



*City of Ceres . City of Hughson . City of Modesto . City of Newman . City of Oakdale . City of Patterson
City of Riverbank . City of Turlock . City of Waterford . County of Stanislaus*

October 25, 2006

TO: IAC Partners

From: Cari Anderson, on behalf of StanCOG

RE: Draft TCM Substitution

The proposed approach to meet the collaborative process and concurrence portion of the TCM substitution requirements was provided for review and comment in April 2006. EPA concurred that the draft approach was “fine and consistent with the process described in SAFETEA-LU for TCM substitution”. No other interagency comments were received.

The draft approach indicated that quantification of the existing TCM and substitute TCM would be forthcoming. This memo summarizes the requirements and provides the necessary documentation.

Please submit any questions or comments in writing to Cari Anderson by November 8, 2006. Comments received will be documented and addressed accordingly as part of the inter-agency consultation documentation supporting the TCM substitution. A conference call to discuss the requirements and supporting documentation will be scheduled upon request.

Overview: A chronological summary of the StanCOG Timely Implementation Documentation issue is attached for information. ARB, EPA, and FWHM were provided the proposed scope of work for StanCOG to implement a TCM substitution for the Stanislaus River Road Bike Project. The Interim Guidance for Implementing the Conformity Provisions in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was issued on February 14, 2006. Section 5 of the guidance addresses the SAFETEA-LU revisions for the Substitution of Transportation Control Measures.

Requirements: For a TCM in an approved SIP to be removed and replaced with an alternate TCM SAFETEA-LU requires that:

- the substitute TCM(s) must achieve equal or greater emission reductions;
- the substitute TCM(s) must be implemented on a schedule that is consistent with the schedule for the TCM(s) being removed from the SIP; or, if the implementation date has passed for the TCM(s) being replaced, the replacement TCM must be implemented as soon as practicable but not later than the date on which emission reductions from the TCM(s) are necessary to achieve the purpose of the implementation plan;
- the substitute TCM(s) must be accompanied by evidence of adequate personnel, and funding and authority under state or local law to implement, monitor and enforce the TCM(s);

Equal or Greater Emission Reductions:

Guidance: To demonstrate that the new TCM provides equal or greater emission reductions, the emission benefits of the substitute TCM should be analyzed in a manner that is consistent with the methodology used for analysis of the existing TCMs in the approved SIP, unless a better methodology is currently available. If a better methodology is available, the project sponsor should recalculate the emissions benefits of the original TCM and use that emissions estimate in determining if the substitute TCM provides equivalent emissions reductions. EPA and US DOT believe that the Clean Air Act requires that the latest planning assumptions, and emissions models must also be used, as generally required for conformity and SIP purposes.

It should be noted that some approved SIPs include TCMs for which no emission reduction credit was claimed. If such a TCM is to be replaced through a TCM substitution, an emissions analysis should be performed for both the existing SIP-approved TCM and the proposed substitute TCM. It should be demonstrated that there will be an equivalent reduction in emissions as a result of the substitution.

In determining whether or not a substitute TCM provides equivalent emission reductions, the area should document that the substitute TCM provides emission reductions that are:

- permanent for the time period relied upon in the applicable SIP;
- for the same time of year (e.g., during the winter carbon monoxide season) or during a specific time of day (e.g., the morning or evening rush hour) relied upon in the applicable SIP;
- for the same pollutant or precursor as the original SIP TCM, unless the area has a SIP-approved trading mechanism that would allow trading between precursors or between a pollutant and its precursor(s); and
- for the same geographic location, if such a location is identified as critical for the emission reductions for the applicable SIP (e.g., to meet applicable hot-spot requirements).

An area should also consider whether or not the substitution will have an effect on any other SIPs for the area. For example, if a TCM is relied upon in more than one SIP (e.g., a TCM is included in both an ozone attainment demonstration and a carbon monoxide maintenance plan) or is included in the baseline emissions, the emissions analysis that is performed for the

substitution would need to consider the impacts on all the affected SIPs and motor vehicle emissions budgets.

Response: TCMs were not quantified in the approved SIP. As a result, the ARB CMAQ methodology has been used for quantification. The data provided for input is based on StanCOGs latest planning assumptions (consistent with conformity) and the latest emissions model is included in the CMAQ methodology.

The TCM was approved as part of the PM-10 Plan to address secondaries; therefore, annual results have been estimated for NO_x. While the PM-10 Plan does provide a trading mechanism, it is not necessary for this analysis since the substitute TCM provides greater emission reductions than the existing TCM. The geographic location was not identified as critical in the applicable SIP. However, both the existing and substitute TCMs are under the Stanislaus County jurisdiction and are located in Stanislaus County.

The substitution will not have an effect on any other SIP for the area. The TCM is not approved in any other SIP, nor is it included in the baseline emissions of a SIP or corresponding motor vehicle emission budgets.

Existing TCM: Stanislaus County commitment ST 9.3 Bicycle/Pedestrian Program – River Road Bicycle Project to be implemented by Stanislaus County Public Works by December 2004 using CMAQ funds.

FHWA has indicated that the original RACM commitment is being interpreted as a 3-mile continuous bike project (path or lane) along the corridor from 9th Street to Mitchell Rd. on River Road (see Figure 1). It is assumed that this project would result in a Class II Bike Lane for the emission reduction calculation estimates.

Substitute TCM: Stanislaus County proposes to use the Grayson Road Bike Lane as the substitute TCM. This project was completed in January 2005 using local funds. It is important to note that this project is not being tracked for timely implementation as part of the regional conformity analysis as a specific project or in support of a general RACM.

The Grayson Road Bike Lane Project involved widening of the existing pavement, striping and signage to identify the bike lane. The project resulted in a 1.2-mile Class II Bike Lane (see Figure 2).

Emission Reductions: StanCOG estimated the level of emission reductions for the River Road Bike lane and Grayson Road Bike Lane utilizing the emission reduction calculations derived from the 2005 “Methods to find the Cost-effectiveness of Funding Air Quality Projects”.

The calculation spreadsheets were created utilizing the directions, factors and tables contained in the manual. A representative of the Air Resources Board for California tested these spreadsheets against the results of known projects and verified that these spreadsheets were accurate in their evaluation of the emission reductions offered when the same factors were input into the spreadsheets.

The manual can be found on ARB's Website http://www.arb.ca.gov/planning/tsaq/eval/mv_fees_cost-effectiveness_methods_may05.pdf

The following tables summarize the inputs and results of the CMAQ methodology calculations for bicycles facilities projects.

CALCULATIONS FOR BICYCLE FACILITIES PROJECTS

River Road Bike Lane
PROJECT COST \$ -

PROJECT INPUTS		Units
FUNDING REQUESTED	\$	400,000
EFFECTIVE PERIOD (LIFE)		15 years
DAYS OF OPERATION (D)		200 days/yr
LENGTH OF BIKE TRIPS (L)		1.8 miles/trip
AVG. DAILY TRAFFIC (ADT)		3807 trips/day
ADD'L AUTO TRIPS ADJ (A)		0.0038
ACTIVITY CTRS CREDIT (C)		0.0005

ANNUAL RESULTS		Units
AUTO TRIPS REDUCED		3274.02 trips/yr
AUTO VMT REDUCED		5893.236 miles/yr
ROG REDUCED		10.80859 lbs/yr
NOX REDUCED		7.443708 lbs/yr
PM10 REDUCED		2.958156 lbs/yr
EMISSIONS REDUCED		21.21046 lbs/yr
CRF (From Table 8)		0.08
COST EFFECTIVENESS		1508.69 \$/lb

EMISSION FACTOR INPUTS	TEF	Units	VMT	Units
ROG FACTOR	1.02	g/trip	0.266	g/mile
NOX FACTOR	0.458	"	0.319	"
PM10 FACTOR	0.016	"	0.219	"

FOR CMAQ PROJECTS		
CONVERSION CALC.	0.02641	kg/day
COST EFFECTIVENESS	3842.09	\$/kg/day

NOTES:

See pages 29-33 of ARB Methods Handout
Numbers in tables are default values
(A) See Adjustment Factor Table, page 30

CALCULATIONS FOR BICYCLE FACILITIES PROJECTS

Grayson Road Bike Lane
PROJECT COST \$ -

PROJECT INPUTS		Units
FUNDING REQUESTED	\$	400,000
EFFECTIVE PERIOD (LIFE)		15 years
DAYS OF OPERATION (D)		200 days/yr
LENGTH OF BIKE TRIPS (L)		1.8 miles/trip
AVG. DAILY TRAFFIC (ADT)		5007 trips/day
ADD'L AUTO TRIPS ADJ (A)		0.0029
ACTIVITY CTRS CREDIT (C)		0.0005

ANNUAL RESULTS		Units
AUTO TRIPS REDUCED		3404.76 trips/yr
AUTO VMT REDUCED		6128.568 miles/yr
ROG REDUCED		11.24021 lbs/yr
NOX REDUCED		7.740954 lbs/yr
PM10 REDUCED		3.076283 lbs/yr
EMISSIONS REDUCED		22.05745 lbs/yr
CRF (From Table 8)		0.08
COST EFFECTIVENESS		1450.757 \$/lb

EMISSION FACTOR INPUTS	TEF	Units	VMT	Units
ROG FACTOR	1.02	g/trip	0.266	g/mile
NOX FACTOR	0.458	"	0.319	"
PM10 FACTOR	0.016	"	0.219	"

FOR CMAQ PROJECTS		
CONVERSION CALC.	0.02747	kg/day
COST EFFECTIVENESS	3842.09	\$/kg/day

NOTES:

See pages 29-33 of ARB Methods Handout
Numbers in tables are default values
(A) See Adjustment Factor Table, page 30
(C) See Activity Centers Credits Table, page 30
Emission Factors See Table 3, page 51

From the above tables, it is clear that the Grayson Road Bike Lane results in a greater NOx emission reduction than the River Road Project. Even though the project is shorter in length, more vehicle trips are impacted.

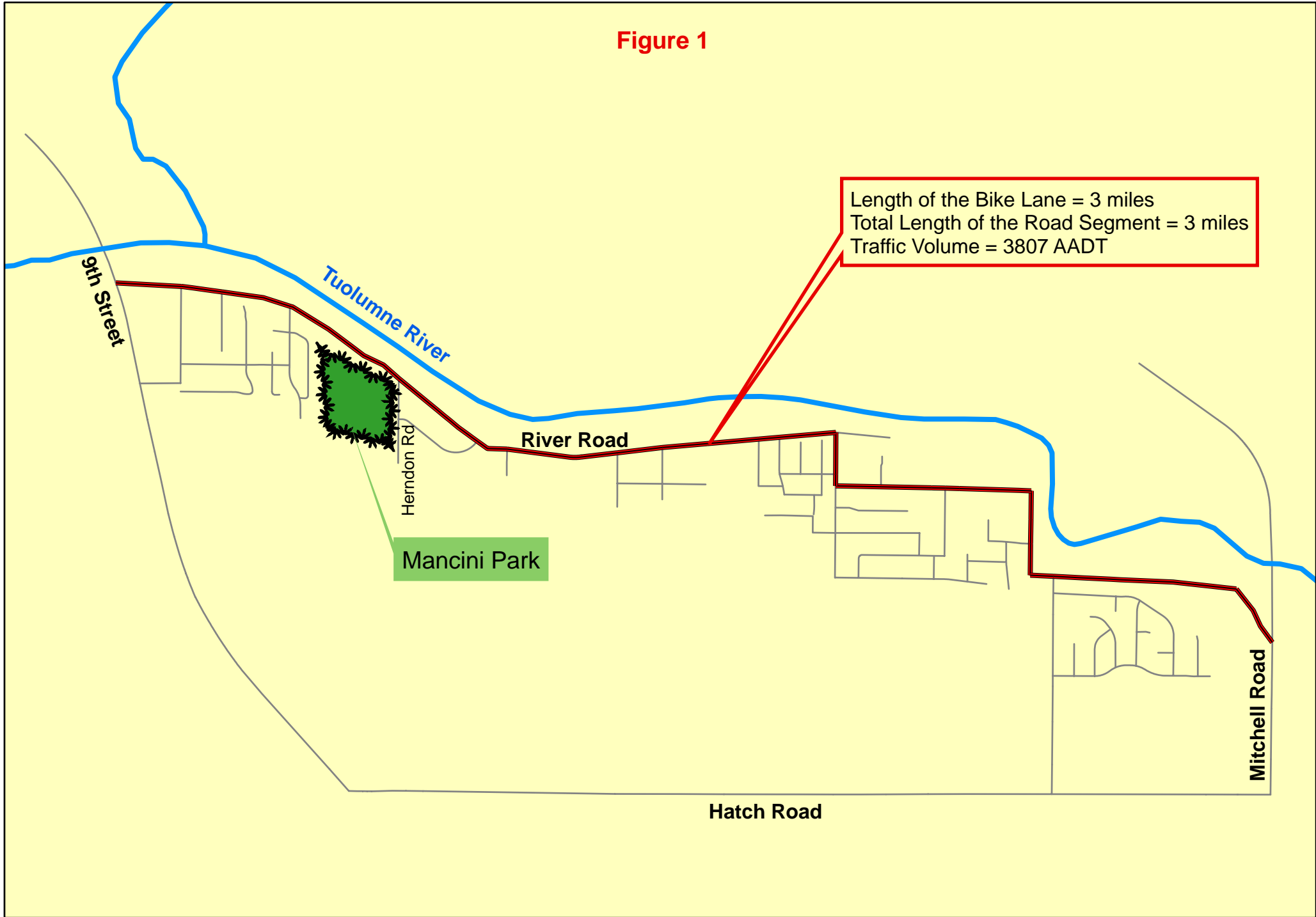
Implementation Schedule:

The original River Road Bicycle Project was anticipated to be implemented by December 2004. The attainment date in the approved PM-10 Plan is 2010. The Grayson Road Bike Lane Project was completed in January 2005. Again, it is important to note that there were no emission reductions associated with the project in the SIP.

Supporting Evidence:

The substitute TCM project has been completed. A project summary received from Stanislaus County is attached for information. Please note that the summary is for the entire project – a portion of which included the Grayson Road Bike Lane. Monitoring and enforcement are not applicable to this type of TCM, since it is a capital improvement versus an on-going program.

Figure 1



River Road Bike Lane

Figure 2



Grayson Road Bike Lane



Department of Public Works

George Stillman

Director

1716 Morgan Road, Modesto, CA 95358

Phone: 209.525.4130

Grayson Road Project Summary

Project Description: Add 1.23 miles of paved Class II bike lane to the north side of Grayson Road from River Road in the town of Grayson to the Railroad tracks by the state Route 33 in the town of Westley and a short segment on River Road, include delineators, striping, and pavement markings.

Project Cost: Approximately, Total Cost = \$278,463,
Contract Cost = \$209,407,
County Road Crew Cost = \$69,056

Project Designer: Stanislaus County Public Works Department

Contract Title: 2004 County AC Overlay

Contract Date: 9/21/2004

Contractor: George Reed, Inc.

Contract Cost: \$839,939

Roads in Contract: Bacon Road, Kiernan Ave, Lester Road, Sisk Road, Toomes Road (Overlays), and Grayson Road (Bike lane).

Contract Funding: Non-Motorized (Bike Lane), Salida Mello Roos, Public Works Funds, City of Waterford funds (overlay)

Contract Inspector: Stanislaus County Public Works Department

Project Completion Date: 8/26/05

If you have any questions regarding this project, please do not hesitate to contact Dave Myers at 209.525.4129 or myersd@mail.co.stanislaus.ca.us