

US 50 / Cameron Park Drive Interchange Alternatives Analysis



Board of Supervisors July 24, 2018

Legistar #18-0992



Agenda

Background

Alternatives – Dokken Engineering

Traffic Operations – DKS Associates

Public Outreach

Next Steps



Background

2008 Project Study Report

- Approved by Caltrans
- 3 alternatives
- Costs ranged from \$74 million - \$107 million

2010 Alternatives Screening

- 42 alternatives identified
- 14 feasible alternatives selected

2016 Major TIM Fee Update

- Cost Estimate was \$87.3 million
- More economically viable alternative



Background

- Alternatives Analysis Process
 - 14 alternatives evaluated against updated forecasts
 - 6 screened out
- Local Road Connections Considered
 - Palmer Drive/Wild Chaparral Drive connection
 - New north/south local roadway
- Bike/Pedestrian Overcrossing Considered
- Roundabout Alternative Eliminated



Alternatives



Alternative 1 – Widening

Alternative 2 – Rodeo Road Off-Ramp

Alternative 3 – East Hook Ramps

Alternative 4 – Diverging Diamond



Alternative Designs



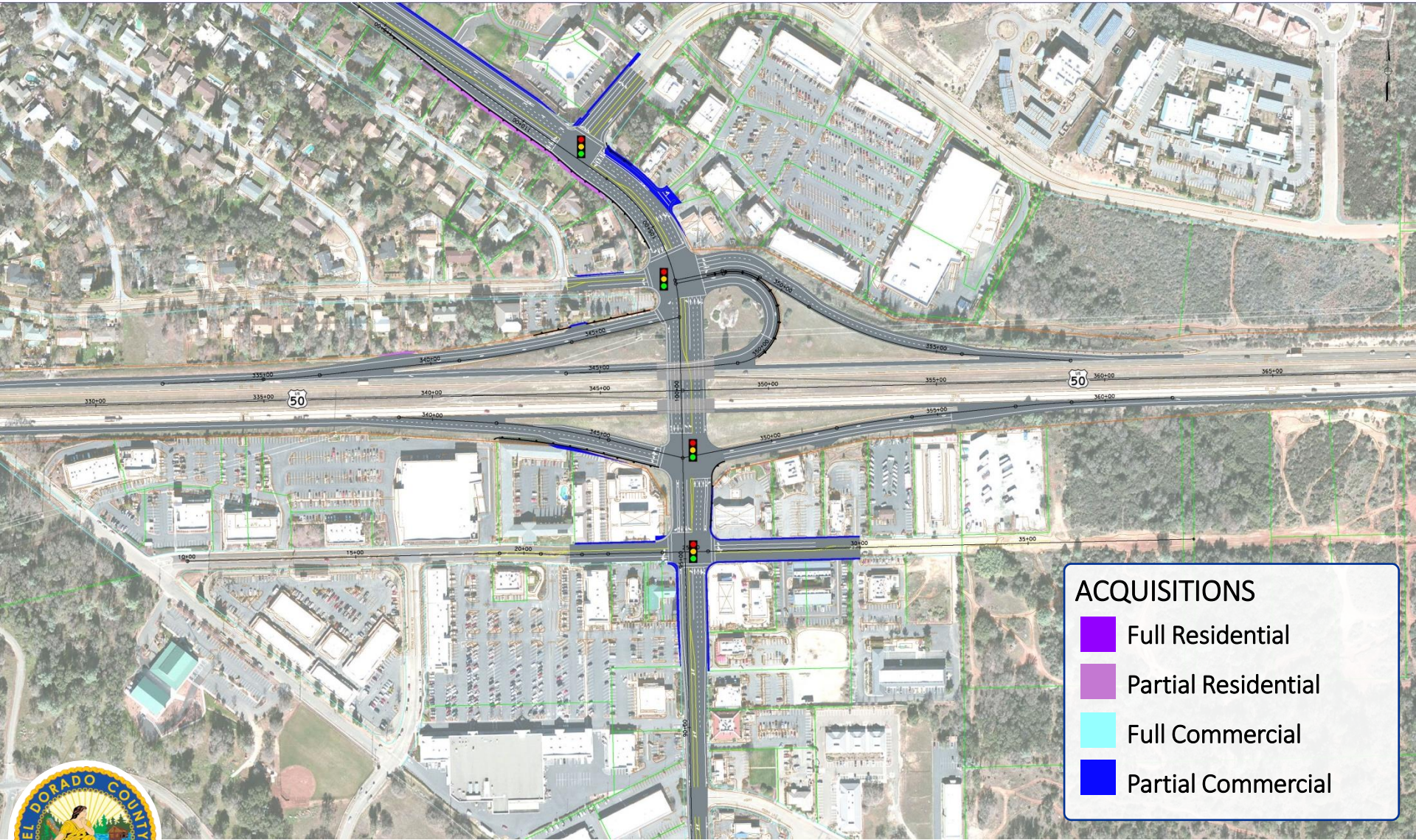
Alternative 1: Widening



Alternative 1: Supporting Features



Alternative 1: Right-of-Way



ACQUISITIONS

-  Full Residential
-  Partial Residential
-  Full Commercial
-  Partial Commercial



Alternative 1: Pros and Cons



- Standard, familiar configuration
- No full right-of-way acquisitions
- Lowest project cost - \$43.5 M



- Longest travel time
- Precise signal coordination to meet LOS
- Significant queues on local roads
- Requires US 50 bridge replacements



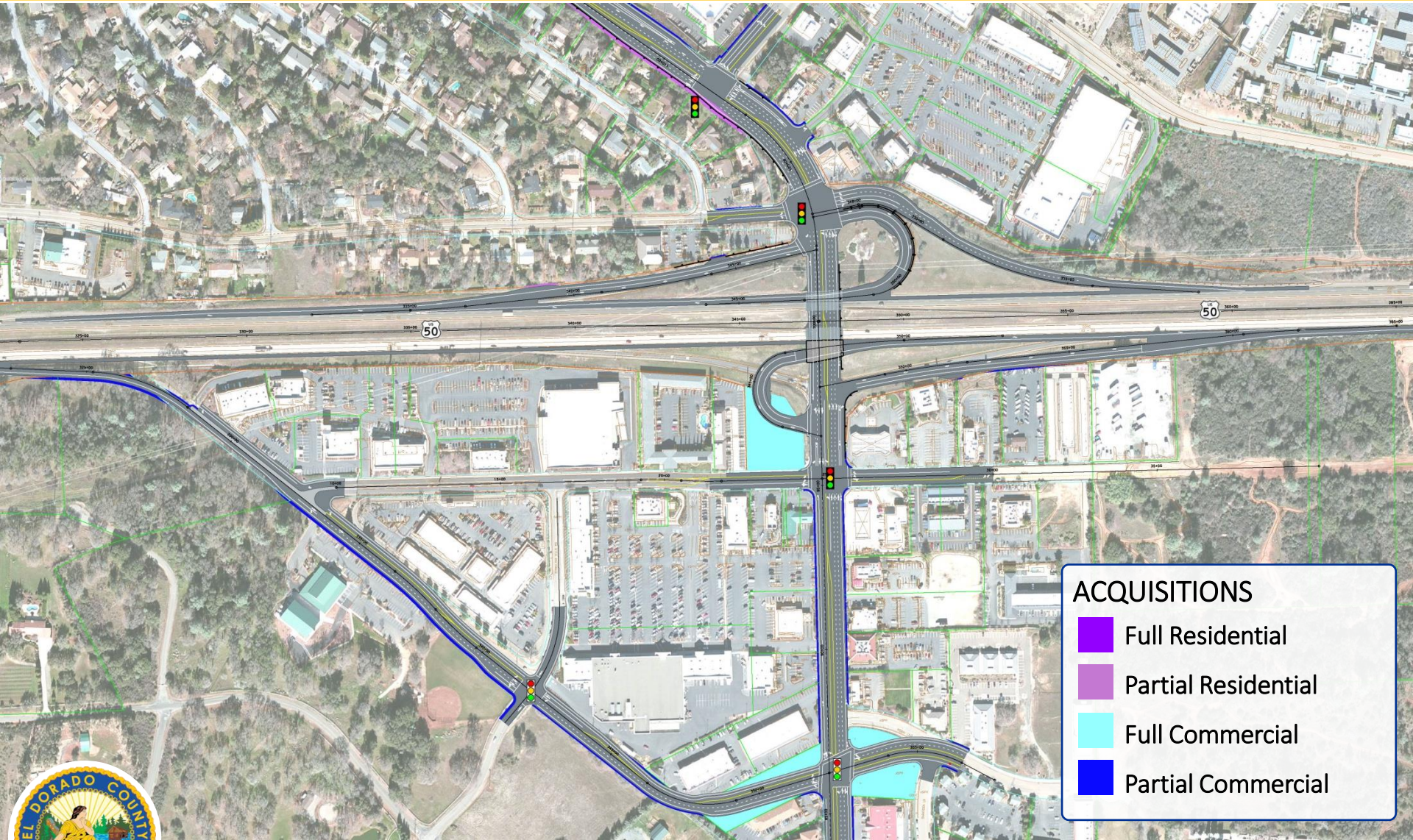
Alternative 2: Rodeo Road Off-ramp






Alternative 2: Supporting Features



Alternative 2: Right of Way



ACQUISITIONS

-  Full Residential
-  Partial Residential
-  Full Commercial
-  Partial Commercial



Alternative 2: Pros and Cons



- Eliminates traffic signal along CPD
- Less sensitive to signal coordination
- Utilizes under-used roadway



- Full commercial acquisitions
 - Chevron, Car-izma, commercial lot
- Longest out-of-direction travel - EB to NB (0.7 mi)
- Caltrans not supportive of isolated ramp
- New loop adds uncontrolled ped/bike crossing
- Highest project cost - \$69.1 M



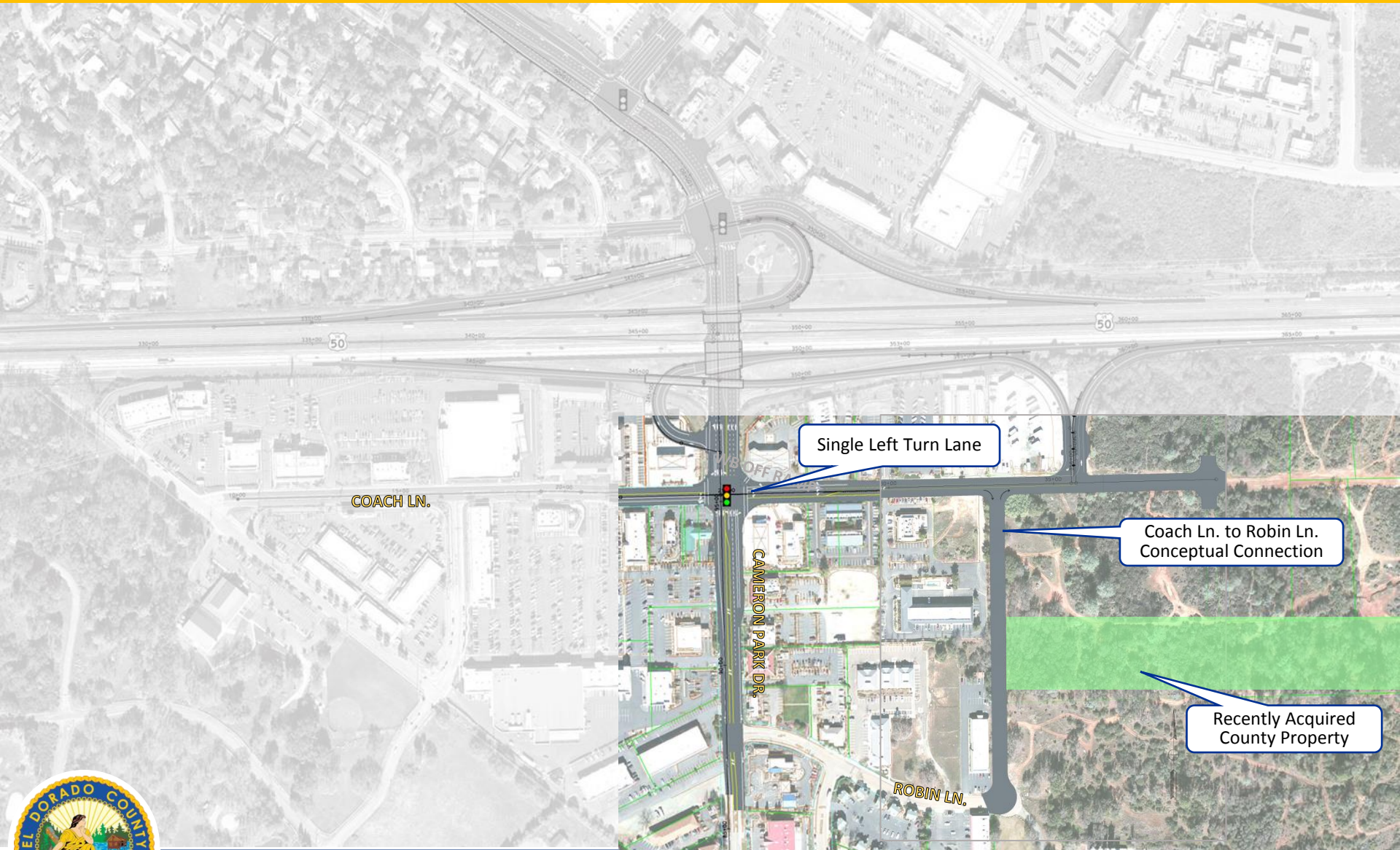
Alternative 3: East Hook Ramps



Alternative 3: Supporting Features



Alternative 3: Local Road Option



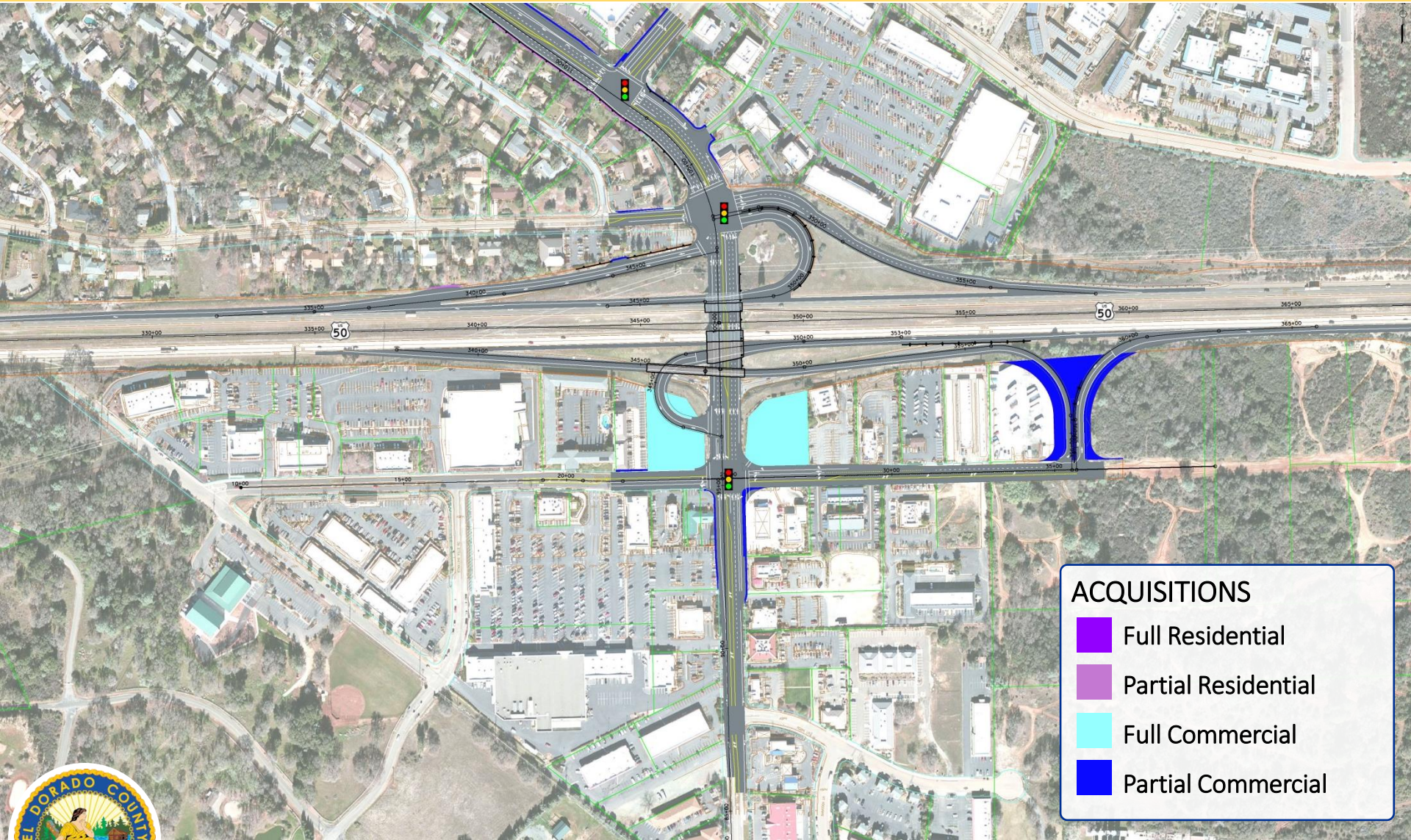
Single Left Turn Lane

Coach Ln. to Robin Ln.
Conceptual Connection

Recently Acquired
County Property



Alternative 3: Right of Way



ACQUISITIONS

-  Full Residential
-  Partial Residential
-  Full Commercial
-  Partial Commercial



Alternative 3: East Hook Ramps



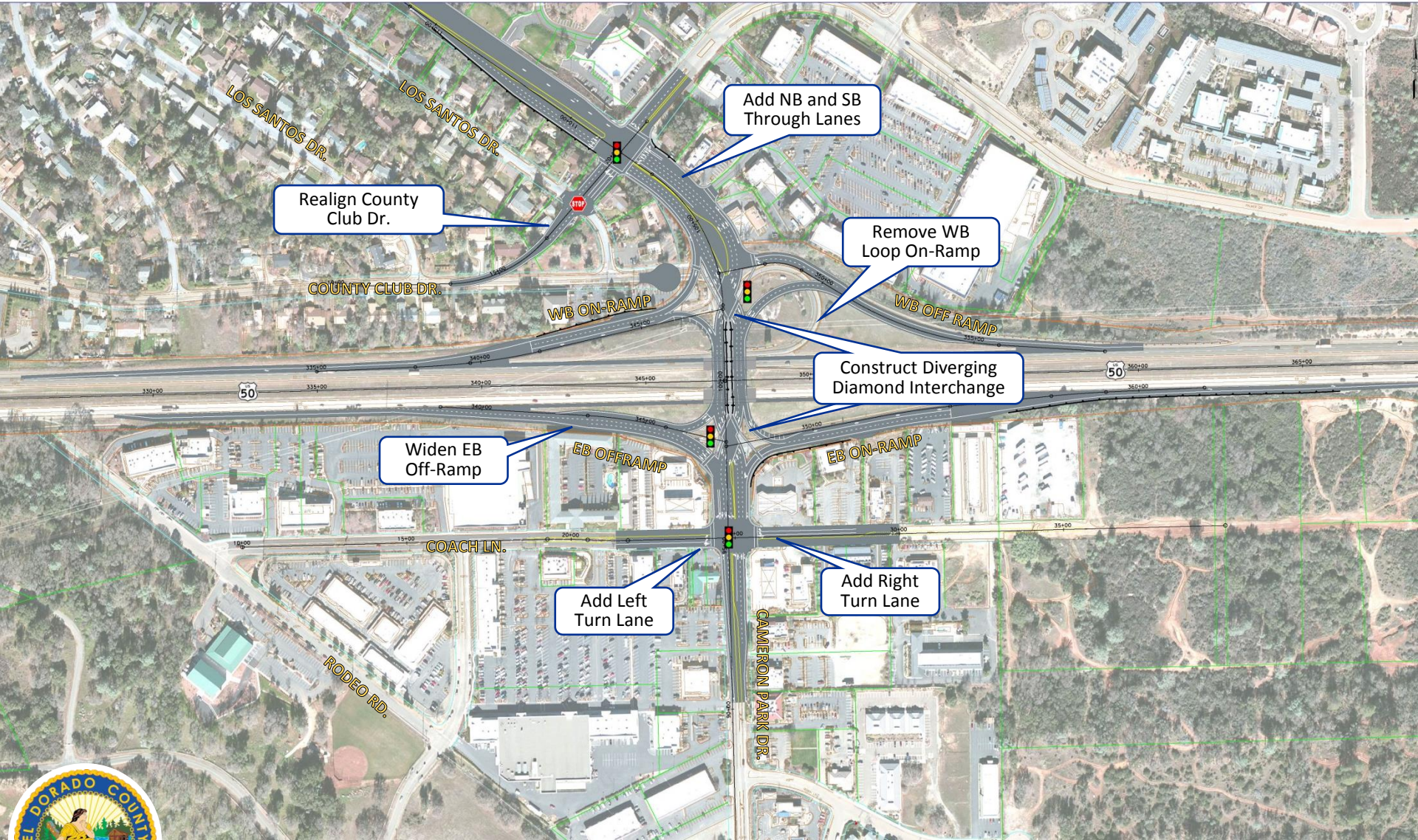
- Eliminates traffic signal along CPD
- Less Sensitive to Signal Coordination
- Utilizes Under-used roadway



- Full Commercial Acquisitions – Chevron, Shell
- Ramps near environmentally sensitive area
- Elevated roadway - visual impacts
- New loop adds uncontrolled ped/bike crossing
- 2nd Highest Project Cost - \$55.9 M



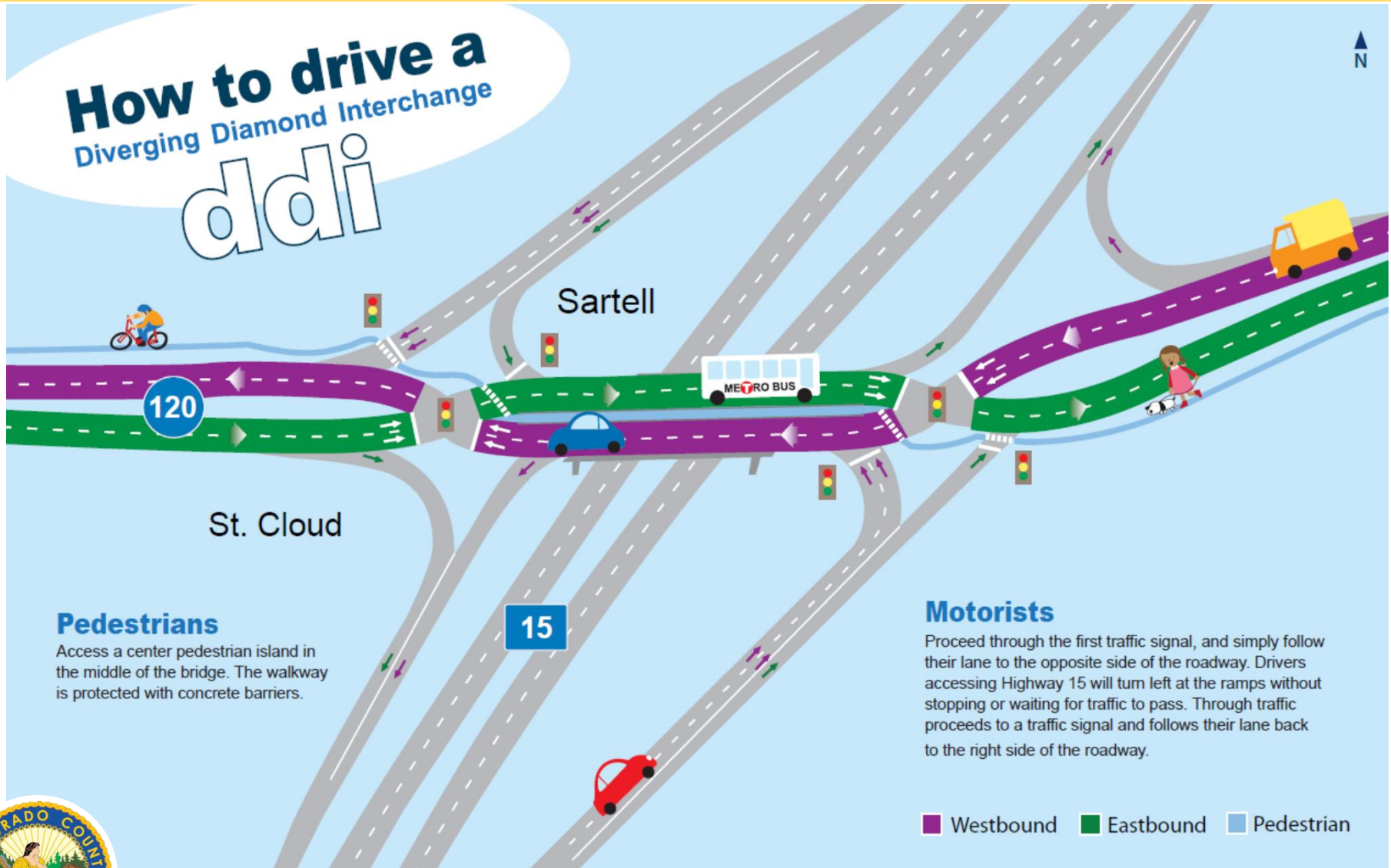
Alternative 4: Diverging Diamond



Alternative 4: Supporting Features



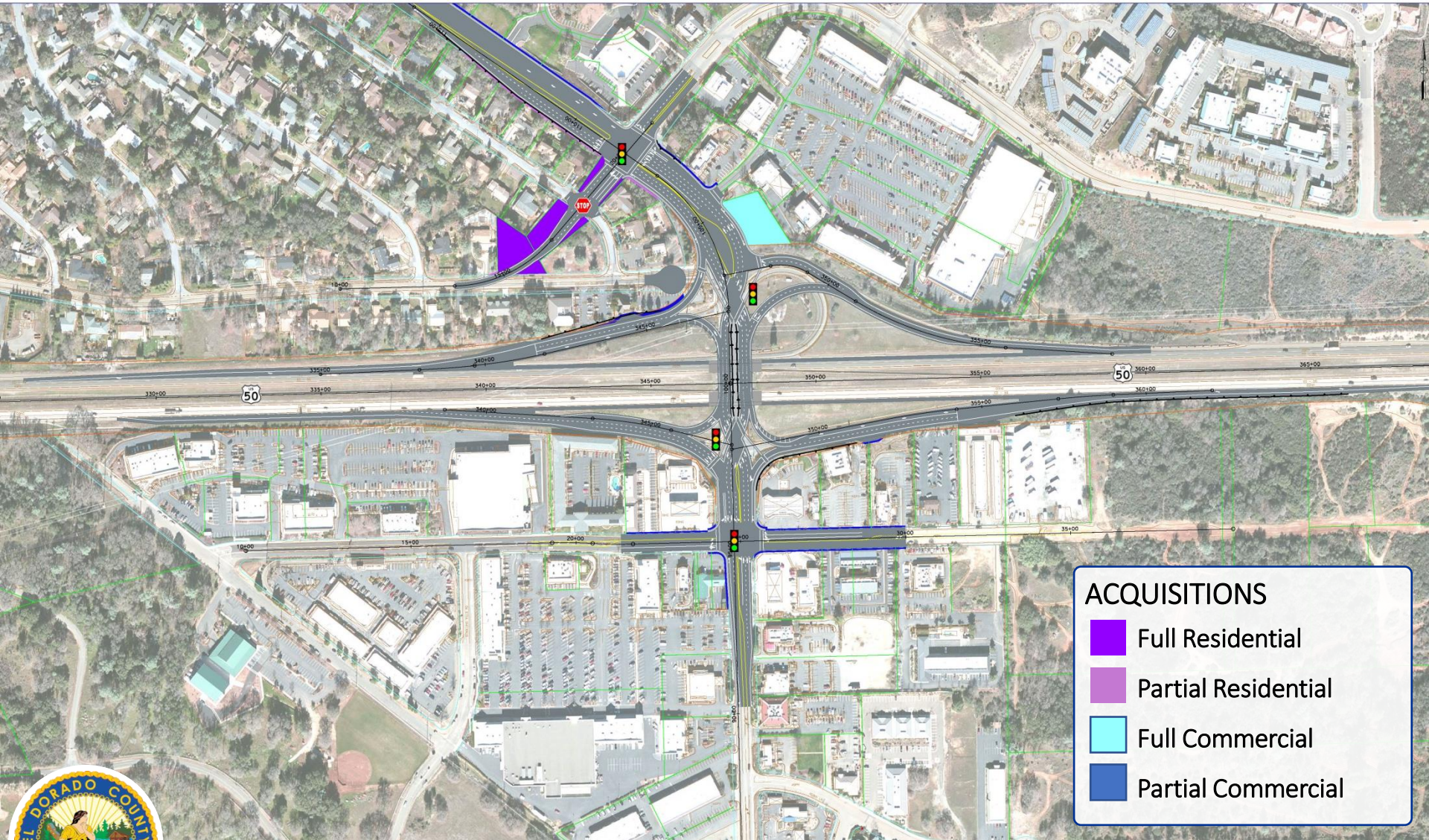
Diverging Diamond Interchange



Alternative 4: Diverging Diamond



Alternative 4: Right of Way



ACQUISITIONS

-  Full Residential
-  Partial Residential
-  Full Commercial
-  Partial Commercial



Alternative 4: Diverging Diamond



- Provides best traffic operations
- Reduces conflict points at intersections
- 2nd lowest project cost - \$51.1 M
- Innovative design



- Three full residential acquisitions
- One full commercial acquisition
- Requires US 50 bridge replacements
- Innovative design



Cost Comparison

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Roadway Items	\$23.1	\$30.2	\$23.9	\$23.8
Structure Items	\$5.1	\$4.7	\$6.6	\$4.8
SUBTOTAL CONSTRUCTION	\$28.2	\$34.9	\$30.5	\$28.6
Right of Way	\$4.0	\$20.3	\$13.2	\$11.1
PA&ED, PS&E, Permits (25%)	\$7.1	\$8.7	\$7.6	\$7.1
Construction Support Cost (15%)	\$4.2	\$5.2	\$4.6	\$4.3
TOTAL PROJECT COST	\$43.5	\$69.1	\$55.9	\$51.1

2018 Dollars in Millions



Traffic Analysis & Operations



Traffic Analysis and Operations

- 2045 Intersection Level Of Service (LOS) Results

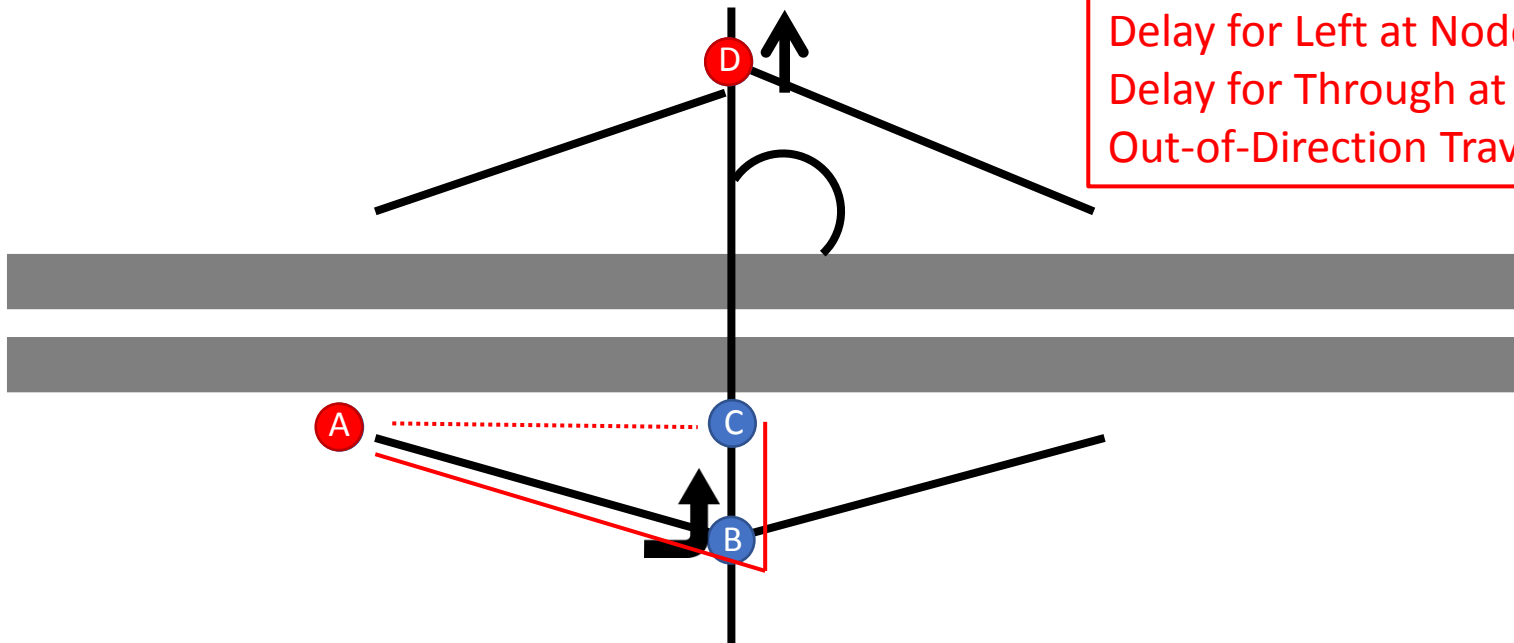
Intersection	2045 No Build		2045 Alt. 1 (Widening)		2045 Alt. 2 (Rodeo Road)		2045 Alt. 3 (Hook Ramps)		2045 Alt. 4 (Diverging)	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Palmer Drive	C	F	B	D	B	C	B	C	B	D
WB Ramps	D	F	C	C	C	C	B	D	B	C
EB Ramps	C	F	C	E	-	-	-	-	B	C
Coach Lane	C	F	B	E	B	D	C	D	B	D



Traffic Analysis and Operations

- 2045 Experienced Travel Time (ETT) Level Of Service (LOS) Methodology

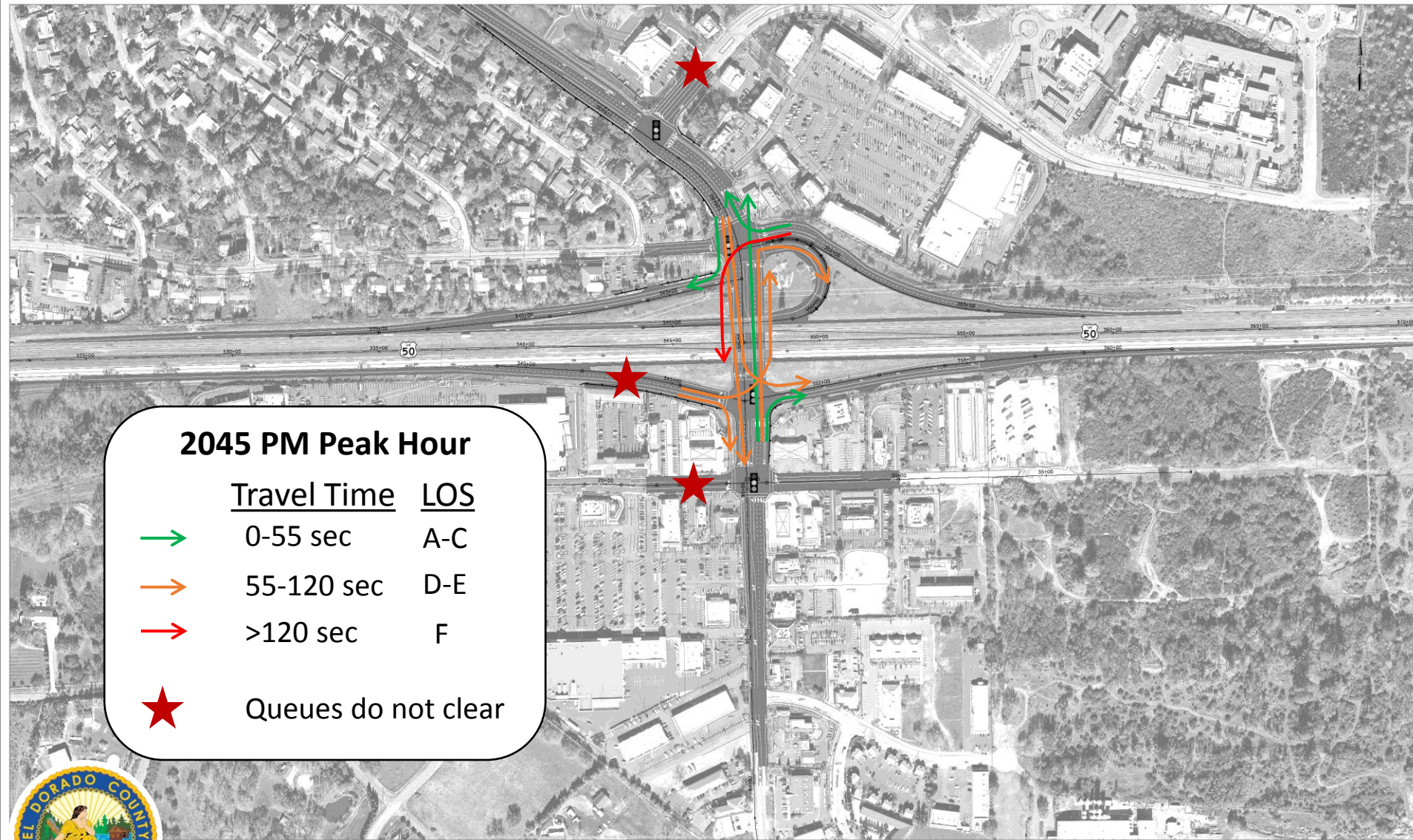
ETT (A to D) =
Delay for Left at Node B +
Delay for Through at Node D +
Out-of-Direction Travel Time



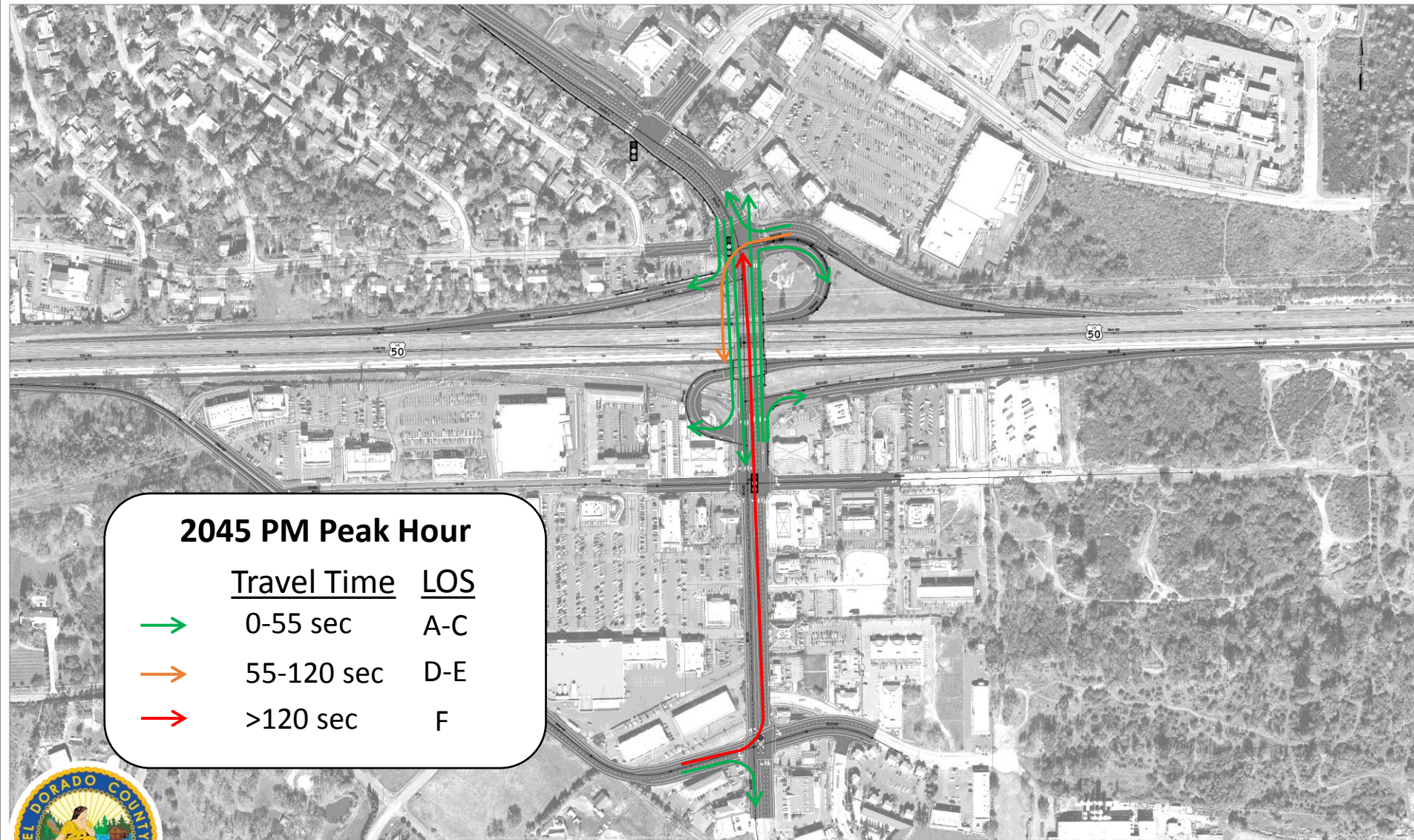
ETT = Intersection Delays + Out-of-Direction Travel Time



Alternative 1: Widening






Alternative 2: Rodeo Road



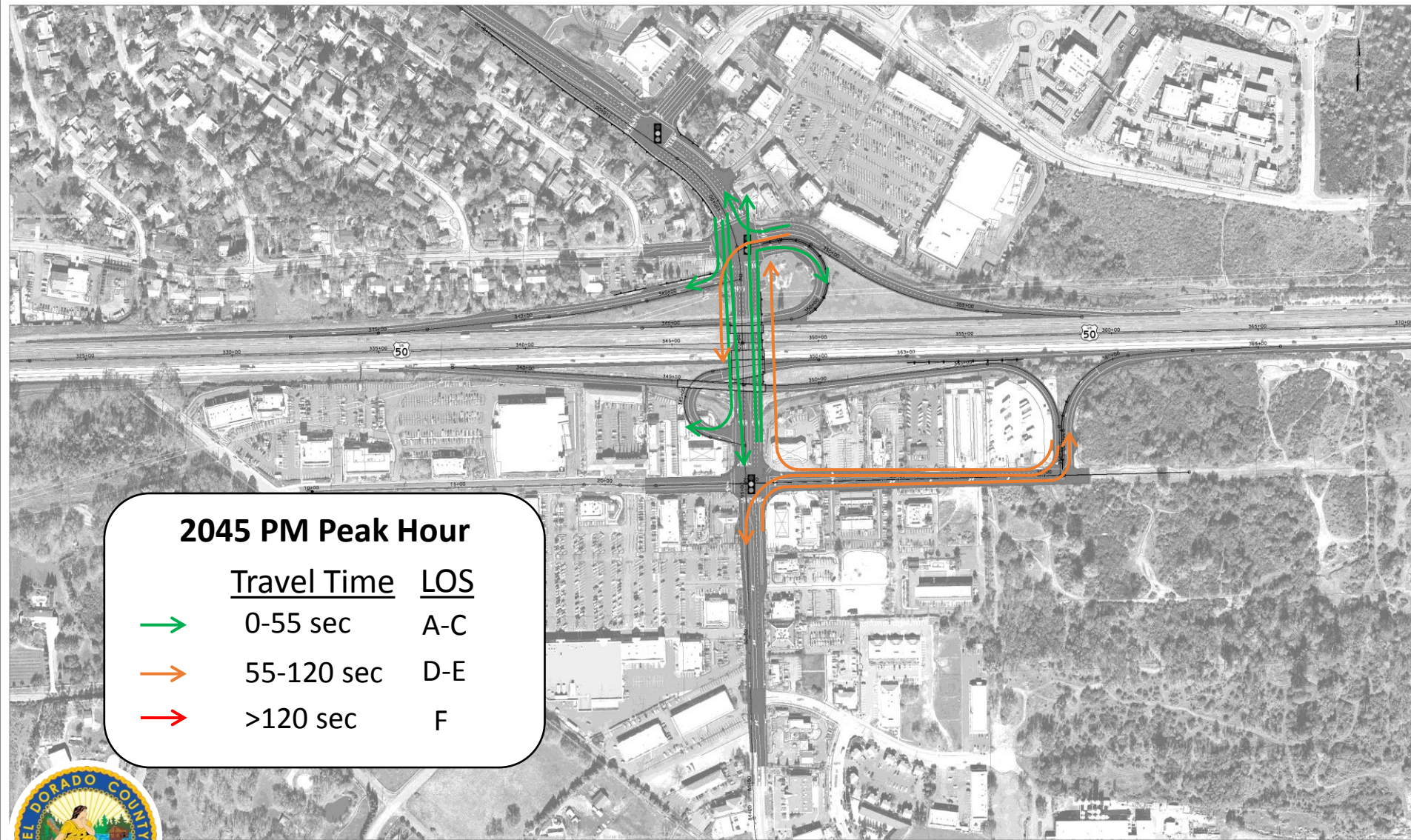
2045 PM Peak Hour

Travel Time LOS

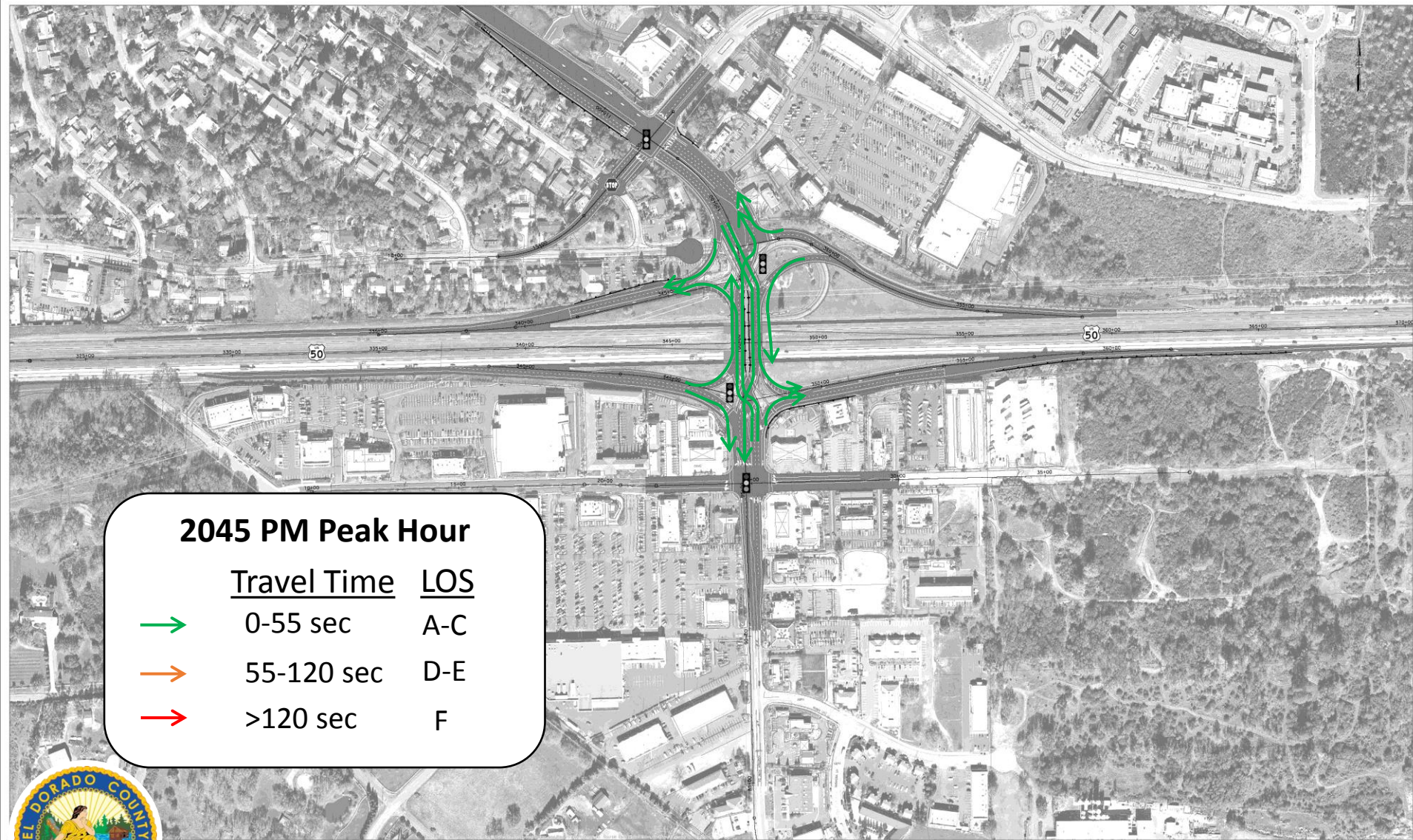
-  0-55 sec A-C
-  55-120 sec D-E
-  >120 sec F



Alternative 3: East Hook Ramps



Alternative 4: Diverging Diamond



Public Outreach

- Individual Meetings with select property owners
 - April 2018
 - 14 owners invited to meet with DOT
 - 8 meetings scheduled
 - Follow-up letter with materials
- Public Workshop: May 3, 2018
- Comment Period: May 3rd – 31st




Public Outreach

- Public Workshop – May 3, 2018



COMMENT SLIP

 **Cameron Park Drive/ Highway 50 Interchange Project**
Alternatives Analysis

Alternative 1: Six Lane Cameron Park Drive <input type="checkbox"/> Love <input type="checkbox"/> Dislike <input type="checkbox"/> Like <input type="checkbox"/> Hate <input type="checkbox"/> Neutral Other: _____	Alternative 2: Rodeo Road Off-Ramp <input type="checkbox"/> Love <input type="checkbox"/> Dislike <input type="checkbox"/> Like <input type="checkbox"/> Hate <input type="checkbox"/> Neutral Other: _____
Alternative 3: East Hook Ramps <input type="checkbox"/> Love <input type="checkbox"/> Dislike <input type="checkbox"/> Like <input type="checkbox"/> Hate <input type="checkbox"/> Neutral Other: _____	Alternative 4: Diverging Diamond Configuration <input type="checkbox"/> Love <input type="checkbox"/> Dislike <input type="checkbox"/> Like <input type="checkbox"/> Hate <input type="checkbox"/> Neutral Other: _____

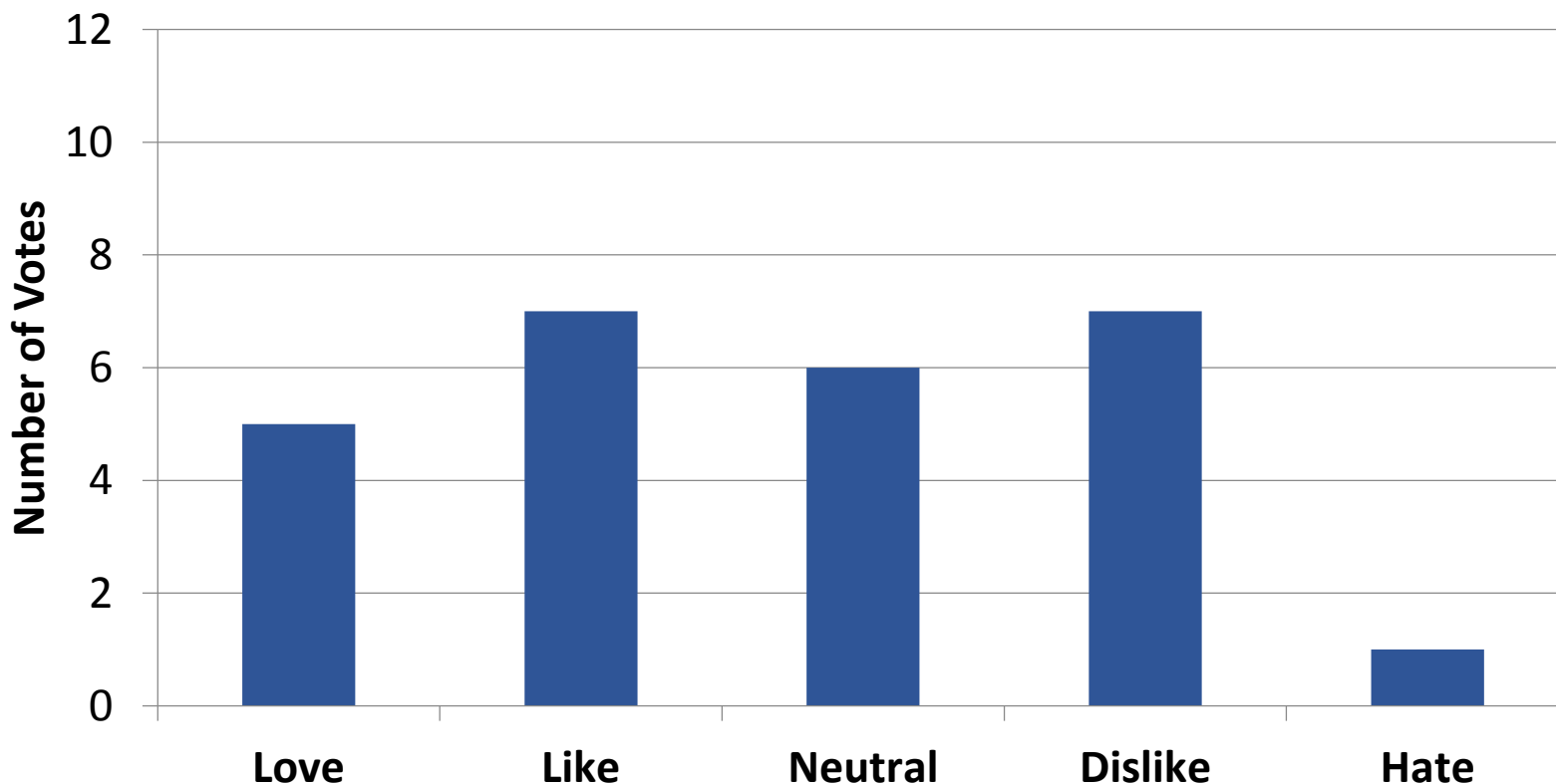
General Comments: _____

Name: (optional) _____



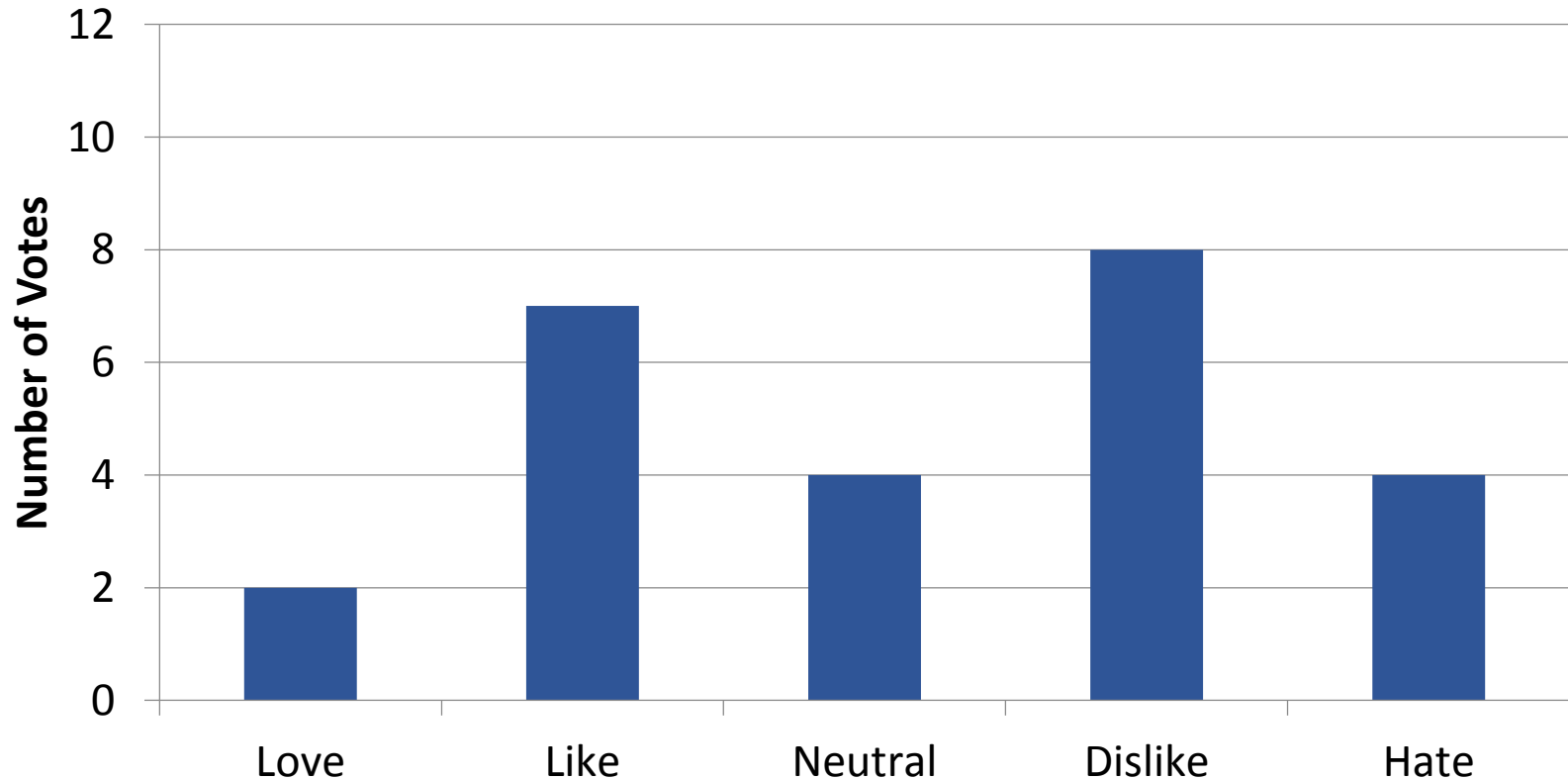
Public Outreach – Comment Card Results

Alternative 1 - Widening



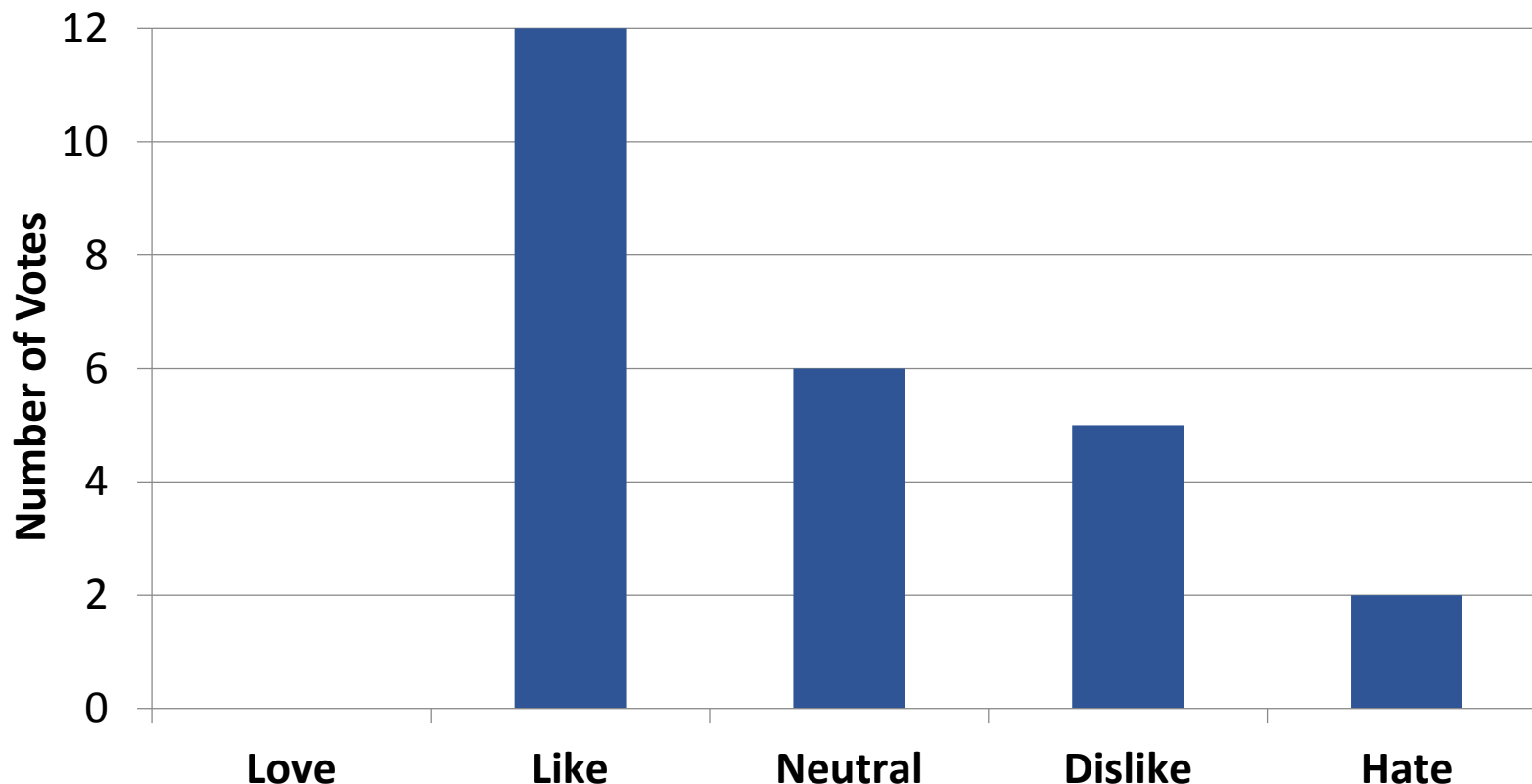
Public Outreach – Comment Card Results

Alternative 2 - Rodeo Road Off-Ramp



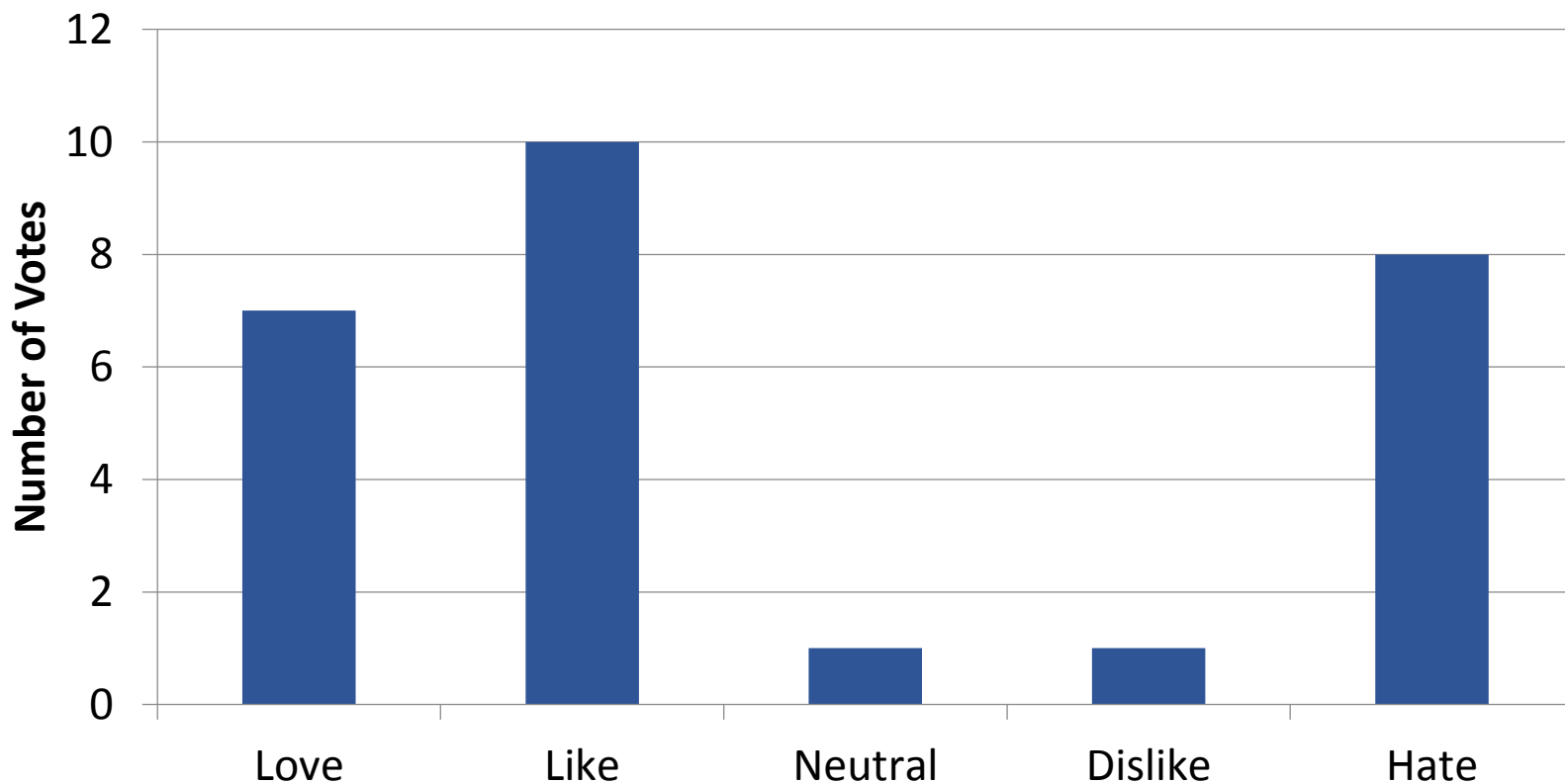
Public Outreach – Comment Card Results

Alternative 3 - East Hook Ramps

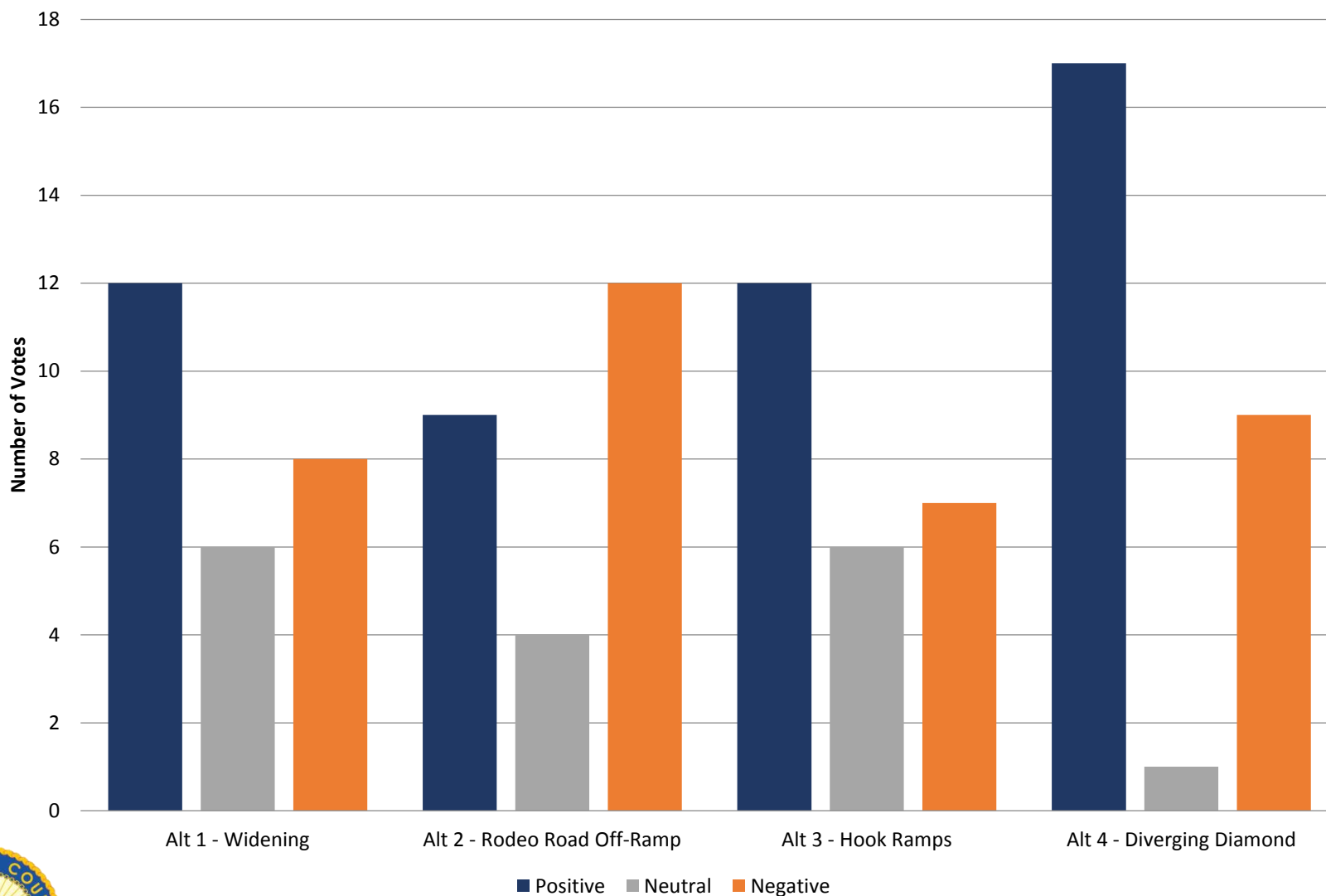


Public Outreach – Comment Card Results

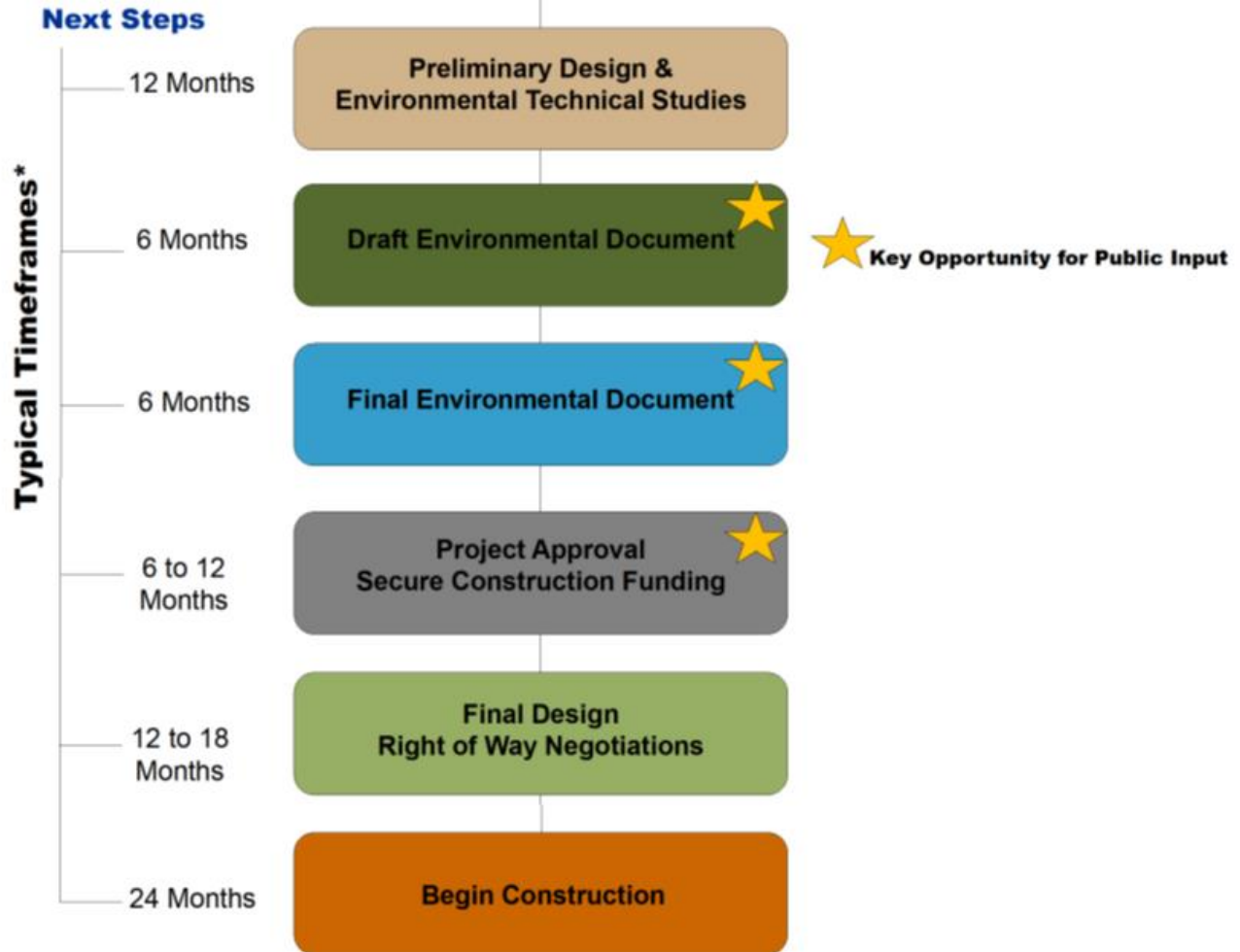
Alternative 4 - Diverging Diamond



Public Outreach – Comment Card Results



Next Steps



***Schedule is pending traffic demand and funding
Current CIP anticipates construction +10 years**



Recommendation

Staff recommends selecting the following 3 alternatives for further technical and environmental studies:

Alternative
1
(Widening)

Alternative
3 (East
Hook
Ramps)

Alternative
4
(Diverging
Diamond)



Driving through a DDI

- https://youtu.be/90MH_yyyW4E

