comparisons (Savi Ranch to CS Fullerton, 11 miles):

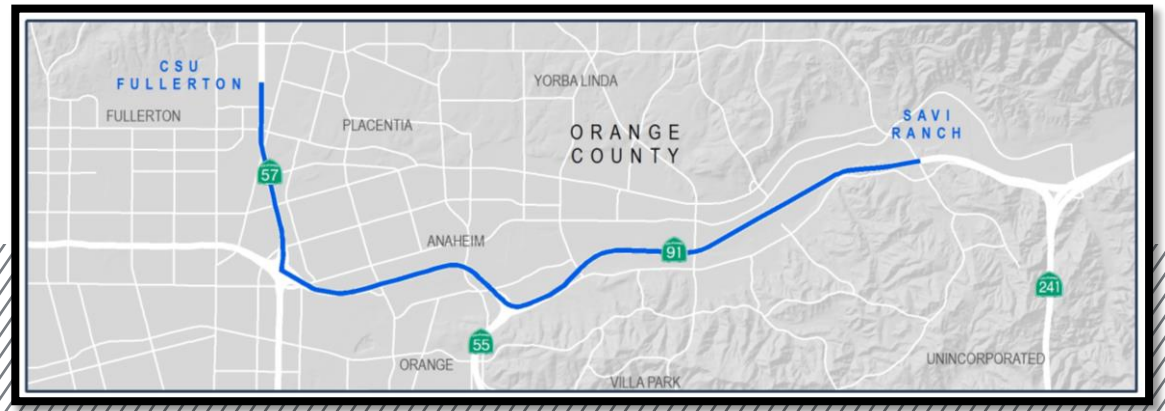
	No-Build	Alternative 1	Alternative 2
Existing Conditions	16 mins 	15 mins 	15 mins 
2040 Conditions	27 mins 	18 mins 	18 mins 



Traffic Operations Impacts: Overall Findings

2040 PM Peak Eastbound travel time comparisons (CS Fullerton to Savi Ranch, 11 miles):

	No-Build	Alternative 1	Alternative 2
Existing Conditions	26 mins 	22 mins 	26 mins 
2040 Conditions	46 mins 	37 mins 	44 mins 



Financial Results

- Modeled traffic volumes and estimated toll rates used to project net toll revenue.
- Estimated 40-year total additional revenue (YOE$)
  - Alternative 1: $600 million
  - Alternative 2: $240 million
- Estimated payback period
  - Alternative 1: 20 years
  - Alternative 2: 26 years