



PRESENTATION FOR

St. Mary's Road Roundabouts Project



Kimley»Horn
Expect More. Experience Better.



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Project Team

- **Edric Kwan, Town of Moraga**
Public Works Director/Town Engineer
- **Jon King, Town of Moraga**
Chief of Police
- **John Pulliam, Kimley-Horn and Associates**
Consultant Project Manager
- **Shawn Knapp, Town of Moraga**
Senior Civil Engineer/Project Manager
- **Sean Houck, Kimley-Horn and Associates**
Consultant Roundabout Expert

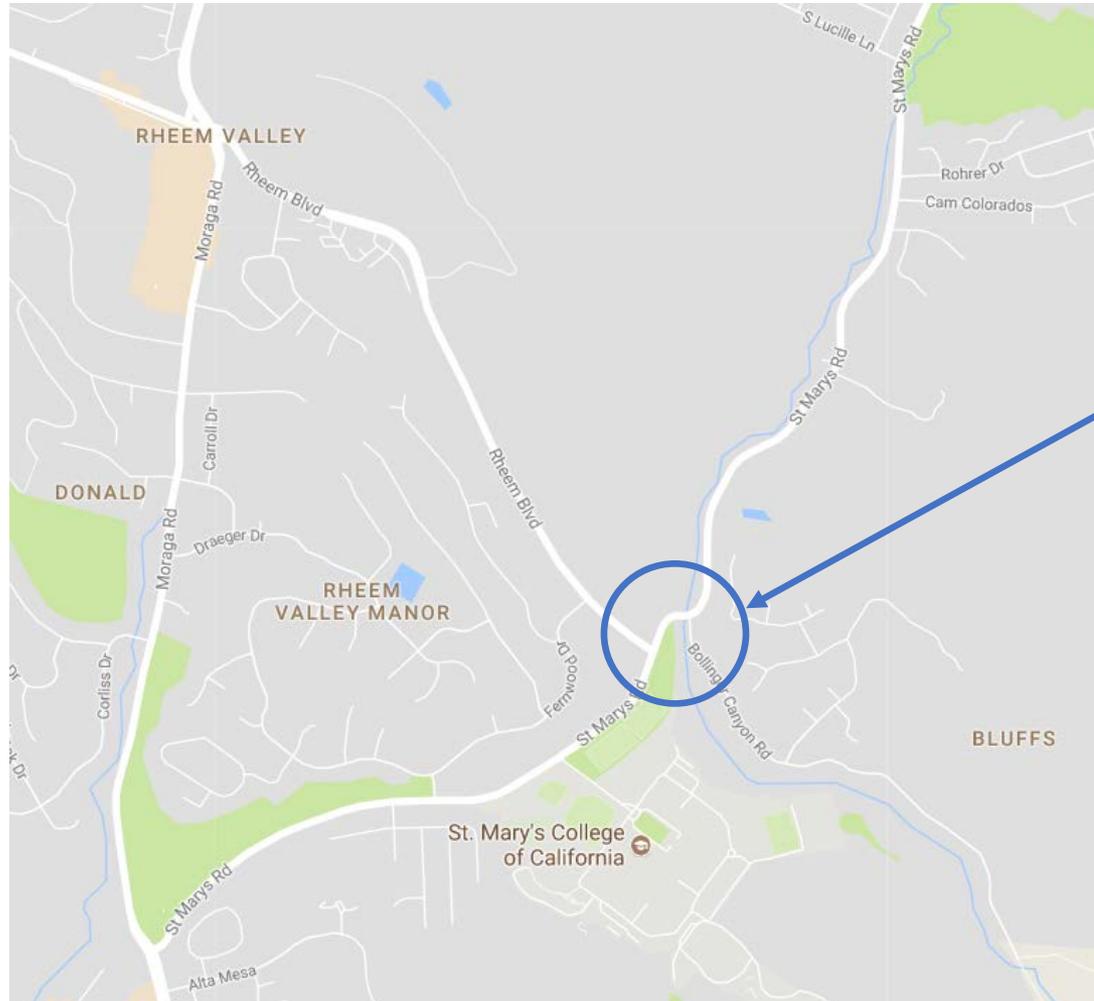


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Project Location



Project Location



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Project History: Studies



2009 Recommendation

2009 Study by Fehr & Peers

- Studied St. Mary's & Rheem intersection
- Recommended full-sized roundabout at Rheem and realign Bollinger Canyon with bridge over creek (\$11 million)
- Recommended to further study Bollinger Canyon intersection



2015 Recommendation

2015 Study by Omni Means

- Studied St. Mary's & Rheem and St. Mary's & Bollinger Canyon intersections
- 2 full-sized roundabouts (\$7 million)

2016 Town Council Goal

- Complete design and financing plan for 2 full-sized roundabouts
- Secured grant funding to develop 35% design



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Project History: Public Outreach Meetings

Summary of first public outreach meeting:

- **OUTREACH:** Request for more public outreach and communication
- **SAFETY:** Questions about whether there are existing safety issues at these intersections
- **ALTERNATIVES:** Questions concerning alternative intersection improvements instead of roundabouts
- **FINANCE:** Concerns about project costs and best use of the Town's funds



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Project History: Public Outreach Meetings

Summary of second public outreach meetings:

- **PEDESTRIAN FACILITIES:** Request pedestrian facilities on Rheem Blvd. and St. Mary's, in particular looking at improving access to the trail
- **BICYCLE FACILITIES:** Interest in bike lanes on Rheem Blvd. so kids can get safely to the trail
- **ROADWAY IMPROVEMENTS:** Address blind spots along roadways and consider adding crosswalks



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SAFETY





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SAFETY





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SAFETY: Proposed Improvements to Address

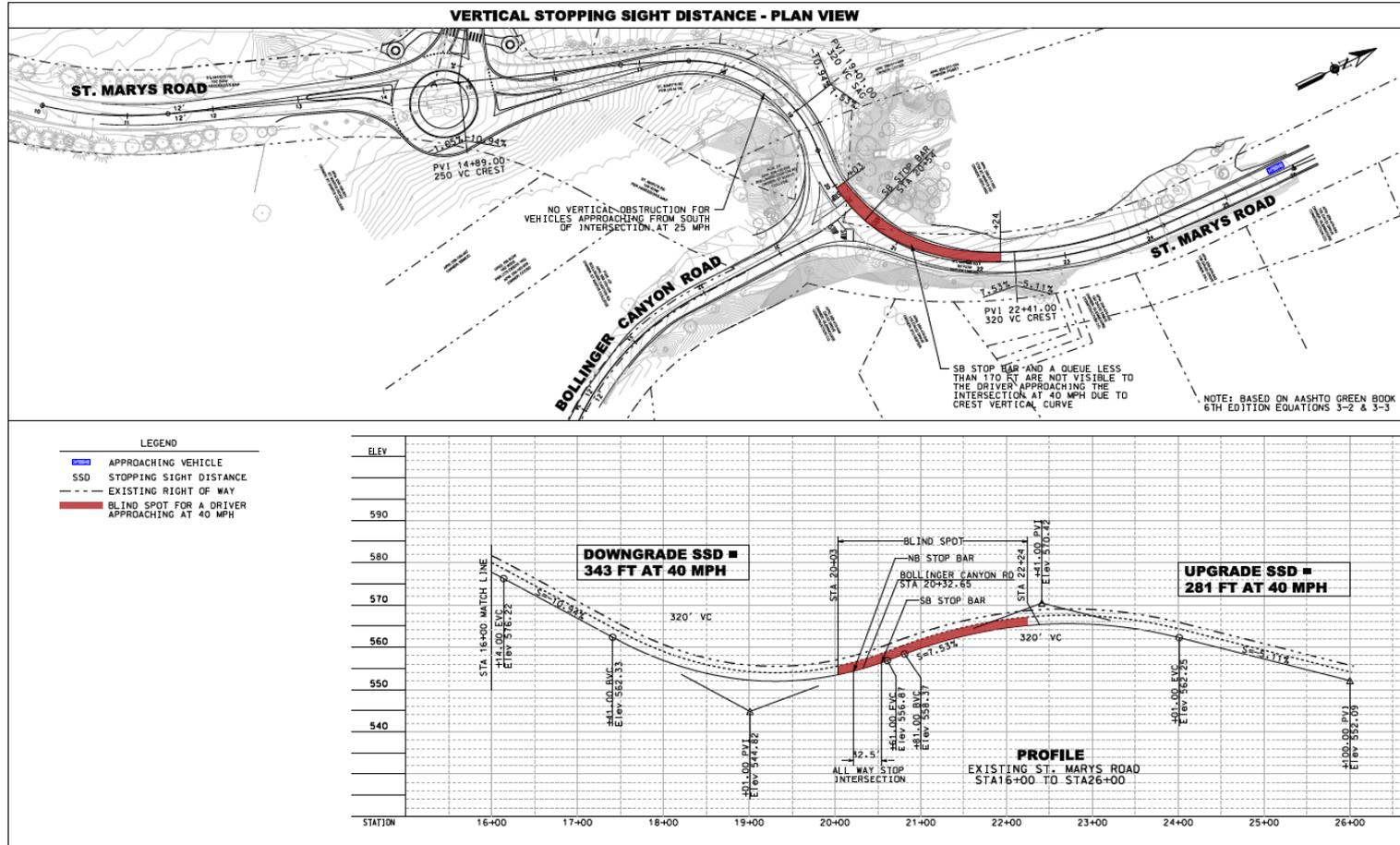
- Existing insufficient stopping sight distance and visibility issues
- Insufficient capacity to accommodate planned future growth
- Town's "Walk | Bike Plan" identified these 2 intersections throughout the report for improvements



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SAFETY: Sight Distance





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SAFETY: Roundabout Safety Features

- Reduced number of conflicts points from a typical intersection
- Single decision points for drivers
- Crash type/severity reduced by greatly reducing head-on and T-bone collisions



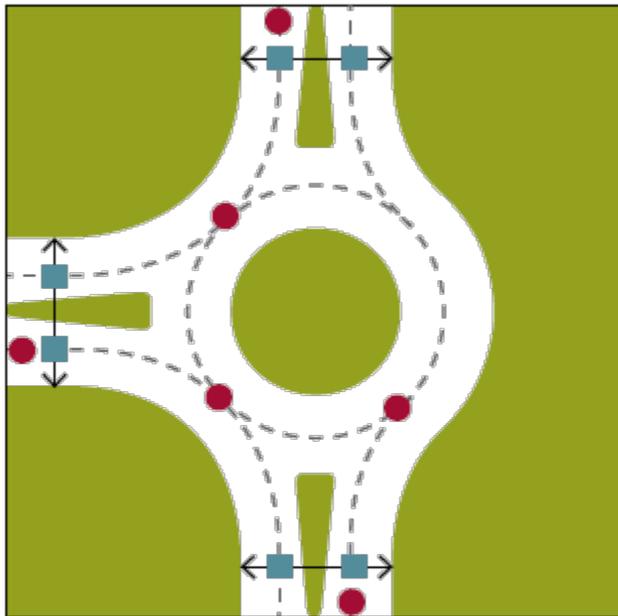
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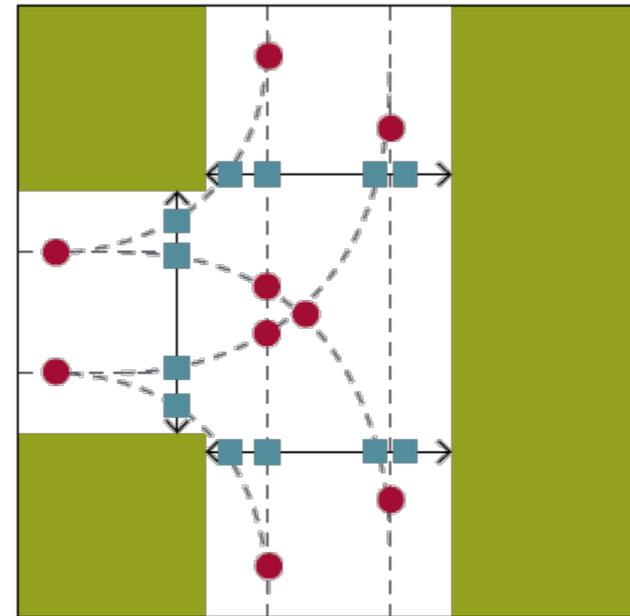
SAFETY: Reduced Collision Points & Single Decision Points

ROUNDBABOUT



- 6 VEHICLE CONFLICTS
- 6 PEDESTRIAN CONFLICTS

INTERSECTION



- 9 VEHICLE CONFLICTS
- 12 PEDESTRIAN CONFLICTS

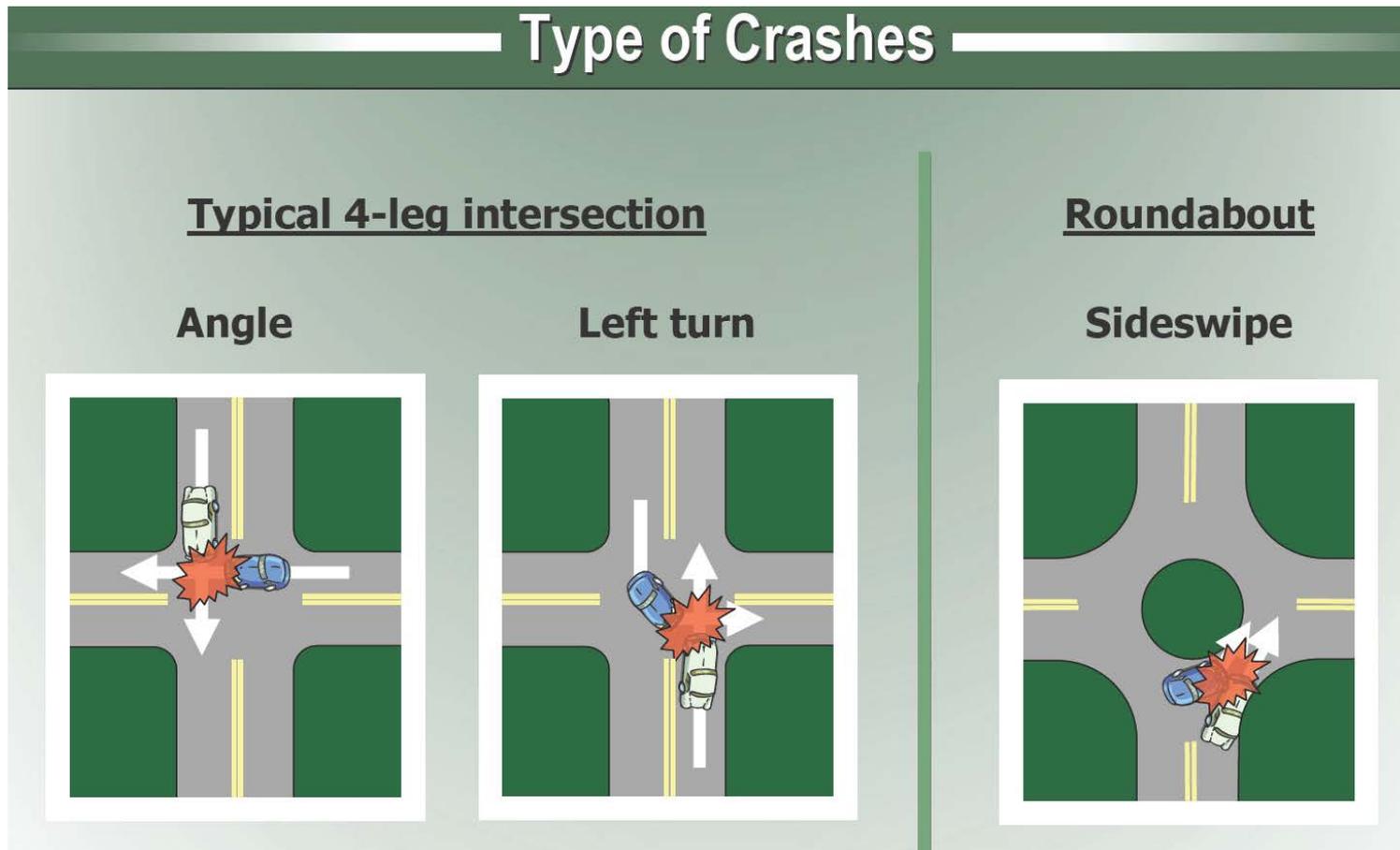


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SAFETY: Reduced Severity of Crashes





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SAFETY: Driver Tunnel Vision Effect



40 mph



30 mph



20 mph



15 mph

Figure 5.9. Driver focus at different speeds (Source: TGM 1999)



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ALTERNATIVES: Benefit/Cost Analysis

Performance Measures

In general, ICE analyses focus on five performance measures to calculate the benefit-cost ratio.

1. Safety
2. Delay (travel time reduction savings)
3. Emission reductions (not used in some states)
4. Operations and maintenance
5. Initial capital cost

Benefit Performance Measures calculate the benefits of an alternative compared to the existing condition

Cost Performance Measures calculate the added costs of an alternative compared to the existing condition



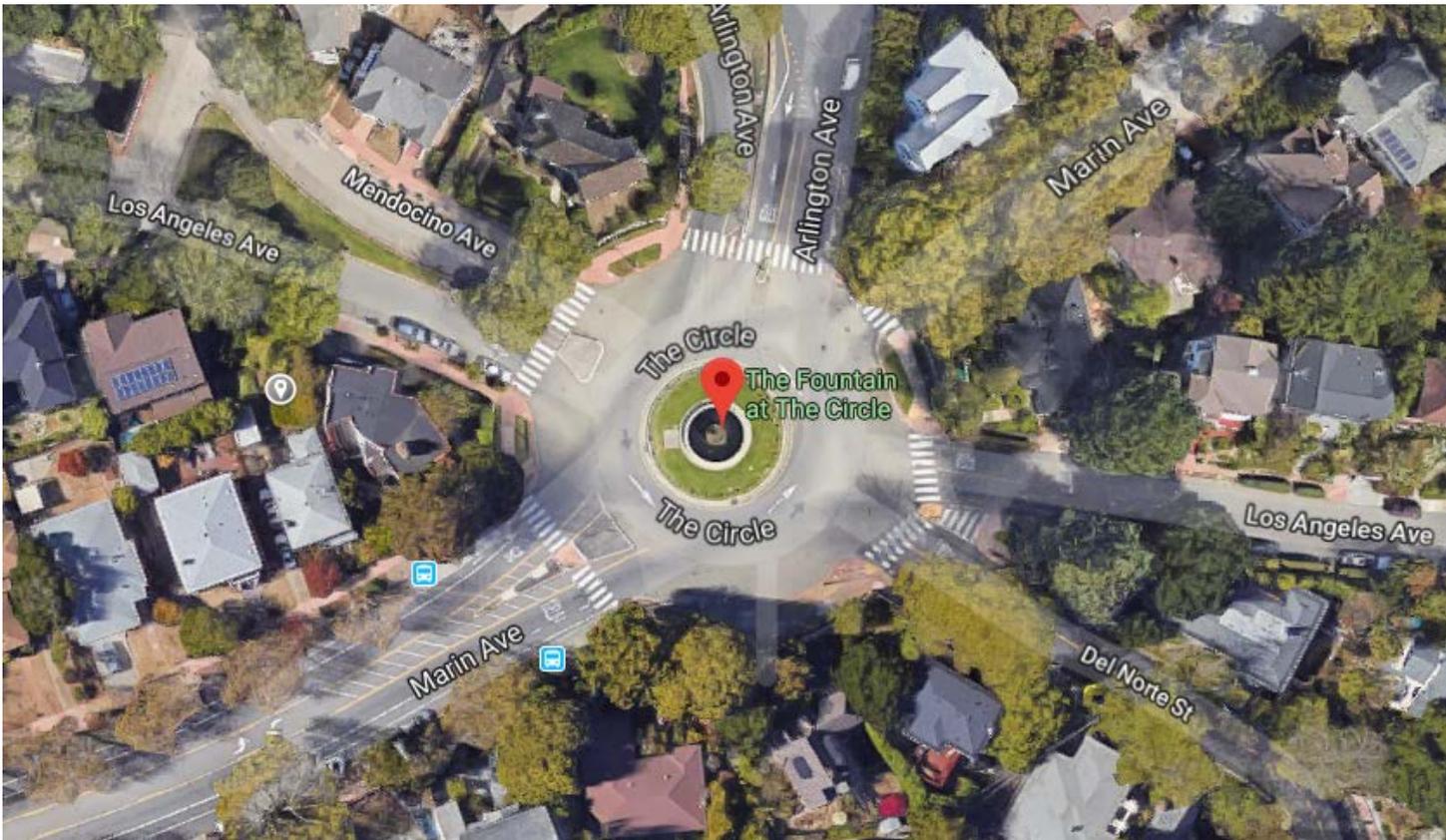


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ALTERNATIVES: Roundabout





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ALTERNATIVE: Mini-Roundabout



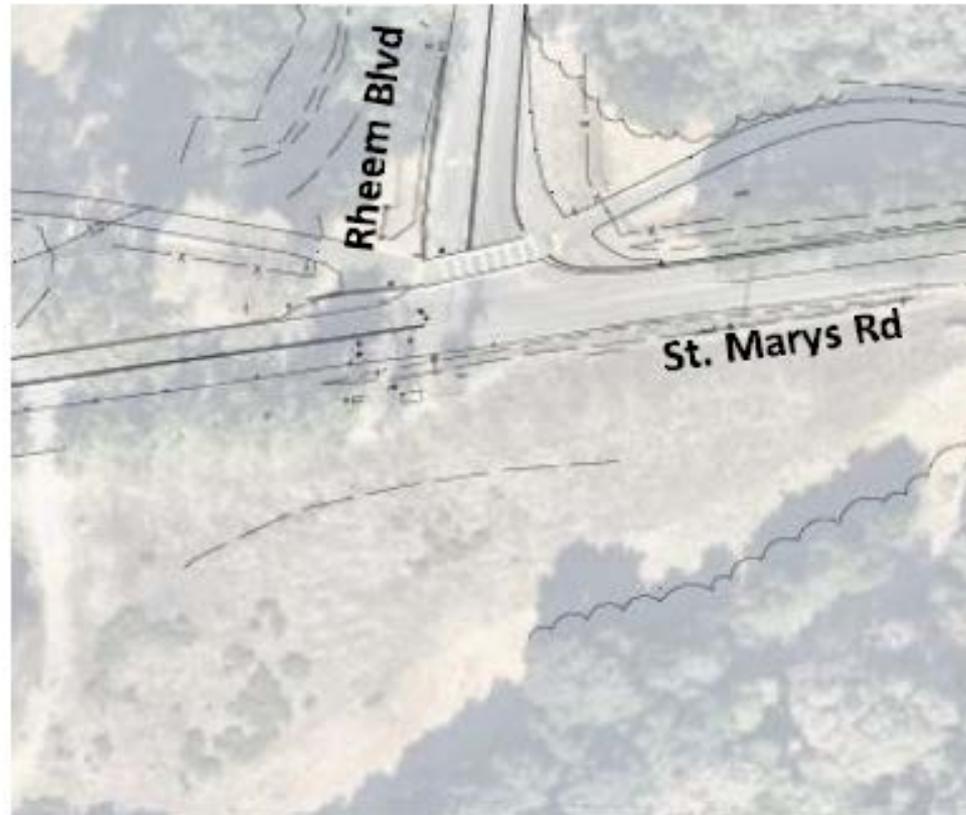


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Rheem Concept 1: Existing Configuration



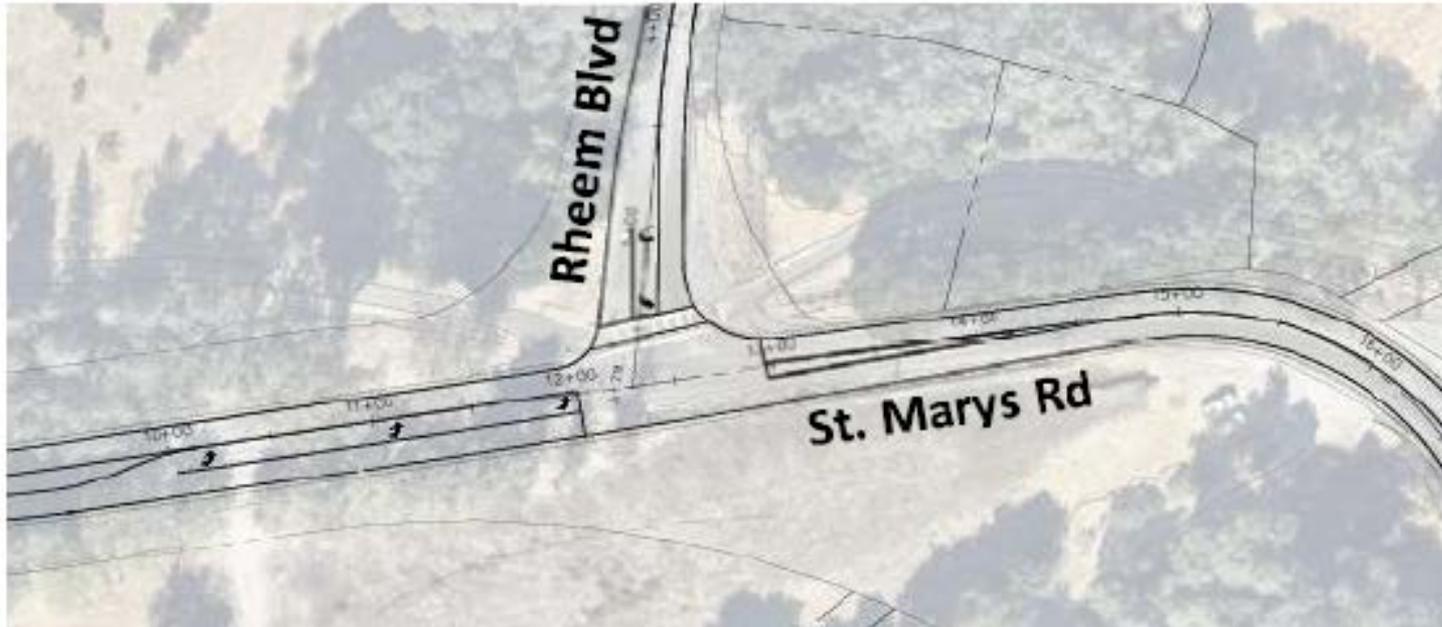


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Rheem Concept 3: Traffic Signal





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ALTERNATIVES: Benefit/Cost Analysis Results

St. Mary's Road at Rheem Boulevard	
Control Type	B/C Ratio Score
Existing	-
Signal	< 1.0
Roundabout	> 1.0



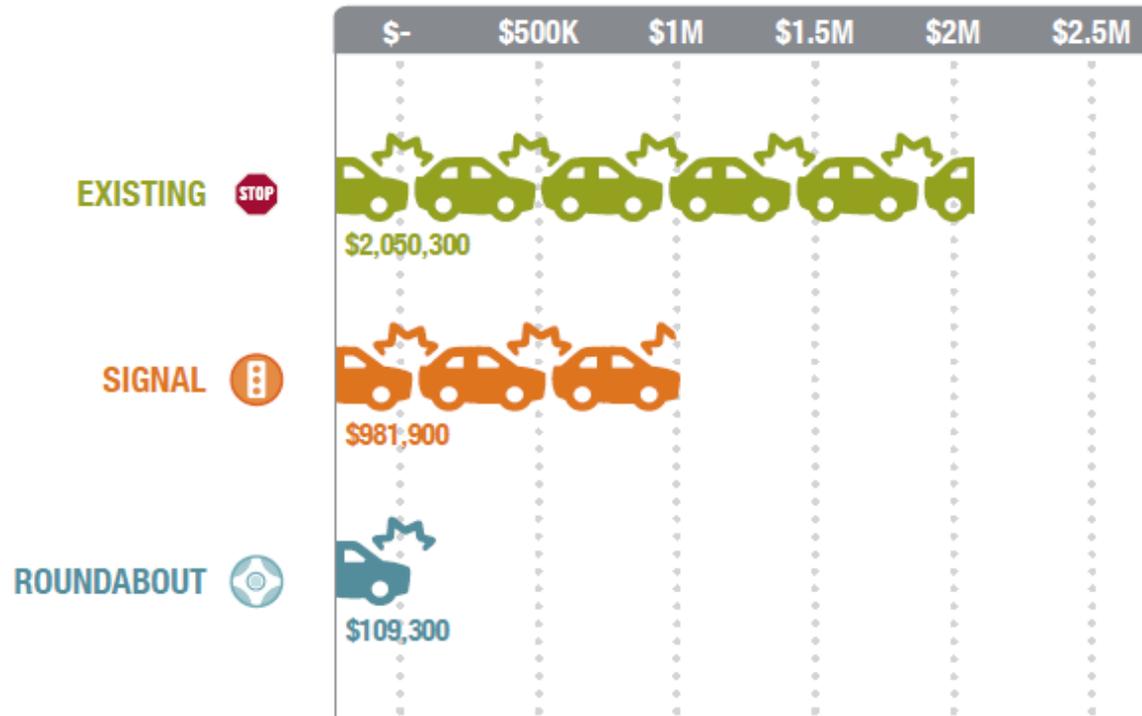
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Performance Measure Results: Rheem Boulevard Intersection

SAFETY COST



The cost of crashes for
SIGNAL is **9x**
more than **ROUNDBOUT**



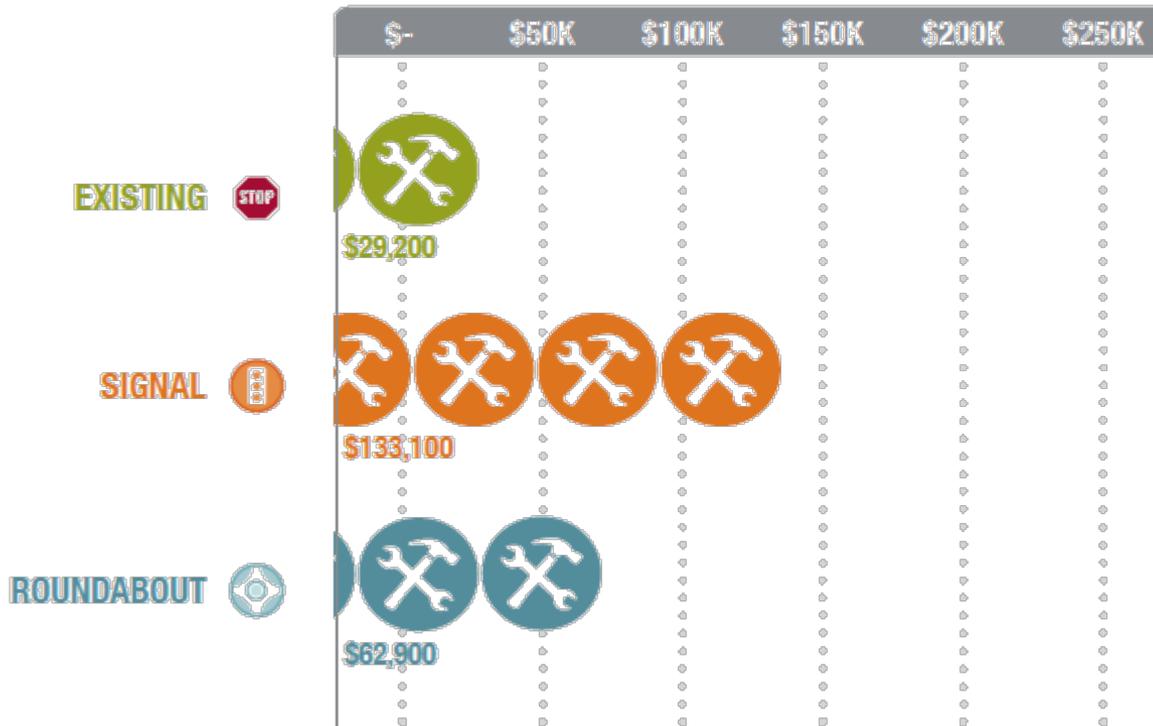
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Performance Measure Results: Rheem Boulevard Intersection

OPERATION & MAINTENANCE COST



The cost of O & M for **SIGNAL** is **2x** more than **ROUNDBOUT**



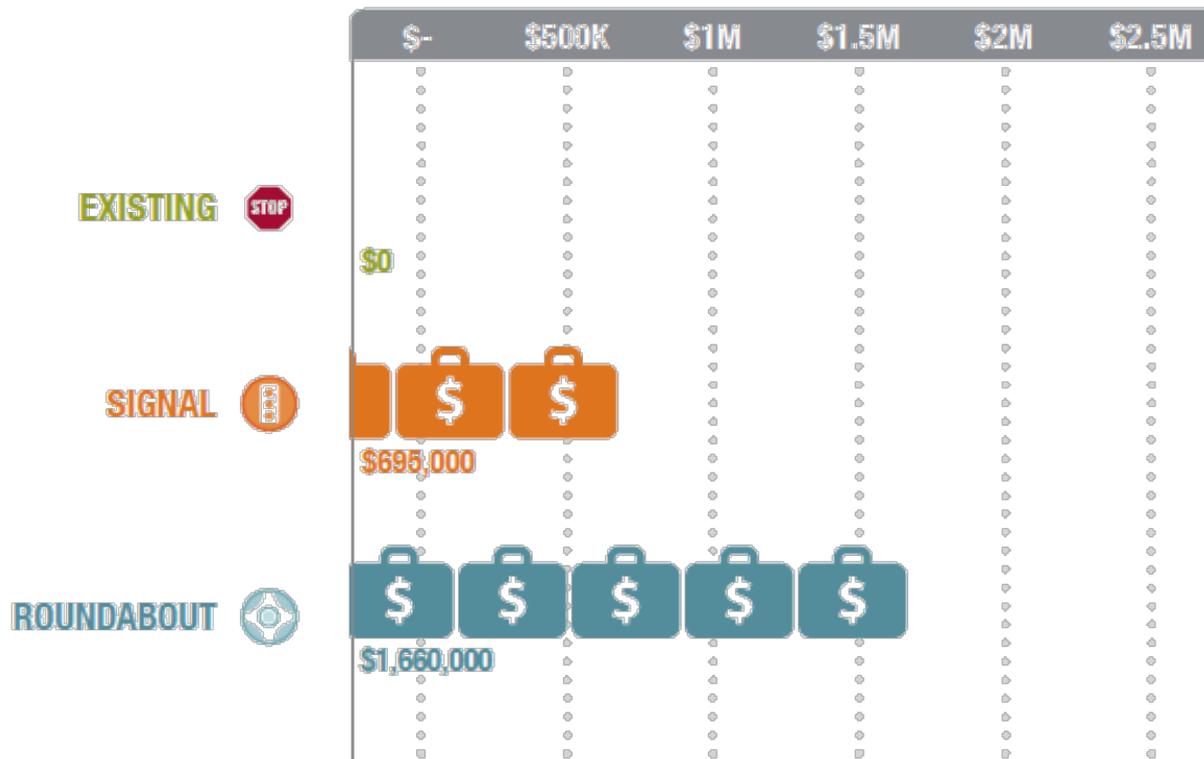
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Performance Measure Results: Rheem Boulevard Intersection

INITIAL CAPITAL COST



The initial capital cost for
ROUNDABOUT is **2.4x**
more than **SIGNAL**



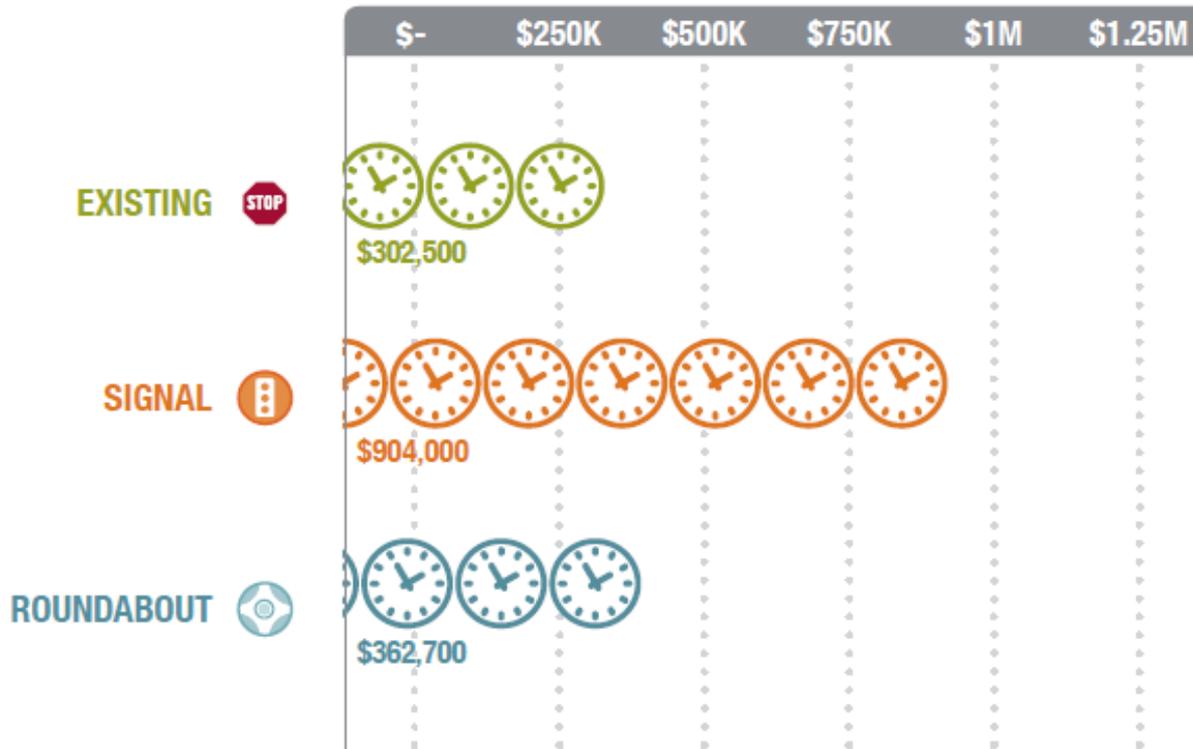
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Performance Measure Results: Rheem Boulevard Intersection

DELAY



The cost of delay for
SIGNAL is **2.5x**
more than **ROUNDABOUT**



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Performance Measure Results: Rheem Boulevard Intersection

EMISSIONS





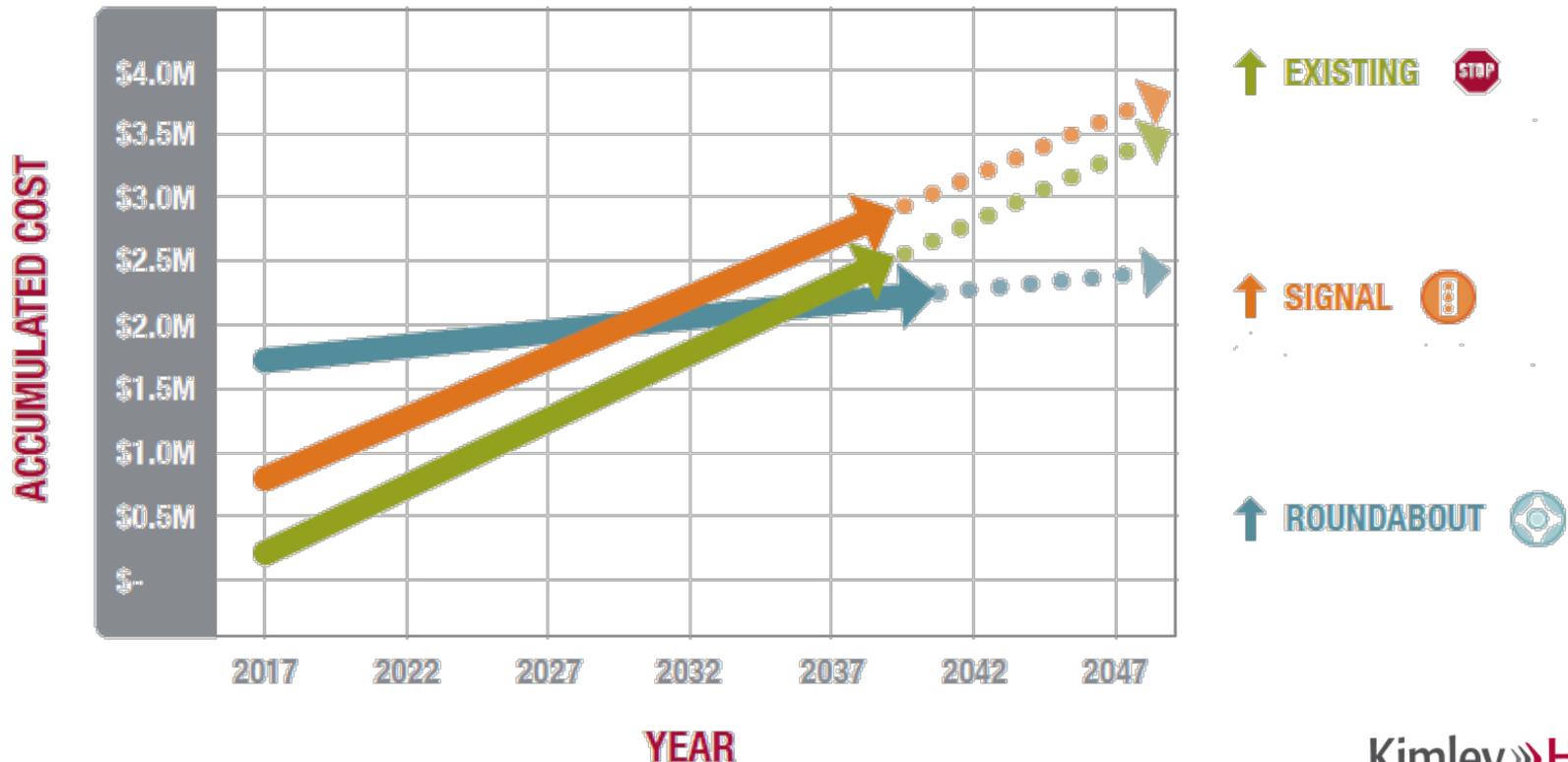
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Reviewing Alternatives: Rheem Boulevard Intersection

**ACCUMULATED COSTS BETWEEN PROPOSED ALTERNATIVES
AT ST. MARYS ROAD AND RHEEM BOULEVARD**





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Bollinger Concept 1: Existing Configuration



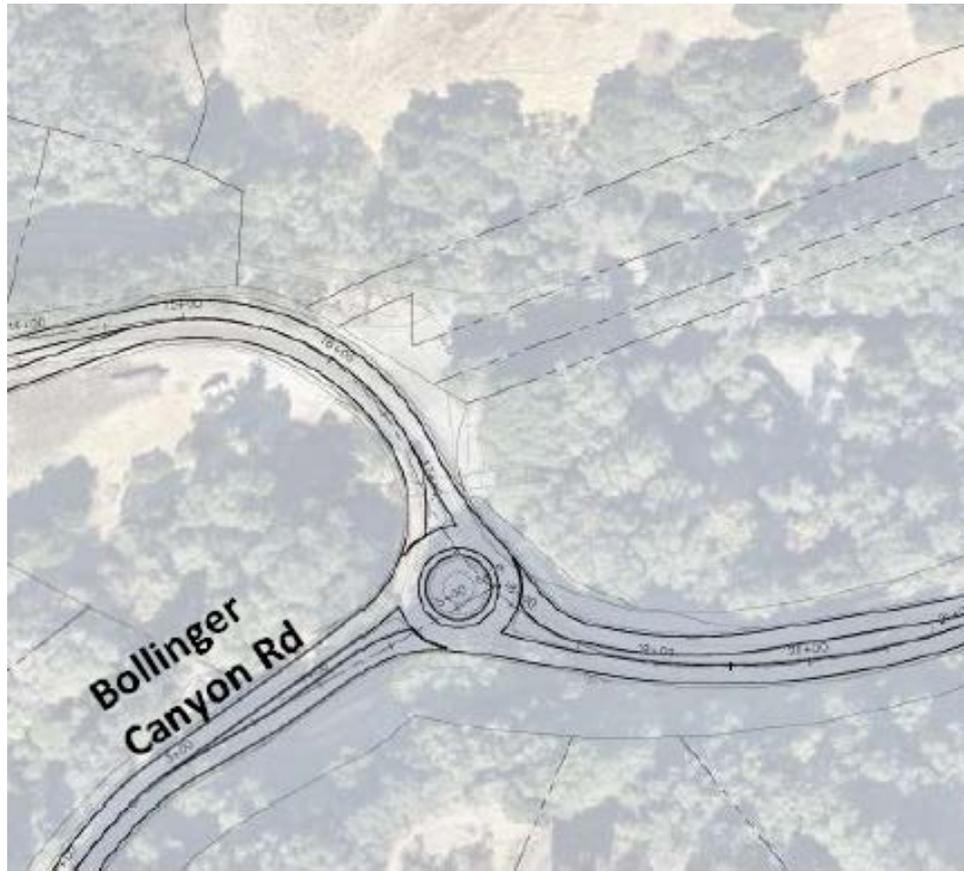


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Bollinger Concept 3: Mini-Roundabout



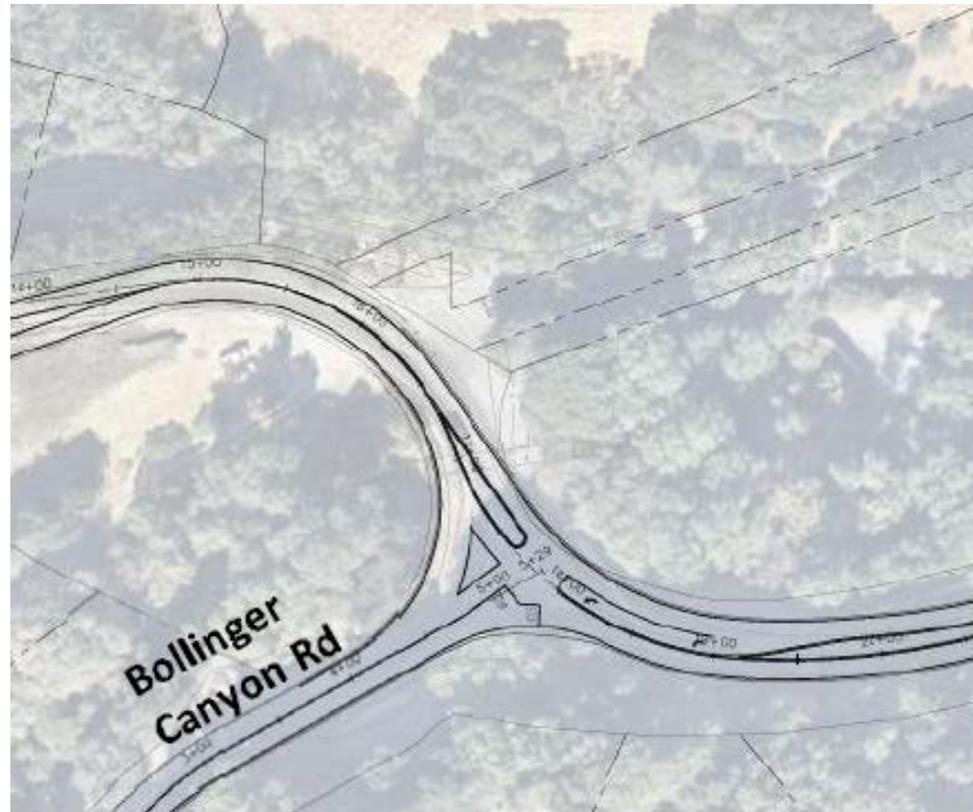


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Bollinger Concept 4: One Way Stop with Left-Turn Lane (along with roadway reconstruction for sight distance)





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ALTERNATIVES: Benefit/Cost Analysis Results

St. Mary's Road at Bollinger Canyon Road	
Control Type	B/C Ratio Score
Existing	-
All-Way Stop Control	< 1.0
Mini-Roundabout	> 1.0
One Way Stop Control w/Left Turn Lane	> 1.0



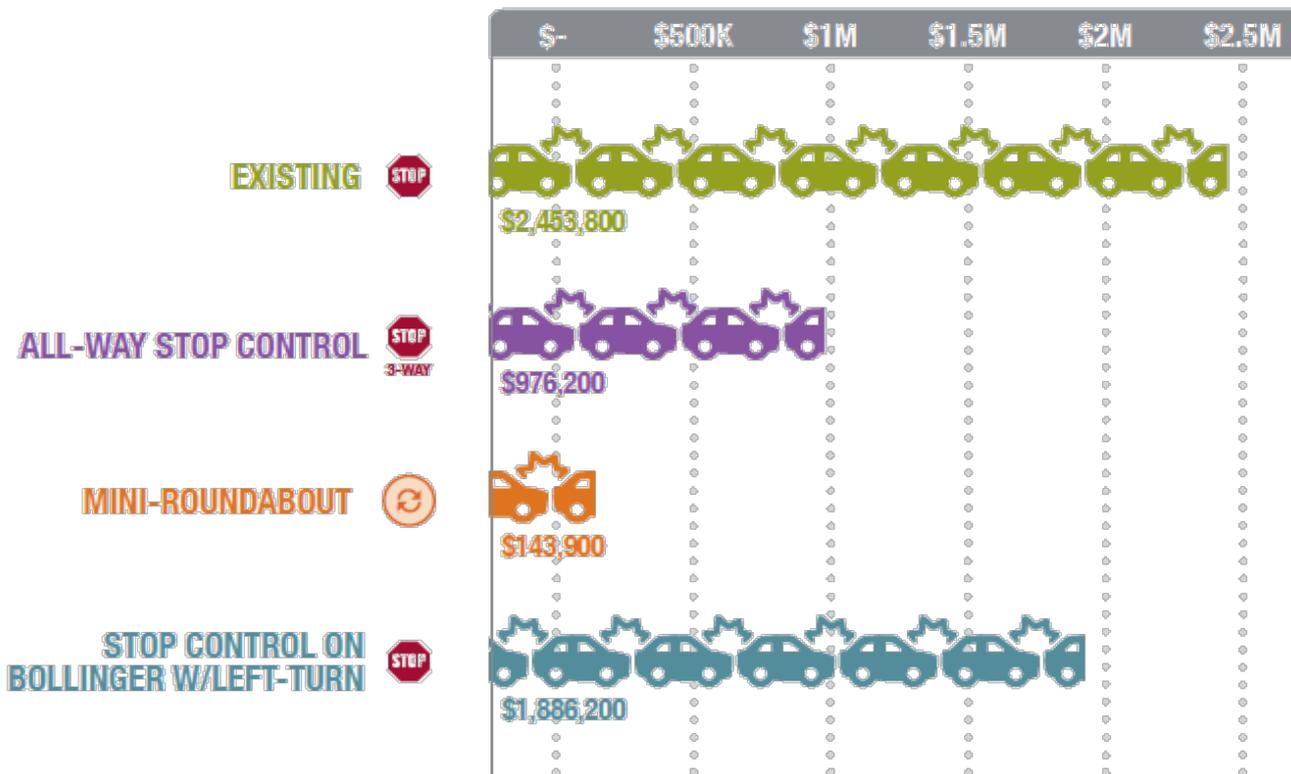
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Performance Measure Results: Bollinger Canyon Intersection

SAFETY COST



The cost of crashes for
STOP CONTROL ON
BOLLINGER W/LEFT-TURN is **2x**
more than ALL-WAY
STOP CONTROL & **13x**
more than MINI-ROUNDBABOUT



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Performance Measure Results: Bollinger Canyon Intersection

OPERATION & MAINTENANCE COST



STOP CONTROL ON BOLLINGER W/LEFT-TURN
The cost of STOP CONTROL ON BOLLINGER W/LEFT-TURN
is **10%** more than ALL-WAY STOP CONTROL
& MINI-ROUNDABOUT



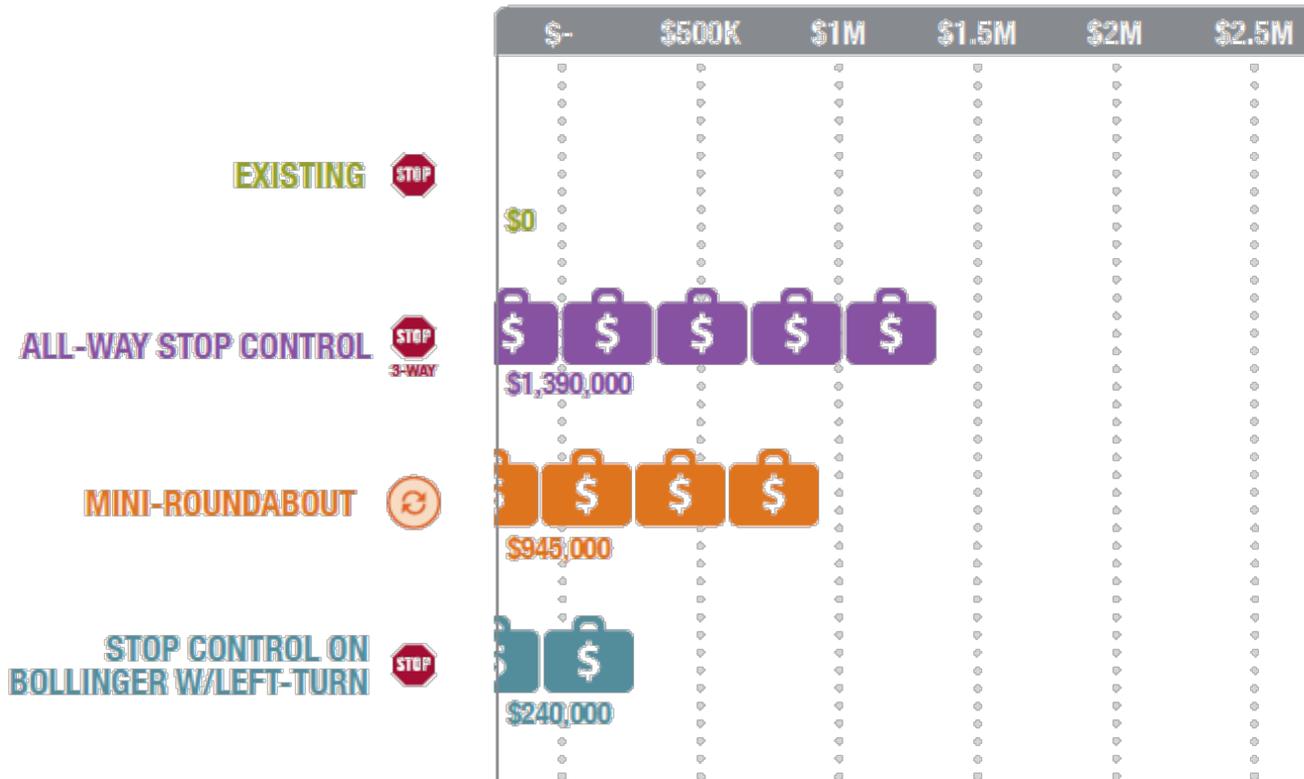
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Performance Measure Results: Bollinger Canyon Intersection

INITIAL CAPITAL COST



The initial capital cost for ALL-WAY STOP CONTROL is **1.5x** more than MINI-ROUNDABOUT & **5.8x** more than STOP CONTROL ON BOLLINGER W/LEFT-TURN



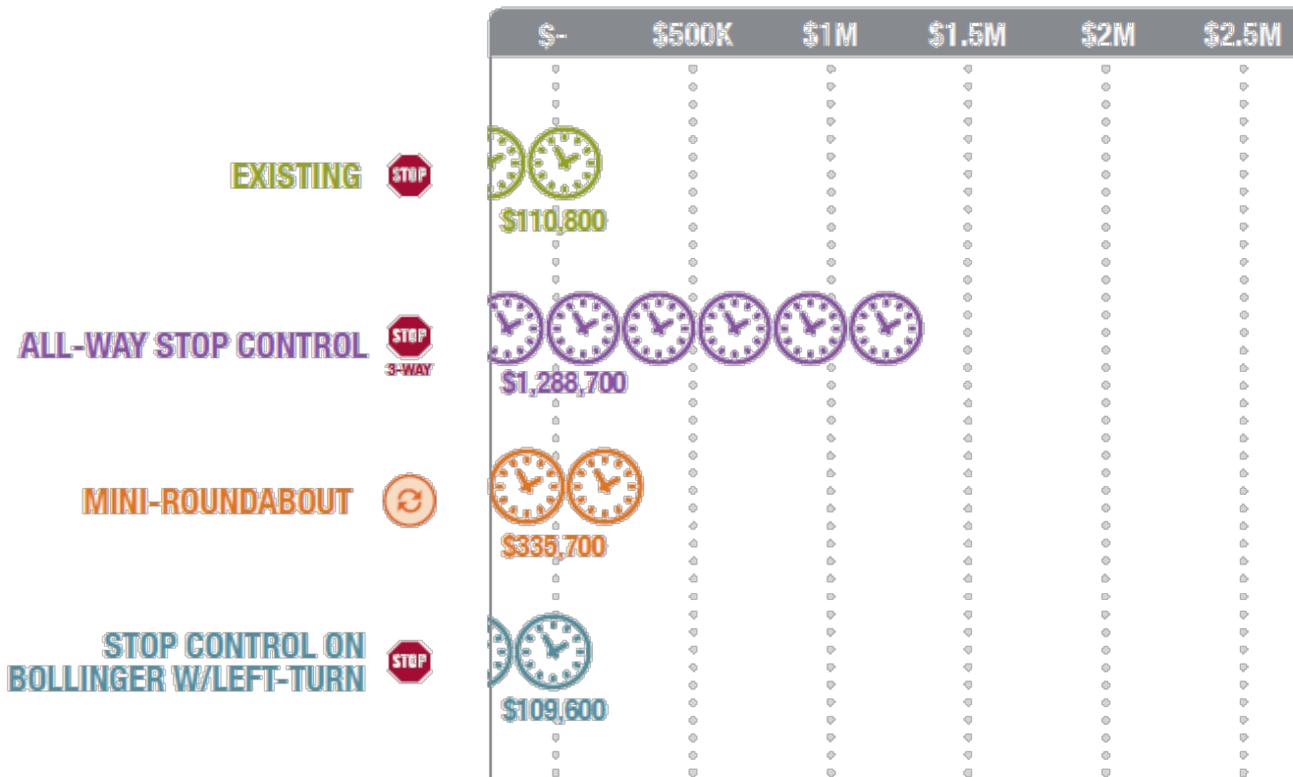
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Performance Measure Results: Bollinger Canyon Intersection

DELAY



The cost of delay for **ALL-WAY STOP CONTROL** is **4x** more than **MINI-ROUNDABOUT** & **12x** more than **STOP CONTROL ON BOLLINGER W/LEFT-TURN**



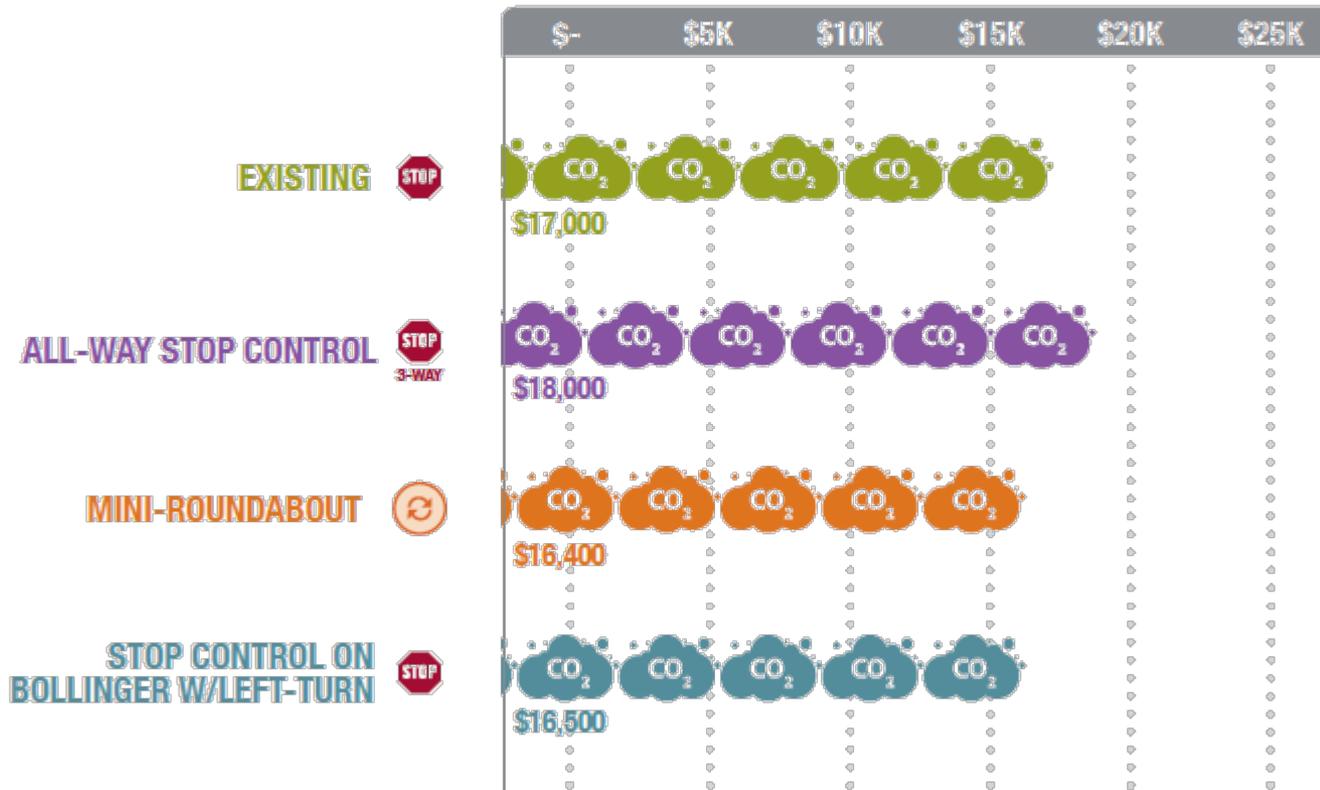
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Performance Measure Results: Bollinger Canyon Intersection

EMISSIONS





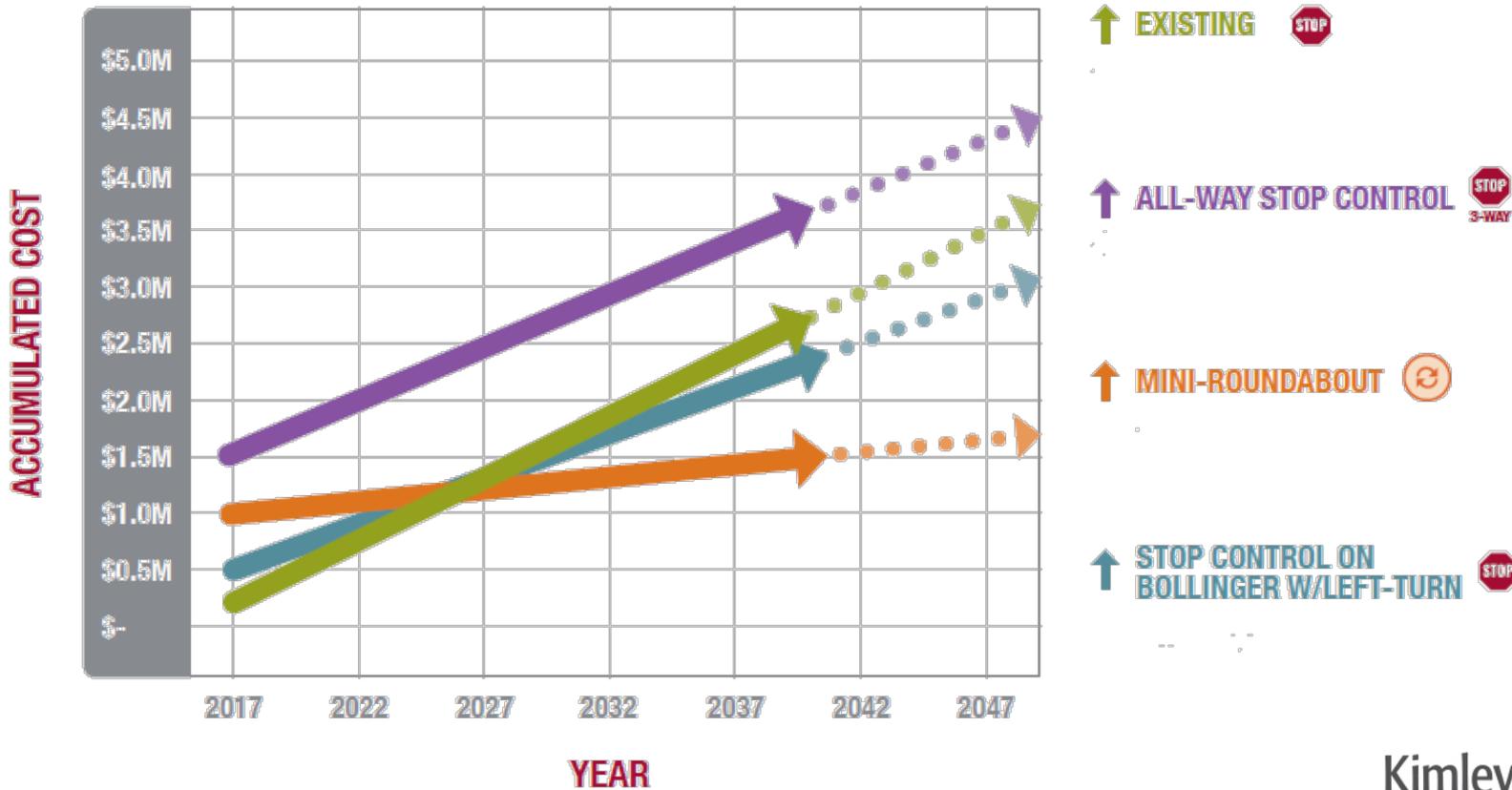
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Reviewing Alternatives: Bollinger Canyon Intersection

**ACCUMULATED COSTS BETWEEN PROPOSED ALTERNATIVES
AT ST. MARYS ROAD AND BOLLINGER CANYON ROAD**





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Traffic Signal and 3-Way Stop (AM)





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Roundabout and Mini-Roundabout (AM)





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Preferred Concept





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Project Funding

- Contra Costa Transportation Agency (CCTA) \$450,000
- Lamorinda Fee and Finance Authority (LFFA) \$140,707
 - Lafayette, Moraga and Orinda form the LFFA to collect developer fees to address regional congestion needs
 - CCTA and LFFA Funds are earmarked specifically for major regional routes (roadway improvements)
 - St. Mary's Road Roundabouts was CCTA & LFFA approved project
- Funding is specifically for the 35% design of roundabouts and must be returned if not completed



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Final Design and Construction Funding Opportunities

- Project Evolution

 - 2009 – Options included a bridge over the creek (\$11 M)

 - 2015 – 2 Full-sized roundabouts (\$7 Million)

 - 2017/18 – One full size and one mini roundabout (\$3 Million)

- Final Design and Construction Funding Opportunities

 - Highway Safety Improvement Program (HSIP)

 - State Transportation Improvement Program (STIP)

 - Active Transportation Program (ATP)

 - Contra Costa Transportation Authority (CCTA)



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Next Steps:

Complete CEQA (Spring 2019)

Complete 35% Design (Spring 2019)

For more information or additional comments:

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Project website: <http://www.moraga.ca.us/roundabouts>