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Memorandum

TO: Air Quality Conformity Task Force DATE: April 14, 2011

FR: Srikalyani Srinivasan W. I.

RE: Guidance on $PM_{2.5}$ Project Level Conformity Exemption Code 40 CFR 93.126 – Safety – Road Diets Qualification

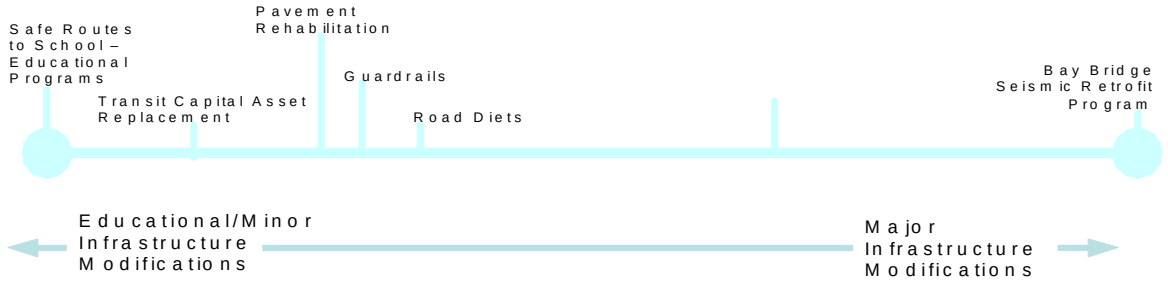
MTC staff seeks guidance from the Air Quality Conformity Task Force on (a) whether road diet projects, which are typically involve traffic calming measures, constitute as exempt projects for regional and project level conformity, and (b) if yes, what exemption code should be used. As you recall, at the March 7, 2011 meeting, the Task Force began to discuss this issue but EPA staff requested additional information on safety and road diet projects currently included in the 2011 Transportation Improvement Program that might help inform a response and decision to these questions.

This memo lays out the staff analysis of safety and road diet projects for your review and discussion. Based on our analysis, MTC staff requests the Task Force to consider all road diet projects on streets with traffic less than 20,000 ADT to be treated as exempt projects from regional and project level conformity under 40 CFR 93. 126 – safety improvement program. We appreciate your guidance and determination on this issue.

Safety Projects in the 2011 TIP

To assist in understanding the context of projects with safety purposes, MTC conducted an analysis of projects in the 2011 TIP identified exempt from regional and project level conformity, for which a safety exemption was or could have been applied. In some cases, another exemption, which more accurately captures the scope of the project was applied, but a safety purpose was stated and implied. In the analysis, MTC staff identified a spectrum of safety projects, spanning from educational Safe Routes to School programs (SRTS) to the large-scale physical improvements such as seismic bridge retrofits. Below is a graphic illustrating the spectrum of safety projects and **Attachment A** is a sample list of representative safety projects from the 2011 TIP in this spectrum.

Safety Projects



What is a Road Diet?
A road diet, or also referred to as road conversion, is a reduction of one or more travel lanes on a roadway facility to help improve the safety of users and operations. Often road diets are completed on four-lane undivided roads which has an average daily traffic (ADT) volume between 12,000-18,000. Other factors of the road include collision rate, transit corridor, or essential bike or pedestrian route. Road diets have been completed on roadways with ADT as high as 25,000 and are called super road diets. Most often these roads are converted into three lanes and the space which formerly accommodated a travel lane usually transforms use for different travelers, such as bicyclists, pedestrians, or the lane is changed into a center turn lane to improve operations. Road diets create safer and more efficient ways to provide access and mobility for pedestrians, bicycle riders and transit users, as well as motorists.

With the reduction of travel lanes in a road diet project, air quality implications are raised because of concern there will be increased congestion in the travel corridor for vehicles. However, in a FHWA report titled "Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries," findings show road diet projects have minimal effects on vehicle capacity when the project was completed a roadway which had approximately 20,000 ADT or less. This illustrates typical road diet projects do not have any incremental air quality impacts from the no build and build scenarios because vehicle capacity and traffic mix remain unchanged. When road diets were completed on roads with ADTs above 20,000 vehicles, traffic congestion increased, sometimes to the point of diverting traffic to alternate routes.

The minimal effects on vehicle capacity can be seen in the table from the study "Road Diets: Fixing the Big Roads" (Attachment B) which shows the volume changes with lane reductions.

The FHWA study found that while road diets did not change the crash severity, a significantly lower (approximately 6 percent) proportion of crashes occurred on roadways which received a road diets than at comparison sites in the after period.

Road Diet Exemption Analysis
The 2011 TIP has three road diet projects as listed below:

1) *Project Title:* Petaluma Boulevard South Road Diet

Description: In Petaluma: On Petaluma Boulevard South from 100 ft South of East Washington Street to E Street; Road Diet will reconfigure the current 4-through lanes to 2-through lanes and one two way left turn lane
Expanded Description: The construction work to complete the Petaluma Boulevard South Road Diet will generally include traffic signal modification to accommodate the new lane configuration, Class III bike markings, signage, audible pedestrian crossings, relocation of storm drain inlet/pipe located within pedestrian crossings, potential bike rack and bench furnishings and landscaping, replace existing traffic loops, traffic striping removal, installation of thermoplastic striping, installing ADA compliant curb ramps, replacing damaged sidewalks, traffic control, and raise manholes and other utility covers.
Current Regional AQ Exemption: Bicycle and pedestrian facilities

2) *Project Title:* Palo Alto California Avenue Transit Hub
Description: Palo Alto: On California Ave between El Camino Real (SR82) and the California Avenue - Park Blvd Plaza; streetscape, traffic calming, and Park Bvd Plaza improvements.
Expanded Description: Palo Alto: On California Ave from El Camino Real (SR82) to the California Avenue - Park Blvd Plaza. The project includes community identity markers; traffic calming treatments including intersection bulb-outs, mid-block planter islands, reducing 4-lane road to 2-lane road diet; streetscape amenities including outdoor seating areas and enhanced bicycle parking; and community-focused enhancements to the Park Blvd Plaza.
Current Regional AQ Exemption: Transportation enhancement activities (except rehab/operation of historic transportation buildings, structures, or facilities)

3) *Project Title:* Delaware Street Bike Lane and Streetscape
Description: In City of San Mateo: On Delaware Street between Charles Lane and Guilford Avenue; Bicycle/pedestrian improvements
Expanded Description: Narrowing Delaware Street from 4 to 3 lanes between Charles and Garvey Way; from 4 to 2 lanes between Garvey Way and 16th Avenue; and addition of Class II bike lane extending between Charles and Guilford. In addition, pedestrian enhancements, widening sidewalks, a planted buffer and aesthetic improvements to the fencing on Delaware at its bridged crossing of the 16th Avenue Channel will also be included.
Current Regional AQ Exemption: Bicycle and pedestrian facilities

All the three projects listed have low traffic volumes, well under the 20,000 ADT and the projects are not regionally significant, therefore are not modeled for conformity at the regional level. These same projects are not identified truck routes, which demonstrate the projects are not high risk for localized impacts of fine particulates. Given the minimal traffic impacts, MTC believes that these projects are exempt from both the regional and project level conformity. MTC proposes to change the exemption codes to Safety Improvement Program for the projects listed above.

MTC staff requests the Task Force to consider all road diet projects on streets with traffic less than 20,000 ADT to be treated as exempt projects from regional and project level conformity under 40 CFR 93. 126 – Safety Improvement Program.

Attachment A: List of Safety Projects in the 2011 TIP
Attachment B: Road Diets – Fixing the Big Roads

References:

FHWA, “Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries.” Found at:
http://www.fhwa.dot.gov/publications/research/safety/humanfac/04082/04082.pdf

Burden, D. and P. Lagerwey. “Road Diets: Fixing the Big Roads.” Found at:
http://www.walkable.org/assets/downloads/roaddiets.pdf

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Attachment A: Sample List of Safety Projects in the 2011 TIP

Spectrum Position	TIP ID	Project Name	Project Descripion	Expanded Description	Air Quality Descripion
Low	ALA110030	Albany - Buchanan Bicycle and Pedestrian Path	In Albany: On Marin Ave./Buchanan St. between San Pablo Ave. and Buchanan bridge overcrossing. Construct a bike/Ped path, install a bike/ped signal, and related	This project entails construction of phase I and phase II of the Buchanan Bicycle and Pedestrian Path that extends from the Marin/San Pablo intersection to the Buchanan Bridge overcrossing. A bike/ped signal head will be installed at the existing signal at San Pablo/Marin to provide for a safe crossing for bikes and pedestrians. A 15-foot Multi-use path will be built along the south side of Marin Ave. adjacent to the Unversity of California property (Gill tract). It would have 2-foot shoulders at each side with a 4-foot landscaped area between the northern shoulder and the face of curb. The path continues along Ocean View Elementary school and Ocean View park and along the United States Department of Agricutlture (USDA) to the intersection with Pierce St. A Class II facility will be installed along the north side of Marin/Buchanan in the westbound direction from the Marin/San Pablo intersection to the Buchanan Bridge overcrossing. A new traffic signal will be installed for cyclist and pedestrian crossing at the Buchanan/Pierce St. intersection. This project is Albany's high-p	Bicycle and pedestrian facilities
Low	MRN090051	Citywide Landscaping and Heatherwood Pathway	Larkspur: Southerly side of Doherty Drive between Larkspur Bridge and Riviera Circle: Landscaping Project involves approx. 35,000 sq. ft. of medians; on Heatherwood:	The project is intended to provide beautification along multiple roadways and the pathway project to provide enhanced access and safety to a pedestrian/bicycle facility.	Plantings, landscaping, etc.
Low	SCL110046	Black Road Safety Improvements	In Santa Clara County: On Black Road between SR 17 and Skyline Blvd, construct shoulder improvement, install metal-beam guardrail, and upgrade striping and	In Santa Clara County: On Black Road between SR 17 and Skyline Blvd, construct shoulder improvement, install metal-beam guardrail, and upgrade striping and signage.	Safety Improvement Program
Low	SF-090050	San Francisco - Corbin Place Stair Replacement	San Francisco: Corbin Place from Corbett Ave to 17th St.: Replace damaged concrete stairs in-kind, to improve the stairway and walkway conditions for the safety of	Replace damaged concrete stairs in-kind, to improve the stairway and walkway conditions for the safety of pedestrians. Work consists of: removal and replacement of broken concrete stairs and concrete curb; repair of steel reinforcement, structural crack	Pavement resurfacing and/or rehabilitation
Low	SF-110019	Chinatown Safe Routes to School	San Francisco: Adjacent to three schools: New traffic signal with cable car pre-emption and audible pedestrian signals, midblock crosswalks, beacons, curb bulbs	The improvements will be adjacent to three schools in the heart of San Francisco's Chinatown district. The schools are bordered by Sacramento Street to the south, Jackson Street to the north, Powell Street to the west, and Stockton Street to the east. New traffic signal with cable car pre-emption and audible pedestrian signals, midblock crosswalks, beacons, curb bulbs.	Intersection signalization projects at individual intersections
Low	SM-070005	US 101 Belmont Bike/Ped Bridge	Belmont: Between Hiller St. and the Belmont Sports Complex Conference Center; Construct a 2,448" bicycle/pedestrian bridge, including bike path approaches and	The San Mateo County Comprehensive Bicycle Route Plan identifies a bicycle/pedestrian bridge over US Hwy 101 as an intergral portion of the Primary Bikeway System in San Mateo County. It will provide an east-west connection from the Belmont Sports Complex	Bicycle and pedestrian facilities
Medium	ALA110026	Alameda Co - Central Unincorporated Pavement Rehab	Alameda County: Various Streets: Pavement Rehabilitation Program	The project is located in Castro Valley on Lake Chabot Road (between East Castro Valley Blvd and Quail Ave) and Redwood Road (between Castro Valley and Heyer). This project will improve traffic flow and safety motorist, bicyclists, and pedestrians by rehabilitating the existing pavement. This will also includes key cutting, milling, asphalt concrete placement, curb, gutter, sidewalk, pedestrian ramps, signing and striping.	Pavement resurfacing and/or rehabilitation

Attachment A: Sample List of Safety Projects in the 2011 TIP

Medium	MTC050008	GL: Shoulder Imprv - SHOPP Roadside Preservation	GL: SHOPP Roadside Preservation. Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 categories - Fencing,Safety roadside rest areas	GL: SHOPP Roadside Preservation. Projects are consistent with 40 CFR Part 93.126 Exempt Tables 2 categories - Fencing,Safety roadside rest areas	Pavement resurfacing and/or rehabilitation
Medium	SCL110037	Palo Alto California Avenue Transit Hub	Palo Alto: On California Ave between El Camino Real (SR82) and the California Avenue - Park Blvd Plaza; streetscape, traffic calming, and Park Bvd Plaza improvements.	Palo Alto: On California Ave from El Camino Real (SR82) to the California Avenue - Park Blvd Plaza. The project includes community identity markers; traffic calming treatments including intersection bulb-outs, mid-block planter islands, reducing 4-lane road to 2-lane road diet; streetscape amenities including outdoor seating areas and enhanced bicycle parking; and community-focused enhancements to the Park Blvd Plaza.	Transportation enhancement activities (except rehab/operation of historic transportation buildings,
Medium	SCL110043	Campbell Avenue/Leigh Avenue Signalization	In Campbell: on Leigh Avenue at Campbell Avenue: Install new traffic signal.	In Campbell, on Leigh Avenue at Campbell Avenue; install traffic signal; install pedestrian pushbuttons; install safety lighting; install roadway striping and signs	Intersection signalization projects at individual intersections
Medium	SM-110033	Sister Cities Blvd Guardrail Project	South San Francisco: Sister Cities Blvd between Hillside Blvd and South San Francisco Dr: Design and install guardrail, grading, clearing, grubbing, traffic control, and	Project will design and install metal beam guardrail along Sister Cities Blvd between Hillside Blvd and South San Francisco Drive. The project meets up with existing guardrail on Sister Cities further east. The project will include clearing and grubbing	Guardrails, median barriers, crash cushions
Medium	SOL070048	Travis AFB: North Gate Impr. Project	Fairfield: Vanden Road by Travis Air Force Base; Widen roadway to standard lane width, including shoulder and other safety improvements. No new travel lanes (HPP)	Fairfield: Vanden Road by Travis Air Force Base; Widen roadway to standard lane width, including shoulder and other safety improvements. No new travel lanes (HPP earmark #3220)	Safety Improvement Program
High	BRT050003	BART Transbay Tube Seismic Retrofit	San Francisco: Transbay Tube; Seismically retrofit the BART Tube/Tunnel which connects Oakland to San Francisco.	The Tranbay Tube Seismic Retrofit will implement retrofits to allow the TransBay Tube to return to operation shortly after a large Bay Area earthquake. Includes the completion of the environmental for both segements of the required Tube retrofits. The design and construction of the first Tube retrofit will eliminate one seismic threat to the Tube, liquefaction and uplift, and will improve the Tube"s resistance to the seismic traveling wave (which applies large push-pull forces to the Tube"s seismic joints.). The second tube retrofit is funded through the passage of a Nov. 2004 Bond measure.	Reconstruction or renovation of transit buildings and structures
High	SCL050006	Mathilda Avenue Bridge Replacement.	Sunnyvale: Rehabilitate Mathilda Ave Bridge, Over Caltrain/UPRR at Evelyn Ave; Add shoulders to make it ADA compliant, Lengthen deceleration lane and realign the	Sunnyvale: Rehabilitate Mathilda Ave Bridge, Over Caltrain/UPRR at Evelyn Ave; Add shoulders to make it ADA compliant, Lengthen deceleration lane and realign the auxiliary lane for safety considerations. There is no increase in capacity	Railroad/highway crossing
High	SCL050079	Silicon Valley TIMC	San Jose: Transportation Incident Management Center: Construct subregional TIMC	The Transportation Incident Management Center (TiMC) will serve the Santa Clara County (South Bay) Region with real time coordinated transportation services to mitigate growing traffic congestion, supporting public safety official in security and incident management functions, collaborating with public/private partnerships to conduct research and development activities to support TiMC functions. Existing surveillance, traffic signal control, travel information systems will be expanded to enhance TiMC and Public Safety services.	Planning and technical studies
High	SM-090021	Caltrain grade separation program	Along the Caltrain line, provide grade separations of existing crossings at San Bruno, San Mateo, and Angus Avenues in San Bruno and the demolition of the existing	Implementation will improve safety by eliminating the potential for incidents between trains and vehicular and pedestrian traffic. Response times for emergency service would be improved as delays crossing the tracks due to oncoming trains would be elimin	Railroad/highway crossing

Effective process often includes focus groups, and highly interactive workshops and designs. Citizens, residents and business owners should help design both process and product. Many cities are learning to conduct 3-6 day planning charrettes to gain input from a variety of people who then gain ownership of the results.Atlantic Boulevard in downtown Del Ray Beach, Florida, was converted from four-lane to two-lane roadway at the request of retailers. This request was the reverse of previous thinking. Merchants often feel that more traffic passing their doors is better for business. In Del Ray Beach the decaying downtown forced merchants to take another look. Retailers worked with the city manager, elected officials, and chamber of commerce to weigh their risks and suggest changes. The net result of this street conversion is one of the more successful downtowns in Florida, and significant increase in local sales and tax base for the town. Motorists did not leave Atlantic Boulevard to take advantage of two new lanes of travel on parallel streets. They come through the now attractive center, cruising at 15 mph.

Lane Reductions of Select Street Conversions-- Volume Changes

Roadway Section	Change	ADT (Before)	(After)	Notes
1. Lake Washington Blvd., Kirkland, Washington South of 83	4 lanes to 2 + TWLTL + bike lanes	23,000	25,913	
2. Lake Washington Blvd, Kirkland, Washington Near downtown	4 lanes to 2+ TWLTL + bike lanes	11,000	12,610	
3. Electric Avenue, Lewistown, Pennsylvania	4 lanes to 2 + TWLTL + bike lanes	13,000	14,500	
4. Burcham Road, East Lansing, Michigan	4 lanes to 2 + TWLTL + bike lanes	11-14,000	11-14,000	
5. Grand River Boulevard, East Lansing, Michigan	4 lanes to 2 + TWLTL + bike lanes	23,000	23,000	
6. St. George Street, Toronto, Ontario, Canada	4 lanes to 2 + bike lanes + wide sidewalks	15,000	15,000	
7. 120th Avenue, NE Bellevue, Washington	4 lanes to 2 + TWLTL	16,900	16,900	
8. Montana (commecial street) Bellevue, Washington	4 lanes to 2 lanes + TWLTL 4 lanes to 2 + median + bike lanes	18,500	18,500	
9. Main Street Santa Monica, California	4 lanes to 2 lanes + TWLTL 4 lanes to 2 + median + bike lanes	20,000	18,000	