



Public Works Agency
— Alameda County —

CROW CANYON ROAD SAFETY STUDY

PUBLIC MEETING #2

6:00pm

Open House

6:30pm

Presentation

7:15pm

Q&A

May 28, 2014





CROW CANYON ROAD SAFETY STUDY

Welcome

Introductions

BRIEF SUMMARY OF PUBLIC MEETING #1

- **Established that a Safety Study to identify *future* safety improvements was warranted:**
 - 93 accidents reported –2 fatal (2009-2012)
 - 30% of accidents were the result of unsafe speed
 - Over 50% of accidents involved multiple vehicles
 - Need to address safety issues to prevent future accidents
- **Discussed existing corridor characteristics**
 - Multi-use rural arterial
 - Varying alignment / constrained roadside conditions
- **Reviewed existing traffic conditions**
 - Study corridor divided into 5 segments
 - Identified traffic volumes and accident locations

BRIEF SUMMARY OF PUBLIC MEETING #1

- **Goals of the Safety Study / Identified improvement criteria**
- **Preliminary schedule for the Study**
- **Opportunities for community participation**
- **Received community input**

SAFETY STUDY GOALS

- Identify safety needs
- Identify / Recommend potential safety improvements
- Prioritize preferred improvements with community input
- Document potential improvements in a Project Study Report

PURPOSE OF THIS SECOND PUBLIC MEETING

- Summarize community input received to date
- Identify potential safety improvement locations
- Present potential safety improvements



CROW CANYON ROAD SAFETY STUDY

Community Input Received to Date

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Concern**
 - **Speeding**
 - Most vehicles exceeding speed limits
 - Tailgating
 - Illegal Passing/Crossing double yellow line

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Public Suggestions for Reducing Speeds**
 - Increase CHP enforcement/Alternate locations
 - Traffic signals for metering
 - Maintain existing roadway alignment
 - Rumble strips/speed bumps/textured pavement
 - Reduce 4-lane section to 2 lanes
 - Speed trailers pulling limit signs
 - Electronic speed monitors along road
 - 35 mph speed limit throughout corridor

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Concern**

- **Safety**

- MP 2.15 is high accident location
 - Fixed objects along roadside
 - Sight lines around curves (trees, fences, poles)
 - Narrow shoulders
 - Bicyclists
 - Animal casualties

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Public Suggestions for Improving Safety**
 - Lighting/Signing at MP 2.15
 - Two signals at MP 2.15
 - Widen shoulders
 - “Share the Road” signs
 - Barrier-separated bike lanes

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Concern**
 - **Driveway Access**
 - Safety/U-turns
 - Delays

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Public Suggestions for Improving Property Access**
 - Common access road for several parcels
 - Turn lanes at major driveways
 - Two-way-left-turn lanes

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Concern**
 - **Maintain Rural Character of Road/Corridor**
 - Truck traffic
 - Traffic noise
 - Loss of property frontage
 - By-pass for 680 to 580

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Public Suggestions for Maintaining Rural Features**
 - Limit truck traffic
 - Soundwalls
 - Have State improve 680,580

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Concern**
 - **Maintenance of Roadway**
 - Potholes
 - Shoulders
 - Erosion
 - Ponding

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Public Suggestions for Routine Maintenance**
 - Patch potholes
 - Maintain/clean shoulders
 - Address drainage problems

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- Public Suggestions Concerning “Character” of Crow Canyon Road
 - Convert to a toll road
 - Convert to a “Parkway” with limited access
 - Designate as a “Scenic Route”
 - Develop “major boulevard” in future around commercial/ residential development

SUMMARY OF COMMUNITY CONCERNS FROM PUBLIC MEETING #1

- **Most Common Community Concerns**
 - **Slow Down Traffic**
 - **Provide Safer Access to Adjacent Properties**
 - **Reduce Amount of Motor-Vehicle Traffic**

CROW CANYON ROAD SAFETY STUDY

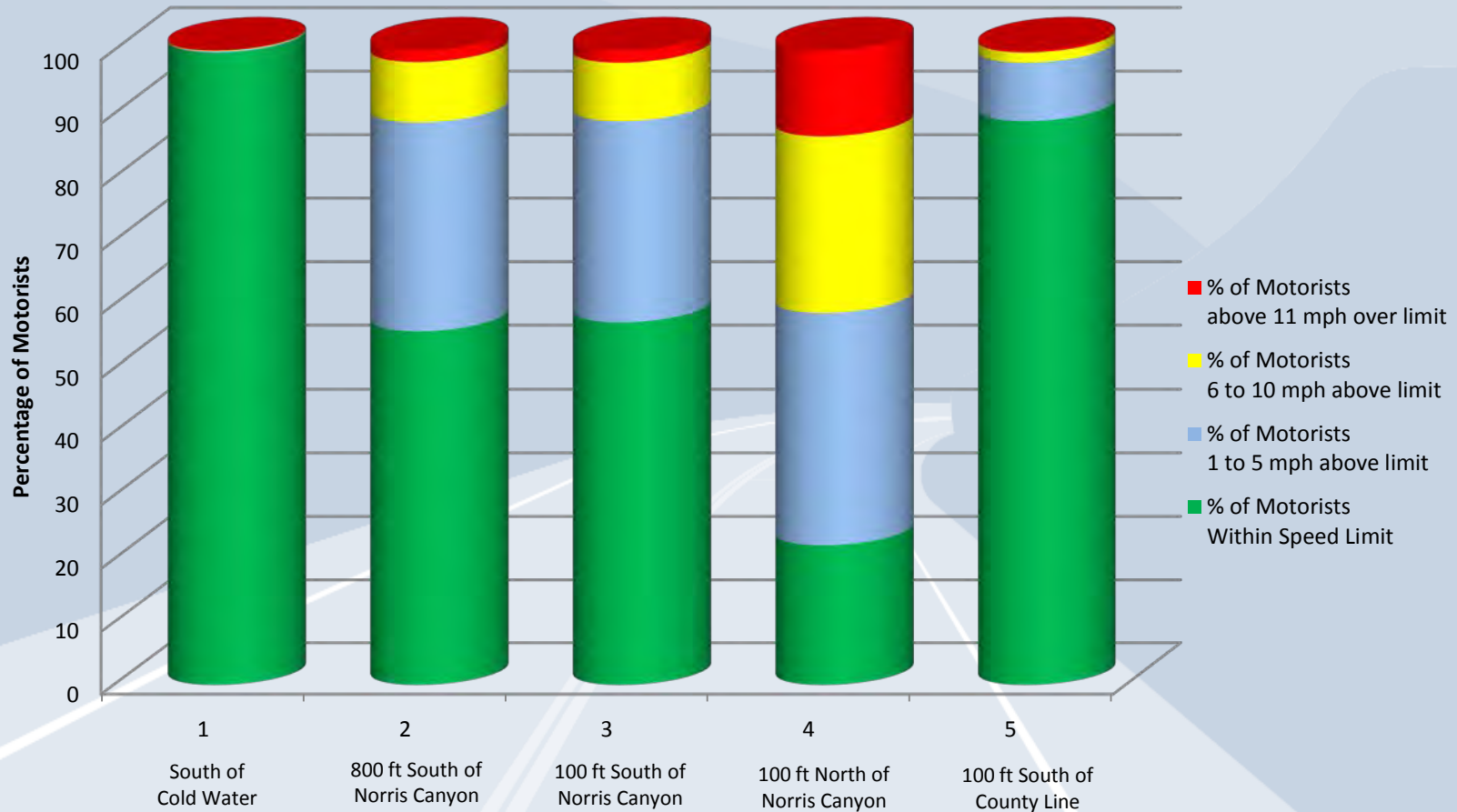
Identifying Locations for Potential Safety Improvements

IDENTIFYING LOCATIONS FOR POTENTIAL SAFETY IMPROVEMENTS

- **Analyzed locations identified from community input/ concerns**
 - Safety
 - Driveway access
 - Speeding
- **Reviewed 10 years of accident statistics**
 - Years 2003 to 2012
 - 342 total accidents
 - Plotted accident frequency by location and type of collision
- **Identified locations of accident “clusters”**
 - Evaluated “Type/Cause” of accidents within clusters
 - Studied roadway characteristics at cluster locations
 - Identified crash patterns/possible contributing factors

CROW CANYON ROAD VEHICLE SPOT SPEEDS

November 2012 24 hour Speed Summary



85th % tile speed
Posted Speed Limit
(Current)

33 mph
40 mph
(NB & SB)

49 mph
40 mph (NB)
35 mph (SB)

48 mph
40 mph (NB)
35 mph (SB)

59 mph
50 mph (NB)
45 mph (SB)

49 mph
45 mph
(NB & SB)

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CROW CANYON ROAD SAFETY STUDY

Selection of Potential Safety Improvements

SELECTION OF POTENTIAL SAFETY IMPROVEMENTS

- Criteria for safety improvements or “Countermeasures”
- Countermeasure goals
- Established guidelines for safety improvements
- Potential to receive project funding

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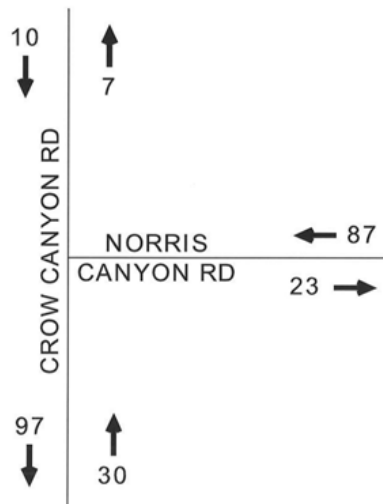
PROPOSED SAFETY IMPROVEMENTS CRITERIA

- Consideration of multi-use corridor
- Accommodation of multi-modal traffic
- Address historical areas of concern
 - Accident locations
 - Maintenance issues
- Minimize environmental impact
- Incorporate “Context Sensitive” solutions
- Community Support

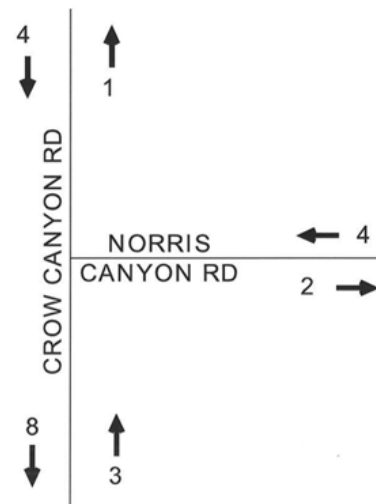
CROW CANYON ROAD SAFETY STUDY

BICYCLE COUNTS MARCH 2013

SATURDAY



MONDAY



PROPOSED SAFETY IMPROVEMENTS CRITERIA

- Consideration of multi-use corridor
- Accommodation of multi-modal traffic
- **Address historical areas of concern**
 - Accident locations
 - Maintenance issues
- **Minimize environmental impact**
- **Incorporate “Context Sensitive” solutions**
- **Community Support**

SELECTION OF POTENTIAL SAFETY IMPROVEMENTS

- Criteria for safety improvements or “Countermeasures”
- **Countermeasure goals**
- Established guidelines for safety improvements
- Potential to receive project funding

CROW CANYON ROAD SAFETY STUDY

- **Countermeasure Goals**
 - Address “unsafe speed”
 - Improve safe ingress/egress
 - Improve multi-modal safety
 - Decrease accident frequency and severity

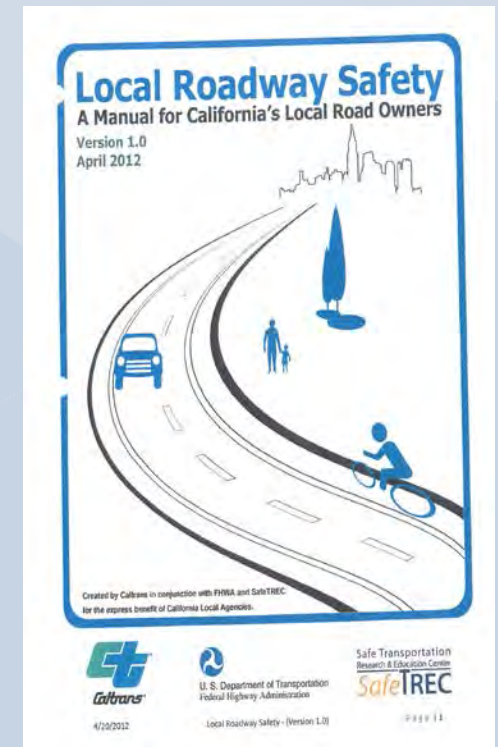
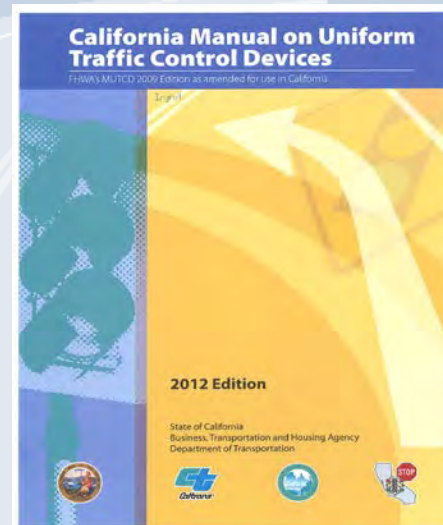
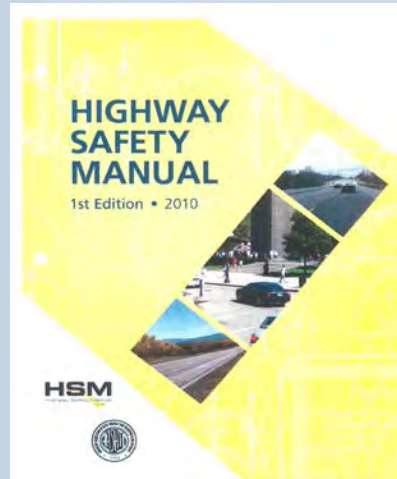
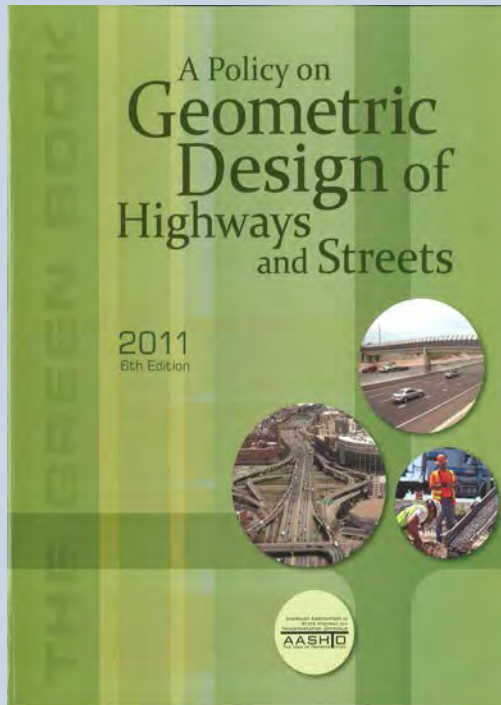
SELECTION OF POTENTIAL SAFETY IMPROVEMENTS

- Criteria for safety improvements or “Countermeasures”
- Countermeasure goals
- **Established guidelines for safety improvements**
- Potential to receive project funding



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Alameda County

ROADWAY SAFETY GUIDELINES



SELECTION OF POTENTIAL SAFETY IMPROVEMENTS

- Criteria for safety improvements or “Countermeasures”
- Countermeasure goals
- Established guidelines for safety improvements
- **Potential to receive project funding**

Federal / State Programs:

- Highway Safety Improvement Program (HSIP)
- High Risk Rural Roads (HR3)

Projects selected based upon:

Accident rates for fatalities/serious injuries exceeds statewide average

Benefit/Cost (B/C) > 1

Local Programs:

Alameda County Transportation Commission (ACTC)

Projects selected based upon:

“Complete Streets” elements in
project design

CROW CANYON ROAD SAFETY STUDY

Timeline to implement potential improvements

- Short-Term: 2 years to 4 years
- Medium-Term: 4 years to 10 years
- Long-Term: Beyond 10 years

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Proposed Potential Countermeasures

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- **Proposed Potential Countermeasures**
 - Speed Feedback Signs
 - CHP Enforcement Areas
 - Two-Way Left Turn Lane
 - Left Turn Lane (Left-in / Left-out) (Spot Locations)
 - Shoulder Widening – 8' at Driveways
 - Additional Lighting/Signing (where needed)
 - Increase Shoulder Maintenance
 - Reduce from 4-lane to 2-lane (with turn-outs)
 - Reduce from 4-lane to 2-lane NB / I-Lane SB
 - Guardrails (where needed)
 - Shoulder Widening (4' Shoulder / 2' Painted Buffer)with Median Rumble Strip
 - Roundabouts
 - Tunnel at MP 2.15 – NB
 - Tunnel at MP 2.15 – Both Directions

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- Proposed Countermeasures Determined Not Feasible
 - Convert to a toll road
 - Convert to a “Parkway” with limited access
 - Designate as a “Scenic Route”
 - Develop “Major Boulevard” in future around increased development
 - Limit truck traffic
 - Improve I-680 and I-580 (by State)
 - Common “Access Road” for several parcels
 - Barrier-separated bike lanes
 - Traffic signals to control speeds
 - Speed bumps
 - 35 mph speed limit throughout corridor

Countermeasure Evaluation

PROPOSED COUNTERMEASURE EFFECTIVENESS

POTENTIAL COUNTERMEASURES	REDUCTION IN EXPECTED AVERAGE ACCIDENT FREQUENCY*	
	Range	CT Value
Speed Feedback Signs	0-41%	30%
CHP Enforcement Areas	N/A	N/A
Two-Way Left Turn Lane	8-50%	30%
Left Turn Lane (Left-in / Left-out) (Spot Locations)	9-55%	35-50%
Shoulder Widening – 8’ at Driveways	10-78%	25%
Additional Lighting/Signing (where needed)	18-69% / 20-30%	35% / 25%
Increase Shoulder Maintenance	N/A	N/A
Reduce from 4-lane to 2-lane (with turn-outs)	N/A	N/A
Reduce from 4-lane to 2-lane NB / I-Lane SB	N/A	N/A
Guardrails (where needed)	11-78%	25%
Shoulder Widening (4’ Shoulder / 2’ Painted Buffer) with Median Rumble Strip	15-75%	30%
Roundabouts	N/A	N/A
Tunnel at MP 2.15 – NB (Improve horizontal align)	24-90%	50%
Tunnel at MP 2.15 – Both Directions (Improve horizontal align)	24-90%	50%

* Local Roadway Safety: A Manual for California’s Local Road Owners Version 1.0, April 2012

COUNTERMEASURE EVALUATION CRITERIA

Engineering Criteria Matrix

Improves Safety						Traffic Circulation	Traffic Operations	Construction Impacts	Fiscal Impacts					
Address Potential Locations	Improves Corridor Safety	Provides Enhanced Enforcement	Potential for Reducing Speeds	Increases Off-Road Recovery Space	Addresses MP2.15	Improves Regional Mobility	Improves Local Traffic Access	Improves Corridor Operations	Constructability	Utility Impacts	Maintenance of Traffic	Range of Total Cost	Cost Effectiveness (B/C)	Fundable (Meets HSIP/HR1/ACTC Criteria)



Identified Community Concerns


COUNTERMEASURE EVALUATION CRITERIA

Community Criteria Matrix

R/W Impacts		Improves Non-Motorized Mobility	Emergency Services
Loss of Frontage Property	Potential Driveway Impacts	Encourages Bicycle Use	Impacts to Response Time

Environmental Criteria Matrix

Minimizes Environmental Impact							
Crow Creek	Wetlands	Threatened/Endangered Species	Historical Property/Archaeological Sites	Noise	Stormwater Impacts	Permitting Requirements	Preserves Rural Character

 Identified Community Concerns

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Potential Safety Improvements

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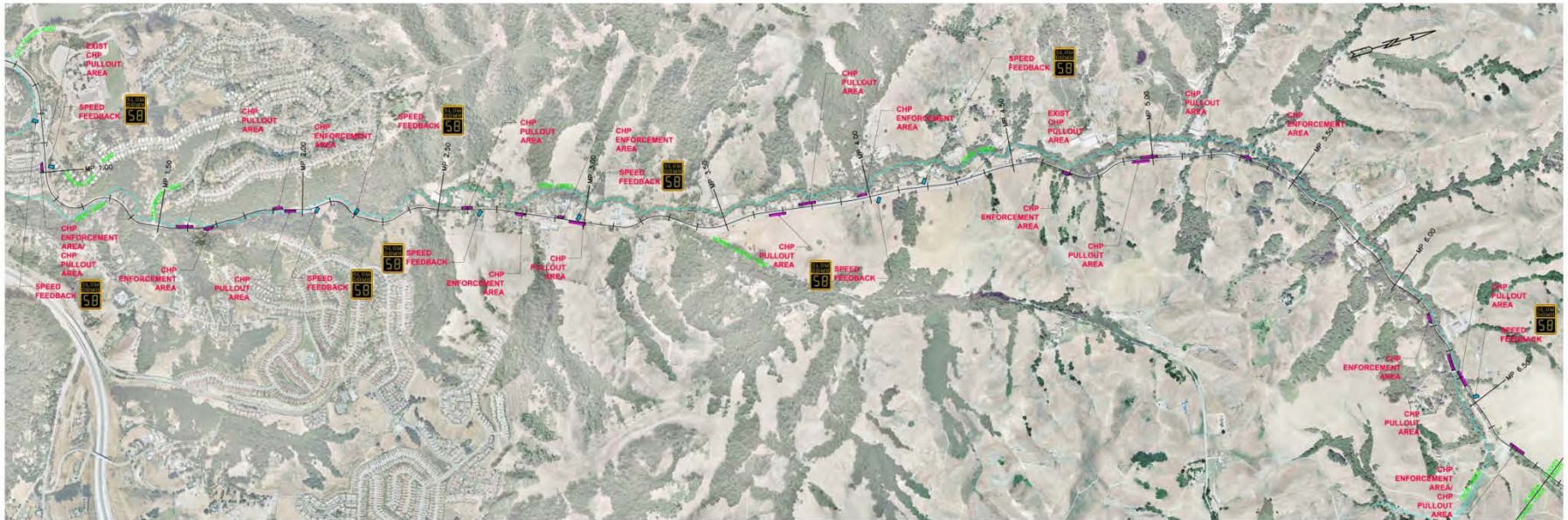
- **Within the 6 mile study corridor –**

“Unsafe Speed” or “Driving too fast for roadway conditions” (weather, unforeseen obstacles, etc.) was the primary collision factor for over 35% of accidents occurring over the last 10 years.



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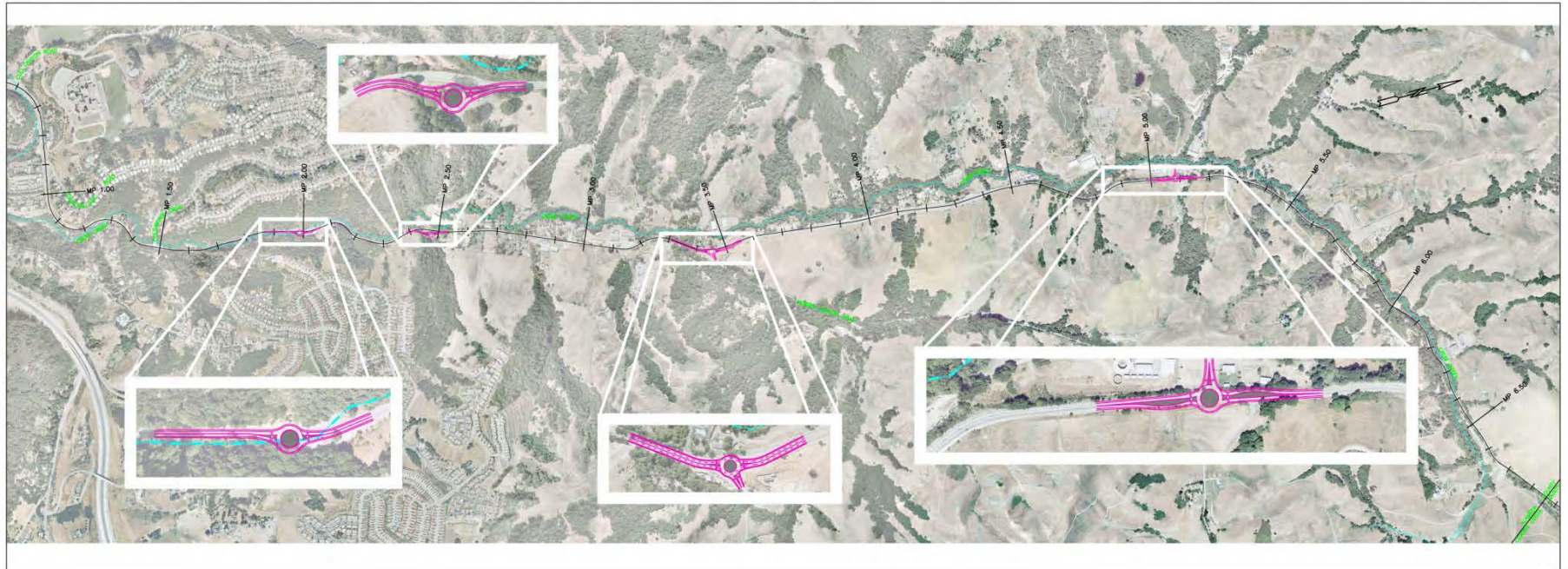
CROW CANYON ROAD SAFETY STUDY



CROW CANYON ROAD SAFETY STUDY POTENTIAL CORRIDOR SPEED REDUCTION COUNTERMEASURES SHORT TERM - ENHANCED SPEED ENFORCEMENT

SCALE: 1"=400'

CROW CANYON ROAD SAFETY STUDY

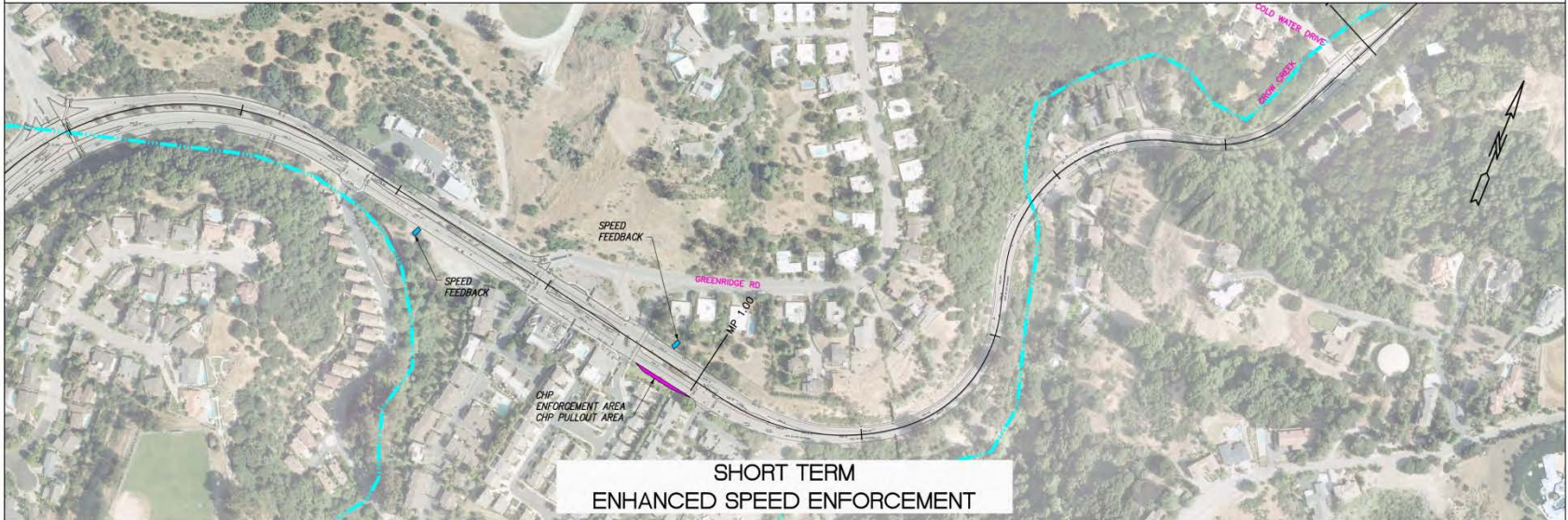




- LEGEND:
- A ALCOHOL/DRUG-RELATED
 - C CLEAR, DRY PAVEMENT
 - D DAYLIGHT
 - K DAWN/DUSK
 - L DARK WITH STREET LIGHTS
 - M MUD/SILT ON PAVEMENT
 - N DARK, NO STREET LIGHTS
 - W WET PAVEMENT
 - # ACCIDENT ID NUMBER
 - * SEE BACKUP FOR ADDITIONAL DETAIL

2003 - 2012 ACCIDENT LOCATIONS

- LEGEND:
- ANIMAL-INVOLVED
 - BROADSIDE
 - FATALITY
 - HEAD-ON
 - HIT OBJECT
 - INJURY
 - OVERTURN
 - REAR-END
 - SIDESWIPE



SHORT TERM ENHANCED SPEED ENFORCEMENT



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POTENTIAL COUNTERMEASURES
SEGMENT 1

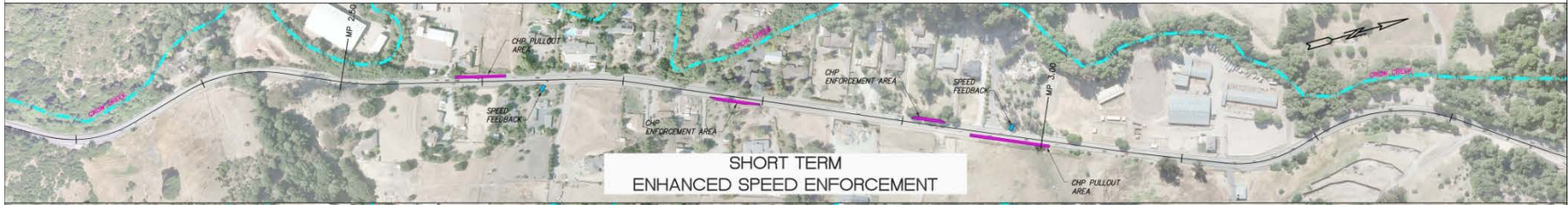
SCALE: 1"=100'



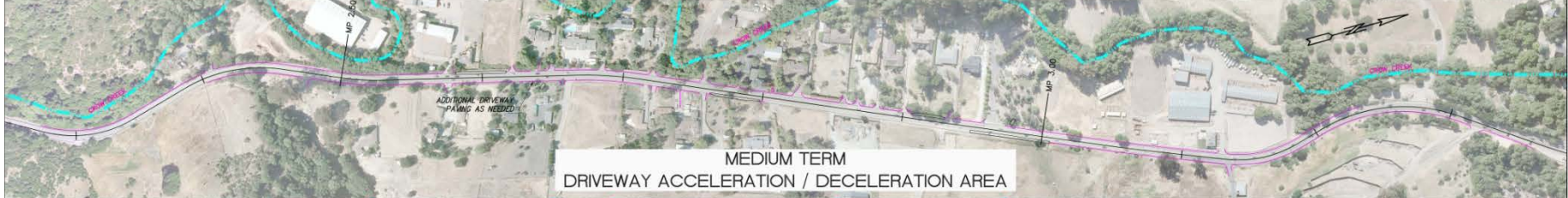
2003 - 2012 ACCIDENT LOCATIONS

LEGEND:

A ALCOHOL/DRUG-RELATED	M MUD/SILT ON PAVEMENT	↔ ANIMAL-INVOLVED	⊕ INJURY
C CLEAR, DRY PAVEMENT	N DARK, NO STREET LIGHTS	↔ BROADSIDE	⊖ OVERTURN
D DAYLIGHT	W WET PAVEMENT	⊕ FATALITY	↔ REAR-END
K DAWN/DUSK	# ACCIDENT ID NUMBER	↔ HEAD-ON	↔ SIDESWIPE
L DARK WITH STREET LIGHTS	• SEE BACKUP FOR ADDITIONAL DETAIL	↔ HIT OBJECT	



SHORT TERM
ENHANCED SPEED ENFORCEMENT



MEDIUM TERM
DRIVEWAY ACCELERATION / DECELERATION AREA



LONG TERM
TWO-WAY LEFT-TURN LANE



CROW CANYON ROAD SAFETY STUDY

POTENTIAL COUNTERMEASURES
SEGMENT 3

SCALE: 1"=100'



2003 - 2012 ACCIDENT LOCATIONS

LEGEND:

A ALCOHOL/DRUG-RELATED	M MUD/SILT ON PAVEMENT	ANIMAL-INVOLVED	INJURY
C CLEAR, DRY PAVEMENT	N DARK, NO STREET LIGHTS	BRIDGE	OVERTURN
D DAYLIGHT	W WET PAVEMENT	FATALITY	REAR-END
R RAIN/DU/SK	# ACCIDENT ID NUMBER	HEAD-ON	SIDESWIP
L DARK WITH STREET LIGHTS	* SEE BACKUP FOR ADDITIONAL DETAIL	HIT OBJECT	



SHORT TERM
ENHANCED SPEED ENFORCEMENT



MEDIUM TERM
4-LANE LT TURN IN AND OUT



LONG TERM
2-LANE LT TURN IN AND OUT - OPTION 1



LONG TERM
2-LANE LT TURN IN AND OUT - OPTION 2



CROW CANYON ROAD SAFETY STUDY

POTENTIAL COUNTERMEASURES
SEGMENT 4

SCALE: 1"=100'



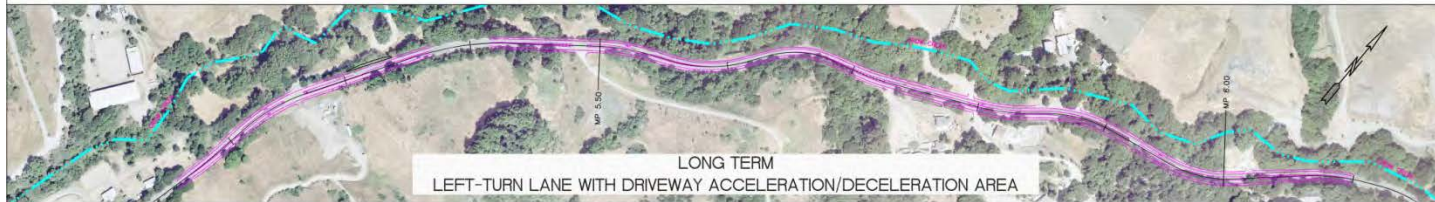
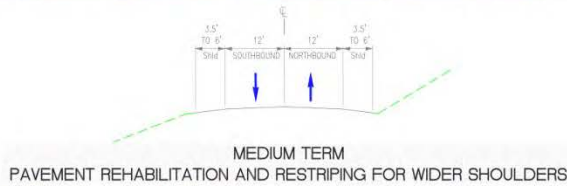
2003 - 2013 ACCIDENT LOCATIONS

LEGEND:

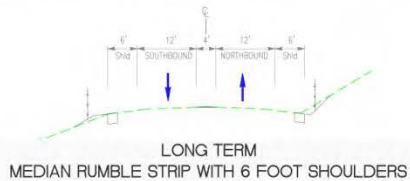
A ALCOHOL/DRUG-RELATED	M MOLE/SILT ON PAVEMENT	ANIMAL-INVOLVED	INJURY
C CLEAR, DRY PAVEMENT	N DARK, NO STREET LIGHTS	BROADSIDE	REAR-END
D DAYLIGHT	W WET PAVEMENT	FATALITY	REAR-END
J DAWN/DUSK	# ACCIDENT ID NUMBER	HEAD-ON	SIDEWIPER
I DARK WITH STREET LIGHTS	* SEE BACKUP FOR ADDITIONAL DETAIL	HIT OBJECT	



SHORT TERM
ENHANCED SPEED ENFORCEMENT



LONG TERM
LEFT-TURN LANE WITH DRIVEWAY ACCELERATION/DECELERATION AREA



MEDIAN RUMBLE STRIP EXAMPLE

CROW CANYON ROAD SAFETY STUDY

POTENTIAL COUNTERMEASURES
SEGMENT 5

SCALE: 1"=100'

CROW CANYON ROAD SAFETY STUDY

- **Next Steps:**
 - Complete Countermeasure Evaluation
 - Recommendations/Prioritization
 - Draft Safety Report
 - Public Meeting #3

SAFETY STUDY TASKS & PRELIMINARY SCHEDULE

TASK

Begin Study
 Collect & Review Existing Data
 Public Meeting #1
 Traffic Studies & Analyses
 Receive/Collect public input
 Identify Potential Improvements
 Right-of-Way & Utilities
 Environmental & Permit Assessment



Public Meeting #2

Receive/Collect public input

Preliminary Plans & Draft Project Study Report

Receive/Collect public input on Draft Report

Public Meeting #3

Present Final Project Study Report

TIMEFRAME

Fall 2012
 Fall 2012 – Winter 2013
 Winter 2013
 Fall 2012 – Winter 2013
Winter 2013
 Winter 2013 – Spring 2013

Spring 2014
Summer 2014
 Summer 2014 – Fall 2014
Fall 2014
Fall 2014
 Winter 2014

Continuing Public Involvement



COMMUNITY PARTICIPATION OPPORTUNITIES

We want you to stay involved!

- **At this meeting**
 - Talk now with Alameda County Public Works Staff and the Study Team, and give your input
- **Online**
 - Materials are posted online at : www.ACPWA.org
 - Download a comment form or email info@acpwa.org with your thoughts
- **Mail / Phone**
 - Pre-printed comment cards
 - (510) 670-5485
- **At public meeting #3**
 - Fall 2014



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CROW CANYON ROAD SAFETY STUDY

Community Q&A Session