Application of Criteria for a Project of Air Quality Concern

Project Title: Geary Bus Rapid Transit
Project Summary for Air Quality Conformity Task Force Meeting: (December 5, 2013)

Description

The proposed project would include the following improvements within the Geary corridor:

- Conversion of one existing travel lane in each direction from mixed-flow use to exclusive bus use on Geary/O'Farrell Streets from 34th Avenue to Gough Street
- Installation of transit signal priority for buses at signalized intersections
- Vehicle fleet replacement with low-floor, diesel hybrid buses with three doors on the right-hand side
- Replacement of a portion of the existing traffic signal
- Installation of pedestrian countdown signals
- Installation of curb ramps to facilitate access for wheelchairs at intersections that do not meet current City standards and Americans with Disabilities Act requirements
- Installation of corner bulbs into the travel lane next to the curb to enhance pedestrian safety

Background

- NEPA/CEQA process underway, with scoping completed and draft environmental document expected to be published in summer 2014
- Seeking air quality conformity determination on or before (February 2014)
- Schedule based on anticipated circulation of Draft EIR/EIS in summer 2014

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles? —Not Applicable

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles? – Not Applicable

- Diesel vehicles represent approximately 2.7% of traffic volume along the Geary corridor
- Intersections at LOS D, E, or F improve or remain the same under all build alternatives in the opening year (2020)
- Project operation would not result in land use change; as such, the project would not affect the percentage of diesel vehicles

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- On January 9, 2013, the U.S. EPA issued a final rule to determine that the San Francisco Bay Area has attained the 24-hour $PM_{2.5}$ National Ambient Air Quality Standard. This action suspends federal SIP planning requirements for the Bay Area.

RTIP ID#: *230164*

TIP ID#: *SF-070004*

Air Quality Conformity Task Force Consideration Date: December 5, 2013

Project Description

The San Francisco County Transportation Authority (Authority), in partnership with the San Francisco Municipal Transportation Agency (SFMTA) and the Federal Transit Administration (FTA), propose to implement bus rapid transit (BRT) improvements in San Francisco's Geary corridor from 48th Avenue to the Transbay Transit Center (Attachment 1, Project Figures). This major thoroughfare is part of the San Francisco Transit Priority Network adopted in the 2004 San Francisco Countywide Transportation Plan and has been identified in long-range planning studies conducted by the Authority and SFMTA as a priority route for rapid transit treatments. The Authority and FTA are preparing an Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) under the provisions of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Authority and FTA are the lead agencies under CEQA and NEPA, respectively.

The proposed project entails implementing transit improvements in the Geary corridor with high-frequency, BRT bus service operating in mixed flow lanes from 48th Avenue to 34th Avenue and in physically demarcated, bus-only lanes from 34th Avenue to Market Street. Between Market Street and the Transbay Transit Center the BRT bus service would operate in bus-only lanes, as proposed in the approved Transit Center District Plan (November 2009), which is a separate project from the Geary Corridor BRT project. The bus-only lanes would be differentiated from other lanes by colored pavement, signage, buffers, and street markings. Creating bus-only lanes would require conversion of one existing mixed-flow traffic lane in each direction on Geary Boulevard to a bus-only lane from 34th Avenue to Gough Street. From Gough Street to Market Street, where westbound buses operate on Geary Street and eastbound buses operate on O'Farrell Street, enhanced markings and signage would be installed to improve the existing bus-only lanes.

Type of Project:
Bus Rapid Transit

County **San Francisco**	*Narrative Location/Route & Postmiles* Project will convert one existing travel lane in each direction from mixed-flow use to exclusive bus-only lanes on Geary/O'Farrell Streets from 34th Avenue to Gough Street (Figure 1). Project will operate BRT service from 48th Avenue to the Transbay Transit Center.

Lead Agency: San Francisco County Transportation Authority

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Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)	EA or Draft EIS	**X** **FONSI or Final EIS**	PS&E or Construction	Other

Scheduled Date of Federal Action: November 2014 for the Record of Decision

NEPA Delegation–Project Type*(check appropriate box): Not Applicable*

Exempt	Section 6004–Categorical Exemption	Section 6005–Non-Categorical Exemption

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	2008	2014	N/A – no acquisition required	2017
End	2014	2016	N/A	2020

Project Purpose and Need (Summary):
The Geary BRT project's purpose and need reflect citywide transit priority network development policies articulated in the 2004 San Francisco Countywide Transportation Plan, as well as corridor-specific goals and needs identified during the Feasibility Study.

The need for the project is due to the following:

- The existing street configuration of the Geary corridor favors car travel
- Existing bus service in the Geary corridor experiences travel time delay/reliability issues
- Inefficient transit operations on the Geary corridor contribute to increased operating costs
- Unfavorable pedestrian conditions/narrow sidewalks and inadequate lighting
- Population and employment along the corridor are projected to grow

The project purpose is to:

- Improve the balance of efficiency between all modes
- Improve transit service on the Geary corridor – existing and future
- Improve pedestrian safety and access to transit service
- Attract new riders to stem and reverse the citywide trend toward transit mode share loss
- Enhance neighborhood livability and community vitality
- Improve the cost-effectiveness of operating transit in the corridor
- Improve consistency with local plans and policies

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*
The project is located along Geary/O'Farrell Streets from Market Street to Laguna Street and on Geary Boulevard in the City of San Francisco. A wide variety of land uses front Geary Boulevard, including residences, schools, medical facilities, and commercial uses (Attachment 1, Project Figures).

Brief summary of assumptions and methodology used for conducting analysis
A variety of techniques were used to document existing conditions on Geary Boulevard. Previously collected data from SFMTA and other San Francisco agencies were complemented with a new data collection effort and in some instances, with transportation model estimates. The data collection included: recording transit, auto, bicycle, and pedestrian volumes at various locations in the corridor; collecting quantitative information on transit and auto travel and delay times; and collecting qualitative information on transit, auto, bicycle, and pedestrian facilities, as well as urban design conditions. In addition, the study team sponsored a public workshop series in multiple locations along the corridor in April 2005 to learn about public perceptions of travel conditions on Geary. The Study Team also collected information on public perceptions through smaller meetings and discussions with individual stakeholders and community groups.

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Lyon St and Gough St are the locations along the Geary Blvd corridor that experience the highest daily traffic volumes. Daily traffic on Geary Blvd was 43,200 vehicles at Lyon St and 32,900 vehicles at Gough St in 2009. 2020 forecasts for total average daily traffic on Geary Blvd at those locations are provided below.

2020 Average Daily Traffic				
Location	**No Build**	**Alternative 2**	**Alternative 3**	**Alternative 3-Consolidated**
Geary at Lyon	50,900	40,200	30,800	28,800
Geary at Gough	48,000	36,400	34,100	33,000

Recent traffic counts (conducted between 2009 and 2012) on Geary Blvd indicate that approximately 2.7% of average daily traffic is diesel trucks. The percentage of diesel trucks was estimated based on the percentage of heavy vehicles observed on the Geary corridor. It is presumed that the proportion of heavy vehicles – 3.6% of all traffic – includes most or all medium duty trucks (e.g. delivery trucks), all buses, and all large trucks. It is assumed that 95% of large trucks and about two-thirds of medium duty trucks are diesel. If approximately 70% of heavy vehicles are medium duty trucks, then diesel vehicles would represent approximately 2.7% of total vehicles on Geary Blvd. The percentage of diesel trucks in the opening year is anticipated to remain unchanged from existing conditions.

The tables below compare the level of service (LOS) first between the opening year (2020) alternatives and existing conditions and then between the build alternatives and the No Build Alternative. LOS values are included in (Attachment 2, Level of Service Data). When compared to existing conditions, many intersections demonstrate a decrease in LOS under opening year (2020) conditions due to cumulative growth in vehicle volumes. However, when the build alternatives are compared to the No Build Alternative, a high percentage of intersections either have a steady or improved LOS (e.g., LOS D to LOS C).

Intersection LOS Comparison to Existing Conditions			
Scenario	**Steady**	**Improved**	**Worsened**
No Build	18	7	31
Alternative 2	19	14	23
Alternative 3	15	9	32
Alternative 3C	18	10	28

Intersection LOS Comparison to No Build Conditions			
Scenario	**Steady**	**Improved**	**Worsened**
Alternative 2	24	24	8
Alternative 3	30	17	9
Alternative 3C	34	19	3

RTP Horizon Year/Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Lyon Street and Gough Street are the locations along the Geary corridor that experience the highest daily traffic volumes. Daily traffic on Geary Boulevard was 43,200 vehicles at Lyon Street and 32,900 vehicles at Gough Street in 2009. 2035 forecasts for total average daily traffic on Geary Boulevard at these locations are provided below. The truck percentages would be the same as presented above for the 2020 scenario, which would not be different than existing conditions.

2035 Average Daily Traffic				
Location	**No Build**	**Alternative 2**	**Alternative 3**	**Alternative 3-Consolidated**
Geary at Lyon	54,300	44,400	30,200	30,100
Geary at Gough	53,600	38,000	31,200	31,500

LOS values have not yet been developed for 2035 scenarios.

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and #trucks, truck AADT

Not applicable

RTP Horizon Year/Design Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and #trucks, truck AADT

Not applicable

Opening and Horizon Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses

(Refer to Attachment 3, Modeled Bus Headways)

SFMTA is in the process of upgrading the bus fleet from diesel to diesel hybrid buses. By opening year (2020), it is anticipated that all Geary BRT buses will be diesel hybrid buses. In-use testing and industry reports indicate that particulate matter emissions from hybrid buses equipped with particulate matter filters are almost 90 percent lower than a conventional diesel bus without a particulate filter. The table below summarizes the total number of buses that currently serve or will serve the Geary Corridor in future conditions. Bus lines include the BRT, express, local and limited lines. No service level increases are anticipated between 2020 and 2035. Detailed information is provided in Attachment 3.

Total Bus Trips for Combined Bus Lines on the Geary Corridor

	Existing Conditions	**No-Build**	**Alt. 2**	**Alt. 3**	**Alt. 3-Consolidated**
Daily Bus Trips	758	871	1082	1082	1080

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*

The SF-CHAMP travel demand forecasting model was used to evaluate the number of trips that would likely be diverted as a result of the proposed project. As described in the Diversion Analysis (section 6.9) of the Feasibility Study (Appendix D: Travel Demand Modeling), Geary Boulevard at Divisadero Street was chosen as a representative intersection.

The Feasibility Study found that when one lane of mixed traffic is removed in each direction from Geary, roadway volumes on Geary drop by an average of 30%. This indicates that 70% of pre-project Geary traffic continues to use Geary Blvd and that the model is projecting a diversion of 30%. The SF-CHAMP analysis in the Feasibility Study found that over 60% of the traffic might be diverted out of the corridor altogether and that almost 10% of auto trips may not occur at all. The trips that divert off of Geary Blvd as a result of the project divert to other streets in the Geary corridor, and to other corridors. It is anticipated that nearly all of the diverted traffic will be passenger vehicles and that a similar number of trucks will continue to use Geary Boulevard (Feasibility Study, 2007).

The model forecasting showed that the amount of diversion is less than proportional to the amount of capacity removed, because:

- Some drivers will switch to transit and walking;
- Those who continue to drive may change the time of their trip to avoid peak hours;
- Drivers avoid slow local streets with lots of stop signs; and
- Geary will continue to be an attractive route for many drivers because the street will be optimized for traffic flow and buses will be in a separate lane, out of the way of cars, though some drivers will opt for other parallel arterials.

Comments/Explanation/Details (please be brief)

The project is not considered a POAQC, as defined in 40 CFR 93.123(b), for the following reasons:

- The project is not a new or expanded highway project with a significant number of or increase in diesel vehicles.
- The project does not include intersections that are or will be at LOS D, E, or F with a significant number of diesel vehicles.
- The project does not include the construction of a new bus or rail terminal with a significant number of diesel vehicles congregating at a single location.
- The project does not expand an existing bus or rail terminal with significant increases in the number of diesel vehicles congregating at a single location.
- The project is not in or affecting locations, areas, or categories of sites that are identified in the PM2.5 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The project introduces BRT to the Geary corridor and will not generate new passenger vehicle or truck traffic. SFMTA anticipates operating up to 1,082 bus runs per day on the Geary corridor in both the opening and horizon years. Although the number of bus runs operated within the corridor would increase with the proposed project, roadway and multi-modal improvements will be implemented to improve traffic operations.

Transit-Signal Priority (TSP) is designed to address transit delays at signals, which was identified as one of the top three sources of bus delay in the Needs Assessment. TSP would essentially permit buses and traffic signals to communicate so that buses would spend less time idle at red lights, which would reduce vehicle emissions. Buses would be equipped with transponders which would send signals to traffic lights allowing for extended green lights to allow buses to pass through or triggering an earlier change from red to green for approaching buses.

Buses operated by SFMTA within the Geary corridor are currently a mix of diesel and diesel hybrid buses. SFMTA anticipates utilizing a fleet of exclusively diesel hybrid buses on Geary Boulevard to provide BRT service by opening year. Emissions from hybrid buses equipped with particulate matter filters are almost 90 percent lower than a conventional diesel bus without a particulate filter. Therefore, a substantial decrease in diesel emissions from buses is anticipated under all build alternatives in both the opening and horizon years.

In opening year, intersections that currently operate with LOS D, E, or F will improve or remain the same under all build alternatives. Although the proposed project will increase the number of buses operating in the Geary corridor, diesel vehicle traffic accounts for a small percentage (approximately 2.7%) of the average daily traffic volume. Furthermore, the proposed project includes the operation of hybrid buses for the proposed BRT line, which would lead to a substantial reduction in diesel emissions compared to existing conditions.

Therefore, the project meets the Clean Air Act requirements and 40 CFR 93.116 without any explicit hot-spot analysis. The project will not create a new or worsen an existing PM2.5 violation.