



AGENDA

Expenditure Plan Advisory Committee
Monday, September 18, 2017
6:00 p.m.

Conference Room
900 Fifth Avenue, Suite 100
San Rafael, CA 94901

900 Fifth Avenue
Suite 100
San Rafael
California 94901

Phone: 415/226-0815
Fax: 415/226-0816

www.tam.ca.gov

Belvedere
James Campbell

Corte Madera
Diane Furst

Fairfax
John Reed

Larkspur
Dan Hillmer

Mill Valley
Stephanie Moulton-Peters

Novato
Eric Lucan

Ross
P. Beach Kuhl

San Anselmo
Tom McInerney

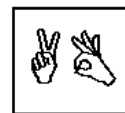
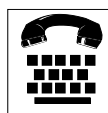
San Rafael
Gary Phillips

Sausalito
Ray Withy

Tiburon
Alice Fredericks

County of Marin
Damon Connolly
Katie Rice
Kathrin Sears
Dennis Rodoni
Judy Arnold

1. Welcome and Introductions (10 minutes)
2. Recap of previous meeting minutes, acceptance of the minutes, overview of materials requested, response to outstanding questions (10 minutes)
3. Update on activity for Senate Bill 1 and Regional Measure 3, Dianne Steinhäuser, TAM Executive Director (5 minutes)
4. Follow-up presentation from Marin Transit including Local Transit, Senior Transportation and School Transportation - Nancy Whelan, General Manager and Robert Betts, Director of Operations and Planning (25 minutes)
5. Overview of Local Streets and Roads funding and needs – Craig Tackabery, Chief Assistance Director of Public Works, Ernest Klock, Principal Civil Engineer and Margot Yapp, Nichols Consulting Engineers, on behalf of Marin's County, Cities, and Towns Public Works Departments (25 minutes)
6. Overview of Major Roads funding and needs – David Chan, TAM Manager of Legislation and Programming (15 minutes)
7. Overview of Highway 101 Interchanges and needs – Bill Whitney, TAM Principal Project Delivery Manager (20 minutes)
8. Roundtable discussion and request for additional material / upcoming EPAC activity (10 Minutes)
9. Public Open Time
10. Adjourn



The meeting facilities are accessible to persons with disabilities. Requests for special accommodations (assisted listening device, sign language interpreters, etc.) should be directed to Denise Merleno at 415-226-0820 or email: dmerleno@tam.ca.gov,
no later than 5 days before the meeting date.

Expenditure Plan Advisory Committee Meeting Membership List

Ref #	Organization	Select Individual	
1	COC-Northern Planning	V-Anne Chernock	v-anne@chernockassociates.com
2	COC-Central Planning	Joy Dahlgren	Joy.dahlgren@gmail.com
3	COC-Ross Valley Planning	Paul Roye	proye@comcast.net
4	COC-Southern Planning	Robert Burton	bob114@comcast.net
5	COC-West Marin Planning Area	Scott Tye	tyeyaksb@yahoo.com
6	COC-Major Marin Employers	Peter Pelham	peterpelham@bankofmarin.com
7	COC-Environmental Organizations - MCL	Kate Powers	kpmarin@yahoo.com
8	COC-Bicycle and Pedestrian Group	Vince O'Brien	vob_low@comcast.net
9	COC-Marin County Paratransit Coordinating Council	Allan Bortel	Inverness@earthlink.net
10	COC-League of Women Voters	Kevin Hagerty	hagertykm@yahoo.com
11	COC-Taxpayer Group	Paul Premo	paulpremo@msn.com
12	North Bay Leadership Council	Cynthia Murray	cmurray@northbayleadership.org
13	Chamber of Commerce Novato	Coy Smith	coy@novatochamber.com
14	Chamber of Commerce San Rafael	Joanne Webster	jwebster@srchamber.com
15	Marin County Office of Education	Ken Lippi	klippi@marinschools.org
16	Student- College of Marin	Jon Horinek	JHorinek@marin.edu
17	Transit Rider	Lisel Blash	lblash@yahoo.com
18	Marin Mobility Consortium - Seniors	Lynn Von der Werth	vonderl@sutterhealth.org
19	Senior Living Resident/Pedestrian	Sue Beittel	suebeittel@comcast.net
20	Equity/Marin City	Monique Brown	mbrown.mccsd@gmail.com
21	Equity/Canal Neighborhood	Roberto Hernandez	roberto@workingsolutions.org
22	Labor Union/Building Trade Council	Javier Flores	javierliuna261@gmail.com
23	Bay Wave Rep - Sea Level Rise - Innovation/Resilience	Bill Carney	williamcarney@comcast.net
24	Safe Routes to School Representative	Debbie Alley	alleydeb@gmail.com

**Expenditure Plan Advisory Committee
Meeting Topics List - DRAFT**

Sept. 12, 2017

Every Meeting

- Answer outstanding questions, Minutes, Recap to date
- Review material/handouts
- Status of SB1 & RM3 activity
- Public Comment

Meeting 1 – June 19, 2017

- Overview of Purpose of group and Protocol
- Sales taxes – Intro
- Marin's current ½-cent transportation sales tax
- Elect Chair (V-Anne Chernock, League of Women Voters, TAM COC Northern Marin Rep)

Meeting 2 – July 17, 2017

- Comparison of sales taxes in the Bay Area
- Review of TAM baseline poll of May 2017- Brian Godbe, Godbe Research Associates
- Marin Transit report of current services - Nancy Whelan, General Manager, Marin Transit (Future Needs postponed till later meeting)

Meeting 3 – August 23, 2017 - Wednesday

- \$10 Vehicle Registration Fee – review of current program- TAM staff
- Safe Routes to Schools, current program and future needs- TAM's Safe Routes to Schools team
- State Highway projects and needs- TAM staff

Meeting 4 – September 6, 2017- - Wednesday

- Overview of current Golden Gate transportation services- Denis Mulligan, General Manager, GGBHTD
- County of Marin resiliency programs (i.e. Bay WAVE and C-Smart)
- Break-out Groups to discuss transportation priorities for future sales tax measure
- Connected Communities, Safe Routes to Transit and Senior Mobility

Meeting 5 – September 18, 2017 (later) - Monday

- Current funding and future needs for local streets and roads – County Public Works, representing Marin-wide needs
- Major Roads progress, status and remaining needs – TAM staff
- Highway 101 Interchange needs - TAM staff
- Marin Transit follow-up presentation: Local Transit, Senior Transit, School Transit

Meeting 6 – October 10, 2017

- Revenue Projections
- Connected Communities (?)
- Formation of Draft Expenditure Plan or Plans

Meeting 7 – October 23, 2017

- Formation of Draft Expenditure Plan or Plans

Meeting 8 – November (early)

- Formation of Draft Expenditure Plan or Plans

Senate Bill 595 (Beall) RM 3 EXPENDITURE PLAN <i>(all amounts \$ millions)</i>			
<i>Comparison of July 19 to September 8 Versions</i>			
<i>New projects shown in BLUE</i>			
OPERATING PROGRAM			
All- Corridor Annual Operating Program	7/19 Version	9/8 Version	Change
All Corridors			
Transbay Terminal	5	5	-
Ferries (In 9/8 version funding ramps up to \$35 m over five years)	35	35	-
Regional Express Bus	20	20	-
<i>Operating Program Total</i>	\$ 60	\$ 60	\$ -
CAPITAL PROJECTS			
Regional Programs	7/19 Version	9/8 Version	Change
BART Expansion Cars (all BART-reliant counties)	500	500	-
Bay Area Corridor Express Lanes	300	300	-
Goods Movement and Mitigation	125	160	35
San Francisco Bay Trail / Safe Routes to Transit	150	150	-
Ferries Enhancement Program	325	300	(25)
BART to San Jose Phase 2	400	375	(25)
Sonoma-Marin Area Rail Transit District (SMART)	40	40	-
Capitol Corridor	90	90	-
<i>Next Generation Clipper Transit Fare Payment System</i>	-	50	50
<i>Regional Programs Subtotal</i>	\$ 1,930	\$ 1,965	\$ 35
Corridor-Specific Capital Projects	7/19 Version	9/8 Version	Change
Central (SFOBB)			
Caltrain Downtown Extension	350	325	(25)
Muni Fleet Expansion and Facilities	140	140	-
Core Capacity Transit Improvements	140	140	-
AC Transit - Rapid Bus Improvements	50	100	50
Transbay Rail Crossing	50	50	-
<i>I-80 Transit Improvements</i>	-	25	25
<i>Central Subtotal</i>	\$ 730	\$ 780	\$ 50
South (San Mateo-Hayward, Dumbarton)			
Tri-Valley Transit Access Improvements	100	100	-
Eastridge to BART Regional Connector	130	130	-
San Jose Diridon Station	120	100	(20)
Dumbarton Corridor Improvements	130	130	-
Highway 101/State Route 92 Interchange	50	50	-
<i>I-680/SR 84 Interchange Reconstruction Project</i>	-	85	85
<i>I-680/I-880/Route 262 Freeway Connector</i>	-	15	15
<i>South Subtotal</i>	\$ 530	\$ 610	\$ 80
North (Richmond-San Rafael, Benicia-Martinez, Carquinez, Antioch)			
Contra Costa 680/State Route 4 Interchange Improvements	150	210	60
Marin-Sonoma Narrows	125	120	(5)
Solano County I--80/I-680/SR 12 Interchange Project	175	150	(25)
Interstate 80/Westbound Truck Scales	125	105	(20)
State Route 37 Improvements	150	100	(50)
San Rafael Transit Center	30	30	-
Richmond-San Rafael Bridge Access Improvements	135	210	75
North Bay Transit Access Improvements	100	100	-
SR 29 (South Napa County)	20	20	-
<i>East Contra Costa County Transit Intermodal Station</i>	-	15	15
<i>Byron Highway Vasco Road Airport Connector</i>	-	10	10
<i>Vasco Road Safety Improvements</i>	-	15	15
<i>I-680 Transit Improvements</i>	-	10	10
<i>North Subtotal</i>	1,010	\$ 1,095	\$ 85
	-		
<i>Corridor-Specific Capital Projects Subtotal</i>	2,270	2,485	\$ 215
Capital Projects Total	4,200	4,450	250



marin transit

Marin Transit Future Needs

Measure A Expenditure Plan Advisory Committee

September 18, 2017

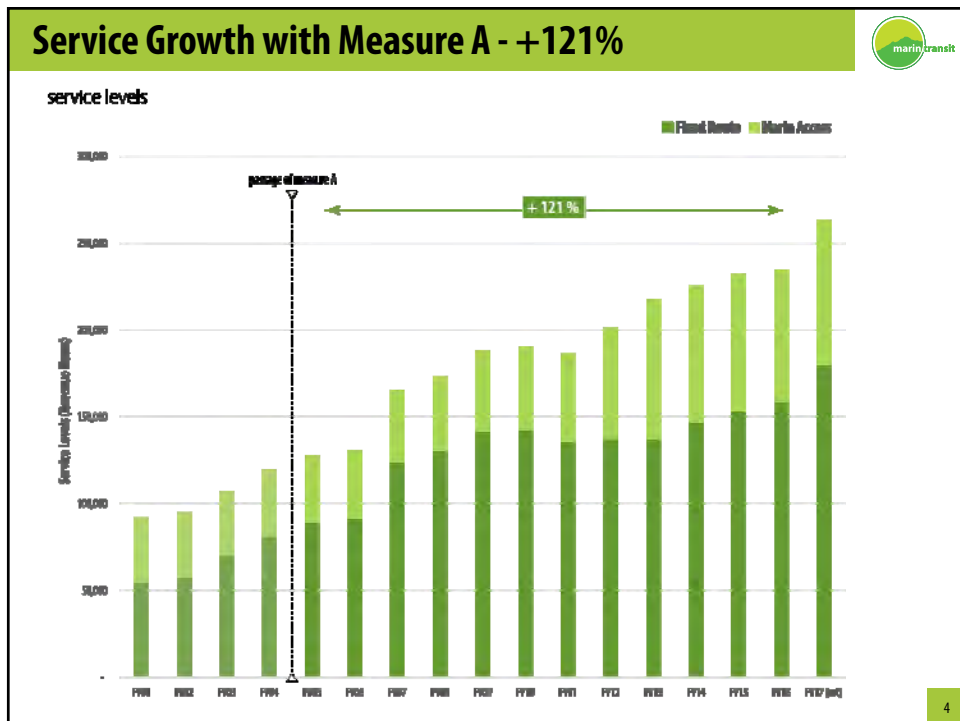
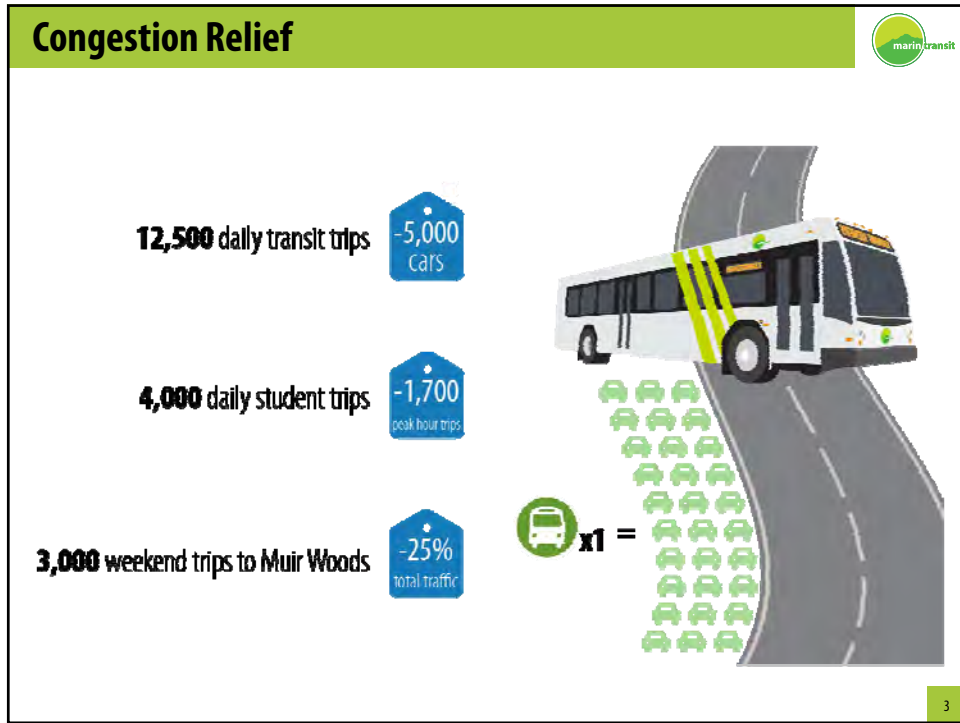
Local Transit Mission Statement



Marin Transit anticipate the needs of Marin County's **diverse travel markets** and delivers **cost-effective, targeted** service options. Marin Transit is a future-oriented **mobility manager**.



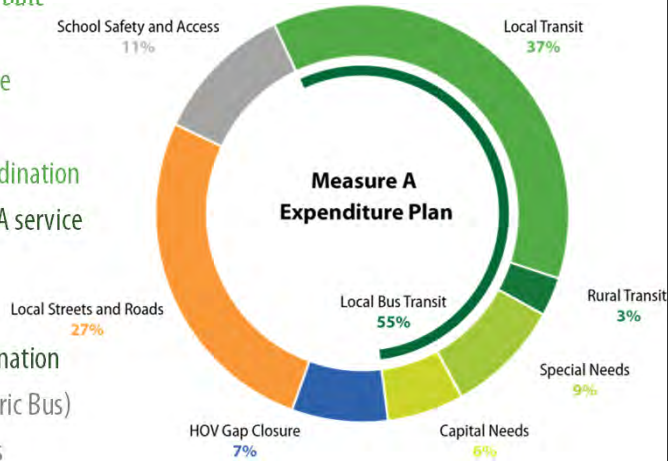
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Measure A Delivers...



- 122% more local fixed route service
- Rural Stagecoach service
- Muir Woods Shuttle
- School service and coordination
- 117% more senior / ADA service
- Subsidized Taxi
- Travel Navigators
- Volunteer Driver Coordination
- Buses (Hybrid and Electric Bus)
- Bus Stop Improvements
- Free Transit for Those in Need
- Low Base Fares



5

Measure A Evaluation Criteria



- Measure A Expenditure Plan Performance Criteria for Transit Investments
 - Fill gap in the bus transit network
 - Meets productivity standards (Passengers per hour)
 - Meets cost effectiveness standards (Subsidy per passenger)
 - Relieves congestion (Total ridership)
 - Provides seamless connections (to regional service)
 - Eliminates "pass ups" (Overcrowding on existing routes)
 - Promotes environmental justice (Demographic analysis)
 - Attracts outside funding (Federal, state, toll, other local)
- Total Cost Estimate (Measure A vs Other)
- Ease of Implementation



6

Categories of Unfunded Needs



- Expand and Enhance Shuttle Services
- Expand and Enhance K-12 School Bus Services
- Enhance Service Frequency in Transit Corridors
- Provide Limited Stop or Express Services
- Restore Ferry Feeder Services (WAVE)
- Expand Rural and Recreational Services
- Provide and Support Flexible First and Last Mile Services
- Expand Services for Those with Special Needs



7

Future Goals



- **Make transit convenient and attractive**
- **Focus service in congested corridors**
- **Strengthen connections to regional transit**



8

How Do We Achieve These Goals?



- **Control Costs to Maintain Service Levels**
 - Invest in facility
 - Competitively bid service
- **Continuously Evaluate Performance and Improve Service**
 - Maintain and complete strategy 1 projects
 - Reinvest resources in the right areas
 - Support access to regional services (GGT + SMART)
 - Respond to rider requests and changes in the transportation market

9

Future Needs



Categories of Service Needs

- Fixed Route
- Student Bus Transportation
- Senior / ADA Transportation

Types of Funding Needs

- Capital Funds
- Operating Funds



10

Future Opportunities / Constraints



- **Technology**
 - How will technology change how transit is delivered or its relevance?
- **Roadway Infrastructure**
 - How to accommodate rising traffic volumes if there are **limited opportunities** to increase physical roadway capacity?
 - Do we prioritize transportation options that support congestion reduction?
- **Quality of Life**
 - How do we preserve mobility as Marin ages?
 - How do we reduce congestion and improve safety for non-motorist modes?
- **Cultural Changes and Preferences**
 - Addresses the desire for future generations who don't want to obtain driver's license and invest in auto ownership

11

Future of Transportation in Marin County



12

Technology Won't Solve Congestion



Bus



Private Car



Uber / Lyft



Autonomous Vehicles

13

Planning for the Next Generation



"The Millennial generation seems to be defying its sheltered, suburban upbringing by delaying the acquisition of a driver's license and choosing transit."

From CityLabs (2014) "Millennials Love Transit Most, Boomers Still Stuck on Cars"

14

Future Transit with Continued Financial Support



- **Integrated system of local connector / feeder services connecting to high capacity local and regional services**
 - High frequency
 - Competitive travel times to auto
 - Integrated scheduling and fare payment
- **Expanded network of school bus services**
 - Affordable student bus transportation reducing peak hour congestion
 - 35% bus mode split
- **Diverse mobility options for Marin's aging and special needs populations**

15

Summary of Marin Transit Needs



- **Maintain local sales tax funding for fixed route and paratransit services**
- **Increase school transportation**
- **Enhance first/last mile services**
- **Improve services to seniors and people with disabilities**
- **Invest in green fleet and facilities**



16

Questions ?



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Robert Betts

Director of Planning & Operations

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Transportation Authority of Marin Expenditure Plan Advisory Committee (EPAC)

Summary of Local Streets & Roads Needs on behalf of Marin's County, Cities, and Towns

**San Rafael, CA
September 18, 2017**



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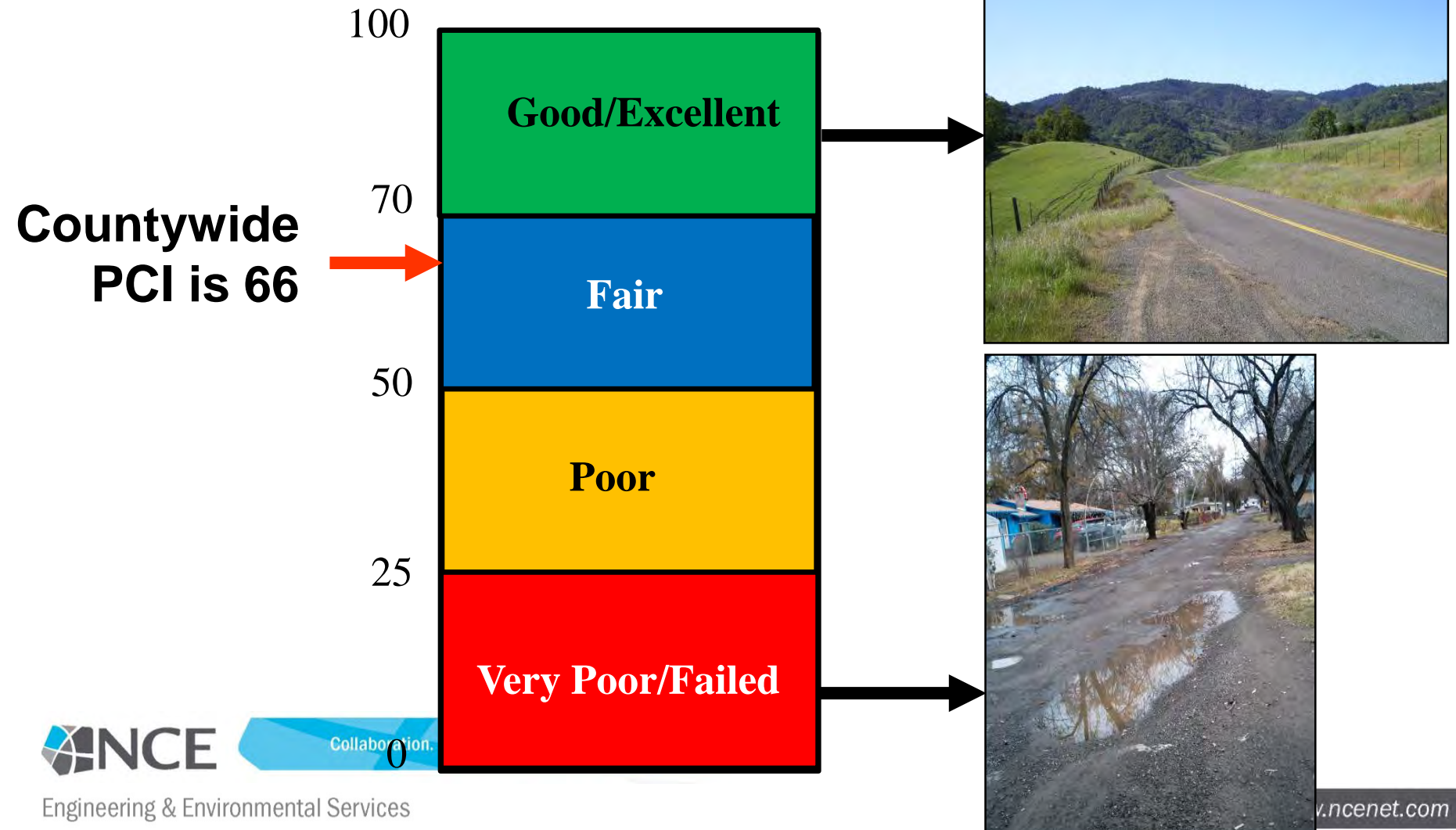
Marin County Today

Agency	Centerline Miles	Agency	Centerline Miles
Belvedere	23.38	Novato	152.3
Corte Madera	71.84		
Fairfax			39.2
Larkspur		San Rafael	173
Marin County	421.07	Sausalito	32.52
Mill Valley	60.58	Tiburon	36.2
Total	1,033.27 Miles		
Caltrans	81 miles (less than 1% of network!)		

Asset value is \$1.2 Billion!



What Do Marin's Roads Look Like?



PCI=100

MAY 12 2010



PCI = 75

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PCI=63





PCI=42



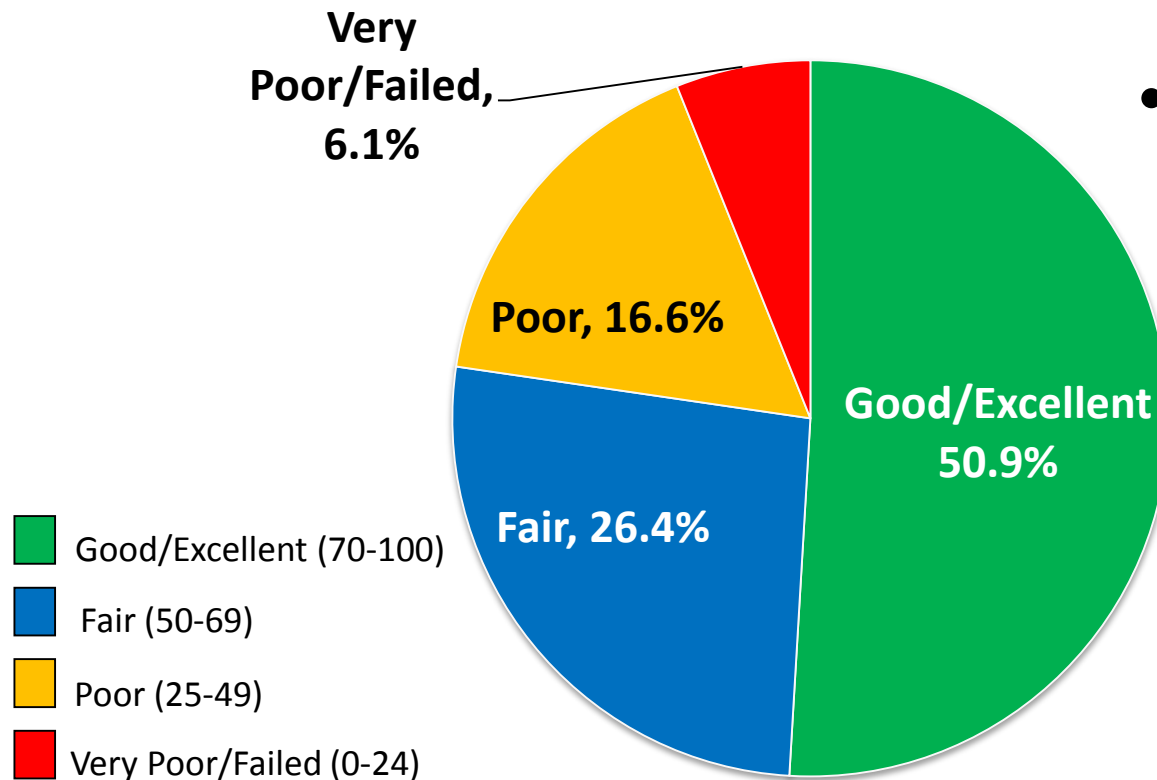
PCI = 5

MAY 12 2010

What Does PCI = 66 Mean?

Average PCI= 66

- Half is in good condition
- 22.7% is poor to failed



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Existing Funding (includes Measure A)

Agency	Annual Funding (\$K)	Agency	Annual Funding (\$K)
Belvedere	\$185	Novato	\$2,500
Corte Madera	\$500	Ross	\$250
Fairfax	\$150	San Anselmo	\$800
Larkspur	\$1,500	San Rafael	\$1,650
Marin County	\$8,000	Sausalito	\$823.5
Mill Valley	\$2,000	Tiburon	\$650
Total for Pavements = \$19 million/year			
Total Essential Components = \$8.6 million/year			
Total Funding = \$27.6 million/year			



What Does the Future Look Like?

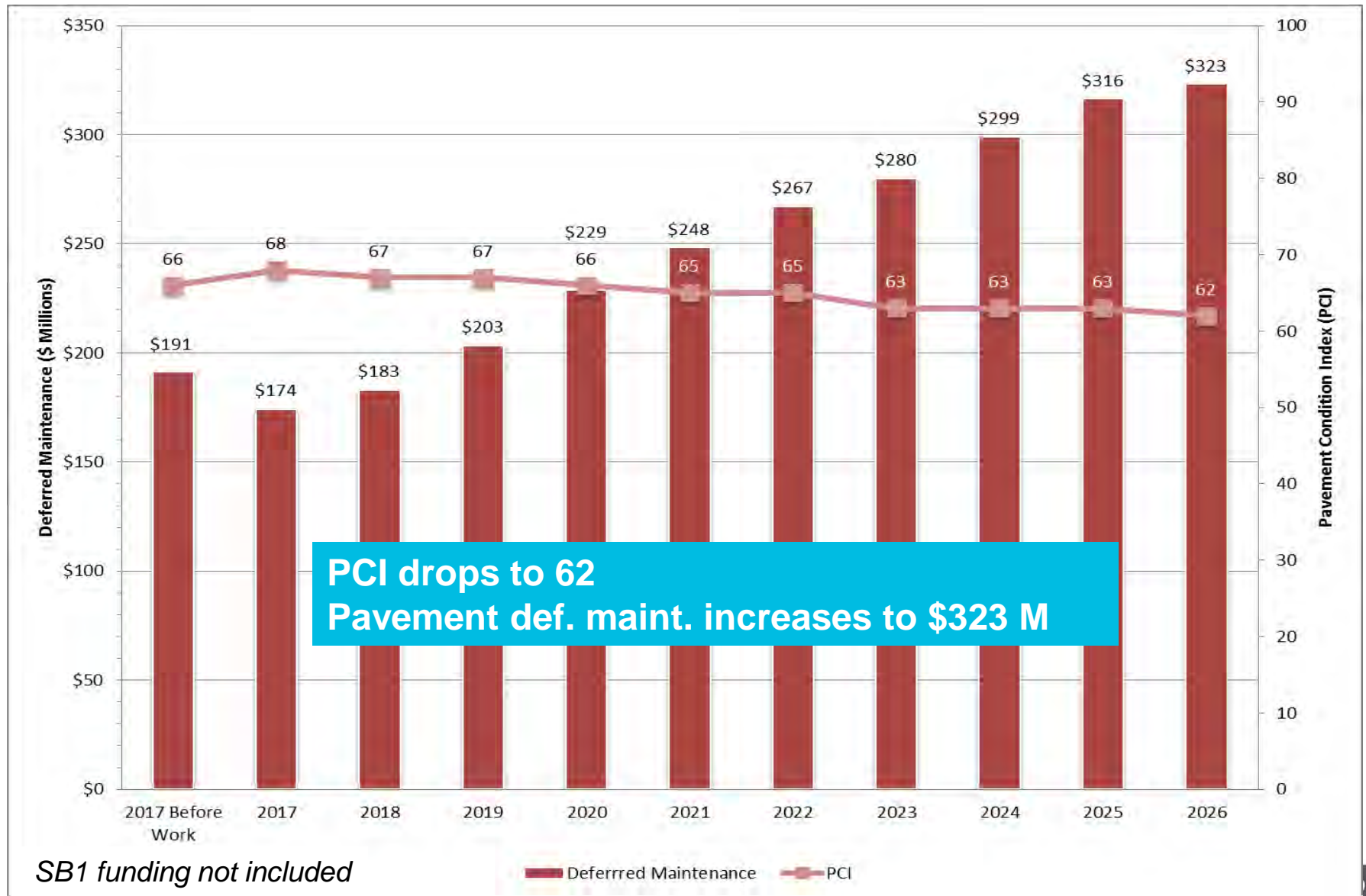


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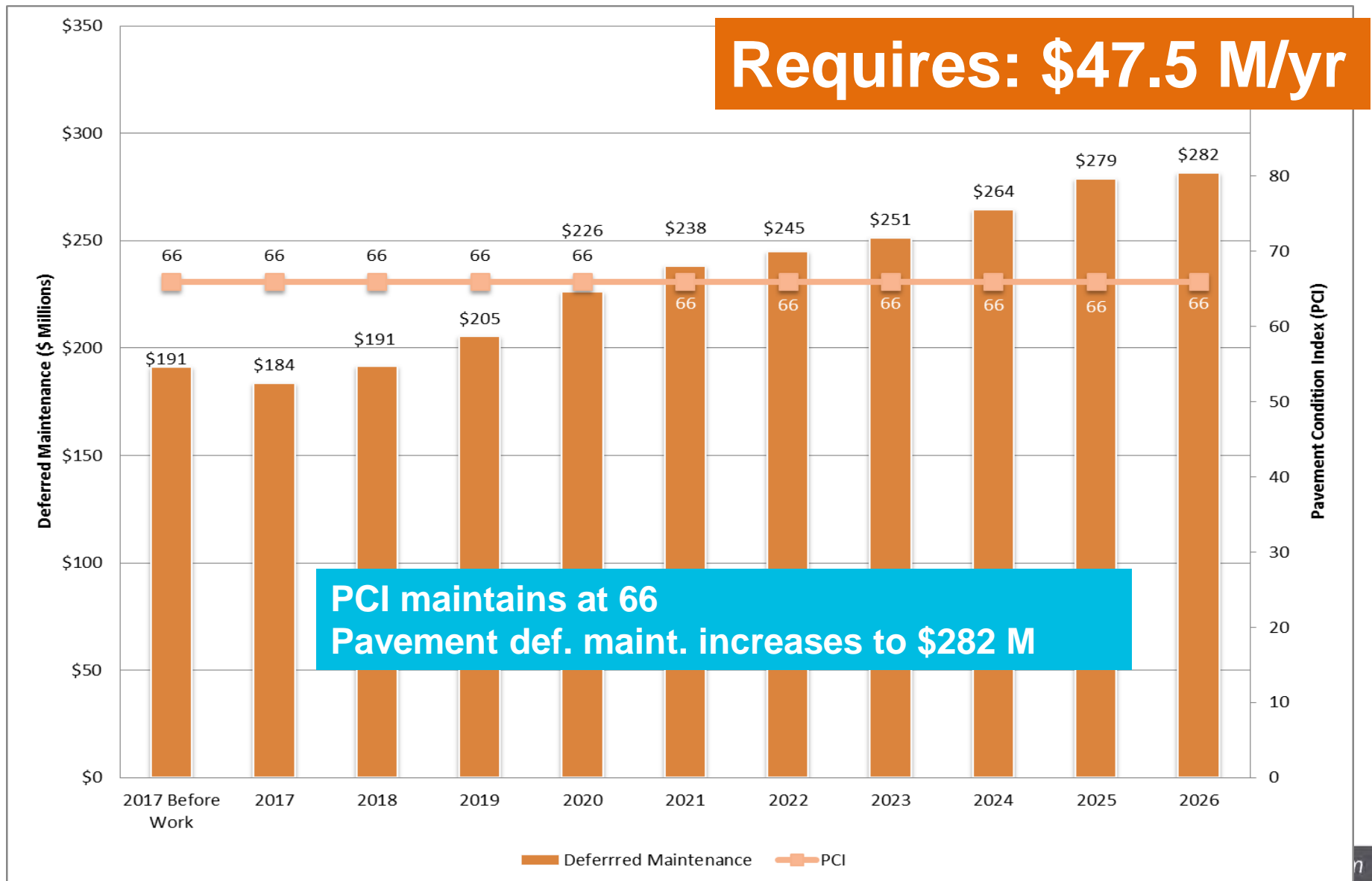
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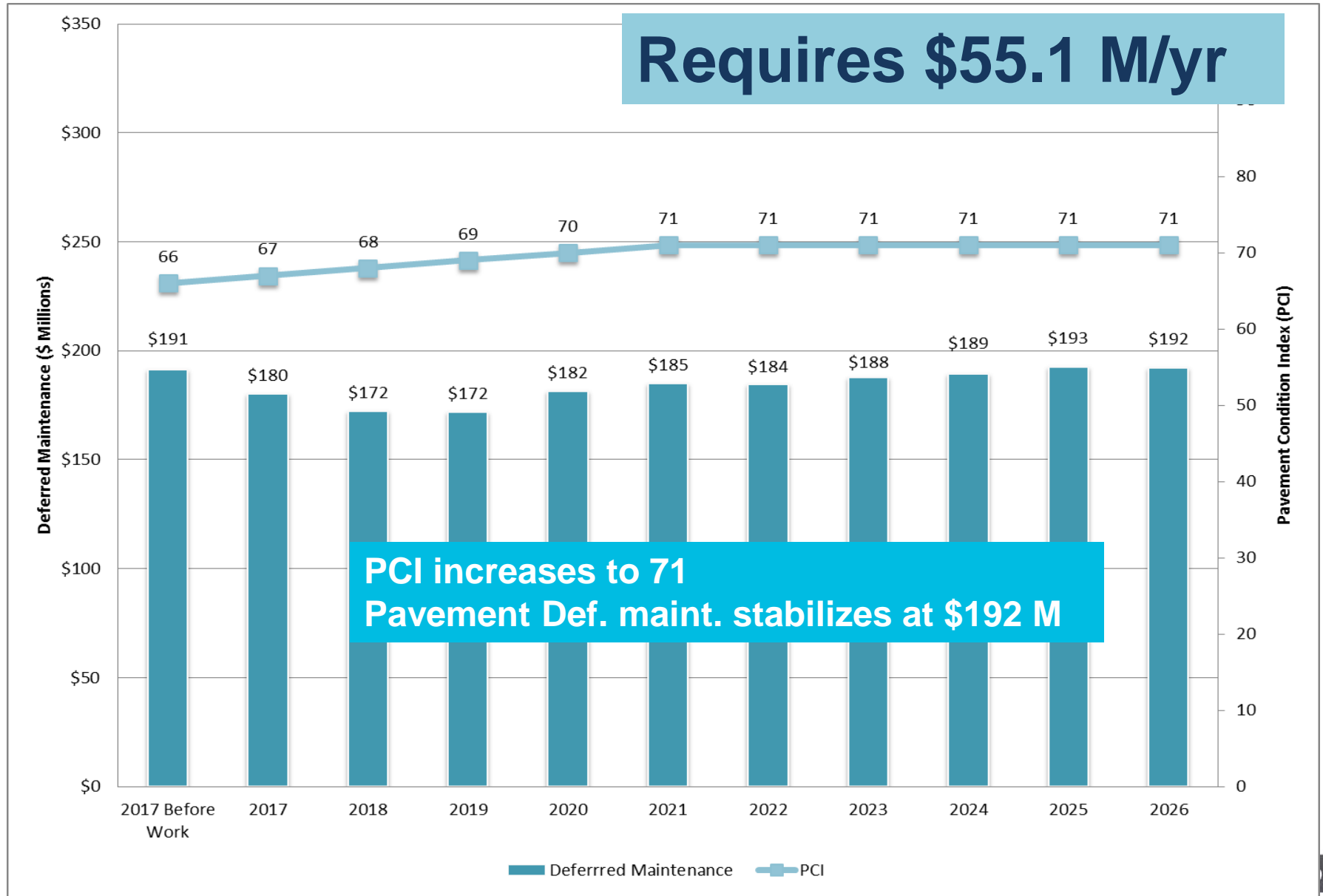
What Are Impacts of Existing Funding? (\$27.6m/year)



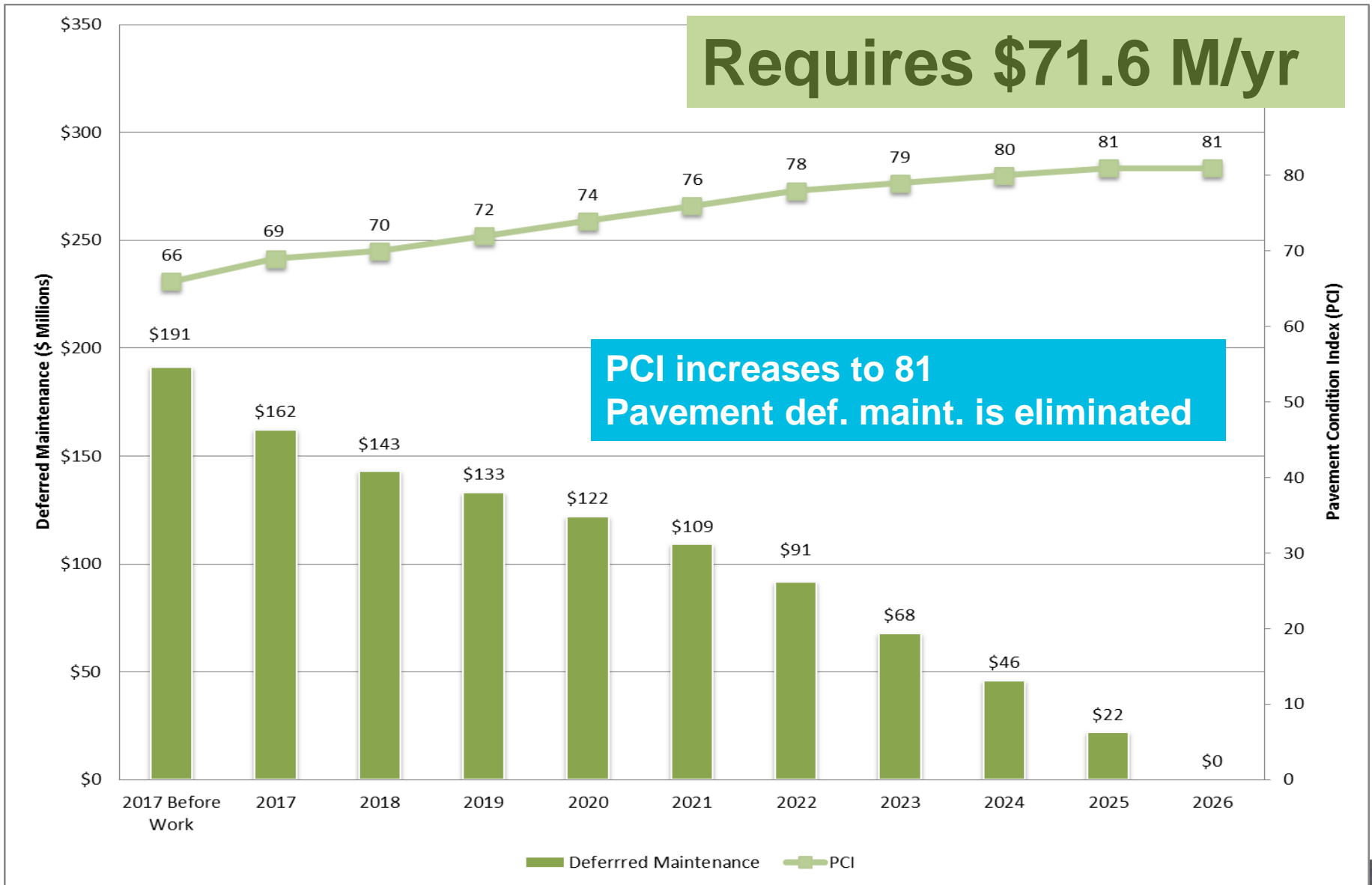
How Much is Needed to Maintain Current Conditions?




How Much is Needed to Improve PCI to 71?



How Much Is Needed to Fix Everything?



A photograph of a road with severe cracking and potholes, illustrating road failure. The road surface is heavily deteriorated, with large, irregular cracks forming a web-like pattern across the asphalt. The background shows a residential area with houses, trees, and a clear sky.

This is a failed road ... a quarter of Marin's roads will be poor/failed by 2026 under existing funding levels

New Challenges Ahead e.g. Complete Street Policies

- Consider all users (pedestrians, bikes, disabled, transit etc) and not just cars!
- Road maintenance costs will increase
- TAM had foresight to include this in Measure A in 2004

Complete Streets Components	Complete Streets Components Costs
Paving - Overlay (Major)	60% Affects Road Condition (PCI)
Paving - Sealing	
Bike Component	10%
Ped/ADA Component	10%
Transit Component	5%
Drainage Component	10%
Safety Projects	5%
Total	100%



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Examples of Recent Complete Street Projects



Summary of Funding Shortfall

Transportation Asset	Needs	Existing Funding*	Shortfall
	\$ million/year		
Pavements			
Improve PCI = 71	\$ 30.5	\$ 23.6	\$ (6.9)
Essential Components**	\$ 24.6	\$ 11.7	\$ (12.9)
Totals	\$ 55.1	\$ 35.3	\$ (19.8)

** Includes portion of SB1 needed for essential components. Will be less if agencies choose to spend SB1 on needs other than roads.*

*** Needs from MTC's regional projections; funding from 2016 California Statewide Needs Assessment.*

Conclusions

- **County of Marin and Cities has a substantial investment in road network (\$1.2 Billion)**
- **Network is in “Fair” condition; PCI = 66**
 - Average PCI ranges from 41 (Larkspur) to 76 (Tiburon)
- **Existing budget (\$27.6 m/year) is not sufficient for complete streets**
 - SB1 estimated to provide \$7.7 m/year
 - Need \$47.5 m/year to maintain status quo
 - Need \$55.1 m/year to improve PCI to 71
- **Loss of Measure A will have significant impact**
- **Future has new challenges and demands**



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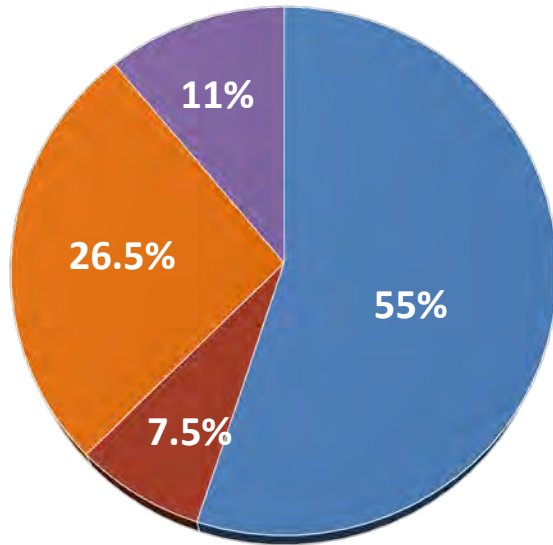
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How Has Measure A Helped Local Roads?



- Local Bus Transit
- HOV Gap Closure
- Local Streets and Roads
- School Safety and Access



Strategy 3: Local Infrastructure and Major Roads of Countywide Significance

- **Local Infrastructure**
 - Allocated to the county, cities and towns for them to determine best use, within eligibility of the Measure A Expenditure Plan.
- **Major Roads**
 - 15 Corridors Identified Expenditure Plan
 - 2 have been completed



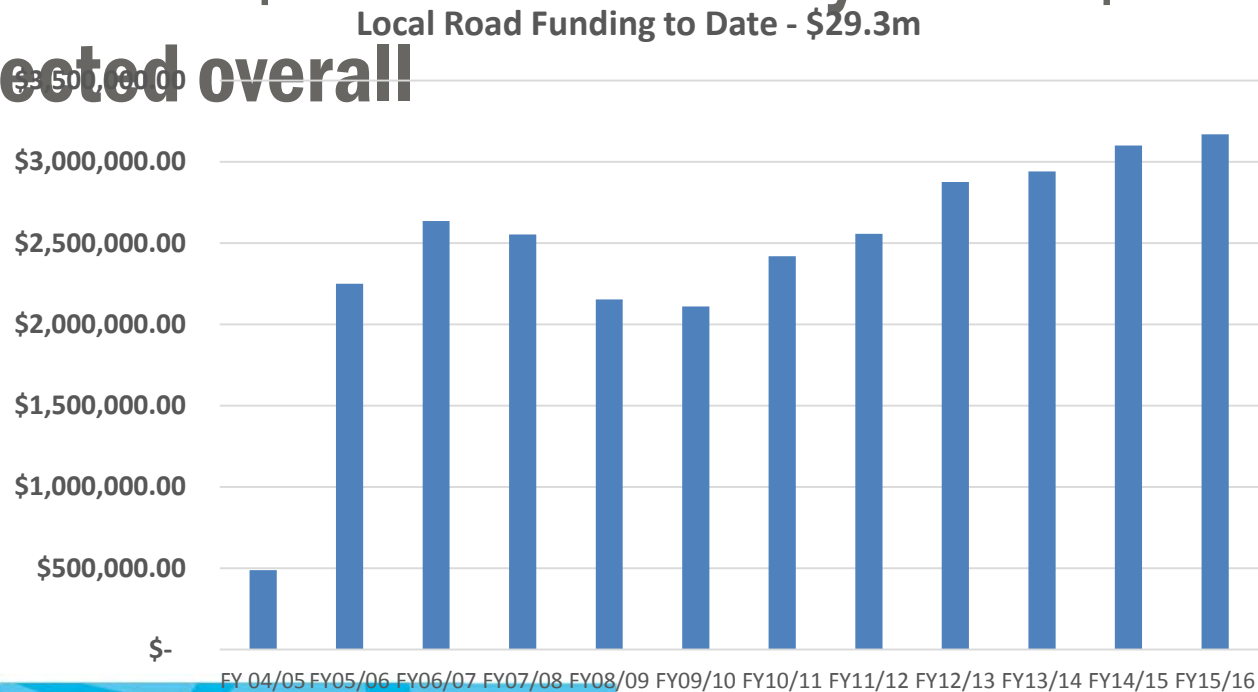
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Local Roads Funding

- **13.25 % of Measure A is allocated to each jurisdiction annually based population and lane miles. Over \$3 million annually and ~ \$60 million projected overall**



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Local Infrastructure Funding

	FY2015-16 Allocation	Total To Date
Belvedere	\$31,689	\$262,045
Corte Madera	\$113,822	\$880,910
Fairfax	\$88,923	\$731,954
Larkspur	\$27,906	\$1,095,810
Mill Valley	\$184,314	\$1,494,893
Novato	\$588,510	\$4,664,499
Ross	\$32,982	\$277,092
San Anselmo	\$143,571	\$1,177,273
San Rafael	\$634,750	\$5,148,134
Sausalito	\$85,690	\$718,484
Tiburon	\$111,882	\$886,752
County	\$1,090,361	\$8,925,690
Total	\$3,134,400	\$26,263,536



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Major Roads- 15 corridors in Measure A

- Atherton Avenue/San Marin Boulevard
- Novato Boulevard/South Novato Boulevard
- D Street/Wolfe Grade
- Las Gallinas Avenue/Los Ranchitos Road/Lincoln Avenue
- North San Pedro Avenue to the China Camp State Park Boundary /Sunny Oaks
- Point San Pedro Avenue to the China Camp State Park Boundary/Biscayne
- Red Hill Avenue/4th Street/2nd and 3rd Streets
- Andersen Drive
- Magnolia Avenue/Corte Madera Avenue/Camino Alto
- Redwood Ave/Tamalpais Drive/Madera Boulevard/Tamal Vista/Fifer/Lucky/Doherty
- Sir Francis Drake Boulevard from I- 580 to Platform Bridge
- Bridgeway Corridor (Bridgeway/Richardson St/2nd Street/South St./Alexander Ave.
- Paradise Drive
- E. Blithedale Avenue
- Miller Avenue/Almonte Boulevard



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Examples of Major Projects Funded by Measure A

- **Northern Marin: Novato Boulevard (Novato)**
- **Central Marin: 4th Street (San Rafael)**
 - **3rd Street (San Rafael)**
- **Southern Marin: Miller Avenue (Mill Valley)**
 - **East Blithedale (Mill Valley/ Tiburon)**
- **West Marin: Sir Francis Drake, Sam P. Taylor Park to Platform Bridge (County)**
- **Ross Valley: Sir Francis Drake, 101 to Wolfe Grade (County)**
 - **Sir Francis Drake, Wolf Grade to Ross (County)**
 - **Sir Francis Drake (San Anselmo)**



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Major Roads Funded by Measure A

13.25% of Measure A ~ \$60 million



West Marin
Sir Francis
Drake – \$8.8 m



Central Marin
4th Street – \$4.1 m
3rd Street – \$11.4 m



Southern Marin
Miller Avenue –
\$13.4 m

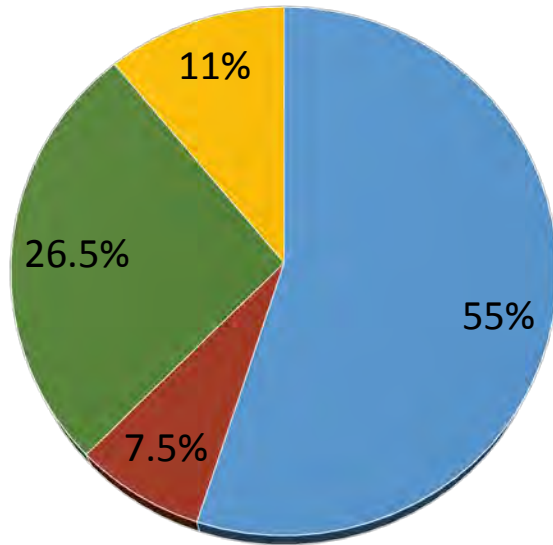


Ross Valley
Sir Francis Drake– \$14.4 m



Northern Marin
Novato Boulevard– \$13.4 m

Existing 2004 Marin ½ cent Transportation Sales Tax



- Local Bus Transit
- HOV Gap Closure
- Local Streets and Roads
- School Safety and Access



Major Roads – 13.25%
Local Roads – 13.25%

Strategy 3.1: Major Roads of Countywide Significance

- Strategy 3.1
 - Funds are used to maintain, improve, and manage Marin County's local transportation infrastructure, including roads, bikeways, sidewalks, and pathways
 - 13.25% of funds
 - Amounts to approximately \$3 million annually



Funds distributed by Planning Area

Planning Area	Current Distribution (50% Population & 50% Road Miles)	Measure A	SLPP Backfilled	Total (in millions)
Northern Marin	19.9%	\$11.9	\$1.2	\$13.1
Central Marin	25.4%	\$15.3	\$1.5	\$16.8
Ross Valley	21.6%	\$13.0	\$1.3	\$14.3
Southern Marin	20.0%	\$12.0	\$1.2	\$13.2
West Marin	13.1%	7.9	\$0.8	\$8.7
TOTAL	100.0%	\$60.1	\$6.0	\$66.1

Major Roads - 15 Corridors in Measure A

There were 15 Corridors envisioned for improvements in the Measure A Sales Tax Expenditure Plan

- Atherton Avenue/San Marin Boulevard
- Novato Boulevard/South Novato Boulevard
- D Street/Wolfe Grade
- Las Gallinas Avenue/Los Ranchitos Road/Lincoln Avenue
- North San Pedro Avenue to the China Camp State Park Boundary /Sunny Oaks
- Point San Pedro Avenue to the China Camp State Park Boundary/Biscayne
- Red Hill Avenue/4th Street/2nd and 3rd Streets
- Andersen Drive
- Magnolia Avenue/Corte Madera Avenue/Camino Alto
- Redwood Ave/Tamalpais Drive/Madera Boulevard/Tamal Vista/Fifer/Lucky/Doherty
- Sir Francis Drake Boulevard from I- 580 to Platform Bridge
- Bridgeway Corridor (Bridgeway/Richardson St/2nd Street/South St./Alexander Ave.
- Paradise Drive
- E. Blithedale Avenue
- Miller Avenue/Almonte Boulevard

Evaluation Process

- Evaluation by TAC and MPWA
 - Pavement Condition Index (PCI)
 - Average Daily Traffic (ADT)
 - Transit Frequency
 - Bicycle and Pedestrian Activities
 - School Access
 - Accident History
 - Others
 - Opportunities for Matching Funds
 - Geographic Equity

Projects and Ranking

NORTH PLANNING AREA				
Lead Agency	Name of Roadway	Endpoints	Ranking	Status
Novato	Novato Blvd.	Diablo Ave. - San Marin Dr.	1	In progress
Novato	San Marin Dr.	Novato Blvd. - US 101	2	Unfunded
Marin County	Novato Blvd.	San Marin Dr. - Pt. Reyes/Petaluma	3	Unfunded
Novato	South Novato Blvd.	US 101 - De Long Ave/Diablo Blvd	3	Unfunded
Marin County	Atherton Ave.	US 101 - SR 37	5	Unfunded

CENTRAL PLANNING AREA

San Rafael	4th Street	Red Hill Ave. - Grand Ave.	1	Completed
San Rafael	3rd Street	2nd Street - Grand Ave.	2	In progress
Marin County	Las Gallinas/Los Ranchitos/Lincoln	Lucas Valley Rd. - 2nd Street	3	Unfunded
San Rafael	Pt. San Pedro Rd.	3rd St/ Grand Ave - Biscayne Dr/ City Limit	4	Unfunded
San Rafael	Andersen Dr.	A Street - Sir Francis Drake Blvd.	4	Unfunded
San Rafael	2nd Street	4th Street - Grand Ave	6	Unfunded
Marin County	N San Pedro Rd.	Los Ranchitos -Sunny Oaks Dr.	6	Unfunded
San Rafael	D Street	5th Ave - City Limit	8	Unfunded
Marin County	Las Gallinas Ave.	Lucas Valley Rd. - US 101	9	Unfunded

ROSS VALLEY PLANNING AREA

Marin County	Sir Francis Drake Blvd.	US 101 - Wolfe Grade	1	In progress
Marin County	Sir Francis Drake Blvd.	Wolfe Grade - Ross Limit	1	In progress
San Anselmo	Sir Francis Drake Blvd.	Bolinas Ave. - Butterfield Road	3	Unfunded
Corte Madera	Tamaplais Dr.	Corte Madera Ave - Madera Blvd.	4	Unfunded
Marin County	East Sir Francis Drake Blvd.	I-580 - US 101	5	Unfunded
Corte Madera	Paradise Dr.	San Clemente - Tiburon Town limit	5	Unfunded
Fairfax	Sir Francis Drake Blvd.	Butterfield Rd. - Co. Limit	7	Unfunded
Ross	Sir Francis Drake Blvd.	Ross Limit - Bolinas Ave.	8	Unfunded
Corte Madera	Tamal Vista Blvd. / Madera Blvd.	Fifer Ave. - Tamalpais Dr.	9	Unfunded
Larkspur	Doherty Dr.	Magnolia Ave. - Riviera Cir.	10	Unfunded
San Anselmo	Red Hill	SFD Blvd - San Rafael Limit	11	Unfunded
Corte Madera	Lucky Dr.	Riviera Cir - SF Bay Trail	12	Unfunded
Corte Madera	Fifer Ave.	Lucky Dr. - Nellen Ave.	12	Unfunded
Larkspur	Magnolia/Corte Madera Ave/Camino Alto	College Ave - Corte Madera Limit	14	Unfunded
Marin County	Wolf Grade	SRD Blvd - San Rafael Limit	15	Unfunded

SOUTH PLANNING AREA

Mill Valley	Miller Ave.	Camino Alto - Throckmorton Ave.	1	In progress
Mill Valley	E. Blithedale Ave.	Sunnyside Ave. - Tiburon Blvd.	2	Partially funded
Marin County	Paradise Dr.	Tamalpais Dr. - Trestle Glen Blvd.	3	Unfunded
Marin County	Almonte Blvd./ Miller Ave.	Shoreline Hwy - Camino Alto	3	Unfunded
Tiburon	Paradise Dr.	Trestle Glen Blvd. - Tiburon Blvd.	5	Unfunded
Sausalito	Bridgeway/ 2nd St/ S. Alexander Ave.	US 101 - Ft. Baker Rd.	6	Unfunded

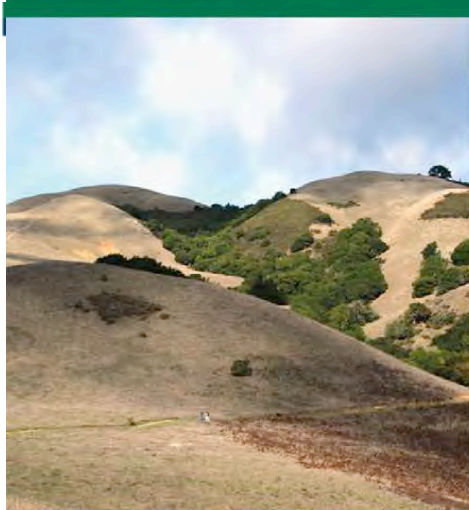
WEST PLANNING AREA

Marin County	Sir Francis Drake Blvd.	Samuel P. Taylor - Platform Bridge	1	Completed
Marin County	Sir Francis Drake Blvd.	Fairfax Limit - Samuel P. Taylor (Shafter Bridge)	2	Partial funded. In progress

Funding to date

Planning Area	Total (in millions)	Project(s)	Allocated To Date	Remain
Northern Marin	\$13.1	Novato Blvd	\$1.7	\$11.4
Central Marin	\$16.8	4 th Street 3 rd Street	\$4.1 \$0.3	\$12.4
Ross Valley	\$14.3	SFD Blvd 101 to Fairfax limit	\$0.8	\$13.5
Southern Marin	\$13.2	Miller Ave	\$11.5	\$1.7
West Marin	\$8.7	SFD Blvd Platform Bridge – SP Taylor SFD Blvd Lagunitas – Wild Iris	\$7.9 \$0.8	\$0
TOTAL	\$66.1		\$27.1	\$39.0

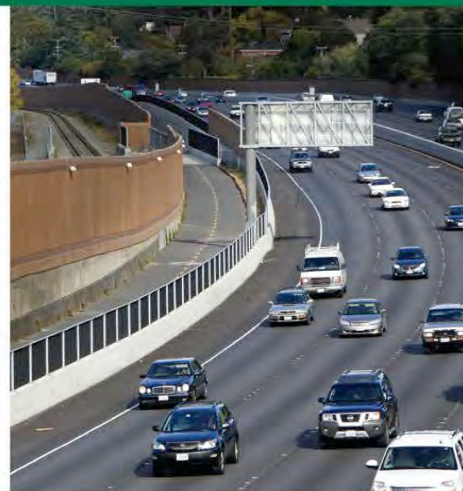
Should the Major Road Program continue
under the Reauthorization?



US 101 Interchanges

Expenditure Plan Advisory Committee

September 18, 2017



Discussion of Interchanges that have been the subject of recent planning studies or included in the Regional Transportation Plan (RTP)

Highway 101 / Local Road Interchanges

- Tiburon Blvd / East Blithedale Interchange
- Tamalpais Drive Interchange
- Central San Rafael ramps to and from 2nd Street
- Merrydale Road / North San Pedro Interchange
- Manuel T Freitas Parkway Interchange
- Lucas Valley / Smith Ranch Road Interchange

General Observations

- US101 Interchanges were constructed in the 1950's.
- Many have non-standard features such a loop ramps, narrow shoulders or limited vertical site distance.
- Increased demand is limiting traffic operations which leads to increased congestion.
- Most are lacking adequate pedestrian and bicycle facilities.

Highway 101 / Local Road Interchanges



CORRIDOR DEVELOPMENT (1960 TO TODAY)



Tiburon Blvd / East Blithedale Interchange

- Caltrans prepared a Project Study Report -2004. SB off-ramp improvements completed. Limited multi-modal improvements considered.
- TAM Completed a Bicycle & Pedestrian Study – 2016. Study identified short, medium and long term improvements.
- Caltrans will be widening northbound on-ramp as part of the Phase-One ramp metering project.
- TAM also studied traffic mitigation improvements consisting of an auxiliary lane approaching the on-ramps.
- US101 Annual Average Daily Traffic Volumes Range 128,00-166,000 (Yr. 2015).
- Approximately 80,000 vehicles a day approach the interchange from the local roads.



Tamalpais Drive Interchange

- Multiple studies of the interchange have been prepared over the years.
- TAM prepared planning level study in 2007. Suggested modifying ramp configuration and multi-modal improvements.
- A northbound Auxiliary Lane connecting the interchange with Sir Francis Drake Blvd off ramp was considered during Greenbrae Corridor Project.
- Caltrans recently announced it has begun work on a project to improvement pedestrian access in the area.
- US101 Annual Average Daily Traffic Volumes Range 166,00-169,000 .



Central San Rafael Ramps at 2nd Street

- City of San Rafael requested the ramps be studied in the Regional Transportation Plan.
- Area experiences heavy peak traffic congestion. Northbound off-ramp backs-up onto highway during AM and PM commutes.
- San Rafael Transit Center, Marin's largest bus transfer facility, serves 750 buses a day and the SMART train is to the north.
- Possible two-lane onramp to SB US101 to improve merging characteristics. Element discussed during HOV Gap Closure Project development process.



Merrydale / North San Pedro Road Interchange

- City of San Rafael requested the interchange be studied in the Regional Transportation Plan to improve and standardize the North San Pedro/Merrydale Interchange.
- Merrydale ramps experience congestion due to high demand and unique geometry
- Southbound on-ramp joins Highway 101 on an uphill grade resulting in differential speed at the merge
- US101 Annual Average Daily Traffic Volumes Range 188,000-200,000.



Manuel T Freitas Parkway Interchange

- City of San Rafael requested the interchange be studied in Regional Transportation Plan.
- Multiple roadway and ramp approaches intersect on the east side with uncontrolled traffic movements.
- Southbound approach roadway has re-occurring congestion due to closely space intersections and short available weave length.
- US101 Annual Average Daily Traffic Volumes Range 180,000-188,000.



Lucas Valley / Smith Ranch Road Interchange

- Project Study Report completed in 2003 – Suggested modifying ramp configurations.
- Report needs to be updated to address limited multi-modal access improvements.
- Roadway recently closed due to flooding (Provides access to County EOC).
- US101 Annual Average Daily Traffic Volumes Range 171,00- 180,000.



Opportunities / Solutions

- Interchange Improvements are costly.
- All interchanges have deficiencies to some degree and priorities must be defined.
- Need in-depth analysis and study (project study report, environmental studies, design) to get projects “shelf-ready”
- Possible to implement select features on a phased approach.
- Construction of Interchanges are good candidates for future STIP funds and possibly other state or federal funds. Funding for initial studies are limited and difficult to obtain.
- Consider directing a portion of the Transportation Sales Tax funds to initiate interchange studies and possibly use as “seed money” for a construction funding plan.





Questions and Discussion

Highway 101 Interchange

Tiburon Boulevard (Highway 131) and East Blithedale Avenue

SEPTEMBER 2017



BACKGROUND

The Tiburon Boulevard/East Blithedale Avenue interchange serves Mill Valley to the west of Highway 101 (via East Blithedale Avenue) and Strawberry, Tiburon and Belvedere to the east (along State Route 131, also known as Tiburon Boulevard).

Initially an at-grade intersection in the 1930's, it was later built as a grade-separated interchange with four cloverleaf ramps and four diagonal ramps. Today it retains its 1950's design except for the removal of the loop off-ramps (for safety purposes) and the added lane on the southbound off-ramp.

East Blithedale Avenue and Tiburon Boulevard, both multilane arterial roadways, and Redwood Highway Frontage Road connect with the interchange.

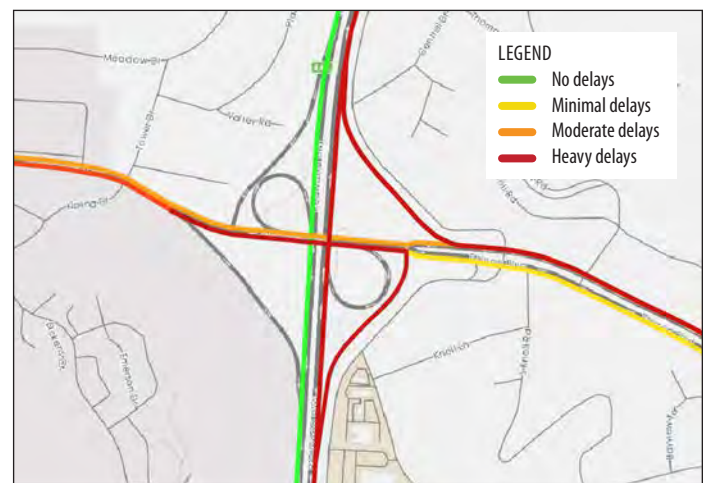
The interchange serves 10 bus stops, including highway level stops between off- and on-ramps. It has a narrow sidewalk along the north side of the overcrossing. No bicycle facilities exist.

TRAFFIC AND CONGESTION

Recent traffic counts show that each weekday about 80,000 vehicles traverse the interchange's approach roadways of East Blithedale Avenue, Tiburon Boulevard, and Redwood Highway Frontage Road. Traffic congestion occurs during morning, after-school, and late afternoon/early evening periods, with eastbound back-ups extending into Mill Valley, westbound



Traffic congestion approaching the 101 crossing.



Weekday PM peak period traffic congestion.

vehicle queuing to Strawberry, and northbound congestion on the frontage road's approach.

Northbound Highway 101 suffers from recurring congestion, further constraining throughput along the interchange's roadways.

Vehicle collisions, with some involving pedestrians or bicyclists, have occurred along the arterial roadways, and conflict potential is exacerbated during congested periods.

CHALLENGES / CONSTRAINTS

Weekday and weekend traffic congestion will persist due to recurring back-ups on northbound Highway 101 and because of limited throughput capacity available on East Blithedale Avenue and Tiburon Boulevard.

The interchange area is served with four separate signalized intersections within just one-third of a mile, including the signal at the multi-phased intersection with Redwood Highway Frontage Road.

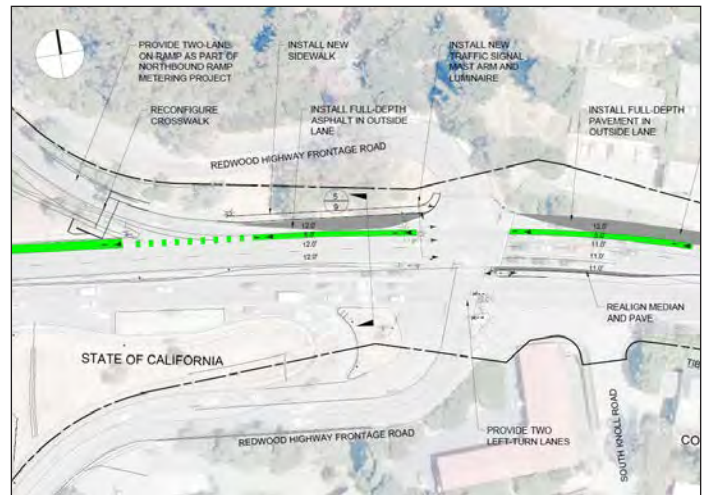
The overcrossing bridge accommodates four traffic lanes and a sidewalk in its 59-foot width, and lacks adequate shoulders or bicycle lanes.

Traffic demands are forecast to increase through the interchange area. Bus use, pedestrian activity, and bicycle ridership – on weekdays and weekends – is also expected to increase.

OPPORTUNITIES / SOLUTIONS

Potential solutions include:

- Increasing the capacity of the Tiburon Boulevard/Redwood Highway Frontage Road intersection by providing a second northbound left-turn lane and an additional westbound through lane
- Adding an additional lane to the northbound diagonal on-ramp
- Providing more capacity to the northbound loop on-ramp
- Widening the Highway 101 overcrossing to accommodate a third eastbound traffic lane between Kipling Drive and South Knoll Road
- "Squaring up" on-ramp connections with the overcrossing to improve safety
- Relocating and/or improving the bus stops and bus access



Decreasing East Blithedale Ave./Tiburon Blvd. vehicle delays by providing improvements at key eastside congestion hot spot.

- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection coordination
- Providing bikeways
- Improving sidewalks and filling in missing gaps

COSTS

Planning-level estimated capital (design, environmental clearance, and construction) and right-of-way costs range as follows:

- Capital: \$60,000,000 to \$120,000,000
- Right-of-way: \$1,000,000 to \$5,000,000

NEXT STEPS

Potential next steps include:

- Identify interchange area stakeholders
- Obtain funding to further evaluate challenges and identify short- and long-range interchange improvement options
- Prepare geometric layout, identify right-of-way needs, and conduct environmental studies
- Obtain funding for design and construction
- Construct improvements



Highway 101 Interchange

Paradise Drive and Tamalpais Drive

SEPTEMBER 2017



BACKGROUND

The Paradise Drive/Tamalpais Drive interchange, located in Corte Madera, was originally constructed in the 1950's with four cloverleaf ramps and four diagonal ramps. Due to safety reasons, the two loop off-ramps were removed in late 1970's. The overcrossing is only four lanes wide and provides limited motorist sight distance. There is a narrow sidewalk along one side of the overcrossing. The interchange serves four bus stops, including two stops at highway level.

The interchange connects the east and west sides of Corte Madera; major regional shopping malls are located on each side of Highway 101.

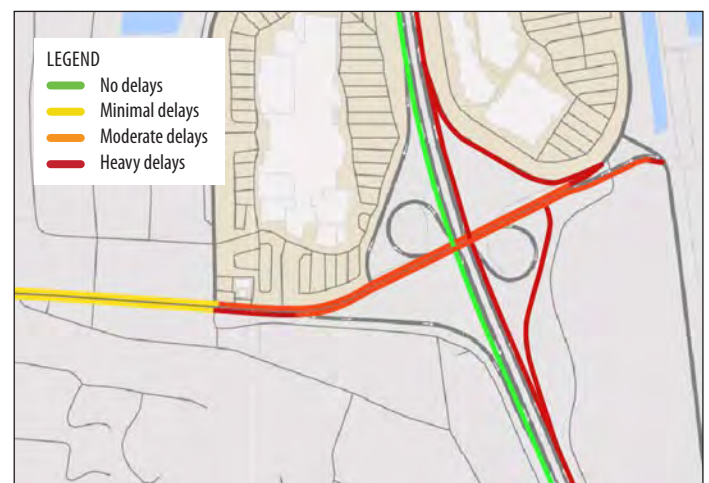
TRAFFIC AND CONGESTION

Eastbound and westbound traffic often experiences congestion along the Paradise Drive/Tamalpais Drive overcrossing, particularly during the weekday late afternoon/early evening peak period.

Northbound Highway 101 faces heavy congestion for a number of hours during the late afternoon and early evening. Traffic backs up along both of the interchange's northbound on-ramps, and extends along Paradise Drive and Tamalpais Drive.



Northbound Highway 101 traffic back-up.



Weekday PM peak traffic congestion.

A number of vehicle collisions have occurred along the overcrossing's approaches to the signalized ramp intersections due to back-ups and limited sight distance.

CHALLENGES / CONSTRAINTS

Late afternoon/early evening congestion will continue to occur due to northbound Highway 101 back-ups and the lack of an auxiliary traffic lane between the interchange's diagonal on-ramp and the off-ramp serving Sir Francis Drake Boulevard. The northbound off-ramp will continue to back-up.

The narrow four-lane width of the overcrossing will continue to constrain vehicle throughput, and the profile of the overcrossing will continue to limit motorist sight lines when approaching the ramp intersections.

The four-foot wide sidewalk on the south side is not comfortable for most pedestrians, and the lack of continuous bike lanes across the overcrossing contributes to conflicts.

OPPORTUNITIES / SOLUTIONS

Potential solutions include:

- Adding a northbound Highway 101 auxiliary lane to Sir Francis Drake Blvd.
- Widening the overcrossing to provide more traffic and/or turning lanes
- Reconstructing the overcrossing with a different profile to improve motorist sight lines
- Providing a wide sidewalk on both sides of the overcrossing, or a multiuse pathway along one side
- "Squaring up" on-ramp connections from the overcrossing to improve safety
- Widening the on-ramps to provide added traffic capacity
- Relocating and/or improving the bus stops and bus stop access
- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection signal coordination



Reconstructing overcrossing and providing additional traffic lanes.

COSTS

Planning-level estimated capital (design, environmental clearance, and construction) and right-of-way costs range as follows:

- Capital: \$60,000,000 to \$90,000,000
- Right-of-way: \$1,000,000 to \$5,000,000

NEXT STEPS

Potential next steps include:

- Identify interchange area stakeholders
- Obtain funding to further evaluate challenges and identify short- and long-range interchange improvement options
- Prepare geometric layout, identify right-of-way needs, and conduct environmental studies
- Obtain funding for construction
- Construct improvements



Highway 101 Interchange

Central San Rafael: Ramps to and from 2nd Street

SEPTEMBER 2017



BACKGROUND

The Central San Rafael interchange was constructed in the 1950's. The southern ramps and the local streets that intersect them experience recurring traffic congestion throughout the day.

The two-lane on-ramp to southbound Highway 101 is served by 2nd Street and Hetherton Street. Its two lanes quickly merge to one lane before joining southbound Highway 101 as an auxiliary lane that extends to the off-ramp to eastbound I-580.

The two-lane off-ramp from northbound Highway is served by auxiliary lanes along northbound Highway 101. It widens out to four lanes at the signalized 2nd Street and Irwin Street intersection.

The San Rafael Transit Center, serving about 750 buses a day and the SMART train, is located just north of 2nd Street along Hetherton Street.

There are no sidewalks along the south side of 2nd Street or on the east side of Hetherton Street. Barriers discourage pedestrians from crossing some of the legs at both the 2nd Street/Hetherton Street and 2nd Street/Irwin Street intersections. No bike lanes exist.



Southbound traffic backs up on Hetherton Street.



Weekday PM peak period traffic congestion.

TRAFFIC AND CONGESTION

The southbound on-ramp serves heavy traffic volumes from both southbound Hetherton Street and eastbound 2nd Street; both roadways have two lanes “feeding” the on-ramp. During peak periods traffic backs up along both roadways due to congestion along the southbound on-ramp, as well as the limited capacity of the 2nd/Hetherton signalized intersection. The back-ups often extend several blocks from the intersection, causing congestion along other Central San Rafael roadways.

Traffic using the northbound off-ramp often waits through multiple signal cycles at the 2nd Street/Irwin Street intersection, resulting in long delays and back-ups along the off-ramp. Irwin Street north of 2nd Street experiences recurring congestion due to its heavy traffic demands, and high volumes on the intersecting cross-streets.

CHALLENGES / CONSTRAINTS

Traffic back-ups will continue to occur due to recurring congestion on southbound Highway 101 and the heavy traffic demands in Central San Rafael, particularly along Hetherton, Irwin, 2nd, 3rd, 4th and 5th Streets.

Potential enhancements could be limited due to right-of-way limitations, as well as planned multimodal improvements at the San Rafael Transit Center and with the SMART extension to Larkspur. Potential environmental issues could occur due to the nearby canal and other constraints.

Right-of-way, environmental, and heavy traffic volume considerations could also limit potential pedestrian and bicycle improvements within the ramp intersection area.

OPPORTUNITIES / SOLUTIONS

Potential solutions include:

- Extending the southbound on-ramp’s double entry lanes farther to the south
- Adding a high-occupancy vehicle bypass lane along the on-ramp
- Increasing the turning radius from eastbound 2nd Street onto the on-ramp
- “Separating” the dual right-turning lanes from 2nd Street from the straight-through lanes before the on-ramp
- Obtaining right-of-way to increase the capacity of the 2nd Street/Irwin Street intersection, e.g., providing dual right-turning lanes



Extending the length of dual on-ramp lanes to Highway 101.

- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection signal coordination
- Integrating an east-west bikeway corridor under Highway 101 between 3rd and 5th Streets
- Providing new or improved walkways, where feasible

COSTS

Planning-level estimated capital (design, environmental clearance, and construction) and right-of-way costs range as follows:

- Capital: \$55,000,000 to \$80,000,000
- Right-of-way: \$10,000,000 to \$25,000,000

NEXT STEPS

Potential next steps include:

- Identify interchange area stakeholders
- Obtain funding to further evaluate challenges and identify short- and long-range on-ramp and intersection area improvement options
- Prepare geometric layout, identify right-of-way needs, and conduct environmental studies
- Obtain funding for design and construction
- Construct improvements

Highway 101 Interchange

North San Pedro Road

SEPTEMBER 2017



BACKGROUND

The North San Pedro Road interchange, located in San Rafael, was originally constructed in the 1950's. Its two northbound off-ramps and single on-ramp intersect directly with North San Pedro Road. Its southbound off-ramp and on-ramp are "hook" ramps that connect with Merrydale Road about 500 feet north of North San Pedro Road, creating high turning traffic volumes at the signalized North San Pedro Road/Merrydale Road intersection.

The interchange serves five bus stops, including stops at highway level. There are minimal sidewalk and bikeway facilities along North San Pedro Road within the interchange area.

The intersection provides access to the Marin County Civic Center located to the east of Highway 101.

TRAFFIC AND CONGESTION

Several ramps experience recurring traffic congestion due to high vehicular demands and their original unique geometry. For example, the ramps from and to southbound Highway 101 are short and have tight curves, resulting in back-ups both along southbound Highway 101 and on Merrydale Road. The on-ramp joins Highway 101 on an uphill grade, resulting in vehicle speed differentials at the merge point.



Traffic on northbound Highway 101.



Weekday AM peak period congestion.

A substantial amount of traffic exiting the northbound off-ramp is destined for the Civic Center, requiring motorists to cross a traffic lane in a short distance, contributing to congestion along North San Pedro Road.

In addition, the North San Pedro Road/Merrydale Road intersection often experiences congestion.

CHALLENGES / CONSTRAINTS

Traffic congestion will continue to occur due to the heavy traffic demands and outdated ramp and roadway geometry.

Potential traffic relief enhancements could be limited due to the existing narrow North San Pedro Road undercrossing of Highway 101, the elevation grade changes throughout the interchange area, and the limited Caltrans' right-of-way, particularly between Highway 101 and Merrydale Road.

These constraints could also limit the potential to provide improved transit, pedestrian, and bicycle related improvements.

OPPORTUNITIES / SOLUTIONS

Potential solutions include:

- Adding a traffic lane to North San Pedro Road, including under Highway 101
- Increasing the capacity of the southbound off-ramp at Merrydale Road, e.g., signaling the intersection and/or adding a second left-turn lane
- Providing multimodal enhancements at the North San Pedro Road/Merrydale Road intersection
- Reconfiguring the northbound off-ramp and its connection with eastbound North San Pedro Road to improve access to the Civic Center
- Providing an accessible path of travel along North San Pedro Road
- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection signal coordination



Increasing the capacity of off-ramp terminal with local roadway.

COSTS

Planning-level estimated capital (design, environmental clearance, and construction) and right-of-way costs range as follows:

- Capital: \$20,000,000 to \$30,000,000
- Right-of-way: \$1,000,000 to \$7,000,000

NEXT STEPS

Potential next steps include:

- Identify interchange area stakeholders
- Obtain funding to further evaluate challenges and identify short- and long-range interchange improvement options
- Prepare geometric layout, identify right-of-way needs, and conduct environmental studies
- Obtain funding for construction
- Construct improvements



Highway 101 Interchange

Manuel T. Freitas Parkway



SEPTEMBER 2017

BACKGROUND

The Manuel T. Freitas Parkway interchange, located in San Rafael, was originally constructed in 1950's. The interchange's ramps provide access to the multilane arterial parkway to the west of Highway 101, and to Redwood Highway/Civic Center Drive on the east. It consists of loop on-ramps and diagonal off-ramps.

The interchange's overcrossing has four traffic lanes and a narrow sidewalk on the north side. There are no bicycle facilities on the overcrossing of Highway 101. It serves three bus stops, including two stops at highway level between the off- and on-ramps.

The interchange provides access to northern San Rafael (Terra Linda) to the west, including a regional shopping center, and commercial and civic uses to the east, including the Marin County Civic Center.

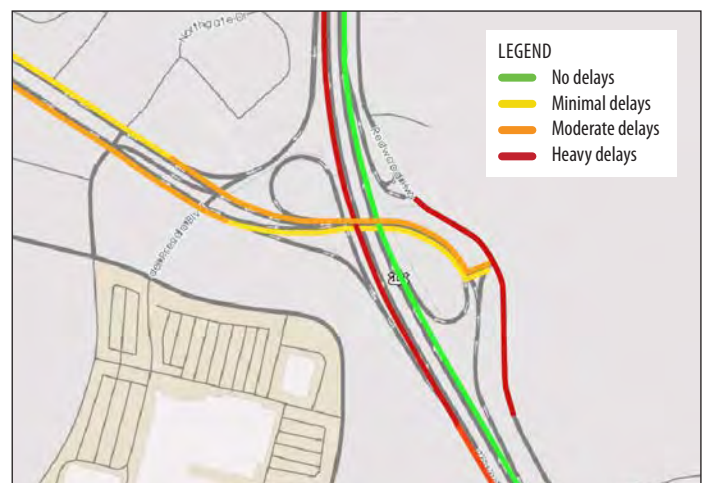
TRAFFIC AND CONGESTION

During peak traffic periods, traffic often backs up along the southbound on-ramp, impacting traffic operations along eastbound Manuel T. Freitas Parkway, including through the Del Presidio Boulevard and Northgate Drive intersections.

Multiple roadway and ramp approaches intersect on the east side of the interchange, with many uncontrolled traffic



Northbound Highway 101 traffic.



Weekday PM peak period congestion.

movements at the northbound ramps, on the parkway, and along Redwood Highway/Civic Center Drive. Motorists traversing the complex often appear confused.

Traffic levels through the interchange area are expected to increase in the future as land use changes occur.

CHALLENGES / CONSTRAINTS

Traffic congestion will continue to occur due to the increasing traffic demands, closely spaced major intersections to the west of Highway 101, and the multi-leg intersection with Redwood Highway to the east.

Potential multimodal enhancements could be limited due to existing land uses and intersection locations to the west, and topography and the proximity of Redwood Highway/Civic Center Drive to the east.

The unique configuration of the interchange and the available public right-of-way could also affect options for improvement. Retaining or modifying the interconnected Merrydale Road overcrossing could be a challenge.

These constraints could also limit the potential to provide improved transit, pedestrian, and bicycle related improvements.

OPPORTUNITIES / SOLUTIONS

Potential solutions include:

- Reconfiguring portions of the interchange
- Modifying the Manuel T. Freitas Parkway/northbound on-ramp/Redwood Highway/Civic Center Drive intersection
- “Re-purposing” the Merrydale Road overcrossing, e.g., modifying it to serve eastbound traffic and be better integrated into the interchange
- Modifying the southbound on-ramp to improve weaving length to Del Presidio Boulevard
- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection signal coordination



Widening bridge (e.g., Merrydale Road) to relieve congestion at adjacent interchange.

COSTS

Planning-level estimated capital (design, environmental clearance, and construction) and right-of-way costs range as follows:

- Capital: \$50,000,000 to \$70,000,000
- Right-of-way: \$1,000,000 to \$7,000,000

NEXT STEPS

Potential next steps include:

- Identify interchange area stakeholders
- Obtain funding to further evaluate challenges and identify short- and long-range interchange improvement options
- Prepare geometric layout, identify right-of-way needs, and conduct environmental studies
- Obtain funding for construction
- Construct improvements



Highway 101 Interchange

Lucas Valley Road and Smith Ranch Road

SEPTEMBER 2017



BACKGROUND

The Lucas Valley Road/Smith Ranch Road interchange, located in San Rafael, was constructed in 1950's. It has five ramps, including two northbound on-ramps (a loop ramp from eastbound Lucas Valley Road and a diagonal ramp from Smith Ranch Road). The southbound off-ramp is a tight and circular ramp that terminates at a traffic signal with Lucas Valley Road.

West of Highway 101, Lucas Valley Road is a two-lane arterial roadway that extends 10 miles to Nicasio. To the east, five-lane Smith Ranch Road extends to McInnis Park.

The interchange serves two highway level stops between its off- and on-ramps. A park-and-ride lot is located on the east side of the interchange, and has 200 parking spaces.

Lucas Valley Road has three lanes under Highway 101 and a narrow sidewalk along the north side. There are no bicycle facilities.

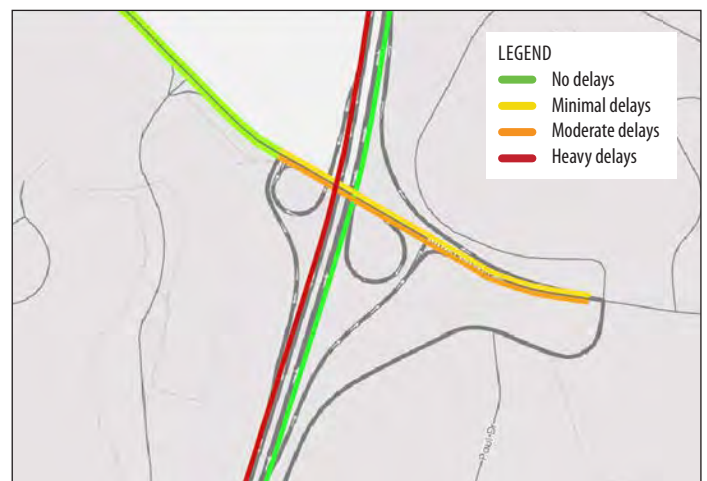
TRAFFIC AND CONGESTION

The limited capacity along Lucas Valley Road west of Smith Ranch Road, including under Highway 101 and west past Los Gamos Drive, contributes to traffic congestion during peak commute periods.

The interchange's short and tightly curved southbound off-ramp routinely experiences back-ups toward the highway's mainline, and provides limited driver sight distance.



Northbound Highway 101 traffic.



Weekday AM peak hour congestion.

During peak periods the southbound on-ramp serves heavy traffic volumes.

Traffic levels through the interchange area are expected to increase in the future as land use changes occur.

CHALLENGES / CONSTRAINTS

Traffic congestion and back-ups will continue to occur due to the increasing traffic demands, limited capacity of Lucas Valley Road, and the interchange's outdated ramp geometry.

Potential traffic relief enhancements could be limited due to the lack of available right-of-way in the interchange's southwest quadrant, and the presence of a hill in its northwest quadrant (which is located in the County of Marin right-of-way).

These constraints could also limit the potential to provide improved transit, pedestrian, and bicycle related improvements.

OPPORTUNITIES / SOLUTIONS

Potential solutions include:

- Replacing the highway overcrossing to enable widening Lucas Valley Road
- Replacing the existing non-standard southbound loop off-ramp with a new off-ramp located in the interchange's northwest quadrant
- Adding a southbound loop on-ramp in the northwest quadrant
- Providing improvements along Lucas Valley Road through the Los Gatos Drive intersection, including potential traffic lane changes and signalization
- Providing bus stop improvements and bus stop access
- Enhancing pedestrian and bicycle facilities
- Installing on-ramp meters to improve overall operational efficiency of Highway 101
- Improving intersection signal coordination



Widening undercrossing of Highway 101 to provide additional traffic lanes.

COSTS

Planning-level estimated capital (design, environmental clearance, and construction) and right-of-way costs range as follows:

- Capital: \$40,000,000 to \$60,000,000
- Right-of-way: \$1,000,000 to \$5,000,000

NEXT STEPS

Potential next steps include:

- Identify interchange area stakeholders
- Obtain funding to further evaluate challenges and identify short- and long-range interchange improvement options
- Prepare geometric layout, identify right-of-way needs, and conduct environmental studies
- Obtain funding for design and construction
- Construct improvements

