SCTA
sonoma county transportation authority

490 MENDOCINO AVENUE, SUITE 206
SANTA ROSA, CA 95401
WWW.SCTAINFO.ORG (707) 565-5373

RCPA
regional climate protection authority

Technical Advisory Committee

MEETING AGENDA

February 26, 2015 1:30 PM

Sonoma County Transportation Authority
SCTA Large Conference Room
490 Mendocino Avenue, Suite 206
Santa Rosa, California 95401

ITEM

1. Introductions

2. Public Comment

3. Approval of Minutes, January 22, 2015* – **DISCUSSION / ACTION**

4. TFCA Call for Projects, Fiscal Year 2015-2016*– **DISCUSSION / ACTION**

5. Comprehensive Transportation Plan Update – **DISCUSSION / ACTION**

6. Measure M **DISCUSSION / ACTION**

6.1 Measure M Invoicing / Appropriation Status*

7. Regional Information Update – **DISCUSSION**

7.1 Active Transportation Program (ATP) FY2015/16 State and Regional Development Schedule*

7.2 FHWA revised process for Indirect Cost Allocation Plans/Indirect Cost Rate Proposals
http://www.dot.ca.gov/hq/audits/documents/ICAP_ICRP_SUBMISSIONPROCESSES.pdf

7.3 MAP-21: Pavement and Bridge Condition Performance Measures*

7.4 STIP reduction based on Gas Tax Swap*

8. Sales Tax Update - **DISCUSSION**

9. Rail Update – **DISCUSSION**

10. Draft SCTA Board Meeting Agenda for March 9, 2015

11. Other Business / Comments / Announcements - **DISCUSSION**

12. Fund Management System (FMS) Tutorial with Adam Crenshaw and Kenneth Kao - **DISCUSSION**

13. Adjourn - **ACTION**

*Materials attached.
**Handout at meeting

The next **S C T A** meeting will be held March 9, 2015
The next **TAC** meeting will be held on March 26, 2015

Copies of the full Agenda Packet are available at www.sctainfo.org

DISABLED ACCOMMODATION: If you have a disability that requires the agenda materials to be in an alternate format or that requires an interpreter or other person to assist you while attending this meeting, please contact SCTA at least 72 hours prior to the meeting to ensure arrangements for accommodation.

SB 343 DOCUMENTS RELATED TO OPEN SESSION AGENDAS: Materials related to an item on this agenda submitted to the ***Technical Advisory Committee*** after distribution of the agenda packet are available for public inspection in the Sonoma County Transportation Authority office at 490 Mendocino Ave., Suite 206, during normal business hours.

Pagers, cellular telephones and all other communication devices should be turned off during the committee meeting to avoid electrical interference with the sound recording system.

TAC Voting member attendance – (6 Month rolling 2014/15)

Jurisdiction	Jul	Aug	Sep	Oct	Dec	Jan	Feb
Cloverdale Public Works		-					
Cotati Public Works		-		√			
County of Sonoma DHS	√	-	√	√	√		
County of Sonoma PRMD		-					
County of Sonoma Reg. Parks		-	√	√	√	√	
County of Sonoma TPW	√	-	√			√	
Healdsburg Public Works	√	-		√		√	
Petaluma Public Works & Transit	√	-	√	√	√	√	
Rohnert Park Public Works	√	-	√	√	√	√	
Santa Rosa Public Works	√	-	√	√	√	√	
Santa Rosa Transit		-					
Sebastopol Public Works	√	-	√	√	√	√	
SMART	√	-					
Sonoma County Transit		-	√				
Sonoma Public Works		-	√	√	√	√	
Windsor Public Works	√	-	√	√	√	√	

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SCTA TECHNICAL ADVISORY COMMITTEE

Meeting Minutes of January 22, 2015

1. Call to Order/Introductions

The meeting was called to order by Vice-Chair Zimmer.

Members: Nancy Adams, Santa Rosa, Art Da Rosa, Rohnert Park, Joe Gaffney, Sebastopol, Mario Landeros, Healdsburg, Alejandro Perez, Windsor, Eydie Tacata, Rohnert Park, Dan Takasugi, Sonoma, Elizabeth Tyree, Sonoma County Regional Parks, Steve Urbanek, Sonoma County Transportation and Public Works, Larry Zimmer, Petaluma.

Guests: None.

Staff: Chris Barney, James Cameron, Marge Fernandez, Seana Gause, Janet Spilman, Dana Turrey.

2. Public Comment

None.

3. Approval of Minutes, Enter Date

The minutes were approved as submitted.

4. Election of TAC Officers

Chair Kelly announced her retirement effective July 4, 2015. Therefore the opportunity arises to refresh the officers of the TAC. The Vice-Chair Larry Zimmer has agreed to take over as Chair effective in July which will leave the Vice-Chair position open. Dan Takasugi was nominated as Vice-Chair; which was approved by the TAC.

5. Comprehensive Transportation Plan Update

A hand out of the list of projects for each jurisdiction without assessment was passed out to the TAC. Staff wants to ensure that all the projects have been submitted electronically to the SCTA. A list of Caltrans and SCTA projects will be on the final comprehensive list.

6. TFCA/TDA3 Quarterly Report

Included in the agenda packet is the quarterly report for TDA3 and TFCA of projects that were not fully expended as of December 31, 2014.

The 2015 funding for TFCA Call for Projects will come out in the next couple of days, and TDA3 will be out in early February.

The TAC approved the quarterly report.

7. Project Initiation Document (PID) list (2015/16 & 16/17) Update and Call for Projects

There is no funding for PIDs anymore; if a jurisdiction wants a project on the State facility they are required to fund their own PID.

Staff is putting out a Call for Projects now for updates or changes to the PID that was submitted last year. Without any information Staff will take the existing list in the agenda packet that was approved by the Board last year and submit to Caltrans.

Staff is requesting updated information by no later than January 26, 2015.

8. Measure M

8.1. Measure M Invoicing / Appropriation Status

Several projects on the list that are highlighted in pink or yellow have not appropriated funds and are programmed in the current fiscal year 2014-15. This is the six-month warning flag to these project sponsors to get an appropriation request in for this fiscal year. Next month there will be an item on the agenda for the TAC to decide whether these projects need to remain on this list for this year. If project sponsors want their funds for this year and have not appropriated funds they should contact staff to discuss further.

8.2. Measure M LSR/LBT Estimates for FY15/16

Included in the agenda packet are the projected estimates for the next fiscal year. The Local Street Rehabilitation program estimates are based on actual revenues collected over the past twelve months and population and road mile formula. The Local Bus Transit ratios are based on TDA population percentages.

8.3. Measure M Maintenance of Effort

Data is due to the SCTA on or before February 15, 2015. To date, four jurisdictions have submitted their MOU data to the SCTA. Staff has yet to receive submittals from Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Windsor, and Cotati. An updated summary will be presented at the next meeting

9. Regional Information Update

9.1. FHWA Published NPRM on NHS Pavement and Bridge Performance Measures

The pavement and bridge performance measures are out and are available online. More information is to come.

9.2. MNR or PCI Non-Pavement Information updates to Street Saver

A presentation was made at the Local Streets and Roads Working Group meeting on MTC's new virtual web site called "Vital Signs." It will have a number of different pages that are interactive that have to do with regional planning and programming. One of the elements is the LSR page will allow access PCI data in real time. The page goes live on January 28, 2015. They are currently using 2013 data. They will be updating the page shortly and will be using Street Saver data for 2014. They have found that some of the jurisdictions have used the "other" category for roads, and it is meant for the non-pavement resources. They would like project sponsors to modify the "Other" designation if it was used for roads, as it is only to be used for non-pavement resources. The deadline is January 29, 2015.

10. Sales Tax Update

The Staff report that is going out to the CAC this month will be emailed out to the TAC.

11. Rail Update

The DMUs are in Colorado now and are currently being tested. Once done testing will go back to New Rochelle for servicing and equipment. They will be shipped out late March early April and will be tested on tracks in Marin.

SMART is continuing to work on NEPA compliance for the pathway.

The General Manager's report is available online on SMART's website..

12. Draft SCTA Board Meeting Agenda for February 9, 2015

The agenda is not available at this time.

13. Other Business / Comments / Announcements

Art De Rosa is the new Deputy Engineer for Rohnert Park.

Staff will email to the TAC Healdsburg's agency specific mark-up template for capital project contract change orders.

Staff has received ramp metering comments and the comments are forwarded to Caltrans to respond. Staff pointed out that if a jurisdiction gets comments give a date and time of the incident as opposed to a general comment. This gives Caltrans the ability to come and look at what is happening and if it is a recurring issue they can change the timing and modify their system to address it. Adrian Levy is the main technical contact at

Caltrans. If there are any public comments or concerns refer to Caltrans Public Information Officer Allyn Amsk. As follow up Kittelson and Associates, will come back in April to conduct an after study.

The SCTA/RCPA Annual Report is now available and copies are here for your taking. The Measure M Annual is going to the SCTA Board in February.

14. Adjourn

The meeting adjourned at 2:07 pm.

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Memorandum

To: Eligible Applicants

From: Dana Turrey, Transportation Planner

Re: Call for Projects for FYE 2016 Transportation Fund for Clean Air

Date: January 27, 2015

APPLICATIONS DUE BY 5:00 P.M. ON MARCH 30, 2015

Call for Transportation Fund for Clean Air Projects

All eligible jurisdictions are invited to submit applications for the Transportation Fund for Clean Air (TFCA) County Program Manager Fund for Fiscal Year Ending (FYE) 2016.

Distribution Criteria

In October 2006, the SCTA Board set the criteria to be used for the distribution of TFCA funding. This criteria was adjusted in December 2013 by the SCTA Board to include the City of Petaluma in part one of the distribution. The two-part distribution is as follows: 1) Sonoma County, City of Santa Rosa, and City of Petaluma receive guaranteed "off-the-top" funding based on their annually-updated population totals; and 2) jurisdictions within the Bay Area Air Quality Management District (BAAQMD) Air Basin – including, Windsor, Rohnert Park, Cotati, Sonoma, and Sebastopol are eligible to apply for a competitive portion of the funding. By agreement, the jurisdictions in part one (1) of the TFCA distribution will submit applications for funding from the competitive portion only if the eligible cities do not put forth a sufficient package of qualified proposals to fully utilize the entire amount of available funding.

FY 2015-2016 TFCA Distribution

Santa Rosa	County	Petaluma	Competitive	Total Allocation
39.97%	24.27%	13.85%	21.92%	100%
$230,892	$140,199	$80,006	$126,566	$577,664

Approvals Process

The applications for Transportation Fund for Clean Air Program of Projects are presented to and approved by the SCTA Technical Advisory Committee (TAC) and the Transit Technical Advisory Committee (T-TAC). The SCTA Board passes a resolution of approval for the TFCA Program of Projects, which is then submitted to the Bay Area Air Quality Management District (BAAQMD).

FYE 2016 Update Highlights

The most recent updates to ARB's EMFAC model (version 2011) include both significant changes to emission standards and a transition from reporting PM10 to PM2.5 data. BAAQMD staff took a multiyear approach to incorporate all of ARB's updates: ROG and NOx values were updated in the FYE 2015 worksheets, and PM values were updated in the FYE 2016 worksheets. CO2 values were not updated, as they are currently being verified by BAAQMD staff. Note that CO2 values will not impact your project cost-effectiveness evaluation (this is for Air District's tracking purposes).

The revised Guidance for FYE 2016 has been updated to include Air District defaults for Class 4 cycle tracks or separated bikeways.

Application Materials

1. TFCA Project Information Form (attached)
2. Cost Effectiveness Worksheet (available online and attached http://www.baaqmd.gov/Divisions/Strategic-Incentives/Funding-Sources/TFCA/County-Program-Manager-Fund.aspx)
    a. Do not re-use worksheets from past years; if you use a previous year's worksheet, you will be required to re-submit your application.
    b. Fill out all THREE (3) tabs in the Excel worksheet
        i. General Information
        ii. Emission Factors
        iii. Notes and Assumptions
3. TFCA County Program Manager Fund Policies for FYE 2016 (available online: http://www.baaqmd.gov/~/media/Files/Strategic%20Incentives/TFCA/Program%20Manager%20Fund/FYE2016/FYE%202016%20TFCA%20County%20Program%20Manager%20policies%20%20%20Clean%20revised%2012192014.ashx?la=en)

FYE 2016 TFCA Schedule	
March 30	Deadline for TFCA Project Application Forms to SCTA Please send all forms to Dana Turrey: dturrey@sctainfo.org
April 8 / 23	T-TAC and TAC review and recommends program of projects to SCTA Board
May 11	SCTA Board considers the FYE 2015 TFCA Program of Projects
May – August	Contract between BAAQMD and SCTA signed, then contracts between SCTA and Project Sponsors signed.
Upon Contract Execution	Funds available for approved projects. Funds need to be expended within 2 years of receipt of 1st BAAQMD check received by SCTA (usually October).

Please direct questions to Dana Turrey at dturrey@sctainfo.org or 707-565-5376.

PROJECT INFORMATION

A. Project Number: 16XX01
Use consecutive numbers for projects funded, with year, county code, and number, e.g., 16MAR01, 16MAR02 for Marin County. Zero (e.g., 16MAR00) is reserved for County Program Manager TFCA funds allocated for administration costs.

B. Project Title: _____
Provide a concise, descriptive title for the project (e.g., "Elm Ave. Signal Interconnect" or "Purchase Ten Gasoline-Electric Hybrid Light-Duty Vehicles").

A. TFCA County Program Manager Funds Allocated: $_____

B. TFCA Regional Funds Awarded (if applicable):$_____

C. Total TFCA Funds Allocated (sum of C and D):$_____

D. Total Project Cost: $_____
Indicate the TFCA dollars allocated (C, D and E) and total project cost (D). Data from Line E (Total TFCA Funds) should be used to calculate C-E.

E. Project Description:

Grantee will use TFCA funds to _____. *Include information sufficient to evaluate the eligibility and cost-effectiveness of the project. Ex. of the information needed include but are not limited to: what will be accomplished by whom, how many pieces of equipment are involved, how frequently it is used, the location, the length of roadway segments, the size of target population, etc. Background information should be brief. For shuttle/feeder bus projects, indicate the hours of operation, frequency of service, and rail station and employment areas served.*

F. Final Report Content: Final Report form and final Cost Effectiveness Worksheet
Reference the appropriate Final Report form that will be completed and submitted after project completion. See http://www.baaqmd.gov/Divisions/Strategic-Incentives/Funding-Sources/TFCA/County-Program-Manager-Fund.aspx for a listing of the following forms:
- *Form for Ridesharing, Shuttles, Transit Information, Rail/Bus Integration, Smart Growth, and Traffic Calming Projects. (Includes Transit Bus Signal Priority.)*
- *Form for Clean Air Vehicle and Infrastructure Projects*
- *Form for Bicycle Projects*
- *Form for Arterial Management Projects*

G. Attach a completed Cost-effectiveness Worksheet and any other information used to evaluate the proposed project. *For example, for vehicle projects, include the California Air Resources Board Executive Orders for all engines and diesel emission control systems. Note, Cost-effectiveness Worksheets are not needed for TFCA County Program Managers' own administrative costs.*

H. Comments (if any):
Add any relevant clarifying information in this section.

ARTERIAL MANAGEMENT PROJECTS
FYE 2016 TFCA County Program Manager Fund Worksheet

Version 2016.0, updated 12/17/14

General Information Tab: Complete areas shaded in yellow.

Project Number (16XXXYY)	
Project Title	
Project Type Code (e.g., 7a)	
County (2-3 character abbreviation)	
Worksheet Calculated By	
Date of Submission	
Project Sponsor	
Project Sponsor Organization	
Public Agency? (Y or N)	
Contact Name	
Email Address	
Phone Number	
Mailing Address	
City	
State	
Zip	
Project Schedule	
Project Start Date	
Project Completion Date	
Final Report to CMA	

ARTERIAL MANAGEMENT PROJECTS

FYE 2016 TFCA County Program Manager Fund Worksheet

Version 2016.0, updated 12/17/14

Calculations Tab: Complete areas shaded in yellow.

Cost Effectiveness Inputs	
# Years Effectiveness:	
Total Project Cost:	
TFCA Cost 40%:	
TFCA Cost 60%:	
Total TFCA Cost:	$0

TFCA Regional Fund Proj. #: (If applicable)

Emission Reduction Calculations

A	B	C	D	E	F	G	H	I	J	K	L
Name of Arterial, Direction	Segment Length (miles)	Days/Yr.	Time Period	Traffic Volume During Time Period	Travel Speed w/o Project	Travel Speed w/ Project	Percent Speed Increase	ROG Emission Reductions (lbs/yr)	NOx Emission Reductions (lbs/yr)	PM Emission Reductions (lbs/yr)	CO2 Emission Reductions (lbs/yr)
~~Existing Vehicles~~											
SAMPLE--San Pablo, Northbound	4.5	250	7AM - 9AM	7,000	21.5	25.0	16.3%	130.09	130.09	9.37	564606
					32.7	36.5	11.6%	0.00	0.00	0.00	0
					29.7	33.0	11.1%	0.00	0.00	0.00	0
					21.3	24.5	15.0%	0.00	0.00	0.00	0
					33.7	37.5	11.3%	0.00	0.00	0.00	0
					29.2	32.5	11.3%	0.00	0.00	0.00	0
					27.4	30.5	11.3%	0.00	0.00	0.00	0
					5.0	5.0	0.0%	0.00	0.00	0.00	0
					5.0	5.0	0.0%	0.00	0.00	0.00	0
					5.0	5.0	0.0%	0.00	0.00	0.00	0
					5.0	5.0	0.0%	0.00	0.00	0.00	0
					5.0	5.0	0.0%	0.00	0.00	0.00	0
~~Clean Fuel Vehicles~~	~~Clean Fuel~~	~~Clean Fuel~~			~~Clean Fuel~~ 5.0	5.0	0.0%	0.00	0.00	0.00	0
					Total Emission Reductions			0.00	0.00	0.00	0

Cost Effectiveness Results	Annual	Lifetime	
1. ROG Emissions	0.00	0.00	Tons
2. NOx Emissions	0.00	0.00	Tons
3. PM Emissions	0.00	0.00	Tons
4. Weighted PM Emissions	0.00	0.00	Tons
5. CO2 Emissions Reduced	0.00	0.00	Tons
6. Emission Reductions (ROG, NOx & PM)	0.00	0.00	Tons
7. TFCA Project Cost - Cost Effectiveness (ROG, NOx & PM)		#DIV/0!	/Ton
8. TFCA Project Cost - Cost Effectiveness (ROG, NOx & **Weighted** PM). **THIS VALUE MUST MEET POLICY REQUIREMENTS.**		**#DIV/0!**	**/Ton**

Notes & Assumptions

Provide all assumptions, rationales, and references for figures used in calculations.

Emission Factors
FYE 2016 TFCA County Program Manager Fund Worksheet
Version 2016.0, updated 12/17/14

Average Emission Factors by Speed				
Speed (mph)	ROG (gr/mile)	NOx (gr/mile)	PM10 Ex (gr/mile)	CO2
5	0.4200	0.5300	0.0162	**1205**
6	0.3900	0.5100	0.0151	1142
7	0.3600	0.5000	0.0140	1079
8	0.3400	0.4800	0.0130	1017
9	0.3100	0.4700	0.0119	954
10	0.2800	0.4500	0.0108	**891**
11	0.2600	0.4400	0.0108	851
12	0.2400	0.4300	0.0097	811
13	0.2300	0.4200	0.0097	770
14	0.2100	0.4100	0.0086	730
15	0.1900	0.4000	0.0076	**690**
16	0.1800	0.3900	0.0076	663
17	0.1700	0.3900	0.0076	636
18	0.1600	0.3800	0.0065	608
19	0.1500	0.3700	0.0065	581
20	0.1400	0.3600	0.0065	**554**
21	0.1400	0.3600	0.0065	535
22	0.1300	0.3500	0.0054	517
23	0.1300	0.3500	0.0054	498
24	0.1200	0.3400	0.0054	480
25	0.1100	0.3400	0.0043	**461**
26	0.1100	0.3400	0.0043	449
27	0.1000	0.3300	0.0043	436
28	0.1000	0.3300	0.0043	424
29	0.1000	0.3300	0.0043	411
30	0.0900	0.3200	0.0043	**399**
31	0.0900	0.3200	0.0043	391
32	0.0900	0.3200	0.0032	382
33	0.0900	0.3200	0.0032	374
34	0.0800	0.3200	0.0032	365
35	0.0800	0.3200	0.0032	**357**
36	0.0800	0.3200	0.0032	352
37	0.0800	0.3200	0.0032	347
38	0.0800	0.3200	0.0032	342
39	0.0800	0.3200	0.0032	337
40	0.0700	0.3200	0.0032	**332**
41	0.0700	0.3200	0.0032	330
42	0.0700	0.3200	0.0032	328
43	0.0700	0.3200	0.0032	325
44	0.0700	0.3200	0.0032	323
45	0.0700	0.3200	0.0032	**321**
46	0.0700	0.3300	0.0032	321
47	0.0700	0.3300	0.0032	320
48	0.0700	0.3300	0.0032	320
49	0.0700	0.3400	0.0032	319
50	0.0700	0.3400	0.0032	**319**
51	0.0700	0.3500	0.0032	321
52	0.0700	0.3500	0.0032	324
53	0.0700	0.3600	0.0032	326
54	0.0800	0.3600	0.0032	329
55	0.0800	0.3700	0.0032	**331**
56	0.0800	0.3700	0.0032	336
57	0.0800	0.3800	0.0032	341
58	0.0800	0.3900	0.0032	345
59	0.0800	0.4000	0.0032	350
60	0.0900	0.4100	0.0032	**355**
61	0.0900	0.4200	0.0032	363
62	0.0900	0.4300	0.0032	371
63	0.0900	0.4400	0.0032	380
64	0.1000	0.4500	0.0032	388
65	0.1000	0.4600	0.0032	**396**

Conversion factor, PM2.5 to PM10	1.08
Avg. Vehicle Trip Length	5.6

FYE16	FYE16
PM2.5 Ex	PM10 Ex (gr/mile)
0.015	0.0162
0.014	0.01512
0.013	0.01404
0.012	0.01296
0.011	0.01188
0.010	0.0108
0.010	0.0108
0.009	0.00972
0.009	0.00972
0.008	0.00864
0.007	0.00756
0.007	0.00756
0.007	0.00756
0.006	0.00648
0.006	0.00648
0.006	0.00648
0.006	0.00648
0.005	0.0054
0.005	0.0054
0.005	0.0054
0.004	0.00432
0.004	0.00432
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Sources:
ROG and NOx per Table 4 Emission Factors by Speed, Project Life 1-5 years (2011 - 2015) in *Methods to Find the Cost-Effectiveness of Funding Air Quality Projects*, *Emission Factor Tables*
Based on EMFAC2011LDV - May 2013
California Air Resources Board, http://www.arb.ca.gov/planning/tsaq/eval/evaltables.pdf
PM per Methods to Find the Cost-Effectiveness of Funding Air Quality Projects, Emission Factor Tables, Table 4, March 2010
California Air Resources Board
Based on EMFAC 2007, Version 2.3 (Nov. 1, 2006)

CO2 factors from Amir Fanai (BAAQMD) - from EMFAC 2011-PL V1.1
Values between increments of 5 are calculated by interpolation. Up to date as of January 2014
Conversion factor for Exhaust - ARB document: http://www.arb.ca.gov/planning/tsaq/eval/pmtables.pdf. As of July 2013

ALTERNATIVE FUEL HEAVY DUTY VEHICLE WORKSHEET
FYE 2016 TFCA Progam Manager Fund Worksheet

Version 2016.0, updated 12/17/14

General Information Tab: Complete areas shaded in yellow.

Project Number (16XXXYY)	
Project Title	
Project Type Code (e.g., 7a)	
County (2-3 character abbreviation)	
Worksheet Calculated By	
Date of Submission	
Project Sponsor	
Project Sponsor Organization	
Public Agency? (Y or N)	
Contact Name	
Email Address	
Phone Number	
Mailing Address	
City	
State	CA
Zip	
Project Schedule	
Project Start Date	
Project Completion Date	
Final Report to CMA	

ALTERNATIVE FUEL HEAVY DUTY VEHICLE WORKSHEET

FYE 2016 TFCA Program Manager Fund Worksheet

Version 2016.0, updated 12/17/14

Calculations Tab: Complete areas shaded in light yellow only.

Do not enter data in light green sections.

Sample shows a proposed Medium Heavy-Duty Utility Truck

Cost Effectiveness Inputs	
# Years Effectiveness:	
Total Project Cost:	
TFCA Cost 40%:	
TFCA Cost 60%:	
Total TFCA Cost:	$0

Regional Fund Proj. #:

	Baseline	Proposed
Fuel	Diesel	
GVW		
Engine Model Yr.	2014	

Vehicle #	Unit #	Baseline Engine/Equipment: Baseline Emission Rate (g/bhp-hr or g/mile). See Moyer Table D-2a/b or D-6 NOx	ROG (generally N/A)	PM	Annual Fuel Use (gallons)	Fuel Consump Factor (bhp-hr/gal). See Moyer Table D-24	Conv. Factor from g/mi to g/bhp-hr (bhp-hr/mi). See Moyer Table D-28. Use Col. H or J--not both.	Annual VMT (mi)	Conv. Factor from g/bhp-hr to g/mi (bhp-hr/mi). See Moyer Table D-28. Use Col. H or J--not both.	Percent Operation in Air District
SAMPLE	Med. HD Util.	0.20		0.010	2000	18.5		20,000	1.8	100%
1		0.20		0.010		18.5				
2		0.20		0.010		18.5				
3		0.20		0.010		18.5				
4		0.20		0.010		18.5				
5		0.20		0.010		18.5				
6		0.20		0.010		18.5				
7		0.20		0.010		18.5				
8		0.20		0.010		18.5				
9		0.20		0.010		18.5				
10		0.20		0.010		18.5				
11		0.20		0.010		18.5				
12		0.20		0.010		18.5				
13		0.20		0.010		18.5				
14		0.20		0.010		18.5				
15		0.20		0.010		18.5				

Vehicle #	Proposed Engine/Equipment: New Emission Rate (g/mile or g/bhp-hr). See Executive Order for Engine NOx	ROG (generally N/A)	PM	Replacement Vehicle Cost	Baseline Vehicle Cost	Fuel Savings (only if a fuel usage-based hybrid vehicle project & approved by Air District)	Fuel Consump Factor (bhp-hr/gal). See Moyer Table D-24	Conversion Factor--Use only one. Conv. Factor from g/mi to g/bhp-hr (bhp-hr/mi). See Moyer Table D-28	Conv. Factor from g/bhp-hr to g/mi (bhp-hr/mi). See Moyer Table D-28	# Years Effectiveness
SAMPLE	0.18		0.01	$120,000.00	$100,000.00	0.0%	18.5		1.8	7
1						0.0%				
2						0.0%				
3						0.0%				
4						0.0%				
5						0.0%				
6						0.0%				
7						0.0%				
8						0.0%				
9						0.0%				
10						0.0%				
11						0.0%				
12						0.0%				
13						0.0%				
14						0.0%				
15						0.0%				

Vehicle #	Results: Incremental Cost	Emission Reductions (tons/year) Based on Mileage NOx	ROG (See Instructions)	PM	Based on Fuel NOx	ROG (See Instructions)	PM	TFCA Funding Amount ($)	Actual Weighted CE w/o CRF--Mileage Basis ($/ton)	Actual Weighted CE w/o CRF--Fuel Basis ($/ton)
SAMPLE	$20,000	0.001	0.000	0.000	0.001	0.000	0.000	$ 10,000.00	$ 1,800,000	$ 1,751,351
1	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
2	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
3	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
4	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
5	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
6	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
7	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
8	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
9	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
10	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
11	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
12	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
13	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
14	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
15	$0	0.000	0.000	0.000	0.000	0.000	0.000		$ -	$ -
		0.00	0.00	0.00	0.000	0.00	0.00	$0.00		

Vehicle #	CO2: Based on Mileage. See CO2 Emission Factors Table. Baseline CO2 Factor (g/mi)	Proposed Engine CO2 (g/mi)	CO2 Emission Reductions (tons/yr)	Based on Fuel. See CO2 Emission Factors Table. Baseline CO2 Factor (g/gal)	Proposed Engine CO2 (g/gal)	CO2 Emission Reductions (tons/yr)
SAMPLE	1,527	1,098	9.5	10,079	7,244	22.2
1			0.0	10,079		0.0
2			0.0	10,079		0.0
3			0.0	10,079		0.0
4			0.0	10,079		0.0
5			0.0	10,079		0.0
6			0.0	10,079		0.0
7			0.0	10,079		0.0
8			0.0	10,079		0.0
9			0.0	10,079		0.0
10			0.0	10,079		0.0
11			0.0	10,079		0.0
12			0.0	10,079		0.0
13			0.0	10,079		0.0
14			0.0	10,079		0.0
15			0.0	10,079		0.0
			0.0			0.0

Cost Effectiveness Results	Mileage Basis Annual	Mileage Basis Lifetime	Fuel Basis: Use only in limited cases. Annual	Fuel Basis Lifetime	
1. ROG Emissions Reduced	0.00	0.00	0.00	0.00	Tons
2. NOx Emissions Reduced	0.00	0.00	0.00	0.00	Tons
3. PM Emissions Reduced	0.000	0.00	0.000	0.00	Tons
4. Weighted PM Emissions Reduced	0.000	0.00	0.000	0.00	Tons
5. CO2 Emissions Reduced	0.00	0.00	0.00	0.00	Tons
6. Emission Reductions (ROG, NOx & PM)	0.00	0.00	0.00	0.00	Tons
7. TFCA Project Cost - Cost Effectiveness (ROG, NOx & PM)		#DIV/0!		#DIV/0!	/Ton
8. TFCA Project Cost - Cost Effectiveness (ROG, NOx & Weighted PM). THIS VALUE MUST MEET POLICY REQUIREMENTS.		**#DIV/0!**		**#DIV/0!**	**/Ton**

Notes & Assumptions

Provide all assumptions, rationales, and references for figures used in calculations.

ALTERNATIVE FUEL HEAVY DUTY VEHICLE WORKSHEET

FYE 2016 TFCA Program Manager Fund Worksheet

Version 2016.0, updated 12/17/14

Emission Factors Tab

Refer to CARB Carl Moyer Program Guidelines, Approved Revision 2011, especially Appendix D, for guidance.
http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm
The Moyer Guidelines provide the basic methodology used for TFCA Heavy-duty Vehicle projects. Some differences apply.
For example, for FYE 2015, the Capital Recover Factor is not used in TFCA.
Values from 2011 Moyer Guidelines updated as of 11/21/11 per
http://www.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmp_appd_4_28_11.pdf

Moyer Table D-1
Medium Heavy-Duty and Heavy-Duty Diesel Engines
Converted Emission Standards (g/bhp-hr)

Model Year	EO Certifi	Converted Emission Standards (a)(b)			
		Diesel NOx	Diesel ROG	Alternative Fuel NOx	PM10
1990	6.0 NOx	5.58	0.29	6.00	0.60
1991-1993	5.0 NOx	4.65	0.24	5.00	0.25
1994-1997	5.0 NOx	4.65	0.24	5.00	0.10
1998-2001	4.0 NOx	3.72	0.19	4.00	0.10
2002-2006	2.5 NOx +	2.21	0.11	2.00	0.10
2007-2009	1.8 NOx +	1.59	0.08	1.44	0.01
2007-2009	1.5 NOx +	1.33	0.07	1.20	0.01
2007-2009	1.20 NOx	1.06	0.05	0.96	0.01
2007-2009	0.84 NOx	0.07	0.04	0.67	0.01
2007-2009	0.5 NOx	0.46	0.02	0.5	0.01
2010+	0.20 NOx	0.19	0.13	0.16	0.01

a - Emission standards were converted where appropriate, using the NMHC and NOx fraction default values and the ultra low-sulfur diesel fuel correction factors listed in Tables D-25 and D-26, respectively.
b - Emission standards were converted using fuel consumption rate factors from Table D-24

Moyer Table D-2 (excerpt)
Heavy-Duty Alternative Fuel Engines
Converted Emission Standards (g/bhp-hr)

Model Year		NOx	PM10
2010		0.2	0.01

Moyer Table D-3
Diesel Medium Heavy-Duty Vehicles 14,001-33,000 lbs GVWR
Emission Factors (g/mile) (a)

Model Year	NOx	ROG	PM10
Pre-1987	14.52	0.75	0.69
1987 - 1990	14.31	0.59	0.75

1991 - 1993	10.7	0.26	0.41
1994 - 1997	10.51	0.2	0.23
1998 - 2002	10.3	0.2	0.25
2003 - 2006	6.84	0.13	0.16
2007 - 2009	4.01	0.11	0.02
2007 - 2009 (b)	1.73	0.1	0.017
2010+	0.74	0.09	0.02

a - Emission factors incorporate the ultra low sulfur diesel fuel correction factors in Table D-26

b - These values are interpolated between 1.2g/bhp-hr NOx standard for 2007-2009 model years and 0.2g/bhp-hr NOx standard for 2010+ model years

Moyer Table D-4
Diesel Heavy Heavy-Duty Vehicles 33,000+ lbs GVWR
Emission Factors (g/mile) (a)

Model Year	NOx	ROG	PM10
Pre-1987	21.37	1.09	1.25
1987 - 1990	21.07	0.86	1.35
1991 - 1993	18.24	0.56	0.56
1994 - 1997	17.92	0.42	0.37
1998 - 2002	17.61	0.43	0.4
2003 - 2006	11.64	0.27	0.25
2007 - 2009	6.62	0.23	0.03
2007 - 2009 (b)	2.88	0.2	0.028
2010+	1.27	0.19	0.03

a - Emission factors incorporate the ultra low sulfur diesel fuel correction factors in Table D-26

b - These values are interpolated between 1.2g/bhp-hr NOx standard for 2007-2009 model years and 0.2g/bhp-hr NOx standard for 2010+ model years

Moyer Table D-5
Diesel Urban Buses
Converted Emission Standards (g/bhp-hr)

Model Year	NOx	ROG	PM10
2010	0.20	0.01	0.010

a - Emission standards were converted where appropriate, using the NMHC and NOx fraction default values and the ultra low-sulfur diesel fuel correction factors listed in Tables D-25 and D-26, respectively.
b - NOx+NMHC emission standard converted to NOx and ROG.

Moyer Table D-6
Natural Gas Urban Buses
Converted Emission Standards (g/bhp-hr)

Model Year	NOx	PM10
2010+	0.20	0.010

a - NOx+NMHC emission standard converted to NOx only.
b - A majority of the natural gas urban buses have been certified to the optional standards. Therefore, these values are based on the optional standards.

c - Many natural gas urban buses have been certified to optional standards below this level.

Moyer Table D-24
Fuel Consumption Rate Factors (bhp-hr/gal)

Horsepower	Fuel Consumption Rate	
< 750 hp	18.5	
> 750 hp	20.8	[This is rare.]

Moyer Table D-28 (excerpt)
Conversion Factors for NOx, ROG and PM10
Heavy-Duty Vehicle Projects (bhp-hr/mile)

Model Year	Medium Heavy-Duty 14,001-33,000 lbs.	Heavy Heavy-Duty 33,000 lbs. +	Urban Bus 33,000 lbs. +
1996+	1.8	2.9	4.0

CO2 Emission Factors

Fuel Type		Fuel Basis (Refuse/St Sweeper/Utility Truck)	Mileage Basis: MHDV (14,001-33,000 lbs)	HHDV (>33,000 lbs.)	Urban Buses
		(gr/gal)	(gr/mi)		
CNG (from gasoline)		7238	520	1560	1560
CNG (from diesel)		7936	570	1710	1710
Diesel		9662	694	2082	2082
Electric		1823	131	393	393
Gasoline		7439	534	1603	1603

LIGHT-DUTY AND LIGHT HEAVY-DUTY VEHICLE PROJECTS
FYE 2016 TFCA County Program Manager Fund Worksheet

Version 2016.0, updated 12/17/14

General Information Tab: Complete areas shaded in yellow.

Project Number (16XXXYY)	
Project Title	
Project Type Code (e.g., 7a)	
County (2-3 character abbreviation)	
Worksheet Calculated By	
Date of Submission	
Project Sponsor	
Project Sponsor Organization	
Public Agency? (Y or N)	
Contact Name	
Email Address	
Phone Number	
Mailing Address	
City	
State	CA
Zip	
Project Schedule	
Project Start Date	
Project Completion Date	
Final Report to CMA	

LIGHT-DUTY AND LIGHT HEAVY-DUTY VEHICLE PROJECTS

FYE 2016 TFCA County Progam Manager Fund Worksheet

Version 2016.0, updated 12/17/14

Calculations Tab: Complete areas shaded in yellow only.

Cost Effectiveness Inputs				
# Years Effectiveness:	5			
Total Project Cost:				
TFCA Cost 40%:				
TFCA Cost 60%:		**TFCA Regional Fund Proj. #:**		(If applicable)
***Total TFCA Cost:**	$0	***Should equal Total Amount Requested column (in table below)**		

Emission Reduction Calculations

Purchase/Lease of New Vehicles

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Vehicle	**Unit #/ID**	**Incremental Cost**	**Amount Requested**	**Current Standard**	**New Vehicle Std.**	**Gross Veh. Weight (lbs.)**	**Avg Annual Miles**	**Current Year Emissions Standard (LEV)– See Emission Factors Table (gr/mi)**				**Proposed Vehicle Emission Std. – See Emission Factors Table (gr/mi)**				**Emission Reductions (gr/yr)**				**Cost-Effectiveness ($ / weighted ton)**
Vehicle								NOx	ROG	PM	CO2	NOx	ROG	PM	CO2	NOx	ROG	PM	CO2	
SAMPLE	Hybrid #13	$4,000	**$500**	LEV	SULEV	Up to 8500	10,000	0.06	0.08	0.01	415	0.02	0.01	0.01	415	400	700	0	0	$82,473
1				LEV												0	0	0	0	#DIV/0!
2				LEV												0	0	0	0	#DIV/0!
3				LEV												0	0	0	0	#DIV/0!
4				LEV												0	0	0	0	#DIV/0!
5				LEV												0	0	0	0	#DIV/0!
6				LEV												0	0	0	0	#DIV/0!
7				LEV												0	0	0	0	#DIV/0!
8				LEV												0	0	0	0	#DIV/0!
9				LEV												0	0	0	0	#DIV/0!
10				LEV												0	0	0	0	#DIV/0!
11				LEV												0	0	0	0	#DIV/0!
12				LEV												0	0	0	0	#DIV/0!
13				LEV												0	0	0	0	#DIV/0!
14				LEV												0	0	0	0	#DIV/0!
15				LEV												0	0	0	0	#DIV/0!
	*** Total Amount Requested**		**$0**												**Totals**	**0**	**0**	**0**	**0**	

Cost-Effectiveness Results for Entire Project		Annual	Lifetime	
1	ROG Emissions Reduced	0.000	0.000	Tons
2	NOx Emissions Reduced	0.000	0.000	Tons
3	PM Emissions Reduced	0.000	0.000	Tons
4	Weighted PM Emissions Reduced	0.000	0.000	Tons
5	CO2 Emissions Reduced	0.00	0.00	Tons
6	Unweighted Emission Reductions (ROG, NOx & PM)	0.00	0.00	Tons
7	Unweighted TFCA Cost Effectiveness (ROG, NOx & PM)		#DIV/0!	/Ton
8	**TFCA Project Cost - Cost Effectiveness (ROG, NOx & Weighted PM)**		**#DIV/0!**	/Ton

Notes & Assumptions

Provide all assumptions, rationales, and references for figures used in calculations.

LIGHT-DUTY AND LIGHT HEAVY-DUTY VEHICLE PROJECTS

FYE 2016 TFCA County Program Manager Fund Worksheet

Version 2016.0, updated 12/17/14

List for Weight Class Pull-Down:

Up to 8500
8501-10,000
10,001-14,000

List for New Vehicle Std. Pull-Down:

ULEV
SULEV
PZEV
ZEV

List for Current Std

LEV
SULEV

Linda Hui: C02 values are not updated (12/17/2014)

Emission Factors												
	NOx (gr/mi)			ROG (gr/mi)			PM 10(gr/mi)			CO2 (gr/mi)		
GVWR	Up to 8500	8501-10,000	10,001-14,000	Up to 8500	8501-10,000	10,001-14,000	Up to 8500	8501-10,000	10,001-14,000	Up to 8500	8501-10,000	10,001-14,000
	1	2	3	1	2	3	1	2	3	1	2	3
LEV	0.070	0.200	0.400	0.09	0.20	0.23	0.010	0.120	0.120	415	830	860
ULEV	0.070	0.200	0.400	0.06	0.14	0.17	0.010	0.058	0.058	415	830	860
SULEV	0.020	0.100	0.200	0.01	0.10	0.12	0.010	0.058	0.058	415	830	860
PZEV	0.020	0.100	0.200	0.01	0.10	0.12	0.010	0.058	0.058	415	830	860
ZEV	0	0	0	0	0	0	0	0	0	92	92	144

Sources:

NOx and ROG factors: LEV II, Final Regulations Order

California Air Resources Board, as amended: March 22, 2012

CO2 factors from Amir Fanai (BAAQMD) - updated from EMFAC 2011 Version 1.1

RIDESHARING, BICYCLE, SHUTTLE, AND SMART GROWTH PROJECTS
FYE 2016 TFCA Progam Manager Fund Worksheet
Version 2016.1, updated 12/22/14

General Information Tab: Complete areas shaded in yellow.

Project Number (16XXXYY)	
Project Title	
Project Type Code (e.g., 7a)	
County (2-3 character abbreviation)	
Worksheet Calculated By	
Date of Submission	
Project Sponsor	
Project Sponsor Organization	
Public Agency? (Y or N)	
Contact Name	
Email Address	
Phone Number	
Mailing Address	
City	
State	CA
Zip	
Project Schedule	
Project Start Date	
Project Completion Date	
Final Report to CMA	

RIDESHARING, BICYCLE, SHUTTLE, AND SMART GROWTH PROJECTS

FYE 2016 TFCA Progam Manager Fund Worksheet

Version 2016.1, updated 12/22/14

Calculations Tab: Complete areas shaded in yellow only.

SAMPLE ENTRIES ARE SHOWN IN LIGHT BLUE

Cost Effectiveness Inputs	
# Years Effectiveness:	1
Total Project Cost:	
TFCA Cost 40%:	
TFCA Cost 60%:	
Total TFCA Cost:	$0

Regional Fund Proj. #:

Emission Reduction Calculations

Step 1 - Emissions for Eliminated Trips

A	B	C	D	E	F	G	H	I
# Trips/Day (1-way)	Days/Yr	Trip Length (1-way)	VMT	ROG Emissions (gr/yr)	NOx Emissions (gr/yr)	Exhaust &Trip End PM10 Emissions (gr/yr) *	Other PM10 Emissions (gr/yr) *	CO2 Emissions (gr/yr)
100	250	16	400,000	94,075	92,675	1,026	76,765	135,806,658
			0	0	0	0	0	0.00
			0	0	0	0	0	0.00
		Total	0	0	0	0	0	0.00

Step 2 - Emissions for New Trips to Access Transit/Ridesharing

50	250	3	37,500	16,488	11,725	162	7,197	12,731,874
			0	0	0	0	0	0.00
			0	0	0	0	0	0.00
		Total	0	0	0	0	0	0.00

Step 3A - Emissions for Shuttle/Vanpool Vehicles up to GVW of 14,000 lbs.

A	B	C	D	E	F	G	H	I	J	K	L	M	N
			See Emission Factor Tab, ARB Table 2 or 7										
# Vehicles, Model Year	Emission Std.	Vehicle GVW	ROG Factor (gr/mi)	NOx Factor (g/mi)	Exhaust PM10 Factor (g/mi)	**Total** PM10 Factor (g/mi)	CO2 Factor (g/mi) (See CO2 Table for LD and LHD)	Total Annual VMT (sum all vehicles)	ROG Emissions (gr/yr)	NOx Emissions (gr/yr)	Exhaust PM10 Emissions (gr/yr)	Other PM10 Emissions (gr/yr)	CO2 Emissions (gr/yr)
2, 2005	LEV	10,001-14,000	0.23	0.40	0.12	0.33	860	8000	1,840	3,200	960	1,680	6,880,000
									0	0	0	0	0
									0	0	0	0	0
							Total	0	0	0	0	0	0

Step 3B - Emissions for Buses

A	B	C	D	E	F	G	H	I	J	K	L	M	N
			See Emission Factors Tab, Emissions for Buses Table										
# Vehicles	Engine Year, Make, & Model	Retrofit Device Name	ROG Factor (gr/mi)	NOx Factor (g/mi)	Exhaust PM10 Factor (g/mi)	**Other** PM10 Factor (g/mi)	CO2 Factor (g/mi)	Total Annual VMT (sum all vehicles)	ROG Emissions (gr/yr)	NOx Emissions (gr/yr)	Exhaust PM10 Emissions (gr/yr)	Other PM10 Emissions (gr/yr)	CO2 Emissions (gr/yr)
									0	0	0	0	0.00
									0	0	0	0	0.00
							Total	0	0	0	0	0	0.00

Cost Effectiveness Results

	Annual	Lifetime	
1. VMT Reduced	0	0	Miles
2. Trips Reduced	0	0	Trips
3. ROG Emissions Reduced	0.00	0.00	Tons
4. NOx Emissions Reduced	0.00	0.00	Tons
5. PM Emissions Reduced	0.00	0.00	Tons
6. PM Weighted Emissions Reduced	0.00	0.00	Tons
7. CO2 Emissions Reduced	0.0	0.0	Tons
8. Emission Reductions (ROG, NOx & PM)	0.00	0.00	Tons
9. TFCA Project Cost - Cost Effectiveness (ROG, Nox & PM)		#DIV/0!	/Ton
10. TFCA Project Cost - Cost Effectiveness (ROG, NOx & Weighted PM). THIS VALUE MUST MEET POLICY REQUIREMENTS.		**#DIV/0!**	**/Ton**

Linda Hui: C02 values are not updated (12/17/2014)

Notes & Assumptions

Provide all assumptions, rationales, and references for figures used in calculations.

RIDESHARING, BICYCLE, SHUTTLE, AND SMART GROWTH PROJECTS
FYE 2016
Version 2016.1, updated 12/22/14

Average Auto Emission Factors

Yrs Eff	ROG Trip Fac.	ROG Run Emis.	NOx Trip Fac.	NOx Run Emis.	PM Exhaust	PM Tire, Brakes, Road PM	PM Commute Trip End
1	0.755	0.188	0.299	0.213	0.00216	0.19191	0.00648
2	0.764	0.191	0.303	0.217	0.00216	0.19191	0.00648
3	0.764	0.191	0.303	0.217	0.00216	0.19191	0.00648
4	0.764	0.191	0.303	0.217	0.00216	0.19191	0.00648
5	0.764	0.191	0.303	0.217	0.00216	0.19191	0.00648
6	0.614	0.153	0.233	0.172	0.00216	0.19191	0.00432
7	0.614	0.153	0.233	0.172	0.00216	0.19191	0.00432
8	0.614	0.153	0.233	0.172	0.00216	0.19191	0.00432
9	0.614	0.153	0.233	0.172	0.00216	0.19191	0.00432
10	0.614	0.153	0.233	0.172	0.00216	0.19191	0.00432
11	0.521	0.132	0.189	0.146	0.00216	0.19191	0.00432
12	0.521	0.132	0.189	0.146	0.00216	0.19191	0.00432
13	0.521	0.132	0.189	0.146	0.00216	0.19191	0.00432
14	0.521	0.132	0.189	0.146	0.00216	0.19191	0.00432
15	0.521	0.132	0.189	0.146	0.00216	0.19191	0.00432
16	0.462	0.119	0.162	0.130	0.00216	0.19191	0.00432
17	0.462	0.119	0.162	0.130	0.00216	0.19191	0.00432
18	0.462	0.119	0.162	0.130	0.00216	0.19191	0.00432
19	0.462	0.119	0.162	0.130	0.00216	0.19191	0.00432
20	0.462	0.119	0.162	0.130	0.00216	0.19191	0.00432

Sources:
Methods to Find the Cost-Effectiveness of Funding Air Quality Projects, Tables 3 & 3a, Average Auto Emission Factors
California Air Resources Board, Table dated May 2013
Using columns covering years of project implementation; methodology per Yvette DiCarlo (ARB), Feb. 2010.
PM per Methods to Find the Cost-Effectiveness of Funding Air Quality Projects, Emission Factor Tables, Table 4, March 2010

CO2 Emission Factors			
Gasoline	1	16.4	lbs/gal
Diesel	2	21.3	lbs/gal
CNG (from gasoline)		15.96	lbs/gal
CNG(from diesel)		17.50	lbs/gal
Electric		4.02	lbs/gal
Approx. Fleet Avg		17	lbs/gal

CO2 factors from Amir Fanai (BAAQMD) - updated from EMFAC 2011 Version 1.1

Fuel Consumption			**VMT %**	**Weighted**
Lt. Duty Cars & Trucks		21.9 mpg	85.8%	18.8
Md. Duty	1	13.9 mpg	13.7%	1.9
Diesel Bus	2	4.6 mpg	0.5%	0.0
			Weighted Avg	20.7

ARB Table 2:

Baseline Vehicle

Based ob LEV II standards with 120,000 mile durability

Weight (lbs.)[1]	ROG	NOx	PM10 Exhaust	PM10 Total[3]	CO_2[4]
Up to 8500	0.09	0.07	0.01	0.21	546
8501-10,000	0.195	0.2	0.12	0.32	735
10,001-14,000	0.23	0.4	0.12	0.32	824

Source: Based on LEV II standards, ARB LEV II Final Regulation Order

Cleaner Vehicles (2004+)

Ultra low-emission light-duty and medium-duty vehicle (ULEV) emission factors in grams per mile with

Weight (lbs.)[1]	ROG	NOx	PM10 Exhaust	PM10 Total[3]	CO_2
Up to 8500	0.06	0.06	0.010	0.053	546
8501-10,000	0.143	0.2	0.058	0.121	735
10,001-14,000	0.167	0.4	0.058	0.126	824

Super ultra low-emission vehicle (SULEV) factors in grams per mile with 120,000 mile durability

Weight (lbs.)[1]	ROG	NOx	PM10 Exhaust	PM10 Total[3]	CO_2
Up to 8500	0.01	0.02	0.010	0.053	546
8501-10,000	0.1	0.1	0.058	0.121	735
10,001-14,000	0.117	0.2	0.058	0.126	824

Zero emission light-duty and medium-duty vehicle (ZEV) emission factors in grams per mile

Weight (lbs.)[1]	ROG	NOx	PM10 Exhaust	PM10 Total[3]	CO_2
Up to 8500	0	0	0	0.0432	92
8501-10,000	0	0	0	0.0432	92
10,001-14,000	0	0	0	0.0432	144

Source: California Air Resources Board - Methods to Find the Cost-Effectiveness of Funding Air Quality
[1] Gross vehicle weights can be associated with passenger capacity as follows: 5751-8500, roughly 8
[3] Total PM10 factors include exhaust, brake wear, and entrained road dust.

CO2 Table for Light- and Light Heavy-Duty Shuttles
CO2 Emission Factors for Shuttle/Vanpool Vehicles up to 14,000 lbs.

GVWR	CO2 (gr/mi) Up to 8500 1	8501-10,000 2	10,001-14,000 3
LEV	546	735	824
ULEV	546	735	824
SULEV*	546	735	824
ZEV	92	92	144

* Also PZEV and AT-PZEV

Sources:
CO2 factors from Amir Fanai (BAAQMD) - updated from EMFAC 2011 Version 1.1

Gasoline Medium-Duty Vehicles (g/mile)**:** 5,751-8,500 lbs

Model Year	ROG[c]	NOx	Exhaust PM10	Other PM	CO2	
1995	0.99	1.74	0.06	0.191	519.0	0.27
1996	0.74	1.25	0.05	0.191	514.8	0.17
1997	0.59	1.25	0.05	0.191	514.8	0.17
1998	0.30	1.05	0.05	0.191	516.0	0.14
1999	0.26	0.87	0.05	0.191	517.3	0.12
2000	0.23	0.68	0.05	0.191	580.5	0.10
2001	0.19	0.52	0.05	0.191	581.4	0.08
2002	0.18	0.52	0.05	0.191	582.1	0.07
2003	0.16	0.51	0.05	0.191	582.1	0.07

Source: EMFAC 2007 Emission Rates for MDV vehicle category for evaluation in calendar year 2014. Avra Goldman 2014

ARB Table 5-C:

Diesel[D] Medium Heavy-Duty Vehicles (g/mile)[a]**:** 14,001-33,000 lbs

Conversion from PM2.5 to PM10, Autos

	Proportion distribution	PM2.5	nversion factor PM2.5 to PI	PM10
Exhaust	N/A	0.002	1.08	**0.00216**
BW + TW	100%	0.018	N/A	N/A
Brake wear (BW)	89%	0.01602	2.33	0.0373
Tire wear (TW)	11%	0.00198	4	0.0079
Road Dust (RD)	N/A	0.022	0.15	0.1467
			BW + TW + RD:	**0.1919**
Commute Trip End 1-5 years		0.006	1.08	0.0065
Commute Trip End 6-20 years		0.004	1.08	0.0043

Sources:
Proportion distribution of BW and TW - EMFAC 207 Emission Inventory, Calendar Year 2014, LDT1, LTD2, and MYC, PM2.5
Conversion factors for Exhaust, BW and TW - ARB document: http://www.arb.ca.gov/planning/tsaq/eval/pmtables.pdf.
Conversion factor for RD - methodology and factor from Dennis Wade, ARB, confirmed by Amir Fanai, 2014, Conversion = PM2.5/Factor
PM2.5 figures from of Methods to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013), Table 3A

Additional Resources:
Dennis Wade: ARB - 916-327-2963 (EMFAC)
Annie Huang: ARB - 916-323-8475 (emissions inventory)

Other PM Conversion from PM2.5 to PM10, Diesel Buses

		PM2.5	conversion factor PM2.5 to PM10	PM10
Brake wear (BW)		0.361	2.33	0.8411
Tire wear (TW)		0.002	4	0.0080
Road Dust (RD)		0.022	0.15	0.1467
			BW + TW + RD:	**0.9958**

Sources:
Proportion distribution of BW and TW - EMFAC 2007 Emission Inventory, Calendar Year 2014, LDT1, LTD2, and MYC, PM2.5
Conversion factors for Exhaust, BW and TW - ARB document: http://www.arb.ca.gov/planning/tsaq/eval/pmtables.pdf.
Conversion factor for RD - methodology and factor from Dennis Wade, ARB, confirmed by Amir Fanai, 2014, Conversion = PM2.5/Factor
PM2.5 figures from of Methods to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013), Table 1

Additional Resources:
Dennis Wade: ARB - 916-327-2963 (EMFAC)
Annie Huang: ARB - 916-323-8475 (emissions inventory)

Other PM10, Diesel Fleet

	PM10 LIGHT HEAVY DUTY 8501-10000 lbs	PM10 LIGHT HEAVY DUTY 10001-14000 lbs	PM10 MEDIUM HEAVY DUTY	PM10 HEAVY HEAVY DUTY
Brake wear (BW)	0.07644	0.08918	0.06174	0.13034
Tire wear (TW)	0.01200	0.01200	0.03600	0.01200
Road Dust (RD)	0.14667	0.14667	0.14667	0.14667
BW + TW + RD:	**0.2351**	**0.2478**	**0.2444**	**0.2890**

Source for BW and TW: EMFAC 2011, Average of statewide diesel fleet, aggregate all model years, aggregate all speeds
Source for RD: Methods to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013), Table 1, PM2.5 converted to PM10

Other PM10, Gasoline Fleet

				PM10
	MDV, MHDV, HHDV, and Urban Buses			
Brake wear (BW)				0.03675
Tire wear (TW)				0.00800
Road Dust (RD)				0.14667
BW + TW + RD:				**0.1914**

Source for BW and TW: EMFAC 2011, Average of BAAQMD Gasoline Fleet
Source for RD: Methods to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013), Table 1, PM2.5 converted to PM10

Model Year	ROG[c]	NOx	Exhaust PM2.5	Exhaust PM10	Other PM	CO2[e]	CO2 Running	CO2 Idle
Pre-1987	0.75	14.52	0.64	0.69	0.244	1308.7	1,305.843	######
1987-1990	0.59	14.31	0.69	0.75	0.244	1273.1	1,264.837	######
1991-1993	0.26	10.7	0.38	0.41	0.244	1216.9	1,217.210	######
1994-1997	0.2	10.51	0.21	0.23	0.244	1171.0	1,170.193	######
1998-2002	0.2	10.33	0.23	0.25	0.244	1201.0	1,199.909	######
2003-2006	0.13	6.84	0.14	0.16	0.244	1185.8	1,183.623	######
2007-2009	0.11	4.01	0.02	0.02	0.244	1212.9	1,212.876	######
2007-2009 (0.5 g/bhp-hr NOx or Cleaner)[d]	0.1	1.73	0.02	0.02	0.244	1212.9	?	?
2010+	0.09	0.74	0.02	0.02	0.244	1171.0	1,172.351	######

Source for ROG, NOx, and PM2.5: Methods to Find the Cost-Effectiveness of Funding Air Quality Projects Table 5-C
See "Other PM10, Diesel Fleet" for Other PM calculations
Source for PM10: Carl Moyer Guidelines, July 11, 2014, Table D-3
Source for CO2 Values calculated by Amir Fanai (BAAQMD) using EMFAC 2007 V2.3
a - EMFAC 2011 Zero-Mile Based Emission Factors.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-26 of the Moyer guidelines.
c - ROG - HC * 1.26639.
d - These values are interpolated between 1.2 g/bhp-hr Nox standard for 2007-2009 model years and 0.2 g/bhp-hr Nox standard for 2010+ model years.
e - CO_2 factors include idle exhaust and run exhaust. From EMFAC 2007 for T6 vehicle category. - Avra Goldman 2014

ARB Table 5-D:

Diesel[b] Heavy Heavy-Duty Vehicles (g/mile)[a]**:** 33,001-60,000 lbs

Model Year	ROG[c]	NOx	Exhaust PM2.5	Exhaust PM10	Other PM	CO2[e]	CO2 Running	CO2 Idle
Pre-1987	1.09	21.37	1.15	1.25	0.289	5711.6	1,935.301	######
1987-1990	0.86	21.07	1.25	1.35	0.289	4977.0	1,880.076	######
1991-1993	0.56	18.24	0.52	0.56	0.289	5069.5	1,809.539	######
1994-1997	0.42	17.92	0.34	0.37	0.289	5115.6	1,717.578	######
1998-2002	0.43	17.61	0.37	0.40	0.289	5682.7	1,787.058	######
2003-2006	0.27	11.64	0.23	0.25	0.289	7076.0	1,761.373	######
2007-2009	0.23	6.62	0.03	0.03	0.289	15242.9	1,788.855	######
2007-2009 (0.5 g/bhp-hr NOx or Cleaner)[d]	0.2	2.88	0.03	0.03	0.289	15242.9	?	?
2010+	0.19	1.27	0.03	0.03	0.289	21170.8	1,730.153	######

Source for ROG, NOx, and PM2.5: Methods to Find the Cost-Effectiveness of Funding Air Quality Projects Table 5-D
See "Other PM10, Diesel Fleet" for Other PM calculations
Source for PM10: Carl Moyer Guidelines, July 11, 2014, Table D-4
a - EMFAC 2011 Zero-Mile Based Emission Factors.
b - Emission factors incorporate the ultra low-sulfur diesel fuel correction factors listed in Table D-26 of the Moyer guidelines.
c - ROG - HC * 1.26639.
d - These values are interpolated between 1.2 g/bhp-hr Nox standard for 2007-2009 model years and 0.2 g/bhp-hr Nox standard for 2010+ model years.
e - CO_2 factors include idle exhaust and run exhaust. From EMFAC 2007 for T7 vehicle category. - Avra Goldman 2014

ARB Table 5-E:

Diesel Urban Buses (g/mile)[b]. 33,000+ lbs

EO Certification Standards[f] (g/bhp-hr)		ROG[a]	NOx	Exhaust PM2.5	Exhaust PM10	Other PM	CO2
6.0 NOX	0.6 PM10	1.15	22.32	1.59	1.73	0.996	2,987.98
5.0 NOX	0.1 PM10	0.96	18.60	0.26	0.29	0.996	2,716.99
5.0 NOX	0.07 PM10	0.96	18.60	0.19	0.20	0.996	2,524.99
4.0 NOX	0.05 PM10	0.77	14.88	0.13	0.14	0.996	2,416.99
2.5 NOX + NMHC	0.05 PM10	0.46	8.84	0.13	0.14	0.996	2,003.00
1.20 NOX	0.01 PM10	0.23	4.46	0.03	0.03	0.996	2,416.99
0.20 NOX	0.01 PM10	0.04	0.74	0.03	0.03	0.996	2,239.81

Source for ROG, NOx, and PM2.5: Methods to Find the Cost-Effectiveness of Funding Air Quality Projects Table 5-E. Source for PM10: Carl Moyer Guidelines, 7/11/14, Table D-5
Source for "Other PM": Methods to Find the Cost-Effectiveness of Funding Air Quality Projects Table 1. Average for Tire Wear, Brake Wear, and Road Dust values. PM2.5
Source for CO2 Values calculated by Amir Fanai (BAAQMD) using EMFAC 2007 V2.3
a - ROG = HC * 1.26639
b - Mileage based emissions factors were calculated using conversion factors from Table D-28 of the Moyer guidelines.
f - No diesel buses have been certified to the 0.5 g/bhp/hr for the 2004-2006 model year emission standard.
e - CO_2 factors include idle exhaust and run exhaust. From EMFAC 2007 for UBUS vehicle category. - Avra Goldman 2014

ARB Table 5-F:

Natural Gas Urban Buses (g/mile)[b] 33,000+ lbs

EO Certification Standards (g/bhp-hr)		ROG[a]	NOx	Exhaust PM2.5	Exhaust PM10	Other PM	CO2
5.0 NOX	0.10 PM10	6.33	20.00	0.37	0.40	0.996	2,535.04
5.0 NOX	0.07 PM10	6.33	20.00	0.26	0.28	0.996	2,535.04
4.0 NOX	0.05 PM10	5.07	16.00	0.18	0.20	0.996	2,535.04
2.5 NOX + NMHC	0.05 PM10	2.53	8.00	0.18	0.20	0.996	2,535.04
1.8 NOX + NMHC[f,g]	0.02 PM10	1.82	5.76	0.07	0.08	0.996	2,535.04
1.2 NOX	0.01 PM10	1.52	4.80	0.04	0.04	0.996	2,535.04
0.2 NOX	0.01 PM10	0.25	0.80	0.04	0.04	0.996	2,535.04

Source for ROG, NOx, and PM2.5: Methods to Find the Cost-Effectiveness of Funding Air Quality Projects Table 5-F
Source for "Other PM": Methods to Find the Cost-Effectiveness of Funding Air Quality Projects Table 1. Average for Tire Wear, Brake Wear, and Road Dust values. PM2.5 converted to PM10.
Source for PM10: Carl Moyer Guidelines, July 11, 2014, Table D-6
Source for CO2 Value: EMFAC 2007 for Diesel Urban Bus, aggregate value for CO2_RUNEX(Pavley I+LCFS) for all model years. Methodology suggested by Dennis Wade from
a - ROG = HC * 1.26639
b - Mileage based emissions factors were calculated using conversion factors from Table D-28 of the Moyer guidelines.
f - A majority of the natural gas urban buses have been certified to the optional standards. Therefore, these values are based on the optional standards.
g - many natural gas urban buses have been certified to optional standards below this level.

Alternative Fuel Medium Heavy-Duty Vehicles (g/mile)[a]: 14,001-33,000 lbs

Model Year	ROG	NOx	Exhaust PM10	Other PM	CO2
Pre 1990, 6.0 NOX	3.61	11.40	1.140	0.244	1273.1
1990, 6.0 NOX	3.42	10.80	0.450	0.244	1273.1
1991-1993, 5.0 NOX	2.85	9.00	0.180	0.244	1216.9
1994-1997, 5.0 NOX	2.85	9.00	0.180	0.244	1171.0
1998-2001, 4.0 NOX	2.28	7.20	0.180	0.244	1201.0
2002-2006, 2.5 NOX	1.14	3.60	0.020	0.244	1185.8
2007-2009, 1.8 NOX	0.82	2.59	0.020	0.244	1212.9
2007-2009, 1.5 NOX	0.68	2.16	0.020	0.244	1212.9
2007-2009, 1.2 NOX	0.55	1.73	0.020	0.244	1212.9
2007-2009, 0.84 NOX	0.38	1.21	0.020	0.244	1212.9
2007-2009, 0.5 NOX	0.29	0.90	0.020	0.244	1212.9
2010+, 0.2 NOX	0.11	0.36	0.020	0.244	1171.0

Source for ROG, Nox: Method to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013), table 5-B, Source for PM10: Carl Moyer Guidelines (July 2014), table D-2
See "Other PM10, Diesel Fleet" for Other PM calculations
Source for CO2 Values: used values for medium heavy-duty deisel vehicles, per Dennis Wade's suggestion (ARB), as Alt. fuel vehicles are certified to deisel standard and alt.
a - Mileage based emissions factors were calculated using conversion factors from Carl Moyer Guidelines, Table D-28 & D-24

Alternative Fuel Heavy Heavy-Duty Vehicles (g/mile)[a]: 33,001-60,000 lbs

Model Year	ROG	NOx	Exhaust PM10	Other PM	CO2
Pre 1990, 6.0 NOX	5.89	18.60	1.860	0.289	4977.0
1990, 6.0 NOX	5.70	18.00	0.750	0.289	4977.0
1991-1993, 5.0 NOX	4.75	15.00	0.300	0.289	5069.5
1994-1997, 5.0 NOX	4.59	14.50	0.290	0.289	5115.6
1998-2001, 4.0 NOX	3.67	11.60	0.290	0.289	5682.7
2002-2006, 2.5 NOX	1.84	5.80	0.030	0.289	7076.0
2007-2009, 1.8 NOX	1.32	4.18	0.030	0.289	15242.9
2007-2009, 1.5 NOX	1.10	3.48	0.030	0.289	15242.9
2007-2009, 1.2 NOX	0.88	2.78	0.030	0.289	15242.9
2007-2009, 0.84 NOX	0.62	1.95	0.030	0.289	15242.9
2007-2009, 0.5 NOX	0.46	1.45	0.030	0.289	15242.9
2010+, 0.2 NOX	0.18	0.58	0.030	0.289	21170.8

Source for ROG, Nox: Method to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013), table 5-B, Source for PM10: Carl Moyer Guidelines (July 2014), table D-2
See "Other PM10, Diesel Fleet" for Other PM calculations
Source for CO2 Values: used values for heavy heavy-duty deisel vehicles, per Dennis Wade's (ARB) suggestion., as Alt. fuel vehicles are certified to deisel standard and alt. fuel
a - Mileage based emissions factors were calculated using conversion factors from Carl Moyer Guidelines, Table D-28 & D-24

GASOLINE LIGHT-HEAVY DUTY VEHICLES (8501-10000 lbs)

Model year	ROG	NOX	PM10 Exhaust	PM10 TW+BW+RD*	CO2	CO2 Running	CO2 Idle
1988	1.018	0.835	0.0267	0.191	972.110	972.1095	116.3645
1989	1.012	0.856	0.0267	0.191	972.110	972.1095	116.3645
1990	1.006	0.876	0.0267	0.191	972.110	972.1095	116.3645
1991	1.228	4.252	0.0150	0.191	972.109	972.1095	116.3645
1992	1.216	4.219	0.0150	0.191	972.110	972.1095	116.3645
1993	1.192	4.154	0.0150	0.191	972.109	972.1095	116.3644
1994	1.174	4.107	0.0150	0.191	972.109	972.1095	116.3645
1995	0.592	2.295	0.0096	0.191	972.109	972.1095	116.3644

1996	0.033	0.538	0.0043	0.191	972.110	972.1095	116.3645
1997	0.033	0.527	0.0043	0.191	972.110	972.1095	116.3644
1998	0.032	0.512	0.0043	0.191	972.109	972.1095	116.3645
1999	0.032	0.501	0.0043	0.191	972.109	972.1095	116.3645
2000	0.031	0.486	0.0043	0.191	972.109	972.1095	116.3644
2001	0.030	0.469	0.0043	0.191	972.110	972.1095	116.3645
2002	0.029	0.364	0.0043	0.191	972.109	972.1095	116.3644
2003	0.029	0.349	0.0043	0.191	972.110	972.1095	116.3645
2004	0.019	0.285	0.0003	0.191	972.109	972.1095	116.3645
2005	0.019	0.270	0.0003	0.191	972.109	972.1095	116.3645
2006	0.018	0.254	0.0003	0.191	972.109	972.1095	116.3645
2007	0.018	0.238	0.0003	0.191	972.110	972.1095	116.3644
2008	0.014	0.147	0.0003	0.191	972.110	972.1095	116.3645
2009	0.011	0.071	0.0003	0.191	972.109	972.1095	116.3644
2010	0.011	0.070	0.0003	0.191	972.109	972.1095	116.3645
2011	0.011	0.069	0.0003	0.191	972.110	972.1095	116.3645
2012	0.014	0.088	0.0003	0.191	972.109	972.1096	116.3645
2013	0.014	0.085	0.0003	0.191	972.110	972.1095	116.3645

GASOLINE LIGHT-HEAVY DUTY VEHICLES (10001-14000 lbs)

Model year	ROG	NOX	PM10 Exhaust	PM10 TW+BW+RD*	CO2	CO2 Running	CO2 Idle
1988	0.978	0.967	0.0267	0.191	972.109	972.1095	116.3645
1989	0.974	0.980	0.0267	0.191	972.110	972.1095	116.3645
1990	0.972	0.989	0.0267	0.191	972.109	972.1095	116.3645
1991	1.151	4.043	0.0150	0.191	972.109	972.1095	116.3645
1992	1.144	4.024	0.0150	0.191	972.110	972.1095	116.3645
1993	1.128	3.985	0.0150	0.191	972.109	972.1095	116.3645
1994	1.109	3.933	0.0150	0.191	972.109	972.1095	116.3644
1995	0.560	2.198	0.0096	0.191	972.110	972.1095	116.3645
1996	0.032	0.513	0.0043	0.191	972.109	972.1095	116.3645
1997	0.032	0.500	0.0043	0.191	972.110	972.1095	116.3645
1998	0.031	0.489	0.0043	0.191	972.109	972.1096	116.3645
1999	0.031	0.476	0.0043	0.191	972.110	972.1095	116.3645
2000	0.030	0.464	0.0043	0.191	972.109	972.1095	116.3645
2001	0.029	0.448	0.0043	0.191	972.110	972.1095	116.3645
2002	0.028	0.346	0.0043	0.191	972.109	972.1095	116.3645
2003	0.027	0.331	0.0043	0.191	972.110	972.1095	116.3645
2004	0.019	0.273	0.0003	0.191	972.109	972.1095	116.3645
2005	0.018	0.260	0.0003	0.191	972.110	972.1095	116.3645
2006	0.018	0.245	0.0003	0.191	972.110	972.1096	116.3644
2007	0.017	0.230	0.0003	0.191	972.109	972.1095	116.3645
2008	0.014	0.143	0.0003	0.191	972.110	972.1095	116.3644
2009	0.011	0.071	0.0003	0.191	972.110	972.1094	116.3645
2010	0.011	0.070	0.0003	0.191	972.109	972.1095	116.3645
2011	0.011	0.068	0.0003	0.191	972.109	972.1095	116.3645
2012	0.014	0.087	0.0003	0.191	972.110	972.1095	116.3644
2013	0.014	0.085	0.0003	0.191	972.109	972.1096	116.3645

GASOLINE MEDIUM-HEAVY DUTY VEHICLES

Model year	ROG	NOX	PM10 Exhaust	PM10 TW+BW+RD*	CO2	CO2 Running	CO2 Idle
1988	0.794	2.226	0.0156	0.191	677.446	677.4460	251.5801
1989	0.792	2.240	0.0156	0.191	677.446	677.4460	251.5801
1990	0.789	2.261	0.0156	0.191	677.446	677.4460	251.5801
1991	0.875	6.176	0.0088	0.191	677.446	677.4460	251.5801
1992	0.868	6.143	0.0088	0.191	677.446	677.4460	251.5801
1993	0.851	6.057	0.0088	0.191	677.446	677.4461	251.5801
1994	0.843	6.018	0.0088	0.191	677.446	677.4460	251.5801
1995	0.848	6.036	0.0088	0.191	677.446	677.4461	251.5801
1996	0.826	5.920	0.0088	0.191	677.446	677.4460	251.5801
1997	0.813	5.857	0.0088	0.191	677.446	677.4460	251.5801
1998	0.938	6.008	0.0025	0.191	677.446	677.4460	251.5801
1999	0.902	5.835	0.0025	0.191	677.446	677.4460	251.5801
2000	0.875	5.700	0.0025	0.191	677.446	677.4460	251.5801
2001	0.845	5.556	0.0025	0.191	677.446	677.4460	251.5801
2002	0.806	5.368	0.0025	0.191	677.446	677.4460	251.5801
2003	0.765	5.163	0.0025	0.191	677.446	677.4460	251.5801
2004	0.016	0.431	0.0002	0.191	677.446	677.4460	251.5801
2005	0.010	0.239	0.0002	0.191	677.446	677.4460	251.5801
2006	0.010	0.229	0.0002	0.191	677.446	677.4460	251.5801
2007	0.010	0.217	0.0002	0.191	677.446	677.4460	251.5801
2008	0.010	0.165	0.0002	0.191	677.446	677.4460	251.5801
2009	0.010	0.121	0.0002	0.191	677.446	677.4460	251.5801
2010	0.010	0.119	0.0002	0.191	677.446	677.4460	251.5801
2011	0.010	0.117	0.0002	0.191	677.446	677.4460	251.5801
2012	0.012	0.150	0.0002	0.191	677.446	677.4460	251.5801
2013	0.012	0.147	0.0002	0.191	677.446	677.4460	251.5801

GASOLINE HEAVY-HEAVY DUTY VEHICLES

Model year	ROG	NOX	PM10 Exhaust	PM10 TW+BW+RD*	CO2	CO2 Running	CO2 Idle
1988	3.698	15.926	0.0071	0.191	584.667	584.6674	0.0000
1989	3.622	15.653	0.0071	0.191	584.667	584.6674	0.0000
1990	3.774	16.209	0.0071	0.191	584.667	584.6674	0.0000
1991	3.539	15.473	0.0071	0.191	584.667	584.6674	0.0000
1992	3.563	15.467	0.0071	0.191	584.667	584.6674	0.0000
1993	3.528	15.315	0.0071	0.191	584.667	584.6674	0.0000
1994	3.299	14.364	0.0020	0.191	584.667	584.6674	0.0000
1995	3.324	14.434	0.0020	0.191	584.667	584.6674	0.0000
1996	3.451	14.818	0.0020	0.191	584.667	584.6674	0.0000
1997	3.309	14.399	0.0020	0.191	584.667	584.6674	0.0000
1998	3.976	15.107	0.0020	0.191	584.667	584.6674	0.0000
1999	3.538	13.679	0.0020	0.191	584.667	584.6674	0.0000
2000	3.456	13.423	0.0020	0.191	584.667	584.6674	0.0000
2001	3.613	13.881	0.0020	0.191	584.667	584.6674	0.0000
2002	3.453	13.385	0.0020	0.191	584.667	584.6674	0.0000
2003	3.321	13.002	0.0020	0.191	584.667	584.6674	0.0000
2004	0.570	5.513	0.0002	0.191	584.667	584.6675	0.0000
2005	0.516	5.137	0.0002	0.191	584.667	584.6675	0.0000
2006	0.493	4.967	0.0002	0.191	584.667	584.6674	0.0000
2007	0.427	4.548	0.0002	0.191	584.667	584.6674	0.0000
2008	0.424	4.496	0.0002	0.191	584.667	584.6674	0.0000
2009	0.385	4.218	0.0002	0.191	584.667	584.6674	0.0000
2010	0.345	3.941	0.0002	0.191	584.667	584.6675	0.0000
2011	0.294	3.581	0.0002	0.191	584.667	584.6674	0.0000
2012	0.323	4.221	0.0002	0.191	584.667	584.6674	0.0000
2013	0.248	3.661	0.0002	0.191	584.667	584.6674	0.0000

GASOLINE URBAN BUS

Model year	ROG	NOX	PM10 Exhaust	PM10 TW+BW+RD*	CO2	CO2 Running	CO2 Idle
1988	3.810	17.435	0.0107	0.191	744.187	744.1871	0.0000
1989	3.788	17.291	0.0107	0.191	744.187	744.1871	0.0000
1990	3.795	17.346	0.0107	0.191	744.187	744.1871	0.0000
1991	3.852	17.609	0.0107	0.191	744.187	744.1871	0.0000
1992	3.482	16.131	0.0107	0.191	744.187	744.1871	0.0000
1993	3.835	17.528	0.0107	0.191	744.187	744.1871	0.0000
1994	3.864	16.727	0.0030	0.191	744.187	744.1871	0.0000
1995	3.852	16.750	0.0030	0.191	744.187	744.1871	0.0000
1996	3.476	15.262	0.0030	0.191	744.187	744.1871	0.0000
1997	3.430	14.993	0.0030	0.191	744.187	744.1870	0.0000
1998	0.043	1.288	0.0002	0.191	744.187	744.1871	0.0000
1999	0.043	1.291	0.0002	0.191	744.187	744.1871	0.0000
2000	0.041	1.204	0.0002	0.191	744.187	744.1871	0.0000
2001	0.040	1.147	0.0002	0.191	744.187	744.1871	0.0000
2002	0.038	1.092	0.0002	0.191	744.187	744.1871	0.0000
2003	0.038	1.075	0.0002	0.191	744.187	744.1871	0.0000
2004	0.015	0.482	0.0002	0.191	744.187	744.1871	0.0000
2005	0.015	0.460	0.0002	0.191	744.187	744.1871	0.0000

2006	0.015	0.438	0.0002	0.191	744.187	744.1871	0.0000
2007	0.015	0.415	0.0002	0.191	744.187	744.1870	0.0000
2008	0.015	0.360	0.0002	0.191	744.187	744.1871	0.0000
2009**	**0.015**	**0.334**	**0.0002**	**0.191**	**744.187**		
2010	0.015	0.308	0.0002	0.191	744.187	744.1871	0.0000
2011	0.015	0.270	0.0002	0.191	744.187	744.1871	0.0000
2012	0.015	0.235	0.0002	0.191	744.187	744.1871	0.0000
2013	0.015	0.201	0.0002	0.191	744.187	744.1871	0.0000

GASOLINE MEDIUM DUTY VEHICLES (5751-8500 lbs)					
Model year	**ROG**	**NOX**	**PM10 Exhaust**	**PM10 TW+BW+RD***	**CO2**
1988	0.376	2.150	0.020	0.191	615.035
1989	0.392	2.169	0.020	0.191	615.415
1990	0.363	2.108	0.020	0.191	615.650
1991	0.367	2.117	0.011	0.191	616.189
1992	0.357	2.088	0.011	0.191	615.413
1993	0.344	2.046	0.011	0.191	526.819
1994	0.339	2.031	0.012	0.191	526.809
1995	0.270	1.743	0.012	0.191	526.884
1996	0.166	1.251	0.003	0.191	522.670
1997	0.166	1.250	0.003	0.191	522.631
1998	0.142	1.051	0.003	0.191	523.860
1999	0.120	0.867	0.003	0.191	525.204
2000	0.098	0.684	0.003	0.191	589.354
2001	0.077	0.516	0.003	0.191	590.273
2002	0.075	0.516	0.003	0.191	590.987
2003	0.067	0.514	0.003	0.191	590.986
2004	0.018	0.114	0.000	0.191	590.714
2005	0.017	0.102	0.000	0.191	590.976
2006	0.015	0.076	0.000	0.191	592.201
2007	0.013	0.071	0.000	0.191	592.154
2008	0.012	0.070	0.000	0.191	592.337
2009	0.011	0.068	0.000	0.191	592.685
2010	0.010	0.062	0.000	0.191	590.749
2011	0.009	0.056	0.000	0.191	590.948
2012	0.008	0.051	0.001	0.191	591.071
2013	0.007	0.047	0.001	0.191	591.205

Source for ROG, NOX, PM10 Exhaust, PM10 Tire Wear, PM10 Brake Wear, and CO2 from EMFAC2011, updated by Ken Mak, Aug 2014, Verified by Amir Fa
*Source for PM10 Road Dust from ARB Methods to Find the Cost Effectiveness of Funding Air Quality Projects, May 2013, Table 1, PM2.5 value converted
**No Data for 2009 Gasoline UB in EMFAC2011. Values are an average of 2008 and 2010 figures. -Ken Mak, Aug 2014, Suggested by Amir Fanai

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RCPA
regional climate protection authority

Staff Report

To: **SCTA – Technical Advisory Committee**

From: **Janet Spilman, Deputy Director, Planning & Public Outreach**

Item: **5.0 Comprehensive Transportation Plan update – Projects Received**

Date: **February 26, 2015**

Issue:

What is the status of the CTP Project list?

Background:

The Call for Projects packet was sent to the TAC and other potential project sponsors and posted online. Projects were due to SCTA by December 15, 2014. Every project required an application, even if it was listed in the 2009 CTP in order to capture additional information about the projects and to refresh the list.

Information collected will be used to evaluate projects. This includes location of project, date of construction, and updated costs. Transit projects will be evaluated on slightly different criteria and have a different application.

Bicycle projects anticipated to cost $1million or greater require a project application form. Bike projects must be in the Pedestrian/Bicycle Master Plan. The Countywide Bicycle and Pedestrian Advisory Committee (CBPAC) is currently developing a list of priorities to feature in the CTP.

Projects received

SCTA received applications for 269 road projects including active transportation, bridge retrofits, highways, ITS, local roads and regional air transportation. Air transportation projects are not considered road projects and will not be evaluated with the same measures. Project sponsors should review e 2 lists – All road projects with all information submitted (sent under separate cover), and project list by type of project, with limited project information (attached).

Next Steps:

Please review the list to be sure your project information is complete and accurate.

Policy Impacts:

The CTP is the long term planning document for the SCTA. CTP Goals reflect SCTA policy.

Fiscal Impacts:

No fiscal impacts. The project list serves as guidance in programming future funding to projects. It represents priorities of the SCTA for identified and potential future sources of funding, including a possible sales tax measure.

Staff Recommendation:

Review and discuss. Make a recommendation to SCTA for inclusion in the 2015 CTP.

2015 CTP Project Applications listed by project type

last edited 2/19/15

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
Active Transportation						
BP243	Santa Rosa	HWY 101 Ped/Bike Over Crossing	21		TBD	Route #37
D4029	Santa Rosa	N. Santa Rosa Stn Area/Jr College Bike/Ped C	21		2040	
BP77	Petaluma	no name segments in GIS	17.29			
D-BP4068	Windsor	Old Redwood Highway: Windsor Road to Ara	13	0.075	2024-2025	
2037	Windsor	Old Redwood Highway: Hembree Lane to Shi	11	0.0075	2020-2021	
D4027	Santa Rosa	Jennings Avenue Bicycle and Pedestrian Cros	9.2		2020	
BP714	Sonoma County	Russian River Trail	9.145	0.125	2023	Russian River Bike Trail - Middle Reach
BP840	Sonoma County	State Hwy. 1	8.278		TBD	
BP70	Petaluma	NWP Trail	7.952			duplicate of SMART bike ped path?
BP768	Sonoma County	Dry Creek Rd.	7.552		TBD	
BP862	Sonoma County	State Hwy. 128	7.448		TBD	
BP803	Sonoma County	Mark West Springs / Porter Creek Rd.	7.288	2.5	2024	
BP848	Sonoma County	State Hwy. 116 North	7.25		TBD	
D4012	Rohnert Park	Rohnert Park Class I Bike Paths Reconstructio	7	0	2015-2025	
D4013	Rohnert Park	Rohnert Park Class I Bike Paths Reconstructio	7	7	2015-2025	
D4023	Santa Rosa	SMART Multi Use Path - Downtown PDA to N	7		2025	
BP861	Sonoma County	State Hwy. 128	6.912		TBD	
BP838	Sonoma County	State Hwy. 1	6.034		TBD	
3048	Rohnert Park	Copeland Creek Overcrossing at Highway 10	6	0	2025	
BP172	Rohnert Park	Copeland Creek Bike/Ped Overcrossing @ H	6			
D4010	Rohnert Park	Central Rohnert Park PDA Complete Streets I	6	0	2016-2025	
BP249	Santa Rosa	Sonoma Marin Area Rail Transit Pathway	5.75		TBD	Route #67
BP859	Sonoma County	State Hwy. 121	5.585		TBD	
BP720	Sonoma County	SMART Rail Trail	5.282		2018	
BP856	Sonoma County	State Hwy. 12	5.194		TBD	
BP681	Sonoma County	Central Sonoma Valley Trail	5.056	0.309	2019	
D4004	Petaluma	SMART bike ped path	5	0	unknown	

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
BP832	Sonoma County	Roblar Rd.	4.872		TBD	
BP708	Sonoma County	Petaluma / Sebastopol Trail	4.478	0.106	2023	
BP709	Sonoma County	Petaluma Marsh Trail	4.42		2023	
D4024	Santa Rosa	SMART Multi Use Path - South Santa Rosa Cit	4		2025	
D4055	Windsor	Conde Lane: Oakfield Lane to Mitchell Lane	4	0.0075	2020-2030	
BP773	Sonoma County	Eastside Rd.	3.884		TBD	
BP867	Sonoma County	Todd Rd.	3.768		TBD	
BP783	Sonoma County	Geyserville Ave. / Asti Rd.	3.765		TBD	
BP51	Healdsburg	Foss Creek Pathway Segment 9	3.67			
BP731	Sonoma County	Sonoma County Bay Trail	3.419	0.05	2020	
BP850	Sonoma County	State Hwy. 116 North	3.394		TBD	
BP863	Sonoma County	State Hwy. 128	3.323		TBD	
BP707	Sonoma County	Monte Rio / Willow Creek Trail	3.004			
BP171	Rohnert Park	New Bike/Pedestrian Path Crossing Hwy 101	3			
BP743	Sonoma County	Alexander Valley Rd.	2.874		TBD	
BP823	Sonoma County	Piner Rd. / Olivet Rd.	2.819		TBD	
BP844	Sonoma County	State Hwy. 116 North	2.784		TBD	
BP746	Sonoma County	Arnold Dr.	2.6		TBD	
BP754	Sonoma County	Bodega Hwy.	2.598		TBD	
BP76	Petaluma	Petaluma River Trail	2.478			
BP817	Sonoma County	Pepper Rd.	2.465		TBD	
BP839	Sonoma County	State Hwy. 1	2.36		TBD	
BP738	Sonoma County	8th St. East	2.316		TBD	
BP815	Sonoma County	Occidental Rd.	2.293		TBD	
BP704	Sonoma County	Laguna de Santa Rosa Trail Extension	2.243		2023	
BP740	Sonoma County	Adobe Rd.	2.242		TBD	
BP688	Sonoma County	Dutch Bill Creek Trail	2.185	0.6	2023	
BP2	Cloverdale	NWP Trail	2.1588			
BP48	Healdsburg	Foss Creek Pathway Segment 6	2.13			
BP75	Petaluma	Petaluma River Trail	2.058			

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
BP781	Sonoma County	Geyserville Ave. / Asti Rd.	2.056		TBD	
BP674	Sonoma County	Bodega Bay Trail	2.05	0.573	2021	
BP873	Sonoma County	Warm Springs Rd.	2.0446		TBD	
BP682	Sonoma County	Cloverdale / Lake Sonoma Trail	2.034		TBD	
D-BP4068	Cloverdale	Crocker Road	2			Bike/Ped Bridge across Russian River
D-BP4068	Windsor	Intersection Modification at Lakewood Drive	2	0.075	2020-2030	
BP50	Healdsburg	Foss Creek Pathway Segment 8	1.98			
BP780	Sonoma County	Geysers Rd.	1.945		TBD	
BP818	Sonoma County	Pepper Rd.	1.942		TBD	
BP726	Sonoma County	Sonoma / Schellville Trail	1.915	0.909	2016	
BP775	Sonoma County	Faught Rd.	1.915		TBD	
BP667	Sonoma County	Bellevue Creek Trail	1.897	0.05	2024	
BP1	Cloverdale	Cloverdale River Trail	1.8865			
BP732	Sonoma County	Sonoma County Bay Trail	1.845	0.049	2020	
BP854	Sonoma County	State Hwy. 116 South	1.845		TBD	
BP872	Sonoma County	Warm Springs Rd.	1.799		TBD	
BP822	Sonoma County	Petrified Forest Rd.	1.774	2.5	2024	
BP701	Sonoma County	Laguna de Santa Rosa Trail	1.669	0.01	2023	Includes Brown and Alpha farms
BP766	Sonoma County	Doran Beach Rd.	1.669		TBD	
BP825	Sonoma County	Pleasant Hill Rd.	1.617		TBD	
BP727	Sonoma County	Sonoma County Bay Trail	1.61	0.035	2020	
BP37	Cotati	West Cotati Avenue Sidewalks	1.5843			
BP729	Sonoma County	Sonoma County Bay Trail	1.566	0.035	2020	
BP748	Sonoma County	Bennett Valley Rd.	1.56		TBD	
BP751	Sonoma County	Bodega Ave.	1.557		TBD	
BP705	Sonoma County	Larkfield / Wikiup Trail	1.54		TBD	
BP73	Petaluma	Petaluma River Trail	1.54			
BP672	Sonoma County	Bodega Bay Trail	1.521	0.415	2021	
BP716	Sonoma County	Salmon Creek Trail	1.514		TBD	
BP877	Sonoma County	Willowside Rd.	1.51	0.75	2017	

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
BP78	Petaluma	Adobe Rd.	1.5036			
D4006	Petaluma	Rivertrail-Crossing SMART and Hwy 101	1.5	0	2018	
D-BP4068	Petaluma	Petaluma River Trail	1.5			
BP725	Sonoma County	SMART Rail Trail	1.47		2018	
D-BP4067	Cloverdale	Citrus Fair Drive	1.4			Train Depot/Greenway Project
BP683	Sonoma County	Cloverdale River Trail	1.372		TBD	Part of Russian River Bike Trail - Upper
BP874	Sonoma County	Water Trough Rd.	1.279		TBD	
BP722	Sonoma County	SMART Rail Trail	1.189		2018	
BP736	Sonoma County	Petaluma - Novato Trail	1.165		2023	
BP724	Sonoma County	SMART Rail Trail	1.163		2018	
BP49	Healdsburg	Foss Creek Pathway Segment 7	1.15			
BP584	Santa Rosa	Stony Point Road	1.126		TBD	
BP842	Sonoma County	State Hwy. 1	1.119		TBD	
BP800	Sonoma County	Ludwig Ave.	1.084		TBD	
BP778	Sonoma County	Frei Rd.	1.057		TBD	
BP794	Sonoma County	Laguna Rd. / Old Trenton Rd.	1.041		TBD	
BP837	Sonoma County	South Wright Rd.	1.04		TBD	
2042	Windsor	Starr Road: Re-Build Railroad Grade Crossing	1	0.0075	2018-2019	
2090	Santa Rosa	Highway 12 Corridor - Farmers Lane to Sprin	1		2030	
D4050	Windsor	SMART Trail: Southerly town limits to north	1		2018-2019	
D4053	Windsor	Starr Road Sidewalk Gap Closure	1	0	2016-2017	
BP868	Sonoma County	Trenton Rd. / Healdsburg Rd.	0.989		TBD	
BP807	Sonoma County	Millbrae Ave.	0.986		TBD	
BP755	Sonoma County	Bodega Hwy.	0.976		TBD	
BP96	Petaluma	Lakeville Hwy	0.966			
BP876	Sonoma County	West Sierra Ave.	0.938		TBD	
BP723	Sonoma County	SMART Rail Trail	0.897		2018	
BP851	Sonoma County	State Hwy. 116 North	0.883		TBD	
BP699	Sonoma County	Laguna de Santa Rosa Trail	0.871	0.04	2023	
BP728	Sonoma County	Sonoma County Bay Trail	0.841		2020	

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
BP721	Sonoma County	SMART Rail Trail	0.821		2018	
BP698	Sonoma County	Laguna de Santa Rosa Trail	0.767		2023	
BP686	Sonoma County	Copeland Creek Trail	0.722	0.03	2023	
BP685	Sonoma County	Colgan Creek Trail Extension West	0.717	0.095	2019	
BP669	Sonoma County	Bodega Bay Trail	0.713		2021	
BP175	Rohnert Park	Trail to Crane Creek Regional Park	0.7113			
BP594, 59	Sebastopol	State Route 116 Class II Bike Lanes	0.6858		2016-17	Consolodated 7 projects
BP52	Healdsburg	Foss CreekPathway Segment 9A	0.67			
BP53	Healdsburg	Foss Creek Pathway Segment 10	0.67			
BP154	Rohnert Park	New Bike/Pedestrian Crossings at NWP Railr	0.6			
BP673	Sonoma County	Bodega Bay Trail	0.572		2021	
BP702	Sonoma County	Laguna de Santa Rosa Trail	0.554		2023	
BP700	Sonoma County	Laguna de Santa Rosa Trail	0.505		2023	
BP46	Healdsburg	Foss Creek Pathway Segment 3	0.49			
BP718	Sonoma County	Santa Rosa Creek Trail Extension	0.48	0.02	2023	
BP47	Healdsburg	Foss Creek Pathway Segment 4	0.45			
BP703	Sonoma County	Laguna de Santa Rosa Trail	0.287		2023	
BP26	Cotati	NWP Trail	0.2709			
BP735	Sonoma County	West County Trail Extension	0.267		2016	
BP671	Sonoma County	Bodega Bay Trail	0.266		2021	
BP670	Sonoma County	Bodega Bay Trail	0.259		2021	
BP697	Sonoma County	Laguna de Santa Rosa Trail	0.227		2023	
BP730	Sonoma County	Sonoma County Bay Trail	0.196		2020	
BP719	Sonoma County	SMART Rail Trail	0.142		2018	
BP684	Sonoma County	Colgan Creek Trail Extension East	0.096		2019	
BP975	Windsor	Old Redwood Hwy - NB	0.0432	0.04	2015	
BP632	Sebastopol	Petaluma-Sebastopol Trail Feasibility Study	0.0052		2020	
BP250	Santa Rosa	SMART Pathway	0		TBD	Route #67
BP251	Santa Rosa	SMART Pathway	0		TBD	Route #67
BP252	Santa Rosa	SMART Pathway	0		TBD	Route #67

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
2132	Santa Rosa	Downtown Santa Rosa - City Center Enhance			2025	
Bridge Retrofit						
D4005	Petaluma	Washington Street Bridge Seismic Retrofit	2	0	2017	
Highway						
2103	SCTA	State Route 37 Corridor Protection and Enha	2000		2030	
1008	SCTA	Widen U.S.101 Marin Sonoma Narrows - Pha	237	237	2012-2016	
3047	SCTA	Widen U.S.101 Marin Sonoma Narrows - Pha	210	14	2018-2022	
2016	SCTA	Highway 116 Widening and Rehabilitation bt	83	7	2020	Includes Cotati Hwy 116 corridor impr
2001	SCTA	U.S.101 / Railroad Avenue Improvements.	50		2030	Includes Cotati project US 101/Railroa
D4022	Santa Rosa	Todd Rd @ Hwy 101 Interchange Improveme	41.2		2040	
2001	Cotati	US 101/Railroad Avenue Improvements.	40	0	2030	Section of larger project - SCTA US101
2015	Sonoma County	Realign Route 116 (Stage Gulch Road) along	38			
2005	Santa Rosa	Hearn Ave @ Hwy 101 Interchange Improve	33.5		2025	
2141	Santa Rosa	Mendocino Ave / Hopper Ave - Hwy 101 Inte	30		TBD	
2012	Santa Rosa	Fulton Rd @ Hwy 12 Interchange	27		2040	
2003	SCTA	Highways 116 and 121 Intersection Improve	22	5	2019	
D4056	Windsor	Shiloh Road Interchange Reconstruction	21		2020-2030	
2023	Santa Rosa	Bellevue Ave @ Hwy 101 Improvements	20.8		2040	
D4031	SCTA	Landscaping - Highway 101 HOV Corridor	18	5	2015-2025	
2008	Sonoma County	Forestville bypass on Route 116	15	0	Unknown	
2016	Cotati	Highway 116 Cotati Corridor Improvements	15	0	2025	Section of larger project #2016
D4058	Windsor	US 101 Overcrossing of Arata Lane	14		2020-2030	
D4001	Cotati	US 101/Highway 116 North Bound On-Ramp	10	0	2030	
D4002	Cotati	US 101/West Sierra Avenue South Bound Off	10	0	2030	
2072	Sebastopol	Intersection Control on Hwy 116 at 2 locatio	4	0	2020	
D4037	Sonoma	Intersection Improvements at SR12 Broadwa	4	0	2018	
D4054	Windsor	Arata Lane Interchange Phase 2B NB On-ram	3.5	0	2023-2024	
D4034	Sonoma	Intersection Improvements at SR12 Sonoma	3	0	2023	
2072	Sebastopol	SR 116 Curb, Gutter & Sidewalk	2	0	2017	
ITS						

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
D4025	Santa Rosa	Energy Efficient Street Lighting	3.6		2020	
D4028	Santa Rosa	ITS Transit Corridors/Energy Efficiency	3.3		2025	
Local Roads						
D4030	Santa Rosa	Maintain Transportation System - Road Reha	410		Ongoing	
D4004	Petaluma	Various Pavement Maintenance Projects	125	0	ongoing	
2026	Petaluma	Petaluma Crosstown Connector and Rainier I	115	0	unknown	
2140	Petaluma	Southern Crossing at Caulfield Lane	72	0	unknown	
2000	Santa Rosa	Maintain Transportation System Pavement -	65		Ongoing	
2002	Sonoma County	Airport Boulevard Widening Ordiance Road a	50	0	Unknown	
2006	Santa Rosa	Farmers Lane Extension	47.5		2025	
D4021	Santa Rosa	Replacement cost of bridges	45		Ongoing	
2029	Sonoma County	Adobe Road Reconstruction	20	0	Unknown	
2014	Healdsburg	Healdsburg Avenue Bridge Retrofit/Rehabilit	19	19	2014 - 2016	Fully funded
2027	Sonoma County	Sonoma County Bidge Widening Program	19	16.9	Unknown	
D4051	Windsor	Old Redwood Highway: Windsor Road to Ara	13	0.0075	2024-2025	
2046	Sonoma County	Todd Road Reconstruction	12	0	Unknown	
2038	Windsor	Shiloh Road: Hembree Lane to Old Redwood	10.5	0	2020-2021	
D4033	Sonoma	Local Streets and Roads Rehabilitation	10	0	2022	
D4063	Sonoma County	Hwy 116 Intersection Improvements (County	10	0	ngoing and future	
2012	Santa Rosa	Fulton Road - widening improvements	9		2018	
2138	Cotati	Old Redwood Hwy rehab - Plaza to Gravenst	8	0	2020	
D4066	Sonoma County	Brickway/Laughlin Corridor Improvements	8	0	2018	
2063	Santa Rosa	Intersection Modification - 4th Street at Far	7.3		2030	
2066	Sonoma County	River Road Widening - Fulton to Old Redwoo	7	0	Unknown	
D4026	Santa Rosa	Mendocino Avenue Corridor from Steele Lan	7		TBD	Cost does not include ROW
D4008	Rohnert Park	Snyder Lane Widening – Medical Center Dr t	6.13	5.5	2017-2025	
D4011	Rohnert Park	East Cotati Avenue Reconstruction	6	0	2016-2020	
2080	Healdsburg	5-way Intersection Roundabout	5.5	5.5	2016	Fully funded
D4019	Santa Rosa	Santa Rosa Avenue Corridor from Sonoma A	5.4		TBD	
2007	Sonoma County	Mark West Springs Road/Porter Creek Road	5	0	Unknown	

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
2009	Sonoma County	Mirabel Road and Route 116 signalization an	5	3	Unknown	
D4049	Windsor	Jaguar Way Roadway (CIP 2015-2016)	5	0.0075	2021-2022	
D4014	Rohnert Park	Keiser Avenue Reconstruction	4.98	4.98	2020	Fully funded
2050	Santa Rosa	Dutton Meadows from Hearn Ave to Bellevu	4.8		TBD	
2052	Windsor	Old Redwood Highway: Widen from Arata La	4.5	0.0075	2022-2023	
2053	Windsor	Old Redwood Highway: Windsor Rd to Winds	4.5	0.0075	2024-2025	
2010	Sonoma County	River Road channelization and improvement	4	4	Unknown	
2016	Sonoma County	Railroad Ave Improvements	4	0	Future	Section of larger project #2016
2056	Sonoma County	Alexander Valley Road Safety and Modal Imp	4	0	Unknown	
D4007	Petaluma	Petaluma Boulevard South Road Diet	4	0	2018	
2124	Santa Rosa	Kawana Springs Rd widen from Santa Rosa A	3.4		TBD	
2062	Sonoma County	8th Street East/Hwy 121 Signalization	3	0	Unknown	
2064	Sonoma County	8th Street East widening Napa Rd to Napa St	3	0	Future	
2142	Sonoma County	Llano Road improvements & extension	3	0	Unknown	
D4015	Santa Rosa	Range Avenue traffic calming improvements	3		TBD	
D4017	Santa Rosa	Downtown Pedestrian Linkages - 6th/7th/A S	3		TBD	
D4036	Sonoma	Median Safety Barrier Improvements at Fifth	3	0	2019	
D4040	Sonoma County	River/Mirabel Intersection Improvements	3	0	Future	
D4061	Sonoma County	Porter Creek Rd/Calistoga Rd/Petriforest Rd.	3	0	Future	
D4064	Sonoma County	Alexander Valley/Healdsburg Ave Intersectio	3	0	Future	
D4065	Sonoma County	Mirabel Road Improvements	3	0	2017	
D4009	Rohnert Park	Redwood Drive Reconstruction	2.9	0	2017	
2070	Santa Rosa	W. College Ave from Fulton Rd to Stony Poin	2.7		TBD	
2051	Santa Rosa	West Ave Reconstruct and Widen Sebastopol	2.3		TBD	
2011	Sonoma County	Bodega Highway improvements west of Seb	2	2		
2036	Healdsburg	Healdsburg Avenue-Mill Street Improvement	2	0	beyond 2020	
2039	Windsor	Windsor River Rd/Windsor Rd Int Improvem	2		2018-2019	
2049	Santa Rosa	New traffic signals/roundabouts - citywide in	2		Annual/ongoing	
2098	Sonoma County	Stony Point Rd Intersection Improvements	2	0	2017	
2109	Sonoma County	Verano Ave - center turn lane from Arnold t	2	0	2020	

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
D4035	Sonoma	Intersection Improvements at West Spain St.	2	0	2021	
D4052	Windsor	Intersection Modification at Lakewood Drive	2	0.0075	2020-2030	
D4059	Sonoma County	Old Redwood Hwy/Fulton Intersection Impro	2	0	2018	
D4060	Sonoma County	Adobe/Corona Intersection Improvements	2	0	Future	
D4062	Sonoma County	Arnold/Madrone Intersection Improvements	2	0	Future	
2083	Rohnert Park	Dowdell Avenue Extension	1.87	1.87	2017	Fully funded
D4038	Sonoma	Intersection Improvements at Fifth St. West	1.5	0	2024	
2084	Rohnert Park	Bodway Parkway Extension	1.49	1.49	2020	Fully funded
2036	Healdsburg	Healdsburg Ave-Mill Street Improvements	1.25		beyond 2020	
D4003	Healdsburg	Dry Creek Road Improvements	1.25		beyond 2020	
2139	Rohnert Park	Southwest Boulevard Overlays and Corridor I	1.1	0	2017-2022	
D4018	Santa Rosa	Coffey Lane extension	1.1		TBD	
D4020	Santa Rosa	Maintain Transportation System - Bridge Reh	1		Ongoing	
D4057	Windsor	Windsor Rd and Shiloh Rd Pavement Rehab	1		2019-2020	
D4032	Sebastopol	Pavement Rehabilitation Program	0.99	0.2	·ogram 2015-2020	
2071	Sebastopol	Bodega Avenue Curb Gutter and Sidewalk Im	0.75	0	2020	
D4000	Cloverdale	Cloverdale Pavement Management Project	0.6	0	2016	
2078	Santa Rosa	Sebastopol Rd Corridor Plan - from Olive St t			2025	
2111	Santa Rosa	Northpoint Pkwy - Extend from Fresno to S.			TBD	
2113	Santa Rosa	Fresno Ave - Extend from Northpoint Pkwy t			TBD	
2115	Santa Rosa	Stony Point Rd - widen from Hearn Ave to Sa			TBD	
2119	Santa Rosa	Sebastopol Rd Corridor Plan - Dutton Ave to			TBD	
2120	Santa Rosa	Corby Ave - widen from Baker Ave to Hearn			TBD	
2121	Santa Rosa	Baker Overcrossing Widen			TBD	
2123	Santa Rosa	Petaluma Hill Rd - widen from Colgan Ave to			TBD	
2130	Santa Rosa	Piner Rd from Marlow Rd to Fulton Rd			TBD	
D4016	Santa Rosa	Fresno Avenue extension from Northpoint P			TBD	
Regional Air Transportation						
D4042	Sonoma County	Terminal Expansion - Phase 2	35		2021	
D4043	Sonoma County	Terminal Circulation Reconfiguration	20		2020	

Plan ID#	Jurisdiction	Project name:	Cost (in $M)	Amount of identified funds	Year of construction	Notes
D4041	Sonoma County	Terminal Expansion - Phase 3	10		2025	
D4048	Sonoma County	Terminal Expansion - Phase 1	6.5		2015	
D4046	Sonoma County	Airport Rescue and Fire Fighting Building	6.3	5.67	2018	
D4044	Sonoma County	Runway Safety Area Improvements	4.48	4.032	2019	
D4039	Sonoma County	Commercial Ramp Rehabilitation, Design and	1.5		2015	
D4045	Sonoma County	Parking Lot Expansion - Phase 1	1.2		2016	
D4047	Sonoma County	Parking Lot Expansion - Phase 2	1		2018	

Sonoma County Transportation Authority
Measure M Appropriation/Invoice Status Report
FY 14/15

Project Sponsor	Project Name	Measure M Program	Prior Apprp Balance	14/15 Amt Prog'd	14/15 Amount Apprp	Appropriation Date	Last Invoice Date	Balance Remaining	Notes
Santa Rosa	Hearn Avenue (Phase 1)	LSP	$530,640	$0	$0	6/14/10	8/6/14	$135,528	Approp are supposed to exp 3yrs after approval
Santa Rosa	Hearn Avenue (Phase 3)	LSP	$0	$1,150,000					Prog'd in 13/14 but not approp'd; coop amend pending
Santa Rosa	Santa Rosa Creek Trail - Stmsd to Mission	Bike/Ped	$0	$0	$375,000	12/9/13	11/24/14	$55,852	
Santa Rosa	Santa Rosa Creek Trail - Stmsd to Mission	Bike/Ped	$375,000	$340,000	$0				
Santa Rosa	Access Across 101 Comm Conn	Bike/Ped	$159,056	$0	$0	9/12/11	9/10/14	$121,741	Inv not processed bc Coop needs amendment
SoCo DHS	SRTS (DHS)	Bike/Ped	$8,168	$26,000	$42,000	12/8/14	1/20/15	$42,000	timing of prev. approps allowed >2015 prog amount
SCBC	SRTS (SCBC)	Bike/Ped	$797	$19,000	$19,000	2/9/15	12/9/14	$17,960	
SCBC	BTW (SCBC)	Bike/Ped	$1,511	$15,000	$15,000	2/9/15	6/19/14	$16,511	
SoCo Regional Pks	Sonoma Schellville	Bike/Ped	$57,262	$0	$0	10/19/09	7/3/14	$52,183	Approp are supposed to exp 3 yrs after approval
SoCo Regional Pks	Central Sonoma Valley Trail	Bike/Ped	$0	$85,000	$0				Approp req submitted. Coop amend pending
SoCo Regional Pks	Bodega Bay Trail	Bike/Ped	$0	$300,000					Approp req submitted. Coop amend pending
Sebastopol	Street Smart Sebastopol	Bike/Ped	$0	$170,000	$170,000	9/8/14	9/22/14	$0	PROJECT COMPLETED
Healdsburg	Foss Creek Trail	Bike/Ped	$474,000	$0	$0	9/8/14			Prog'd in FY13/14, approp'd in 14/15
Healdsburg	Foss Creek Trail	Bike/Ped	$0	$341,000	$341,000	2/9/15		$341,000	
Petaluma	Petaluma River Tr	Bike/Ped	-$45,956	$995,000	$0	5/14/12	3/12/14	-$847,775	Advanced Funding Apprvd
SMART	NWPRR	Bike/Ped	$0	$1,000,000	$0		4/24/14	-$281,883	Authorized for Advanced Funding (bal estimate)
SMART	IOS Construction (Bond)	Rail	$1,560,478	$0	$0	10/10/11	4/17/14	$0	

METROPOLITAN TRANSPORTATION COMMISSION (MTC)
2015 Regional Active Transportation Program (ATP) Cycle 2
Appendix A-1: ATP Development Schedule (Subject to Change)
February 25, 2015

November 2014	CTC releases draft ATP Guidelines
January-February 2015	Draft Regional ATP Guidelines presented to Working Groups
February 11, 2015	MTC Programming and Allocations Committee (PAC) scheduled review and recommendation of final proposed Regional ATP Guidelines
February 25, 2015	MTC Commission scheduled adoption of Regional ATP Guidelines MTC submits adopted Regional ATP Guidelines to CTC for consideration
March 26, 2015	**CTC scheduled adoption of State ATP Guidelines** **CTC scheduled release of ATP Call for Projects for Statewide Competitive Program** **CTC scheduled approval of MTC's Regional ATP Guidelines** **MTC scheduled release of ATP Call for Projects for Regional Program**
June 1, 2015	**State ATP Applications Due to CTC (Statewide Program)** **Regional ATP Applications Due to MTC (Regional Program)**
September 15, 2015	CTC releases staff recommendation for ATP Statewide Competitive Program
October 7, 2015	MTC releases staff recommendation for ATP Regional Program
October 2015	Working Group discussions of staff recommendations
October 14, 2015	MTC Programming and Allocation Committee (PAC) scheduled review and recommendation of final ATP Regional Program
October 22, 2015	**ATP Statewide Program Adoption:** CTC scheduled to adopt statewide program and transmit unsuccessful projects to the Regions for consideration
October 28, 2015	**ATP Regional Program Adoption:** MTC Commission scheduled approval of ATP regional program and transmittal to CTC for consideration
December 10, 2015	**CTC Approval of ATP Regional Program:** CTC scheduled to approve Regional Program
February 1, 2016	**TIP Amendment Deadline:** Successful ATP project sponsors to submit 2015 TIP Amendment, including Resolution of Local Support
April 27, 2016	MTC Commission scheduled to approve TIP Amendment to add ATP projects into federal TIP
May 31, 2016	TIP Approval: FHWA/FTA anticipated approval of ATP projects in federal TIP
November 1, 2016	Allocation/Obligation Submittal Deadline for Regional ATP projects programmed in FY 2016-17
January 31, 2017	Allocation/Obligation Deadline for Regional ATP projects programmed in FY 2016-17
November 1, 2017	Allocation/Obligation Submittal Deadline for Regional ATP projects programmed in FY 2017-18
January 31, 2018	Allocation/Obligation Deadline for Regional ATP projects programmed in FY 2017-18
November 1, 2018	Allocation/Obligation Submittal Deadline for Regional ATP projects programmed in FY 2018-19
January 31, 2019	Allocation/Obligation Deadline for Regional ATP projects programmed in FY 2018-19

Shaded Area – Actions by State, CTC or Caltrans

METROPOLITAN
TRANSPORTATION
COMMISSION

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Memorandum

TO: Partnership Local Streets and Roads Working Group DATE: February 11, 2015

FR: Melanie Choy and Dave Vautin

RE: MAP-21: Pavement and Bridge Condition Performance Measures NPRM Notice of Proposed Rulemaking (NPRM)

Background
On January 5, 2015, the Federal Highway Administration (FHWA) published its proposed regulations related to assessing the condition of pavements and bridges on the National Highway System (NHS). The comment period closes on April 6, 2015. A summary of the proposed rulemaking is outlined in Attachment 1.

Initial Assessment
MTC staff's initial assessment of the proposed rulemaking is:

4 pavement levels
States establish 2 & 4 year target

PCI is better metric than IRI - opinion. However, will require IRI

- The NHS was expanded in MAP-21 to include a specific list of arterials; hence the new federal performance measures will be applied to these designated arterials. FHWA proposes to adopt the International Roughness Index (IRI) as the core sub-measure for highway pavement. The IRI is substantially different than the Pavement Condition Index (PCI) and is considered to be a less accurate measure for non-highway pavement.
- The proposed rule builds upon existing datasets (HPMS and National Bridge Inventory (NBI)) and works to improve them.
- Recognizing declining revenues and uncontrollable economic influences, FHWA will allow agencies to set condition targets that are worse than the current status.
- States, which set targets more frequently than MPOs, have the opportunity to revise targets in mid-stream (2 years into the 4 year performance period) and to set sub-targets if desired. This flexibility will improve the ability of State DOTs (and subsequently MPOs) to more accurately predict future performance achievement.
- Funding for data collection is left to the states and regions. Caltrans has been collecting IRI data for the entire NHS. However, without a clear requirement for data collection, this responsibility could fall to local agencies.
- The definition of "making significant progress" is simplified (i.e., have you moved in the right direction or have you met your target?).
- State DOTs are solely evaluated for performance. If a State fails to meet a target, the share of federal funds passed through State DOTs to MPOs may be reduced regardless of MPO performance.

Caltrans is collecting IRI data. Who is required to collect IRI.

Questions for Discussion

MTC staff is soliciting feedback from the LSRWG on the proposed rulemaking and has highlighted the following areas for further discussion.

Preserve pre Map 21 funding.

- Should MTC advocate for alternative measures (other than IRI), which may be more appropriate for local roads, to be accepted by FHWA? Would rid of cape seal, microseal.
- Does tracking "Good" vs. "Poor" conditions and multiple sub-measures to determine performance create a clear process? Is the information useful to policy makers and the public? Is the structure of the evaluation process too complex?
- What are your thoughts on the quality of HPMS and NBI datasets? Is the reporting of data in 0.1 mile segment too detailed?
- Is it appropriate to have differing thresholds for poor pavement conditions in urbanized and non-urbanized areas?
- Should MTC advocate for a linkage between funding and performance? For example, since MAP-21 requires the collection of data for the non-Interstate NHS facilities, does it make sense for FHWA to monitor its performance and also make non-Interstate NHS facilities eligible for NHS funding?
- Are the 2-year and 4-year target-setting cycles appropriate or too short? What are your thoughts on a longer cycles in lieu of intensive biennial reporting? Does the numerous performance reports (baseline, mid-period, and end-of-period) for state DOTs, with slightly less reporting requirements for MPOs, seem appropriate, useful, or onerous?

  report & target.

Next Steps

Input from the February LSRWG meeting will be considered in MTC's comment letter in response to the NPRM. Comments can also be sent directly to MTC staff (Melanie Choy) through March 12, 2015. Staff will present proposed comments at the next LSRWG meeting.

Pavement and Bridge Condition Performance Measures NPRM Schedule:

Activity	Date
NPRM Published in Federal Register	January 5, 2015
LSRWG Discussion	January & February 2015
MTC Draft Comments/ LSRWG Meeting	March 12, 2015
MTC Finalize Comments	March 12- April 6, 2015
Comments Due to FHWA	April 6, 2015

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MTC Review of Proposed Rule
February 2015

Attachment 1:
Pavement and Bridge Condition Performance Measures
Notice of Proposed Rulemaking (NPRM)

MTC's SUMMARY SHEET

PERFORMANCE MEASURES

The Federal government has proposed six new performance measures to monitor pavement quality and bridge safety along the entire National Highway System (NHS)[1]. Four of the measures address pavement condition and two address bridge condition. The NHS is defined as "federal aid highways" and constitutes all interstate highways, state highways, and major arterials.

Pavement Condition[2]	
1.	Percent of pavement on Interstate system in good condition
2.	Percent of pavement on Interstate system in poor condition
3.	Percent of pavement on non-Interstate NHS in good condition
4.	Percent of pavement on non-Interstate NHS in poor condition

Note that there is a minimum condition requirement that no more than 5% of IHS pavement in a given state be in poor condition.[3]

Bridge Condition[4]	
1.	Percent of NHS bridges in good condition
2.	Percent of NHS bridges in poor condition

Note that there is a minimum condition requirement that no more than 10% of NHS bridge deck area be in poor condition.

TARGET SETTING

MPOs will have the option to establish their own targets in two ways[5]:

1. Agreeing to plan/program projects to contribute to State DOT target, or
2. Committing to quantifiable targets for MPO

[1] 23 CFR Part 490; Docket no. FHWA-2013-0053; RIN 2125-AF53, January 5, 2015. *National Performance Management Measures; Assessing Pavement Condition for the National Highway Performance Program and Bridge Condition for the National Highway Performance Program.*
[2] 335, column 3
[3] 370, column 3
[4] 336, column 2
[5] 345, column 1

Each MPO would establish 4-year targets within 180 days of the State DOT's[6] establishment of targets. Unlike State DOTs, MPOs would not be required to establish 2-year targets[7], but instead may coordinate consistent targets with State DOTs "to the maximum extent practicable[8]." It is important to note that MPOs are not directly evaluated by the FHWA for compliance[9], however MPOs may be subject to performance review as part of the federal MPO certification process. And while a state's success or failure is linked to funding implications, an MPOs performance is not linked to penalties and funding implications.

"SIGNIFICANT PROGRESS"[10]

State DOTs will be considered in compliance when:

- The actual condition/performance level is better than the baseline OR;
- The actual condition/performance level is better than the established target

Achieving significant progress in lieu of the stated target will constitute compliance with the individual performance measure, and will avoid the penalties explained later.

REPORTING SCHEDULE[11]

The reporting of non-safety condition measures will follow a four-year cycle with required reports for State DOTs to be submitted every two-years. This is intended to align with the planning cycle of most State DOT and with MPOs' transportation improvement programs and long range transportation plans[12]. Additionally, to ensure consistency across time, the NHS limits and urbanized area boundaries are established at the same time as the Baseline Performance Report is submitted. No changes to these boundaries will be incorporated until the following performance-monitoring period[13].

The reporting standards for pavement data in the Highway Performance Monitoring System (HPMS) data set are as follows[14]:

- IRI will be reported for all pavements as the average value in inches per mile, rounded to the nearest whole number for each section.
- Cracking Percent:
  - Asphalt: percentage of total area, rounded to the nearest whole percent
  - CRCP: the percentage of the area of the full section exhibiting longitudinal (not transverse) cracking, punchouts, spalling, or other visible defects, rounded to the nearest whole percent
  - Jointed concrete: percentage of the slab exhibiting cracking, rounded to the nearest whole percent

[6] 344, column 3
[7] 345, column 1
[8] 345, column 1
[9] 385, column 1
[10] 385, column 1
[11] 382, column 1- 383, column 2
[12] 339, column 3
[13] 340, column 1; 341, column 1
[14] 366, column 2

- Rutting: average depth of rutting to the nearest 0.05 inch for each section on asphalt pavement
- Faulting: Shall be gathered in accordance with AASHTO standards[15]

PAVEMENT CONDITION DATA

The NPRM proposes a series of data gathering and reporting requirements that will eventually constitute a new and consistent data source for pavement quality throughout the entire National Highway System (NHS) in segments of 0.1 miles[16].

Using the HPMS data source[17] State DOTs will continue to report four condition metrics:

1. IRI
2. Rutting
3. Faulting
4. Cracking Percentage

In addition to this, State DOTs will be required to gather three new inventory data elements for the entire NHS[18]:

1. Through lanes
2. Surface type
3. Structure type

Currently, only IRI is gathered along non-Interstate NHS; rutting, faulting and cracking percentage are three new metrics. Starting in 2018, all four measures and the three new inventory data elements will be reported. They will not be incorporated into the evaluation process until the second performance period beginning in 2020[19]. The methodology outlined in the NPRM also prohibits the practice of "sampling" pavement to establish pavement quality[20].

THRESHOLDS

To ensure consistency, the NPRM presents detailed data gathering methodology that is specific to pavement type. To establish Good, Fair and Poor condition, the following thresholds are used:

IRI (urbanized areas only) [21]

- Good condition: IRI < 95
- Poor condition: IRI> 220

[15] 388, column 2
[16] 366, column 1
[17] 364, column 1
[18] 364, column 2
[19] 364, columns 1- 2
[20] 364, column 3
[21] 369, Figure 9

- Fair condition: All segments falling within these categories

Cracking Percent regardless of pavement type[22]:

- Good condition: <5%
- Fair condition: 5-10%
- Poor condition: >10%

Rutting:

- Good condition: <0.20
- Fair condition: 0.20-0.40
- Poor condition: >0.40

Jointed Concrete:

- Good condition: < 0.05
- Fair condition: 0.05- 0.15
- Poor condition: > 0.15

BRIDGE CONDITION DATA

Using the National Bridge Inventory (NBI) dataset, bridge condition is determined by the rating of three data points[23]:

1. Superstructure
2. Substructure
3. Deck condition

Or, if the structure is a culvert, condition is determined by the data point Culvert Condition.

Condition for all data points is rated on a scale of 0-10, with zero being the lowest and ten being the highest possible rating. The performance measures are determined in the following way:

- Good condition: A rating of 7-10 of <u>all</u> points
- Poor condition: A rating of 4 or below of <u>any one</u> point
- Fair condition: All structures falling between these categories

Additionally, the NPRM will require State DOTs to report bridge quality by March 15, rather than the historic deadline of April 1, in order to allow sufficient time for target setting.

[22] 368, Table 5
[23] 375, Figure 11

PENALTIES

While MPOs may set self-identified targets, only State DOTs will be assessed for target achievement or demonstrated significant progress. Therefore only State DOTs will be bound by the following penalties:

If significant progress is not made on any of the six performance measures, the State DOT must document actions that will be taken to improve its performance within six months of performance evaluation[24]. Furthermore, States that do not meet the minimum bridge condition requirements (fewer than 10% of bridge deck area as Poor) will be required to obligate a set aside amount equal to 50% of the funds apportioned to the State for fiscal year 2009 to carry out the Highway Bridge Program. This would take effect during the first fiscal year following the FHWA's performance evaluation determination[25].

While only State DOTs are evaluated, MPOs and localities may be impacted by failure to achieve targets at the state level through funding restrictions.

[24] 385, column 3
[25] 376, column 3

Figure 1: Proposed timeline for performance periods

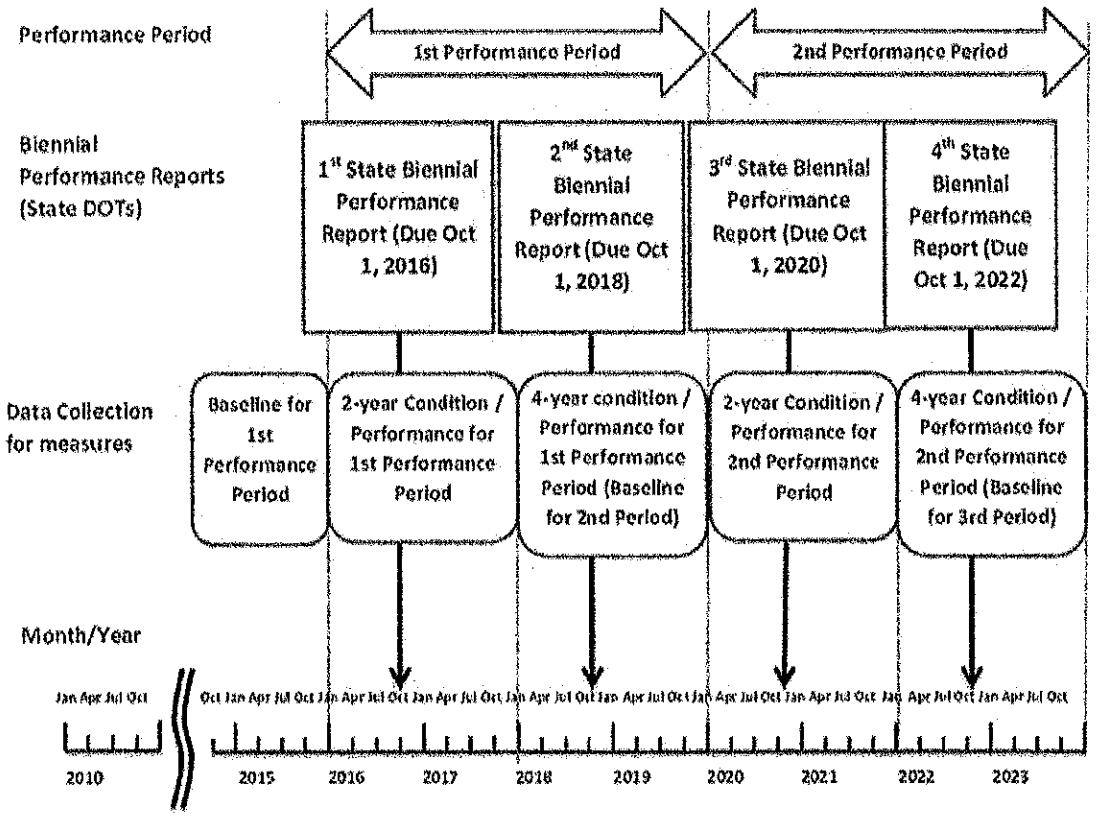


Figure 1 – Timeline of Performance Periods

Figure 2: Performance and data collection periods

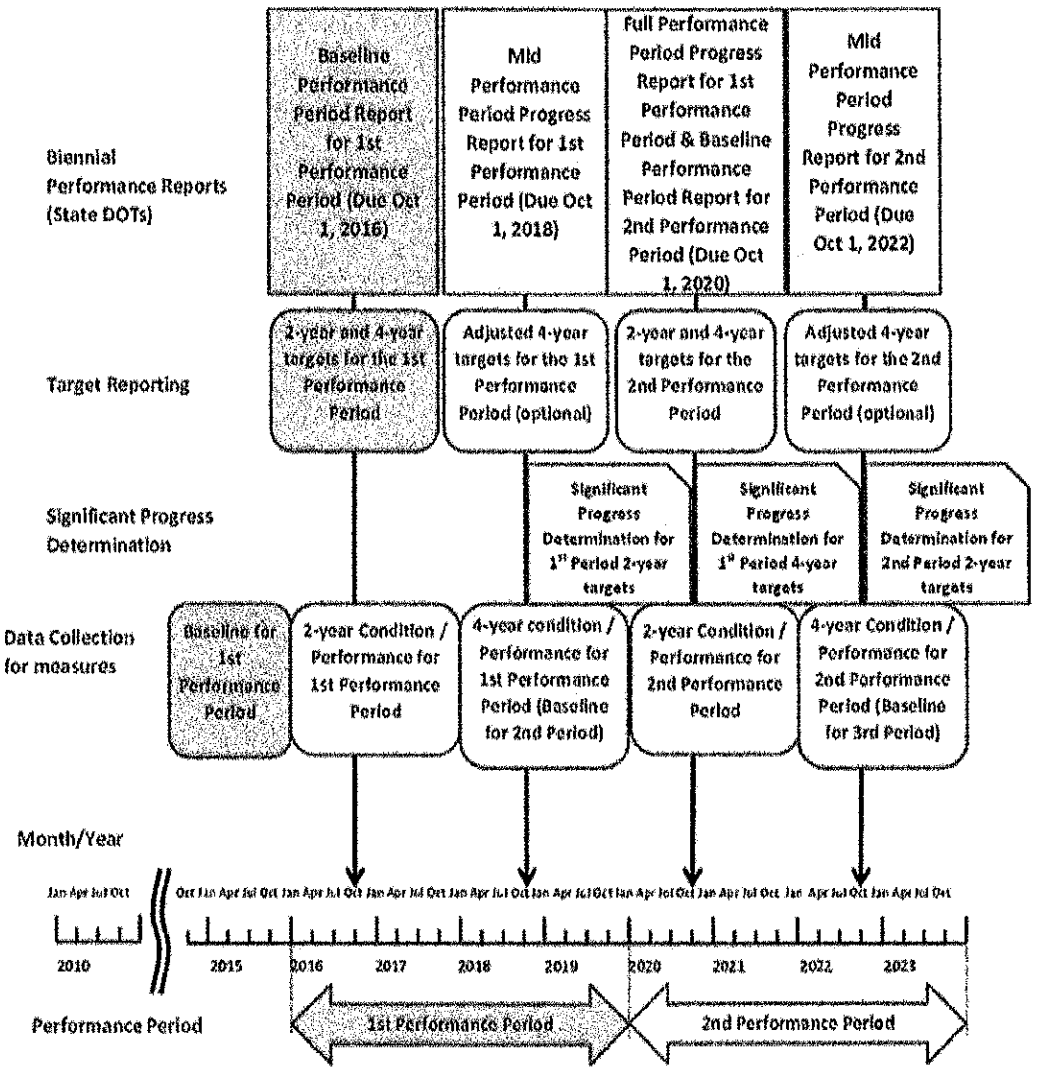
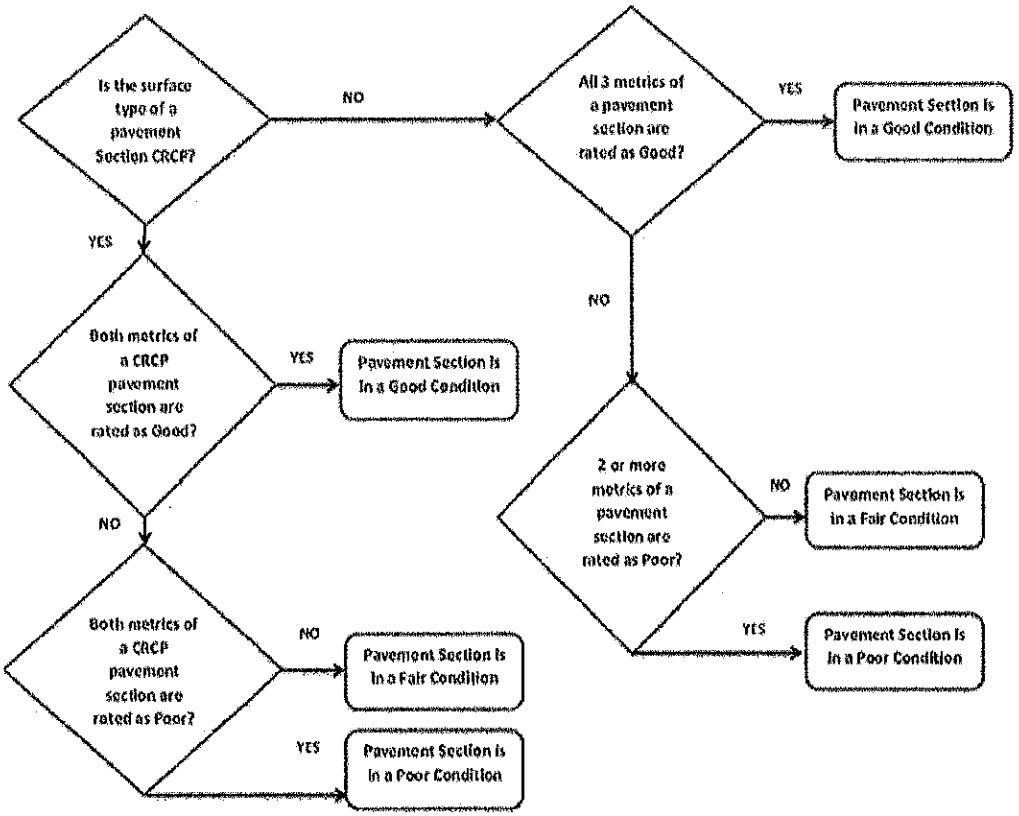


Figure 2 – Alternating Biennial Performance Reports – The Baseline Performance Period Report

Figure 3: Establishing pavement condition



Legend: CRCP=Continuously Reinforced Concrete Pavement

Figure 9 -Flow Chart of Proposed Overall Pavement Condition Measure for Each Section

Figure 4: Establishing pavement condition along non-Interstate NHS

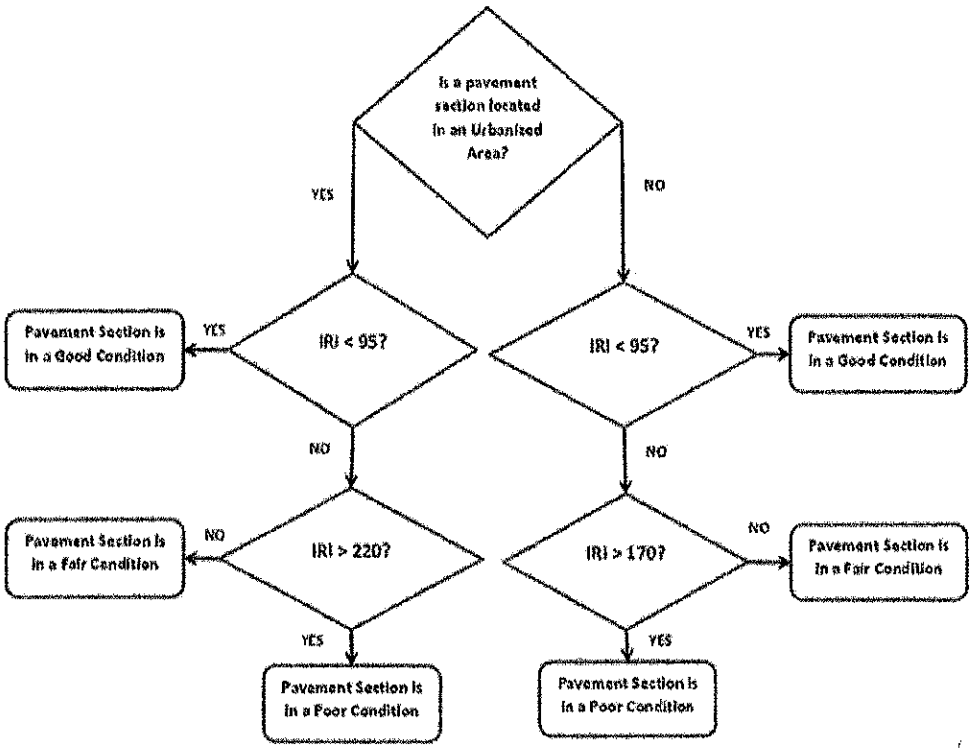


Figure 10 –Flow Chart of Proposed Overall Pavement Condition Measure for Each Section for non-Interstate NHS for Data Collection Cycle Ending December 31, 2019

Figure

5: Establishing bridge condition

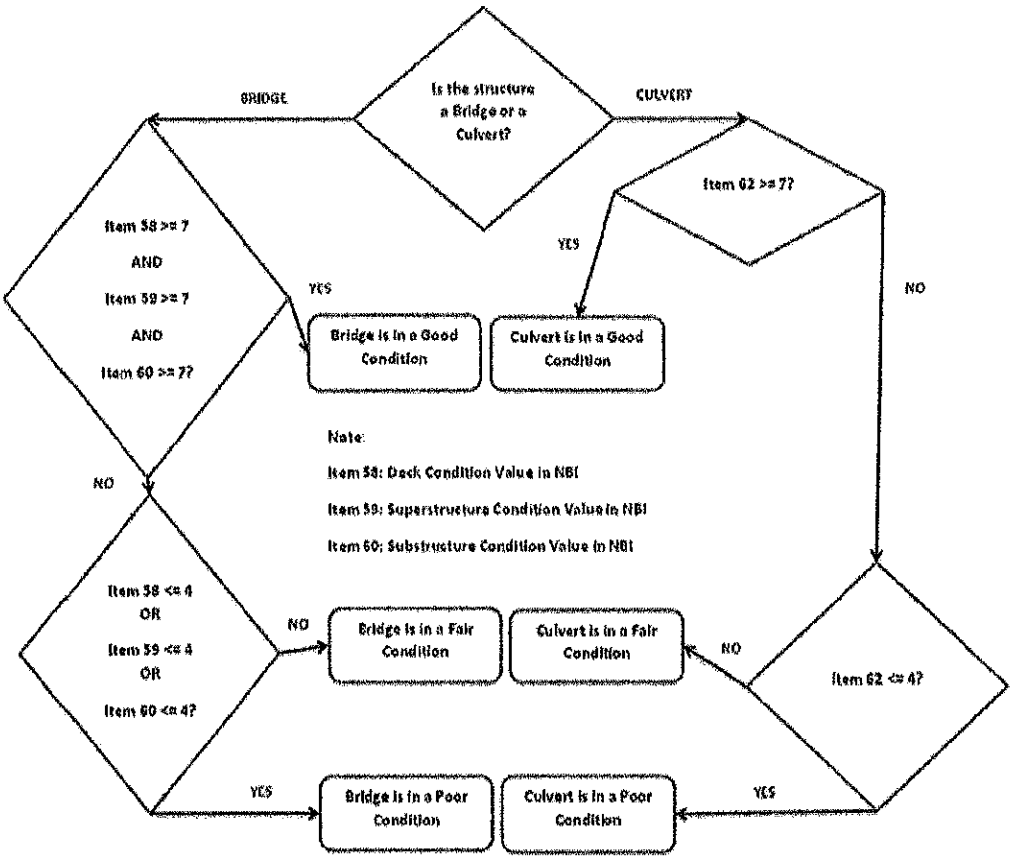


Figure 11– Flow Chart of NBI Classification Process

Estimate of Reduction in Funding for Local Streets & Roads and STIP based on Governor's FY 2015-16 State Budget

BAY AREA CITY AND COUNTY GAS TAX SUBVENTION ESTIMATES

COUNTY	FY 2014-15*	FY2015-16	Difference	Percent Change
ALAMEDA	$ 74,354,842	$ 57,237,827	$ (17,117,015)	-23%
CONTRA COSTA	$ 52,081,064	$ 40,134,815	$ (11,946,249)	-23%
MARIN	$ 12,411,572	$ 9,510,672	$ (2,900,900)	-23%
NAPA	$ 7,865,354	$ 5,982,798	$ (1,882,556)	-24%
SAN FRANCISCO	$ 37,746,665	$ 28,710,189	$ (9,036,476)	24%
SAN MATEO	$ 37,936,059	$ 29,239,772	$ (8,696,287)	-23%
SANTA CLARA	$ 91,236,951	$ 70,192,370	$ (21,044,581)	-23%
SOLANO	$ 22,244,438	$ 16,985,160	$ (5,259,278)	-24%
SONOMA	$ 25,554,997	$ 19,441,667	$ (6,113,330)	-24%
BAY AREA TOTAL	**$ 361,431,941**	**$ 277,435,269**	$ (83,996,673)	-23%
STATE TOTAL	**$ 1,887,344,500**	**$ 1,444,833,001**	**$ (442,511,499)**	**-23%**

**Includes $100 million in one-time loan repayment funding*

ESTIMATED REDUCTION IN 2014 STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP) FUNDING

COUNTY	2014 STIP 5-Year County Share (through FY 2018-19)*	Estimated STIP Funding Cuts	Estimate of Revised 5-Year 2014 STIP County Share	Percent Change
ALAMEDA	$ 93,619,000	$ (11,750,003)	$ 105,369,003	-13%
CONTRA COSTA	$ 102,636,000	$ (8,016,184)	$ 110,652,184	-8%
MARIN	$ (24,967,000)	$ (2,189,867)	$ (27,156,867)	-9%
NAPA	$ 17,135,000	$ (1,441,756)	$ 18,576,756	-8%
SAN FRANCISCO	$ 24,859,000	$ (5,938,685)	$ 30,797,685	-24%
SAN MATEO	$ 96,445,000	$ (6,130,793)	$ 102,575,793	-6%
SANTA CLARA	$ 48,318,000	$ (13,925,638)	$ 62,243,638	-29%
SOLANO	$ 67,591,000	$ (3,624,885)	$ 71,215,885	-5%
SONOMA	$ 8,732,000	$ (4,515,124)	$ 13,247,124	-52%
BAY AREA TOTAL	**$ 434,368,000**	**$ (57,532,935)**	**$ 491,900,935**	-13%
STATE TOTAL	**$ 3,250,390,000**	**$ (338,800,000)**	**$ 3,589,190,000**	**-10%**

**Based on the California Transportation Commission's 2014 Fund Estimate*

July 1 = Estimated 24% less
Still early

Estimate of Reduction in State Gas Tax Funding for Local Streets & Roads
Based on Governor's FY 2015-16 State Budget

	FY 2014-15	FY 2015-16	Reduction	Percent Change
ALAMEDA				
ALAMEDA	$ 2,159,596	$ 1,643,778	$ 515,818	-24%
ALBANY	$ 535,027	$ 408,618	$ 126,409	-24%
BERKELEY	$ 3,331,540	$ 2,534,801	$ 796,739	-24%
DUBLIN	$ 1,521,548	$ 1,158,640	$ 362,908	-24%
EMERYVILLE	$ 304,258	$ 233,044	$ 71,215	-23%
FREMONT	$ 6,343,881	$ 4,823,525	$ 1,520,357	-24%
HAYWARD	$ 4,341,268	$ 3,301,974	$ 1,039,294	-24%
LIVERMORE	$ 2,423,077	$ 1,843,966	$ 579,111	-24%
NEWARK	$ 1,264,906	$ 963,648	$ 301,258	-24%
OAKLAND	$ 12,184,715	$ 9,261,287	$ 2,923,428	-24%
PIEDMONT	$ 326,046	$ 249,597	$ 76,448	-23%
PLEASANTON	$ 2,077,054	$ 1,581,063	$ 495,990	-24%
SAN LEANDRO	$ 2,490,304	$ 1,895,044	$ 595,260	-24%
UNION CITY	$ 2,133,203	$ 1,623,725	$ 509,478	-24%
City Total	**$ 41,436,424**	**$ 31,522,710**	**$ 9,913,714**	-24%
County Total	**$ 32,918,418**	**$ 25,715,117**	**$ 7,203,301**	-22%
Grand Total	**$ 74,354,842**	**$ 57,237,827**	**$ 17,117,015**	-23%

CONTRA COSTA				
ANTIOCH	$ 3,023,044	$ 2,300,411	$ 722,633	-24%
BRENTWOOD	$ 1,559,191	$ 1,187,600	$ 371,590	-24%
CLAYTON	$ 324,294	$ 248,266	$ 76,027	-23%
CONCORD	$ 3,571,510	$ 2,717,126	$ 854,384	-24%
DANVILLE	$ 1,242,130	$ 946,343	$ 295,787	-24%
EL CERRITO	$ 690,459	$ 526,953	$ 163,506	-24%
HERCULES	$ 707,584	$ 539,964	$ 167,620	-24%
LAFAYETTE	$ 706,623	$ 539,234	$ 167,389	-24%
MARTINEZ	$ 1,053,307	$ 802,879	$ 250,429	-24%
MORAGA	$ 475,769	$ 363,595	$ 112,174	-24%
OAKLEY	$ 1,086,737	$ 828,278	$ 258,459	-24%
ORINDA	$ 519,965	$ 397,175	$ 122,791	-24%
PINOLE	$ 562,777	$ 429,702	$ 133,075	-24%
PITTSBURG	$ 1,887,751	$ 1,437,235	$ 450,516	-24%
PLEASANT HILL	$ 967,967	$ 738,039	$ 229,928	-24%
RICHMOND	$ 3,014,086	$ 2,293,605	$ 720,481	-24%
SAN PABLO	$ 918,769	$ 700,659	$ 218,110	-24%
SAN RAMON	$ 2,195,823	$ 1,671,303	$ 524,521	-24%
WALNUT CREEK	$ 1,893,855	$ 1,441,872	$ 451,983	-24%
City Total	**$ 26,401,641**	**$ 20,110,236**	**$ 6,291,405**	-24%
County Total	**$ 25,679,423**	**$ 20,024,579**	**$ 5,654,844**	-22%
Grand Total	**$ 52,081,064**	**$ 40,134,815**	**$ 11,946,249**	**-23%**

	FY 2014-15	FY 2015-16	Difference	Percent Change
MARIN				
BELVEDERE	$ 67,262	$ 52,498	$ 14,764	-22%
CORTE MADERA	$ 284,184	$ 217,552	$ 66,633	-23%
FAIRFAX	$ 219,896	$ 168,707	$ 51,189	-23%
LARKSPUR	$ 358,147	$ 273,988	$ 84,160	-23%
MILL VALLEY	$ 410,679	$ 313,901	$ 96,779	-24%
NOVATO	$ 1,520,081	$ 1,157,886	$ 362,196	-24%
ROSS	$ 75,344	$ 58,638	$ 16,706	-22%
SAN ANSELMO	$ 367,925	$ 281,416	$ 86,508	-24%
SAN RAFAEL	$ 1,674,513	$ 1,275,220	$ 399,293	-24%
SAUSALITO	$ 221,451	$ 169,888	$ 51,563	-23%
TIBURON	$ 263,668	$ 201,964	$ 61,704	-23%
City Total	**$ 5,463,151**	**$ 4,171,657**	**$ 1,291,494**	**-24%**
County Total	**$ 6,948,421**	**$ 5,339,015**	**$ 1,609,406**	**-23%**
Grand Total	**$ 12,411,572**	**$ 9,510,672**	**$ 2,900,900**	**-23%**

NAPA				
AMERICAN CANYON	$ 573,995	$ 438,226	$ 135,770	-24%
CALISTOGA	$ 158,547	$ 122,095	$ 36,452	-23%
NAPA	$ 2,238,804	$ 1,703,959	$ 534,846	-24%
ST HELENA	$ 177,509	$ 136,502	$ 41,007	-23%
YOUNTVILLE	$ 120,868	$ 93,227	$ 27,641	-23%
City Total	**$ 3,269,724**	**$ 2,494,008**	**$ 775,716**	**-24%**
County Total	**$ 4,595,630**	**$ 3,488,790**	**$ 1,106,840**	**-24%**
Grand Total	**$ 7,865,354**	**$ 5,982,798**	**$ 1,882,556**	**-24%**

SAN FRANCISCO				
City Total	**$ 24,216,641**	**$ 18,405,335**	**$ 5,811,306**	**24%**
County Total	**$ 13,530,024**	**$ 10,304,854**	**$ 3,225,170**	**24%**
Grand Total	**$ 37,746,665**	**$ 28,710,189**	**$ 9,036,476**	**24%**

SAN MATEO				
ATHERTON	$ 220,264	$ 168,986	$ 51,278	-23%
BELMONT	$ 761,314	$ 581,027	$ 180,287	-24%
BRISBANE	$ 131,013	$ 100,934	$ 30,078	-23%
BURLINGAME	$ 849,649	$ 648,143	$ 201,506	-24%
COLMA	$ 56,806	$ 44,554	$ 12,253	-22%
DALY CITY	$ 3,077,526	$ 2,341,805	$ 735,721	-24%
EAST PALO ALTO	$ 958,133	$ 730,567	$ 227,566	-24%
FOSTER CITY	$ 919,815	$ 701,454	$ 218,361	-24%
HALF MOON BAY	$ 385,643	$ 294,878	$ 90,764	-24%
HILLSBOROUGH	$ 333,817	$ 255,502	$ 78,315	-23%
MENLO PARK	$ 940,387	$ 717,084	$ 223,303	-24%
MILLBRAE	$ 648,580	$ 495,134	$ 153,446	-24%
PACIFICA	$ 1,153,314	$ 878,862	$ 274,452	-24%
PORTOLA VALLEY	$ 139,321	$ 107,247	$ 32,074	-23%
REDWOOD CITY	$ 2,294,671	$ 1,746,405	$ 548,266	-24%
SAN BRUNO	$ 1,262,476	$ 961,801	$ 300,675	-24%
SAN CARLOS	$ 836,481	$ 638,138	$ 198,343	-24%
SAN MATEO	$ 2,841,131	$ 2,161,596	$ 679,535	-24%
SOUTH SAN FRANCISCO	$ 1,873,735	$ 1,426,585	$ 447,149	-24%
WOODSIDE	$ 168,946	$ 129,996	$ 38,950	-23%
City Total	**$ 19,853,022**	**$ 15,130,699**	**$ 4,722,323**	**-24%**
County Total	**$ 18,083,037**	**$ 14,109,073**	**$ 3,973,964**	**-22%**
Grand Total	**$ 37,936,059**	**$ 29,239,772**	**$ 8,696,287**	**-23%**

	FY 2014-15	FY 2015-16	Difference	Percent Change
SANTA CLARA				
CAMPBELL	$ 1,197,453	$ 912,398	$ 285,055	-24%
CUPERTINO	$ 1,706,276	$ 1,299,353	$ 406,923	-24%
GILROY	$ 1,493,405	$ 1,137,618	$ 355,788	-24%
LOS ALTOS	$ 857,675	$ 654,241	$ 203,434	-24%
LOS ALTOS HILLS	$ 262,312	$ 200,934	$ 61,379	-23%
LOS GATOS	$ 881,214	$ 672,125	$ 209,089	-24%
MILPITAS	$ 2,034,242	$ 1,548,536	$ 485,706	-24%
MONTE SERENO	$ 109,395	$ 84,510	$ 24,885	-23%
MORGAN HILL	$ 1,174,960	$ 895,308	$ 279,652	-24%
MOUNTAIN VIEW	$ 2,182,005	$ 1,660,804	$ 521,201	-24%
PALO ALTO	$ 1,901,682	$ 1,447,819	$ 453,863	-24%
SAN JOSE	$ 28,935,448	$ 21,990,601	$ 6,944,847	-24%
SANTA CLARA	$ 3,440,533	$ 2,617,611	$ 822,921	-24%
SARATOGA	$ 914,983	$ 697,782	$ 217,201	-24%
SUNNYVALE	$ 4,170,333	$ 3,172,101	$ 998,232	-24%
City Total	**$ 51,261,916**	**$ 38,991,741**	**$ 12,270,175**	**-24%**
County Total	**$ 39,975,035**	**$ 31,200,629**	**$ 8,774,406**	**-22%**
Grand Total	**$ 91,236,951**	**$ 70,192,370**	**$ 21,044,581**	**-23%**

SOLANO				
BENICIA	$ 804,464	$ 613,812	$ 190,652	-24%
DIXON	$ 545,850	$ 416,841	$ 129,009	-24%
FAIRFIELD	$ 3,123,728	$ 2,376,909	$ 746,819	-24%
RIO VISTA	$ 242,023	$ 185,518	$ 56,505	-23%
SUISUN CITY	$ 829,219	$ 632,620	$ 196,599	-24%
VACAVILLE	$ 2,761,980	$ 2,101,458	$ 660,521	-24%
VALLEJO	$ 3,446,354	$ 2,622,034	$ 824,320	-24%
City Total	**$ 11,753,618**	**$ 8,949,193**	**$ 2,804,425**	**-24%**
County Total	**$ 10,490,820**	**$ 8,035,967**	**$ 2,454,853**	**-23%**
Grand Total	**$ 22,244,438**	**$ 16,985,160**	**$ 5,259,278**	**-24%**

SONOMA				
CLOVERDALE	$ 251,659	$ 192,839	$ 58,819	-23%
COTATI	$ 219,727	$ 168,578	$ 51,149	-23%
HEALDSBURG	$ 344,950	$ 263,961	$ 80,989	-23%
PETALUMA	$ 1,679,543	$ 1,279,042	$ 400,501	-24%
ROHNERT PARK	$ 1,237,156	$ 942,564	$ 294,592	-24%
SANTA ROSA	$ 4,825,390	$ 3,669,802	$ 1,155,588	-24%
SEBASTOPOL	$ 231,256	$ 177,338	$ 53,918	-23%
SONOMA	$ 313,019	$ 239,700	$ 73,319	-23%
WINDSOR	$ 776,715	$ 592,728	$ 183,986	-24%
City Total	**$ 9,879,415**	**$ 7,526,552**	**$ 2,352,863**	**-24%**
County Total	**$ 15,675,582**	**$ 11,915,115**	**$ 3,760,467**	**-24%**
Grand Total	**$ 25,554,997**	**$ 19,441,667**	**$ 6,113,330**	**-24%**

REGION

City Total	**$ 193,535,551**	**$ 147,302,130**	**$ 46,233,422**	**-24%**
County Total	**$ 167,896,390**	**$ 130,133,139**	**$ 37,763,251**	**-22%**
Grand Total	**$ 361,431,941**	**$ 277,435,269**	**$ 83,996,673**	**-23%**

STATE

City Total	**$ 935,392,472**	**712,613,739**	**$ 222,778,733**	**24%**
County Total	**$ 951,952,028**	**$ 732,219,262**	**$ 219,732,766**	**-23%**
Grand Total	**$ 1,887,344,500**	**$ 1,444,833,001**	**$ 442,511,499**	**-23%**

Source: Department of Finance, California State Association of Counties, League of California Cities