16TH STREET MULTIMODAL CORRIDOR PROJECT

SAN FRANCISCO, CALIFORNIA, CA-012

Type of application: Capital Funding Request

Application organization: San Francisco Municipal Transportation Agency (SFMTA)

Type of eligible applicant: Transit agency

2014 TIGER Capital Funding Request: $10.3 million

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PROJECT OVERVIEW

16th Street is a major east-west corridor in San Francisco that connects the City's Eastern Neighborhoods (the Central Waterfront, Potrero Hill, Mission District, and East SoMA neighborhoods) to the long-established residential and commercial areas of the City. In a part of San Francisco with hilly terrain and a disjointed street grid due to multiple freeway crossings and the Caltrain commuter rail right-of-way, 16th Street is one of the few corridors that allows for continuous travel from the Castro and Inner Mission neighborhoods east to Mission Bay. Substantial residential and commercial development is already underway in the new Mission Bay neighborhood at the eastern end of the corridor, with several significant infill development projects planned along the rest of 16th Street. The 16th Street Multimodal Corridor Project ("Project") will improve reliability, travel time, safety, and accessibility for all users of the corridor and meet the needs of current and future residents, workers, and visitors to this growing regional destination.

The 16th Street Multimodal Corridor Project is a $67 million investment in the improvement and expansion of transportation infrastructure. This project will result in a faster and more reliable connection between regional transit hubs and residential areas in central San Francisco and the burgeoning housing, health care, biotech job and entertainment destinations in Mission Bay. Major project elements include: new overhead wire infrastructure for the 22 Fillmore along the length of 16th Street into Mission Bay; transit-only lanes; new traffic and pedestrian signals; wider sidewalks; landscaping; and green stormwater infrastructure, or treatments that take advantage of natural processes to clean stormwater and keep it from overwhelming the City's sewer system. Combined, these elements will reduce transit travel time along the length of the corridor by 24%.

The project is a collaboration between the San Francisco Municipal Transportation Agency (SFMTA), the San Francisco Planning Department, the San Francisco Public Utilities Commission (SFPUC), Caltrain, regional employers and the local community. San Francisco is committed to providing safer, reliable, and zero-emission east-west transit connections in this area of the City and has identified 62% of its funding for the project from local sources. This $10.3 million TIGER grant request is necessary to complete the financing of the transit, streetscape, and bicycle infrastructure enhancements along the 16th Street Corridor.

GEOGRAPHIC CONTEXT

Two miles south of San Francisco's Financial District, the 2.3-mile 16th Street Corridor connects established and developing neighborhoods to commercial districts, major new health care providers, and regional public transit services. At the western end of the corridor is the Mission District, a dense, multicultural residential neighborhood that was the site of the City's original Franciscan mission. This segment is home to a regional transportation node - the BART station at the intersection of Mission and 16th Streets - that serves 12,000 passengers on an average weekday and carries residents to jobs throughout the Bay Area. The corridor's middle segment passes through the northern end of the Potrero neighborhood with its mix of residential and light industrial uses. Many of the warehouses that used to serve nearby docks now support a vibrant local manufacturing trade. These production, distribution, and repair (PDR) jobs offer important employment opportunities for local communities and create a diverse economic base for the City. At the eastern end of the corridor, Mission Bay is a large redevelopment project already underway. When fully built-out, Mission Bay will include a new campus of the University of California San Francisco (UCSF), future sites of three hospitals primarily serving children, women and cancer patients. In addition, the

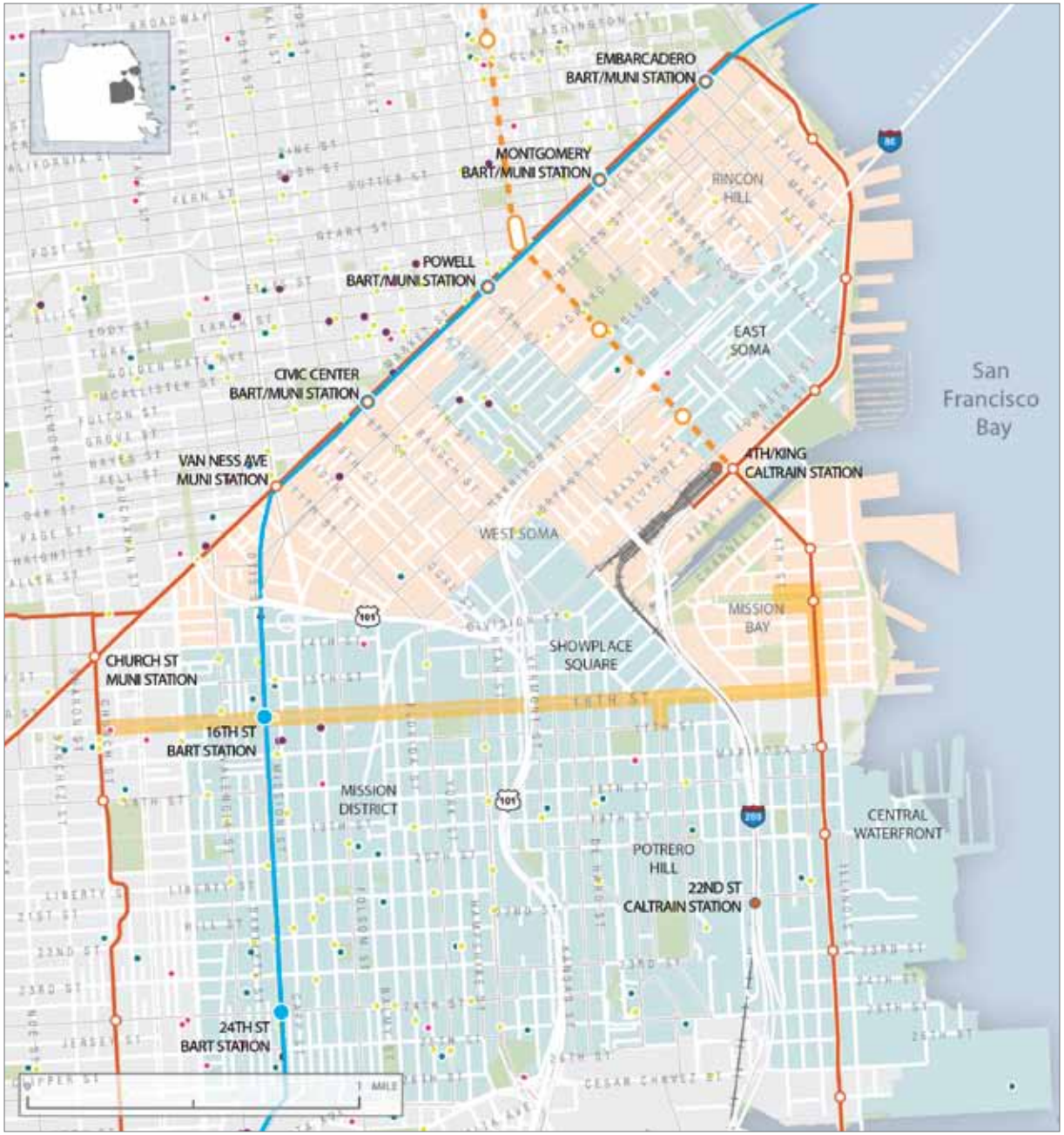


FIGURE 1: EASTERN NEIGHBORHOODS MAP

- Office of Statewide Health Planning & Development Clinics
- Community Based Organizations
- 16th Street Corridor Project Area
- Eastern Neighborhoods Study Area
- Key Neighboring Area
- Parks & Open Space
- Public Schools
- Private Schools
- Muni Transit Network
- Muni Metro & Streetcar
- BART
- Caltrain Station
- Future Central Subway

QUICK FACTS

- **Regional job center:** 2,800 businesses within 1/4 mile employing over 23,000 individuals; projected growth of 32,000 jobs
- **Growing population:** Currently 43,000 residents within 1/4 mile (51% minority, 25% low-income); projected growth of 6,000 housing units in Mission Bay
- **Access to health care:** 289 new hospital beds in Mission Bay
- **Critical safety need:** 33% of all collisions involved people walking or bicycling
- **Schools:** 23 within a 1/2 mile of the corridor
- **Senior centers:** 8 within a 1/2 mile of the corridor
- **Current average transit speed:** 7 mph at peak periods (citywide average is 8 mph)

Golden State Warriors have announced the purchase of property for a new professional basketball arena near the proposed 22 Fillmore terminus at the east end of 16th Street.

Development in Mission Bay, even without the new arena, is expected to create more than 6,000 housing units and 32,000 jobs in addition to nearly nine million square feet of educational, research and development, and office space.

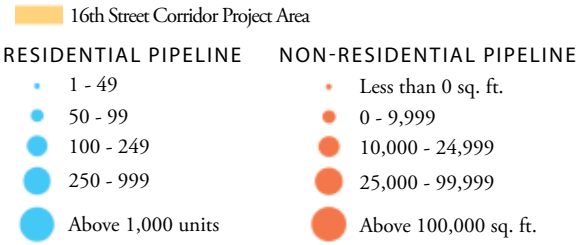
To help catalyze Mission Bay development, the Department of Transportation is investing $10,000,000 in Fourth Cycle TIGER funds for an array of street and light rail infrastructure investments. The 16th Street Project will build on that investment to provide a direct link from Mission Bay to jobs, residencies and regional transit options to the west.

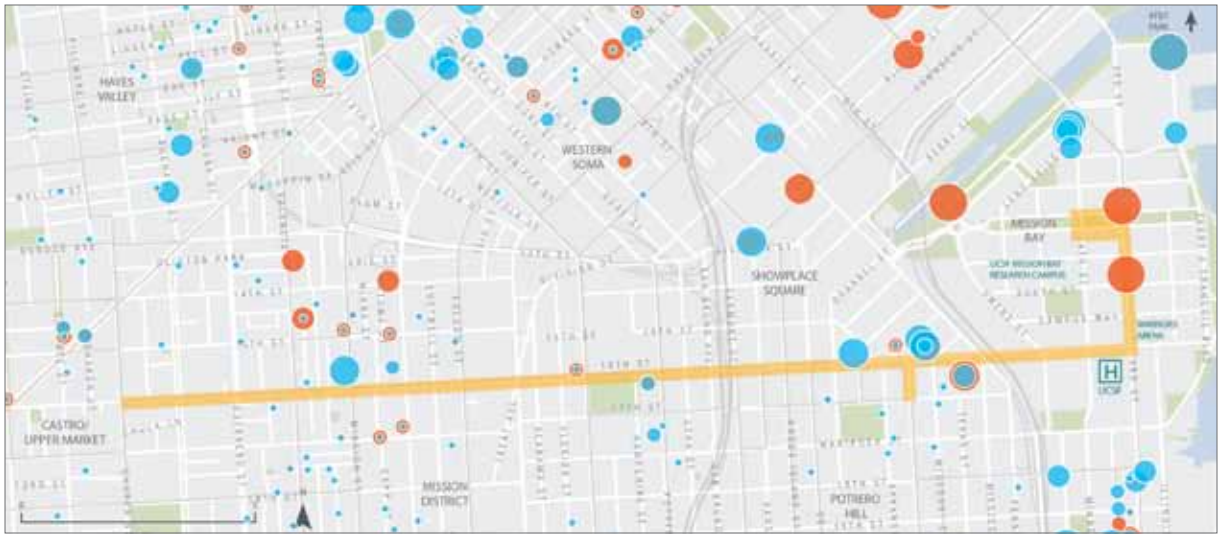
The 16th Street Corridor is currently served by the 22 Fillmore transit route. Carrying over 8,000 weekday customers, the route operates at an average speed of 7 miles per hour during peak periods. This slow speed is due in large part to closely spaced stops and traffic. Vehicle congestion and transit delays are anticipated to grow substantially in tandem with the development along the corridor, further slowing transit service. Additionally, narrow sidewalks, a lack of street trees, and several unsignalized and complex intersections make the corridor difficult and unpleasant to navigate on foot.

In sum, over 43,000 people (51% minority, 25% low-income) live within a quarter-mile of the project area. Approximately 2,800 businesses employing over 23,000 individuals also call the area home. The proposed project will connect and engage these communities to improve reliability, travel time, safety, and accessibility for all regardless of mode of travel. It will also provide ladders of opportunity in the form of better transportation choices, whether people choose to walk, bike or take transit.

FIGURE 2: RESIDENTIAL & COMMERCIAL CONSTRUCTION PIPELINE, MARCH 2014

Figure 2 displays a snapshot of construction projects in the development pipeline as of March 2014, including: projects under construction; projects possessing permits to start construction; projects already entitled; and projects currently under review.





Multiple freeways and the Caltrain tracks create a disjointed street grid.

Speeding and left-turning vehicles are the most common causes of vehicle/pedestrian collisions in the project area.

Aging infrastructure requires significant resources to maintain a state of good repair.

TRANSPORTATION CHALLENGES

DISCONNECTED STREET AND TRANSIT SERVICE

The combination of large and disjointed parcels, freeways and rail rights-of-way in the Eastern Neighborhoods - a legacy of the area's industrial roots - create a disconnected street grid. 16th Street is the only viable east-west corridor for all modes and has been designated as a Major Arterial in the City's Congestion Management Plan network, as a Transit Priority Street recommended by the SFMTA's Transit Effectiveness Project, and as a designated truck route.

PEDESTRIAN SAFETY AND UNCOMFORTABLE WALKING ENVIRONMENT

While San Francisco's high-injury corridors represent just six percent (70 miles) of the City's street miles, 60 percent of severe and fatal injuries occur along them. 16th Street from Church Street to San Bruno Avenue is a high-injury corridor, and 33 percent of all collisions on the corridor in the last five years involved pedestrians or bicyclists. The most common causes for injury collisions are excessive vehicle speed, left-turning vehicles and people crossing mid-block outside of the designated crosswalk. Projected growth and increasing vehicle congestion may exacerbate dangerous conflicts between different modes of transportation.

GROWING CONGESTION AND A LIMITED RIGHT-OF-WAY

Substantial development is planned for several neighborhoods connected by 16th Street, including the northern Mission District, Showplace Square, and Mission Bay. Given the existing right-of-way constraints, the existing street space must be used more efficiently to accommodate the growing number of trips in the corridor. The project will dedicate travel lanes in key areas to transit lanes so transit can effectively carry larger number of customers without being caught in congestion.

AGING TRANSPORTATION AND UTILITIES INFRASTRUCTURE

Portions of the existing overhead contact system (OCS) for the trolley bus were originally constructed in the 1940s and are still supported in some places by wooden poles from that era. These old support poles require significant maintenance and a shorter replacement cycle compared to more modern equipment. The corridor's aging infrastructure goes beyond transit facilities and includes sewer, stormwater, and emergency water supply systems. While the older systems in place still function, they run immediately adjacent to the San Francisco Bay and are therefore more vulnerable to extreme weather events and climate change related hazards.

OPPORTUNITIES & BENEFITS OF THE PROJECT

MAKING TRANSIT OPTIONS FASTER & MORE RELIABLE

The proposed project will modernize and extend the trolley bus system to improve transit reliability, travel time, safety, and accessibility for all users on the 22 Fillmore Muni route. The Muni system is designed on a modified grid that allows customers to reach most areas of the City with a single transfer, greatly expanding the project's impact beyond the 16th Street corridor. This route, one of the most heavily-used transit lines in the City, currently carries approximately 18,000 people a day along the entire corridor, with 8,000 in the project area. This project will facilitate zero-emission transit service that connects the Mission Bay neighborhood to the Inner Mission and other neighborhoods north of Market Street. Moreover, with this connection in place, SFMTA Muni service will connect to the existing Third Street light rail service and the site of the proposed new Golden State Warriors basketball arena.

The 22 Fillmore is one of the busiest transit routes in the city.

CREATING A SAFER WALKING & BICYCLING ENVIRONMENT

Streetscape improvements, including widened sidewalks, transit and pedestrian bulb-outs, street trees, pedestrian-scale lighting, and high-visibility crosswalks will increase the visibility of people walking and decrease the potential for injury. Additionally, 17th Street, a parallel street one block to the south, will be upgraded to become a contiguous, safe, comfortable and attractive bicycle route for traveling in the east-west direction.

The 16th Street BART Station serves 12,000 passengers everyday.

PROVIDING LADDERS OF OPPORTUNITY

By linking four neighborhoods (Castro, Mission, Potrero, and Mission Bay) with a 51% minority population and 25% low-income population, this project will enable faster, more predictable multimodal connections to jobs, schools, and health care services in an area undergoing tremendous growth and redevelopment. Specific modes providing ladders of opportunity that will be upgraded as part of this project include bicycling, walking, and most of all, transit.

FACILITATING REGIONAL CONNECTIONS

A primary goal of the project is to better connect regional transit hubs and adjacent residential areas in the west (including the Mission's 16th Street Mission BART station) to burgeoning biotech jobs, retail markets and healthcare destinations in San Francisco's Mission Bay to the east and the SFMTA's T Third light rail line which is currently being extended to Chinatown, with the densest population outside Manhattan.

A new UCSF Hospital is expected to open in February, 2015.

LEVERAGING ONGOING INVESTMENT IN THE AREA

The Mission Bay development is a $4.2 billion investment in residential and commercial development, new educational institutions, medical research and technology centers, and three new hospitals. In addition, the 16th Street Multimodal Corridor Project will be implemented in coordination with other improvements to Muni's Rapid Network, multiplying the benefits of each individual project and delivering more value for San Francisco and the region.

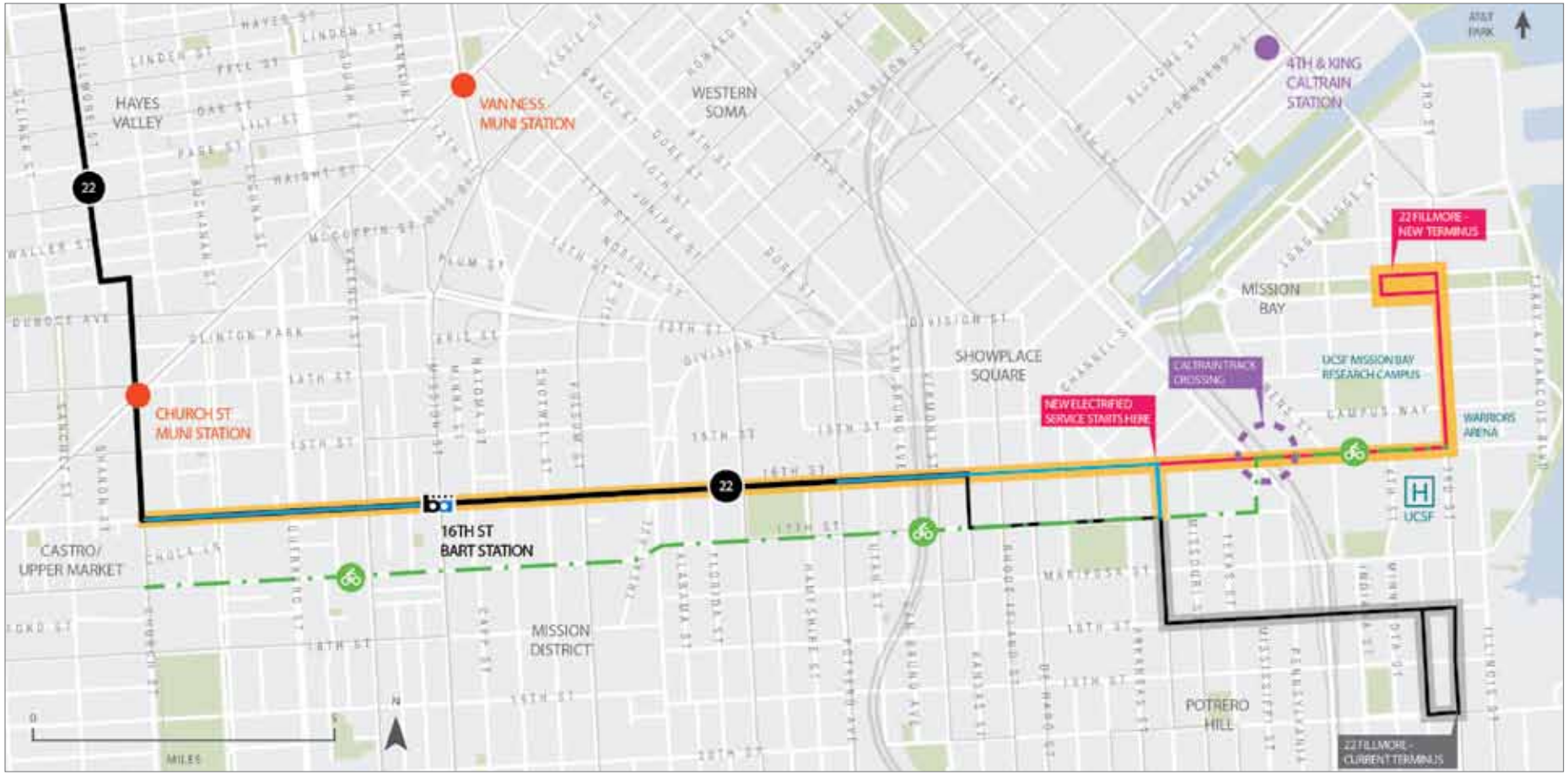
SCOPE OF WORK

The proposed project would provide transit and streetscape improvements for the southeastern portion of the 22 Fillmore route along the 2.3 mile 16th Street corridor. Corridor-wide transit network enhancements such as transit-only lanes, transit bulbs, and new traffic and pedestrian signals will deliver safety, speed, and reliability for the City's transit riders. Upgrading and extending the overhead contact system (OCS) on 16th Street from Kansas Street to Third Street is a core capacity improvement that will concurrently improve the state of good repair of the network and enable zero-emission transit service into Mission Bay. Finally, new streetscape design and landscaping will provide much-needed improvements to the area's walking environment.

Together, the changes to the transit network and walking environment are anticipated to reduce the travel time of the 22 Fillmore by about 5 minutes in each direction along the 2.3-mile project area, or a 25

FIGURE 3: 16TH STREET MULTIMODAL CORRIDOR PROJECT MAP

- 16th Street Corridor Project Area
- Current 22 Fillmore trolley coach line
- OCS State of Good Repair improvements
- Proposed extension of the OCS
- Proposed Bicycle Network enhancements
- Current Muni Route Network
- Current 22 Fillmore route to be covered by the 33 Stanyan Muni Route after project

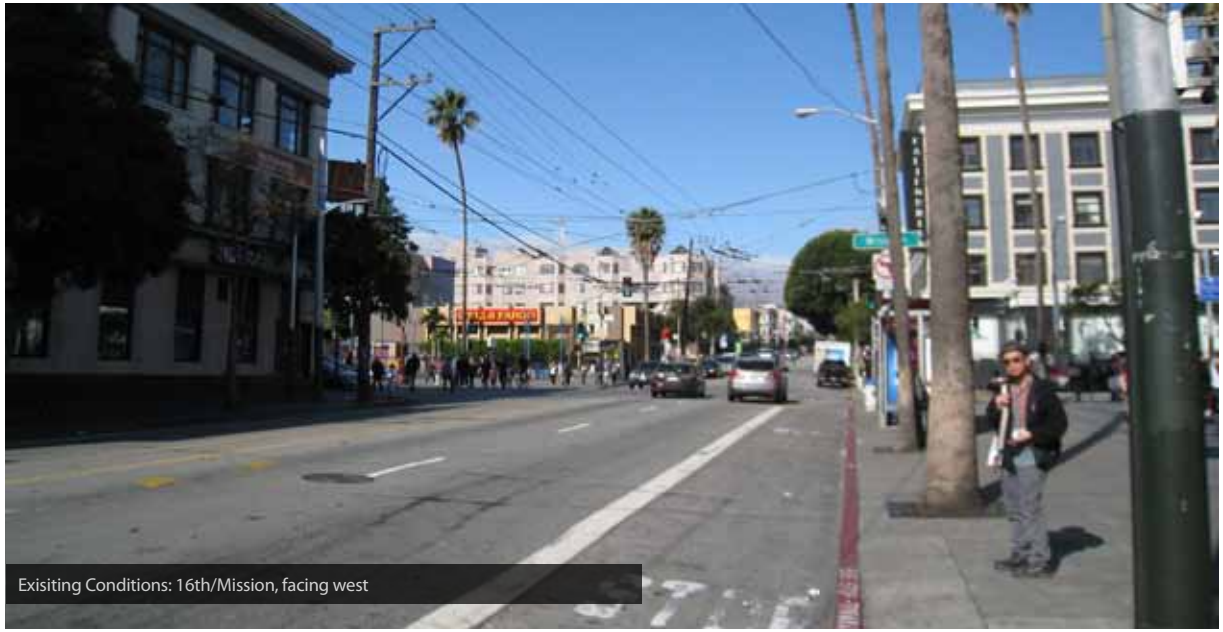


percent reduction. These enhancements are projected to both improve the average operating speed and enhance service reliability, which translates to reduced operating costs for the route. This will benefit the current 8,000 daily riders and the anticipated growth in ridership as a result of population and employment growth.

TRANSIT NETWORK ENHANCEMENTS

16th Street, from Church Street east to Bryant Street: The main causes of transit delay along this portion of the corridor include long passenger boarding and alighting times, friction between parking and loading vehicles, double-parked vehicles, vehicles getting stuck behind cars turning right, narrow lanes, and areas of closely spaced transit stops. In order to reduce transit travel times and improve reliability, 16th Street from Church Street to Bryant Street will be reconfigured to include one westbound side-running transit-only lane and one westbound lane general traffic lane, replacing the two westbound general traffic lanes from South Van Ness Avenue to Church Street. From South Van Ness Avenue to Bryant Street, the four existing general traffic lanes would be converted to one general traffic lane in each direction, and one westbound transit-only lane. This new street alignment will speed transit while preserving space for general traffic, parking lanes and loading zones in the established commercial areas.

16th Street, from Bryant Street to Third Street & north to the Mission Bay Boulevard Terminal: In the eastern portion of the corridor, the project will replace and upgrade the overhead contact system (OCS) on 16th Street from Potrero Avenue to Kansas Street. It will also relocate the existing OCS from 17th Street between Kansas Street and Connecticut Streets onto 16th Street to support the rerouting of the new 22 Fillmore route. In addition, the project will install one block of OCS infrastructure on Connecticut Street



Exisiting Conditions: 16th/Mission, facing west

16th Street Multimodal Corridor Conceptual Design: 16th/Mission, facing west

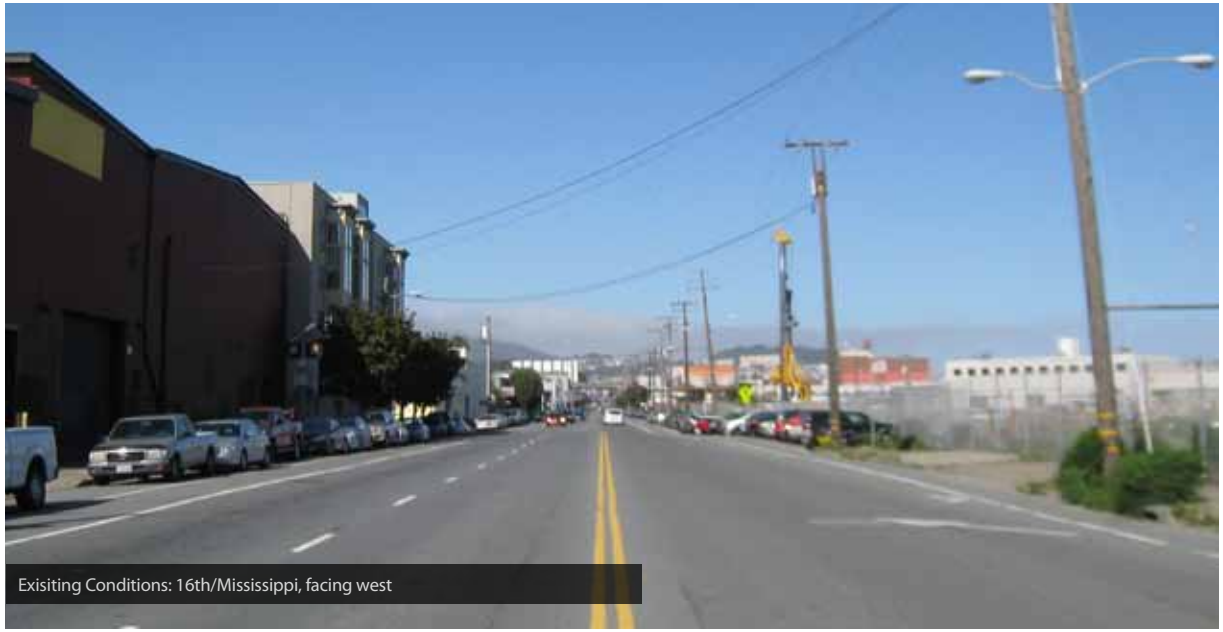
between 16th Street and 17th Street. This section will enable the 33 Stanyan trolley coach to serve the 22 Fillmore's existing terminal loop on Connecticut, 18th, 20th and Third streets. East of Connecticut Street, the OCS will be extended into Mission Bay, where a terminus for the 22 Fillmore will be constructed through existing development agreements.

The project will also install transit-only lanes running along the curb in both directions, maintaining one lane in each direction for general traffic use along with the opportunity for parking and loading zones for much of the corridor.

STREETSCAPE ENHANCEMENTS

The 16th Street corridor does not currently conform with San Francisco's Better Streets Plan (2010). It has documented safety issues along with a fragmented pedestrian environment. The project will install the following streetscape elements along the entire corridor to improve safety and accessibility for all users:

- **Bus Bulbs:** 45-foot to 80-foot bus bulbs will be installed at each bus stop to enable safer and more efficient passenger boarding and alighting. Long bulb-outs allow for additional space on the sidewalk for transit shelters and landscaping. By allowing the bus to stay in its traffic lane to pick up and discharge passengers, bus bulbs benefit both transit travel time and passenger safety.
- **Pedestrian bulbs:** Pedestrian bulb-outs are smaller than bus bulb-outs and are used at intersections to increase the visibility of people waiting and crossing the street, shorten the crossing distance, and slow vehicle speeds. Pedestrian bulbs will be installed at every intersection where there is a bus stop.
- **Sidewalk widening:** An option for widening



Exisiting Conditions: 16th/Mississippi, facing west

16th Street Multimodal Corridor Conceptual Design: 16th/Mississippi, facing west

sidewalks from the current 10 feet to between 15 and 18 feet from Connecticut Street to 7th Street will be presented to the community during final conceptual design and legislation in 2015. Sidewalk widening is contingent upon community support for parking removal on affected blocks. Should the SFMTA no longer pursue the environmentally-cleared options to widen the sidewalk, the project will still construct transit and pedestrian bulbs from Connecticut Street to 7th Street.

- **New Traffic and Pedestrian Signals:** Based on projected increases in vehicle traffic and congestion, upgraded traffic and pedestrian countdown signals will be built at new transit stops on 16th Street at Wisconsin Street, Connecticut Street, and Missouri Street. In addition to these new signals, existing traffic and pedestrian signals throughout the corridor will be upgraded with modern technology that allows for both transit priority and improved traffic flow.
- **Landscaping:** Landscaping elements, which may include planters, street trees, and other pedestrian furnishings, will enhance air quality and the pedestrian space, improving the overall urban environment. Landscaping included in the project will also incorporate innovative storm water infrastructure elements that may include permeable paving and rain gardens to reduce storm water flowing into limited capacity combined sewers.
- **New and upgraded crosswalks:** Installing mid-block crosswalks and upgrading standard crosswalks to continental-style paint treatments will increase visibility and visually remind motorists that there are people walking along and crossing the street.
- **Pedestrian scale lighting:** Installing pedestrian scale lighting will make pedestrians more visible on the street and provide a safer and more pleasant experience for people walking.

BICYCLE NETWORK ENHANCEMENTS

17th Street, from Church Street to Mississippi Street: Currently, an east-west bicycle route runs on 17th Street between Church Street and Kansas Street, where it turns north for one block before continuing on 16th Street into Mission Bay. Until recently, the route was disconnected and the type of network infrastructure changed every several blocks from bicycle lanes, sharrows (share-the-lane markings), and separated bikeways. Despite the recent construction of on-street bicycle lanes along this segment of the corridor, space for traffic, transit, and people on bicycles remains limited on the 16th Street section and the opportunity for dangerous conflicts still exists. For that reason, the 16th Street project will upgrade the transit, walking, and driving environment on 16th Street and continue the recent work on 17th Street to create a parallel, contiguous, safe, comfortable and attractive bicycle route from Church Street to Mississippi Street for traveling in the east-west direction.

The enhancements to 17th Street from Kansas Street to Mississippi Street may include bicycle lanes striped on both sides of the street, leaving the remaining roadway available for two-way vehicle traffic. On the block between Kansas and De Haro Streets, where sidewalks widen to 12 feet, parking could be removed on one side of the street to enable bicycle lanes in both directions. Traffic calming and control measures may also be applied to the full length of this segment, including conversion of two-way stop intersections to four-way


Wide sidewalks


Traffic and Pedestrian Countdown Signals


Innovative stormwater management

stops and the addition of corner bulb-outs. Corner bulb-outs will be particularly important because proposed left-turn restrictions on 16th Street will cause some eastbound drivers to divert onto 17th Street for one block. Narrowing these intersections and providing tight turning radii will encourage drivers to navigate 17th Street slowly and safely.

16th Street, from Seventh Street/Mississippi Street intersection to Third Street: The bicycle route will turn north at Mississippi Street and then east on 16th Street from Seventh Street to Third Street, where it will connect to the lanes already constructed by the developer under its agreement with the City. This project will also explore the possibility of upgrading the bicycle network infrastructure along this segment to improve safety and accommodate any new growth.

17th Street bicycle lanes

CALTRAIN CROSSING

16th Street crosses the Caltrain tracks at-grade just east of the Seventh Street/Mississippi Street intersection and is one of only two streets that provides a continuous east-west connection for traffic, transit, and people walking and bicycling in this part of San Francisco. The Caltrain commuter rail right of way, to be shared with the future California High Speed Rail alignment, runs underneath the elevated Interstate 280. It passes through the eastern side of San Francisco in a north-south direction, with an at-grade crossing at 16th Street. Combined, the tracks and the elevated freeway are a physical barrier for east-west circulation, especially for transit.

Caltrain is currently reviewing its own electrification alternatives to upgrade its infrastructure and reduce travel time, increase service, and maintain a state of good repair. One of these alternatives includes a technical solution to crossing the overhead contact system in its right of way with Muni's trolley coach wires to allow the 22 Fillmore to cross the tracks and continue into Mission Bay. Caltrain would design and construct the crossing at 16th Street and will work with the SFMTA to develop operational procedures and maintenance agreements as needed.

THE IMPROVEMENTS ALONG THE 16TH STREET CORRIDOR SUPPORT A FASTER, MORE RELIABLE, MULTIMODAL TRANSPORTATION NETWORK, ALONG WITH SAFER AND MORE PLEASANT ACTIVE TRANSPORTATION CHOICES.

- Bus-only lanes will reduce delay caused by traffic congestion
- Transit signal prioritization reduces time spent waiting at red lights
- Fewer turns along the bus route will reduce travel times
- Upgraded overhead contact system reduces maintenance costs and risk of dewirement
- Transit bulbs reduce dwell times

- Pedestrian bulb-outs increase visibility of pedestrians and reduce crossing distances
- Pedestrian countdown signals give people the information they need to determine if they can safely cross busy roadways before the light turns red
- Widened sidewalks and additional streetscape elements such as landscaping and pedestrian scale lighting create a safer and more pleasant walking environment

- Movement of the 16th Street Bicycle Route onto a parallel route - 17th Street - will reduce conflicts and confusion between people on bicycles with people using other modes
- Fewer conflicts and upgraded infrastructure means safer streets and a more comfortable ride
- Improvements to the bicycle network makes bicycling a more attractive option and supports the City's mode-shift goals

- New traffic signals will ensure the steady flow of traffic through the corridor despite increased demand
- The proposed design will retain parking and loading zones along the corridor for access to local businesses and residential buildings

II. PROJECT PARTIES

The project is a collaboration between the San Francisco Municipal Transportation Agency (SFMTA) and the San Francisco Planning Department. These agencies will coordinate with the San Francisco Public Utilities Commission (SFPUC) and the Peninsula Corridor Joint Powers Board (Caltrain) on the specific elements and design specifications for the stormwater management elements and the crossing of the Caltrain tracks, respectively.

- The **SFMTA** plans, designs, builds, operates, regulates, and maintains one of the most diverse transportation networks in the world. In addition to managing four modes of transportation (transit, walking, bicycling and taxis), within the transit realm, the agency operates five types of transit service (bus, trolley bus, light rail, historic streetcar, and cable car) and provides paratransit service for individuals unable to use fixed-route transit service. As the lead applicant, the SFMTA is responsible for the legislation, approvals, design, and construction of the transit, bicycle, and streetscape enhancements and will ensure all modes of transportation operate smoothly along the corridor.

- The **San Francisco Planning Department**, under the direction of the Planning Commission, develops the City's General Plan and neighborhood plans, conducts design review and environmental analysis, enforces the Planning Code, addresses historic preservation and encourages a broad range of housing and a diverse job base. The Planning Department will collaborate with the SFMTA in the public outreach process and develop the final conceptual design of the corridor's streetscape elements.

- The **SFPUC** provides drinking water and wastewater services to San Francisco, wholesale water to three Bay Area counties, and green hydroelectric and solar power to San Francisco's municipal departments. The SFPUC will coordinate with the SFMTA, the Planning Department and the local communities to integrate stormwater management into the streetscape design.

- **Caltrain** provides commuter rail service along the San Francisco Peninsula, through the South Bay to San Jose and Gilroy. As part of rail electrification, Caltrain will design and construct the physical crossing of the overhead contact wires, enabling the electrification of both Caltrain and the 22 Fillmore Muni route.

Other regional and local stakeholders in the design and construction of the 16th Street Multimodal Corridor Project include:

- **Bay Area Rapid Transit (BART):** A commuter rail system linking San Francisco to portions of three other counties.
- **Metropolitan Transportation Commission (MTC):** The Bay Area's Metropolitan Planning Organization and designated recipient of most FTA funds.
- **San Francisco County Transportation Authority (SFCTA):** A planning and funding partner, responsible for programing local transportation sales tax funds to this project.
- **San Francisco Office of Community Investment and Infrastructure (OCII):** The successor agency to the San Francisco Redevelopment Authority, and managing much of the redevelopment of Mission Bay.
- **San Francisco Department of Public Works (DPW):** Responsible for carrying out the street improvements in this project.

Together these agencies will engage regional employers and the local community to design and construct the 16th Street Multimodal Corridor Project, ensuring that the transportation infrastructure can accommodate the current and future demand for all modes. This collaboration and coordination among local communities, City departments and regional stakeholders will result in a Complete Street project, while reducing costs and disruption to the community.

III. GRANT FUNDS & SOURCES - USES OF PROJECT FUNDS

The 16th Street Multimodal Corridor Project is requesting $10 million from the TIGER grant program, representing the final major funding piece needed to deliver the project. These dollars, along with additional federal monies from Federal Transit Administration Section 5337 Fixed Guideway Funds, will leverage $41,480,000 in committed local funding for the project. As detailed in the chart below, the project is funded with just over 62 percent in local/regional funds and 38 percent federal funds.

With the exception of City and County of San Francisco General Obligation Bonds, which are pending voter approval in November 2014, the other funding sources listed below have been either specifically identified for the 16th Street Multimodal Corridor Project or will be eligible for use by the project.

TABLE 1. FUNDING SOURCES

Funding Source	Funding Type	Total Amount	% of Total
TIGER Grant Request	Federal	$10,358,614 4	15.4%
Federal Transit Administration Section 5337 Fixed Guideway Funds	Other Federal	$15,000,000	22.3%
AB664 Regional Bridge Toll Funds	Regional	$300,000	0.5%
Eastern Neighborhoods Development Impact Fees	Local	$10,800,000	16.1%
City and County of San Francisco General Funds	Local	$700,000	1.0%
Proposition K Transportation Sales Tax	Local	$10,480,000	15.6%
Proposition AA Vehicle Registration Fee	Local	$4,500,000	6.7%
SFMTA Operating Funds (TSIP)	Local	$5,000,000	7.5%
City and County of San Francisco General Obligation Bonds*	Local	$10,000,000	14.9%
Total		**$67,138,614**	

*Pending voter approval in November 2014

The following budget breakdown details the major elements and associated costs of the project.

TABLE 2. PROJECT BUDGET

	#	Unit	Unit Cost	Project Cost Estimate
TRANSIT ENHANCEMENTS				**$ 10,144,720**
Transit Bulbs/Sidewalk Improvements	21	Each	$ 118,000	$ 2,478,000
OCS Ductbank Underground	1	Mile	$ 3,150,000	$ 3,150,000
OCS -foundation and poles	1	Mile	$ 1,367,300	$ 1,367,300
OCS - overground	1	Mile	$ 3,149,420	$ 3,149,420
OCS - Caltrain Crossing*	1		TBD	$ 0
STREETSCAPE ENHANCEMENTS				**$ 6,105,000**
Streetscape elements on bulbs (Greening)	21	Each	$ 75,000	$ 1,575,000
Pedestrian Bulb Outs	8		$ 50,000	$ 400,000
Accessible Curb Ramps	26		$ 5,000	$ 130,000
Pedestrian Scale Lighting, Trees and Landscaping	1		$ 4,000,000	$ 4,000,000
ROADWAY IMPROVEMENTS				**$ 3,900,000**
Repave Potrero to 7th Street	240,000	Sq. Ft.	$ 5	$ 1,200,000
Transit-Only Lanes (in red), Final Striping, bike lanes on 17th Street	500,000	Sq. Ft.	$ 1	$ 500,000
Traffic Signal Upgrade	5	Each	$ 200,000	$ 1,000,000
New Traffic Signal	4	Each	$ 300,000	$ 1,200,000
UTILITY RELOCATION				**$ 11,196,000**
Sewer	1	mile	$ 3,696,000	$ 3,696,000
Water	1	mile	$ 2,500,000	$ 2,500,000
Emergency Auxiliary Water Supply System	1	mile	$ 5,000,000	$ 5,000,000
Others- Allowance, mob/demob, hazard material management, traffic control, permits (15%)				$ 4,701,858
Hard Costs TIGER Project				**$ 36,047,578**
SOFT COSTS				
Environmental & Planning Outreach 5%				$ 1,802,379
Pre-development 2%				$ 720,952
Conceptual Engineering Report 7%				$ 2,523,330
Detail Design 15%				$ 5,407,137
Construction Support 20%				$ 7,209,516
Soft Cost TIGER Project				**$ 17,663,313**
Project Contingency 20%				**$ 13,427,723**
Total TIGER Project				**$ 67,138,614**

IV. PROJECT OUTCOMES

The 16th Street Corridor Project has been prioritized by the local community and citywide stakeholders because of its essential role in connecting Mission Bay - a major new trip generator - with the other Eastern Neighborhoods, the rest of the City and the region. The project includes replacement, relocation, upgrading, and expansion of multimodal capital infrastructure improving the safety and reliability of the transit system, the economic vitality of the city, and the environment.

PRIMARY SELECTION CRITERIA

STATE OF GOOD REPAIR:

Overhead Contact System Reconstruction: As part of the project scope, the existing overhead contact system (OCS) for trolley coach operations will move from 17th Street to 16th Street between Kansas and Connecticut streets, and the 17th Street portion will be demolished. This project will build the OCS system between Kansas and Connecticut to be in line with the SFMTA's state of good repair standards, offer more operating capacity, reduce maintenance costs and increase transit speed and reliability.

The existing OCS on 17th Street was originally constructed in the 1940s and is still supported in some places by wooden poles from that era. This outdated infrastructure requires significant maintenance compared to newer parts of the system, and is also vulnerable to fraying and dewirement. In contrast, the new OCS system on 16th Street will be built on robust steel support poles, wire and other connecting infrastructure. A parallel feeder system wire will be in conduits inside an underground duct bank, resulting in increased safety and reliability. Cumulatively these improvements will significantly decrease maintenance of the OCS system on the corridor and make transit service more reliable.

In addition to increased reliability and efficiency of a new 16th Street OCS, the project will speed transit service by eliminating two turns now navigated by the existing 22 Fillmore route. This route adjustment will save both travel time and wear and tear on vehicles and overhead infrastructure over time, thus improving the mobility of the riding public and network efficiency and offer true, linear east-west connections.

The project will also improve system reliability and efficiency on the western portion of the 16th Street corridor between Church Street and Kansas Street. While some of the OCS infrastructure on these blocks has been renewed within the last 10 years, the segment between Church Street and Mission Street is older and supported by wooden utility poles. Replacement of those poles, along with new connecting hardware and wires, will also improve system reliability and efficiency.

Street Reconstruction: The project will rebuild parts of City streets and sidewalks to enhance the pedestrian environment and minimize the incidence of street repair and maintenance. To that end, street reconstruction will be done in compliance with City standards that require a stronger concrete base (rather than an aggregate

base) on streets with major traffic and transit use, such as 16th Street. While initially more expensive, this method will result in less street repair/maintenance over time, minimizing delays to transit and traffic. It will protect the significant investment in new utilities that will be installed under the street in conjunction with the project.

Project Capitalization: The project is capitalized up front based on design and construction methods developed over decades of experience in rebuilding existing overhead wire infrastructure in San Francisco. These design methods are based on achieving maximum life of the new/replacement assets, or 50 years, both for trolley support poles and the underground feeder duct bank and conduit. Functionally, the designs will also meet standards in the High Performance Overhead Wire Design Guidelines for San Francisco, originally developed in 1992 and amended in 2004. These guidelines are meant to allow trolley coaches to operate at the highest safe speed without dewirements while also protecting the overhead infrastructure from excessive wear.

Given the length of the overhead wire project (over 1.5 mile), it is sufficiently capitalized to take advantage of economies of scale for common elements. For example, the SFMTA will purchase approximately 200 trolley/light poles, thus reducing their purchase price and improving the efficiency of the installation of these elements.

Sustainable Funding for Operations and Maintenance: The replaced / upgraded assets will create no new net operating and maintenance costs. The replaced OCS system on 16th Street will reduce the operating or maintenance costs compared to the current condition on 17th Street, and the retained system on 16th Street will be upgraded such that there will be no increase in operating and maintenance costs. Similarly, the three new traffic signals included in the project represent no significant additional cost for the City's signal operations and maintenance, and will decrease operational costs by speeding service.

The 1.2 mile expansion to the OCS system from Connecticut to Mission Bay Boulevard Terminus will translate into additional operating and maintenance costs, but they will be absorbed into the existing SFMTA operating budget. In addition, these costs will be offset by the elimination of a temporary biodiesel shuttle bus that will serve the route in the interim and additions from increased ridership.

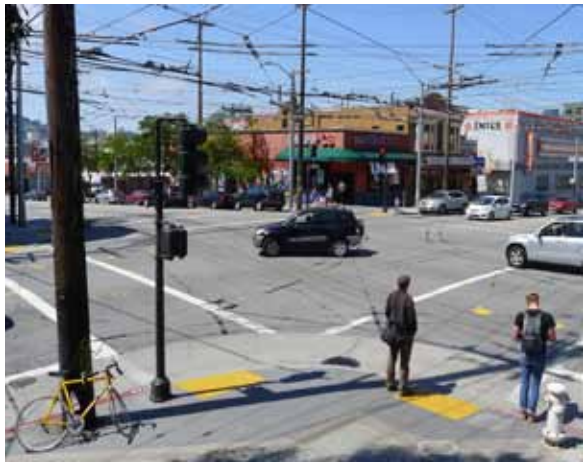
Resilience to Major Emergencies and Climate Change: Modernization of the OCS system better prepares SFMTA's Muni services for emergencies or major disasters related to climate change and earthquakes. New and innovative storm water mitigation infrastructure along the corridor will improve the City's ability to slow the influx of storm water into the City's sewer system. In addition, placing the OCS electric feeder cable underground prevents damage during severe storms and earthquakes, and stronger steel support poles can better withstand the same events.

Of unique significance, Mission Bay houses a brand new medical facility that will be better connected with the rest of the City upon completion of the 16th Street Corridor project. In case of an emergency, this route will be critical in connecting disaster victims with medical care and basic resources like food and water.

Last, this project expands the zero-emission trolleybus system by 1.2 miles, replacing a temporary biodiesel shuttle bus service in operation to connect the Mission Bay District to BART, thus reducing some of San Francisco's vehicular emissions.

Compliance with Local/Federal Directives: The State of Good Repair enhancements constructed by this project are supported by current Federal Transit Administration directives along with local plans such as the Mission Bay Infrastructure Plan and the Mission Bay Mitigation Measures Monitoring Program. According to these plans, which were adopted in concert with the land use approvals for redevelopment of the Mission Bay area, neighborhood infrastructure must be updated and maintained in a state of good repair to support multimodal transportation options, including transit, biking, and walking.

Finally, the SFMTA's Strategic Plan, adopted in 2012, has a key objective to "reduce capital and operating structural deficits." By way of this objective, the SFMTA is seeking to make investments in assets that have exceeded its useful life and are in poor condition to reduce its State of Good Repair backlog and better track asset renewal needs for capital planning. Replacement of this segment of OCS complies with the Strategic Plan and will result in a reduction of the Agency's capital backlog of State of Good Repair projects.



ECONOMIC COMPETITIVENESS

Growth of Economic Productivity: Approved by the San Francisco Board of Supervisors as a redevelopment project area in 1998, Mission Bay is now transforming from an underutilized and blighted industrial area into a thriving mixed-use, transit-oriented infill development and an important economic engine focused on the biotechnology and medical industries. This development will produce jobs and housing across the economic spectrum. Mission Bay is becoming a vibrant neighborhood where people live, work and play. Jobs, housing and education facilities are located adjacent to the Third Street Light Rail line and the Caltrain commuter rail connecting Mission Bay to Silicon Valley, and the communities in between. At full build-out, Mission Bay will be a model of livability: five light rail stops, a commuter rail line, 6,000 housing units, almost 9 million total square feet of public and private technology, research, medical and educational facilities, a 500 room hotel, several hundred thousand square feet of retail, 49 acres of open space, a grocery store, new school, new public library, city police headquarters and local police and fire stations. Mission Bay is not only a model for sustainable infill growth, but also an economic and employment engine for the region, the state, and the country, involving $9 billion in public and private investment, resulting in tens of thousands of construction jobs, and more than 30,000 permanent jobs in critical fields like biotech, healthcare and education.

In an effort to serve the current and projected needs for this growing landscape, the Transit Effectiveness Project (TEP) identified "Rapid Corridor" treatments along 16th Street to improve transit efficiency and reliability. In the long term, these improvements will provide a vital connection to BART's regional rail service and will improve local transit options to better serve San Francisco-based residents, workers and visitors.

Creation of Economic Ladders of Opportunity: By linking four neighborhoods (Castro, Mission, Potrero, and Mission Bay) with a 51% minority population and 25% low-income population, this project will enable workers to make faster, more predictable multimodal connections to jobs, schools, and health care services in an area undergoing tremendous growth and redevelopment. In addition to the growth in the biotech and healthcare fields, more than 20% of San Francisco's local manufacturers are located in close proximity to the 16th Street Corridor, making these multimodal infrastructure improvements even more important. As part of this project, transit, walking, and bicycling infrastructure will create ladders of opportunity for the most vulnerable, lower-income employees to get to jobs across the city.

Increase in Economic Mobility: San Francisco's 16th Street is the major east-west transportation corridor connecting the City's Eastern Neighborhoods to the rest of the City. Along it, Muni's 22-Fillmore line must be extended east to Third Street in order to function as a major east-west surface transit corridor south of the City's Downtown/South of Market commercial core. This will result in a major transit junction that will serve the actively expanding residential and commercial neighborhoods along San Francisco's southeast waterfront. This corridor is vital to job creation and economic mobility, particularly for at-risk populations.

Despite the City's current economic growth, existing disconnected populations live in pockets of poverty and still struggle to make livable wages and thrive. This project will help link those populations to jobs, healthcare, education, and regional transportation. Substantial development is already underway in Mission Bay at the eastern end of the corridor, and significant infill development projects along the rest of the 16th Street corridor have begun. Of the 6,000 new housing units in Mission Bay, more than 700 will be below market rate. It is imperative that reliable and safe transit options link this housing with employment and other community assets.

QUALITY OF LIFE

Affordable and Convenient Transportation Choices: Residents of the neighborhoods surrounding the 16th Street corridor rely on transit. In the Mission neighborhood, which is traversed by the central segment of the proposed project, a remarkable 40% of households do not own a vehicle. In their journey to work, 54% of residents use transit, walk or bike. Affordable and convenient transportation choices are essential to the community. This neighborhood is 41% Latino. 53% of households do not speak English at home and 40% are foreign born. Household income in this area is 81% of San Francisco's median and the public schools near the corridor have a student population with 60% to 80% receiving free and reduced price lunch. Given the extremely high cost of living in San Francisco, these residents depend on reliable transportation to get to employment, community services and amenities, healthcare, and schools (San Francisco does not have a neighborhood school system and provides very limited dedicated school bus service).

Several of the neighborhoods along this 16th Street corridor are defined as Communities of Concern, areas determined by the regional Metropolitan Transportation Commission (MTC) as meeting at least four of the following factors: minority residents, low-income residents, English-language proficiency, car ownership, seniors, persons with a disability, single-parent households, or cost-burdened renters. The transit and safety enhancements of the 16th Street Project will improve transit speed and reliability for the residents of this community, providing them with affordable and convenient connections to both the rest of the City and regional transportation options.

Transit fares in San Francisco are equal to or lower than fares in nearly all of its peer cities. The extension of the 22 Fillmore bus route will facilitate an affordable

RECENT LAND USE & TRANSPORTATION PLANNING EFFORTS IN THE AREA:

- **Eastern Neighborhoods:** Ten-year planning effort that improves the City's capacity to absorb its fair share of regional growth while supporting existing communities and preserving diverse land uses (particularly Production-Distribution-Repair, which is essential to the City's burgeoning local light industrial sector).
- **Eastern Neighborhoods Transportation Implementation Planning Study (ENTRIPS):** Implements the transportation vision established in the Eastern Neighborhoods area plans and provided the foundation of the 16th Street Multimodal Corridor Project.
- **MTC Communities of Concern:** Regionally-identified areas with at least four of the following factors: minority residents, low-income residents, English-language proficiency, car ownership, seniors, persons with a disability, single-parent households, or cost-burdened renters.
- **Mission Bay Redevelopment:** A 303-acre, $4 billion development that will create over 30,000 new permanent jobs, over 3,000 housing units, 12 acres of open space, and more than $700 million in public infrastructure.
- **Transit Effectiveness Project (TEP):** Data analysis and community engagement to restructure transit service on certain lines to improve efficiency and connectivity and implement transit priority changes on the most heavily used lines, giving buses and trains more priority on City streets.
- **Better Streets Plan:** Creates a unified set of standards, guidelines, and implementation strategies to govern how the City designs, builds, and maintains its pedestrian environment.
- **Mission Streetscape Plan:** Includes designs to improve pedestrian safety and comfort, increase the amount of usable public space in the neighborhood, and support environmentally-sustainable stormwater management.
- **Green Connections:** Identifies important bicycle and pedestrian corridors that connect people to parks and open spaces.
- **San Francisco Bicycle Plan:** Updates of the 1997 San Francisco Bicycle Plan and contains specific proposed near-term bicycle route network improvement projects for a safe, interconnected bicycle network that supports bicycling as an attractive alternative to private auto use.
- **San Francisco Pedestrian Strategy:** Provides a path towards making San Francisco the most walkable city in North America.
- **Potrero Hill Traffic Calming Plan:** Improves neighborhood livability by reducing the impact of traffic on our neighborhoods.
- **PUC Urban Watershed Assessment:** The watershed-based planning process SFPUC is using to help plan the City's Sewer System Improvement Program (SSIP), a 20-year, multi-billion dollar project.

connection from established housing and commercial districts to regional transportation, burgeoning job and housing markets, healthcare facilities, and educational institutions at no greater cost than other Muni services.

16th Street is also identified in the 2009 San Francisco Bicycle Plan as an important east-west bicycle route. However, because the right-of-way is limited and the possibility for dangerous conflicts exists, the 16th Street Multimodal Corridor Project includes moving a portion of the bicycle route to 17th Street to create a parallel, contiguous, safe, comfortable, and attractive connection for people riding bicycles. At the same time, the project will improve the pavement and traffic signals on the corridor and ensure commercial delivery access to businesses.

Community Engagement & Coordination with Other Planning Efforts: The 16th Street Multimodal Corridor Project has been developed in coordination with multiple land use planning and economic development plans and is consistently identified as a high priority for the urban and regional transportation network. The SFMTA will continue to work with the San Francisco Planning Department, neighborhood associations, advocacy groups, and the general public to prioritize the bicycle and streetscape elements as defined in the Eastern Neighborhoods Plan, the SFMTA Transit Effectiveness Project, the Better Streets Plan, the Mission Streetscape Plan, Green Connections, and other plans to improve pedestrian safety and enhance the identity and livability of the neighborhoods served. Specifically, the project will improve the narrow sidewalks and complex, unsignalized intersections that are currently difficult to navigate for pedestrians, seniors, and those of limited mobility. Additionally, well-designed pedestrian-scale lighting, transit stop signage, furnishings, and landscaping will create a safer, more inviting environment and encourage walking. When coupled with the transit network enhancements, the bicycle infrastructure improvements, and the roadway changes, these streetscape enhancements will create a multimodal corridor that provides safe, convenient, reliable, and affordable transportation options for all users.

ENVIRONMENTAL SUSTAINABILITY

Reduction of Energy Use and Air Pollution: As part of the proposed transit rerouting, new overhead wire infrastructure will allow the 22 Fillmore to continue east along 16th Street directly to the Mission Bay Neighborhood. This will not only provide a shorter, more efficient transit route, but also enable zero-emission trolley coaches to serve a larger area. Additionally, the improved service, reliability, and convenience of the transit network in this part of the City may encourage a mode shift from private automobile to transit, walking, or bicycling instead, thereby further reducing carbon emissions.

Benefits to the Environment and the City's Non-Transportation Infrastructure: The SFMTA will also coordinate with the San Francisco Public Utilities Commission and other City Departments to ensure that the area benefits from proper stormwater drainage, which is particularly important given the City's combined sewer system, which discharges stormwater and sewage in extreme weather events. The project will investigate innovative green infrastructure elements for this low-lying area, which may include rain gardens, permeable paving and bulb-outs. Moreover, the project will also be evaluated as part of a citywide effort to mitigate threats against sea level rise. As part of this evaluation, the project will identify potential threats and build in resiliency where feasible.

Muni's trolley buses provide zero-emission transit service .

Innovative stormwater infrastructure will help mitigate flooding in this low-lying area of the city.

SAFETY

Improved Pedestrian Safety: After extensive data analysis, a citywide, interdivisional working group called WalkFirst found that 70 miles, or six percent, of the City's streets account for 55 percent of total injuries and 60 percent of the severe and fatal injuries that occurred in 2007 - 2011. The most common causes of these injury collisions were vehicle speed, failure to yield, and left turning vehicles. 16th Street from Church Street to San Bruno Avenue has been identified as one of these "high-injury corridors." From 2007 – 2011, there were 118 collisions involving a pedestrian in the corridor, with 33 percent of all collisions in the project area involving people walking or bicycling.

Improving the safety of the transportation system for all users is the SFMTA's primary goal. The 16th Street Corridor project will meet this directive by constructing physical streetscape upgrades that increase the visibility of vulnerable users along the corridor. These enhancements were identified and studied by WalkFirst and have been found to be effective for the common causes of collisions on 16th Street. These measures include:

- New transit and pedestrian bulb-outs at intersections adjacent to transit stops that make pedestrians more visible, shorten the crossing distances for people walking, and provide safe and convenient access to bus stops.
- New traffic signals with pedestrian countdowns shown to reduce the number of pedestrians in the crosswalk when the traffic signal changes, thereby reducing the likelihood for vehicle-pedestrian collisions.
- Pedestrian-scale lighting that increases visibility and personal security along the corridor and at the bus stops.
- New and upgraded crosswalks that increase pedestrian visibility and act as a visual reminder for people driving that there are people walking along and crossing the street.

Additionally, the new bicycle lanes on 17th Street will create a continuous, well-marked space for people on bicycles to ride without the potentially dangerous conflicts with the faster-moving buses and vehicles that may occur on the upgraded 16th Street.

Configuration of an At-Grade Rail Crossing: While the scale of the project could not eliminate the at-grade crossing of 16th Street and the Caltrain tracks, the project scope includes a cost-effective solution to the long-standing technical challenge of allowing the wires of Muni's electric trolley coaches and the wires of an electrified Caltrain (and future High Speed Rail) to safely cross each other's paths. The streetscape and bicycle improvements proposed for the corridor include a redesign of the complex intersection at the crossing to provide space for a safe crossing for all modes.


Pedestrian Countdown Signals & highly-visible crosswalks


Buffered bikeway


Transit bulbs


Improved at-grade rail crossing

SECONDARY SELECTION CRITERIA

INNOVATION

The San Francisco Bay Area is known worldwide as a center for innovation, and the City continually develops new processes and programs to improve safety and connect communities in an affordable, sustainable, and efficient manner. These innovative project elements and processes will not only improve the project itself, but also enhance project delivery and the long-term operation and maintenance of the transit system.

Innovative Project Elements: The 16th Street Multimodal Corridor Project will incorporate innovative green storm water infrastructure that will use landscaping and permeable surfaces in order to clean and divert stormwater from the City's combined sewer system. These elements will enhance the public realm and beautify the street as well as improve roadway conditions for people walking and bicycling. The addition of these elements to the project design for 16th Street will also address other, non-transportation related challenges currently faced by the corridor, such as localized flooding, aging sewer and water treatment infrastructure, seismic safety and reliability, and water quality in the San Francisco Bay and Pacific Ocean.

Additionally, the technical challenge of the two overhead wire systems of different voltages crossing at the 16th Street and Caltrain right-of-way has only been implemented in two other cities in the world. While Caltrain will be designing and constructing this element, the agencies will develop joint processes and procedures in order to ensure safe operations and maintain this critical junction in a consistent state of good repair.

Finally, the 16th Street Project will capitalize upon innovative best practices already in place at the SFMTA that provide riders with a faster and more convenient transit experience. These practices include all door boarding, smart card technology for fare payment, and the use of transit signal priority to minimize the delay to transit vehicles as they travel the length of the corridor.

Innovative Funding Programs: This project has a significant amount of support from local communities and the local government and is committed to funding nearly two-thirds of the project with local sources, including the SFMTA revenue bond and the proposed general obligation bond. While bond funding for large infrastructure projects is fairly common, the recent proposal for a general obligation bond for transportation-related projects is the first in San Francisco since 1966. Proposed for the November ballot by a coalition of over 40 representatives of public agencies, private sector businesses and advocacy groups appointed by San Francisco's Mayor Edwin Lee, the Mayor's Transportation Task Force unanimously endorsed the general obligation bond for a citywide package of transportation projects, including the 16th Street Corridor project. When coupled with a local increase to a vehicle license fee, the City and County of San Francisco has the opportunity to establish both short term and long term sources of funding.

In addition to these citywide sources, this project will benefit from area-specific funding generated by new development. The Planning Department develops Area Plans that outline land use changes and community improvements over a 20-year timeline. In recent years, most of these plans have included an impact fee for new developments that partially funds the infrastructure enhancements needed to serve the growing community. In some cases, developers may opt to design and/or build new infrastructure through an "in-kind" agreement in lieu of paying these impact fees. As a priority project in the Eastern Neighborhoods Area Plan, the 16th Street Multimodal Corridor Project will be partially funded by developer fees in addition to leveraging infrastructure in Mission Bay built under an in-kind agreement with the City.

Innovative Project Delivery: As discussed in greater detail in the next section, the SFMTA is continually working on improving coordination and collaboration

with other City departments to build better, more complete projects at less cost and disruption for the community. The SFMTA continues to upgrade its capital project tracking programs to improve transparency and accountability in delivering capital projects. As a large-scale capital investment, the project will benefit from these new systems now in place, which include schedule and cost controls.

PARTNERSHIP

This project includes partnerships that encompass both stakeholder collaboration and disciplinary integration. Collaboration is an integral part of the planning process and will continue through the design and capital implementation phases. Stakeholders will include multiple public agencies at the local and regional level.

Partnership with City Departments: The San Francisco Planning Department will be a key partner in community engagement and refinement of the conceptual design for the corridor. The SFPUC will also participate in the community engagement process in order to evaluate the most effective and feasible stormwater management elements for the corridor. The SFMTA will continue to work with the Office of Community Investment and Infrastructure to coordinate transportation and related infrastructure in the Mission Bay redevelopment area. The Department of Public Works will aide in the design, construction, and paving of the street elements of the project and the San Francisco County Transportation Agency will administer a portion of local funding for the project.

Partnership with Regional Government and Transit Operators: While Caltrain will be responsible for the design and construction of the crossing of the overhead wire system, the SFMTA will work closely with Caltrain to develop joint processes and procedures in order ensure the safe operations and maintain this important junction in a consistent state of good repair. The SFMTA and the project partners will coordinate with the Metropolitan Transportation Commission (MTC) to secure FTA State of Good Repair funding for OCS project elements and whose Commission recently endorsed this project to seek TIGER 6 funds. (See attached Regional Endorsement of Bay Area Projects for Federal TIGER 6 Grants). Since the project is immediately adjacent to the Bay Area Rapid Transit (BART) 16th Street Mission Station, the SFMTA will coordinate with this regional transit provider to improve access and ensure smooth connections between the two transit systems.

Partnership with the Community: Community groups are another essential stakeholder, and the SFMTA will leverage existing relationships with local business and neighborhood groups to gain their input on this project. The SFMTA and its partner City agencies are committed to fostering communication and collaboration through multiple avenues: web-based tools, community meetings, social media, standing community meetings, and more. A "complete streets" project like 16th Street will fully engage the knowledge and abilities of staff from multiple public agencies at the regional and local levels. In an effort to improve community engagement, the SFMTA and Planning Department staff working with the community have all been recently trained in public engagement strategies through the International Association for Public Participation.

Over the past few years, the SFMTA has pioneered several innovative partnerships, and lessons learned from these efforts will help guide and inform our partnership structures and our public engagement strategies. These prior efforts include:

- A partnership with UC Berkeley and City CarShare to launch an electric bicycle rental and storage project
- A collaboration with the Mission Bay Development Group, a private sector partner, to secure $10 million in Cycle IV TIGER funds for Mission Bay redevelopment efforts
- Implementation of a regional bicycle-sharing program with the City of San José and the Bay Area Air Quality Management District

Disciplinary Integration: The proposed transportation project is coordinated with numerous economic development, housing, water infrastructure, and land use plans and policies in the following ways.

- The neighborhoods surrounding the 16th Street corridor are included in the Eastern Neighborhoods Plan (2009), a 10-year planning effort that improves the City's capacity to absorb its fair share of regional job and housing growth while supporting existing communities and preserving diverse land uses (particularly Production-Distribution-Repair, which is essential to the City's burgeoning local light industrial sector).
- To support the Eastern Neighborhoods Plan, the City produced the Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS), which is the foundation for the proposed work on 16th Street.
- The entire area touched by the proposed project has been designated a regional Priority Development Area (PDA) by the Association of Bay Area Governments, which prioritizes new development and growth in areas with rich transit connections and community infrastructure.
- The San Francisco Redevelopment Agency produced the Mission Bay Redevelopment Plan in 1998, which is guiding the substantial development under way in Mission Bay, as the eastern end of the 16th Street corridor. The Mission Bay Citizen Advisory Committee meets monthly and will continue to be engaged in the proposed project.
- The proposed work implements many of the priorities identified in the 2010 Mission Streetscape Plan, which includes designs to improve pedestrian safety and comfort, increase the amount of usable public space in the neighborhood, and support environmentally-sustainable stormwater management.
- The proposed work will also implement the 2010 Better Streets Plan, which creates a unified set of standards, guidelines, and implementation strategies to govern how the City designs, builds, and maintains the pedestrian realm.
- The Green Connections project (2013) identifies 17th Street as an important bicycle and pedestrian corridor to connect people to parks and open spaces.
- The Showplace Square Open Space Plan (2010) identifies, designs, and prioritizes the community's open space needs, continuing the work of the Eastern Neighborhoods Plan. The proposed work will support the implementation of this plan and improve access to these neighborhoods' open space assets.

More information regarding the recent regional and local planning efforts for the corridor can be found on page 19 in the discussion of the long-term outcomes for improvement of the quality of life.

LETTERS OF SUPPORT

- Mayor Edwin Lee
- Metropolitan Transportation Commission
- San Francisco County Transportation Authority
- South Beach/Rincon/Mission Bay Neighborhood Association
- Walk SF
- San Francisco Giants
- SF Made

PROJECT BENEFITS AND COSTS

In order to quantify the net benefits to the State of Good Repair of the transit system, the economic competitiveness of the region, the quality of life for residents, workers, and visitors to the City, environmental sustainability, and transportation safety, a benefit-cost analysis (BCA) was prepared for the 16th Street Multimodal Corridor Project. This analysis confirms that the entire project has quantifiable benefits that outweigh the hard costs as detailed on page 15.

Overall, the most quantifiable benefits come from travel time savings, safety improvements, and zero-emission transit service extending into Mission Bay. In measuring the costs and benefits of the proposed project, it was found that the preferred project not only shows improvements in travel time savings and safety from the baseline, but it significantly outperforms the alternative scenario in terms of travel time savings and emissions reduction.

In addition to the quantifiable benefits of the project, a more in-depth, qualitative discussion of the societal benefits and long-term outcomes is discussed on pages 16 - 24 of this document. When considered together, the quantitative and qualitative discussions describe a project that will not only benefit current transit riders and adjacent neighborhoods, but will also serve the growing community and the City as a whole.

For more detail on the benefit-cost analysis, please review Appendix A, the BCA report, on the project's web page: www.sfmta.com/projects-planning/projects/16th-street-multimodal-corridor.

TABLE 3. SUMMARY OF BENEFIT-COST ANALYSIS

Long Term Outcomes & Benefits	Net Benefit
State of Good Repair • Maintenance & repair savings	*Impact not monetized in the BCA*
Economic Competitiveness • Travel time savings • Operating cost savings	*$25.7 to $46.3 million depending on the discount rate*
Quality of Life • Land use changes that reduce vehicle miles travelled	*Impact not monetized in the BCA*
Environmental Sustainability • Environmental benefits from reduced emissions	*Impact monetized for the alternative scenario only; both the baseline and the proposed project are zero-emission services*
Safety • Prevented accidents (property damage), injuries, and fatalities	*$42 to $74 million depending on discount rate*
Total Monetized Benefits	**$ 67.7 to $120.3 million depending on discount rate**
Total TIGER Project Cost	**$ 67,138,614**


This project will include travel time and reliability..


Streetscape enhancements improve safety and accessibility for all users.


The 22 Fillmore will operate zero-emission transit service into Mission Bay.

IV. PROJECT READINESS

This project builds on the extensive outreach and design conducted through the major land use and transportation planning efforts detailed in the previous sections. The implementation of this project will address the critical pedestrian and transit safety needs along corridor and will better serve communities along the corridor as well as the new community in Mission Bay as it grows.

TECHNICAL FEASIBILITY

The 16th Street Project has been established as a priority project in two major planning efforts: the Eastern Neighborhoods Program and the Transit Effectiveness Project (TEP). In 2001, the San Francisco Planning Department initiated the community planning process to make changes in land use and zoning for the Eastern Neighborhoods. This effort was expanded in 2005 to address other challenges and opportunities in the plan area such as transportation, affordable housing, and open space. In sum, this community engagement effort included several large workshops in each of the neighborhoods, hundreds of targeted outreach meetings with community groups and individuals, over 15 planning commission hearings, neighborhood office hours, surveys and focus groups with owners of light industrial businesses, and a citywide summit on industrial land.

Through the Transit Effectiveness Project (TEP), the SFMTA performed extensive data analysis on all routes and initiated an extensive community engagement process to assess Muni transit service and develop a strategy on how to make Muni faster, safer, more convenient and more reliable. One of the key results of this analysis are a suite of implementation tools - both service changes and capital investments - that have been shown to improve travel time and customer safety. As the major east-west corridor in a growing area, 16th Street has been identified as part of the Rapid Network along with a corresponding set of implementation tools best suited for the corridor. These tools form the foundation of the transit enhancements associated with the 16th Street project and are detailed in the *Scope of Work* section of this document. The TEP was evaluated under the California Environmental Quality Act (CEQA) and the final Environmental Impact Report (EIR) was approved by the SFMTA Board of Directors in March 2014.

Recognizing the synergy between these land use and transportation planning efforts, the SFMTA and the Planning Department have combined efforts in order to finalize the design and deliver an effective, complete, community-supported project for 16th Street. In addition to the City's planning and design efforts, Caltrain has developed the innovative and cost-effective solution to the long-standing technical challenge of crossing the Caltrain tracks.

The cost estimates of this project, developed by the SFMTA's Capital Projects & Construction Division, details the cost by project element on a block-by-block basis for the corridor. The costs associated with each of the project elements was developed using recent construction costs with similar elements. In addition to the itemized costs, a contingency of 20 percent of the total project estimate was added, as the

project has not yet completed the conceptual design stage. However, due to the history of the project and the extensive public outreach already conducted through the Eastern Neighborhoods and TEP processes, little is expected to change regarding the current scope, schedule, and budget of the project. A detailed cost estimate for the project is in the Financial Feasibility section.

The cumulative planning and engineering expertise of the SFMTA, with support from Planning Department staff, is key to the successful design and implementation of the project. SFMTA staff will apply their extensive specialized knowledge of San Francisco and the unique environment in which they operate in the development of the final design of the project components. These elements include the reconstruction and extension of the overhead contact system for the trolley coach, the extensions of the sidewalk for the transit and pedestrian bulb-outs, and the reconfiguration of the roadways to accommodate transit-only lanes. More specific information on the project elements and their placement along the corridor can be found in the *Scope of Work* section.

FINANCIAL FEASIBILITY

The SFMTA has established financial procedures and extensive experience to administer this grant. With a $863 million operating budget and $413 million capital budget in FY 2014, the SFMTA has the financial capacity to implement this proposed project. The SFMTA relies on a variety of sources to fund its operating and capital budgets, including fares, grants, fines and fees, City general funds, and state sales taxes. The SFMTA closely monitors its expenditures and revenues to ensure efficient use of resources and adequate fiscal reserves. Specifically, the SFMTA engages in immediate and multi-year planning to ensure the short- and long-term fiscal health of the agency, developing and implementing a variety of strategies to increase revenue and control and reduce expenditures. The SFMTA currently administers nearly 35 FTA grant awards and was awarded 149 grants worth $399 million dollars in federal, state, regional, and local grant funding in Fiscal Year 2013 alone. The SFMTA will closely monitor project delivery and work with the USDOT and its partners to ensure compliance with federal grant requirements relating to cost rates, procurement processes, contracting, and program administration.

The San Francisco Transportation Task Force (TTF), a group of over 45 Bay Area finance and transportation experts and community advocates, analyzed the City's transportation conditions, and reviewed the projects in previous transportation and community plans that have not been funded. From this analysis, the TTF made a series of recommendations to first focus investments in existing assets, and then enhance and expand the network to meet current and future needs.

The recommended investment strategy draws upon the results of the many pedestrian, bicycle, transit and neighborhood plans developed with the community, as well as input from transportation planning agencies from throughout the Bay Area.

The TTF proposals, if approved and fully funded, would be a historic increase in transportation investment that will almost double current funding

TABLE 4. FUNDING SOURCES

Funding Source	Funding Type	Total Amount	% of Total
TIGER Grant Request	Federal	$10,358,614	15.4%
Federal Transit Administration Section 5337 Fixed Guideway Funds	Other Federal	$15,000,000	22.3%
AB664 Regional Bridge Toll Funds	Regional	$300,000	0.5%
Eastern Neighborhoods Development Impact Fees	Local	$10,800,000	16.1%
City and County of San Francisco General Funds	Local	$700,000	1.0%
Proposition K Transportation Sales Tax	Local	$10,480,000	15.6%
Proposition AA Vehicle Registration Fee	Local	$4,500,000	6.7%
SFMTA Operating Funds (TSIP)	Local	$5,000,000	7.5%
City and County of San Francisco General Obligation Bonds*	Local	$10,000,000	14.9%
Total		**$67,138,614**	

*Pending voter approval in November 2014

levels from all sources. This investment will help meet current transportation demands, create safer streets and decrease the costs of maintenance in the future—so more money can be directed toward new services and infrastructure.

Fifteen percent of the total project funding plan will be anticipated bond funds recommended by the TTF and its resulting Transportation 2030 initiative. This innovative investment program was developed through a multi-stakeholder process that identified and prioritized City transportation capital priorities over the next 15 years. If approved, the three ballot measures and two funding sources in the Transportation 2030 initiative will provide $1.5 billion to complete hundreds of transportation infrastructure projects throughout the city by 2030. Should the measures fail to win approval from the voters in November 2014, the City will identify other funding sources to complete the 16th Street Project.

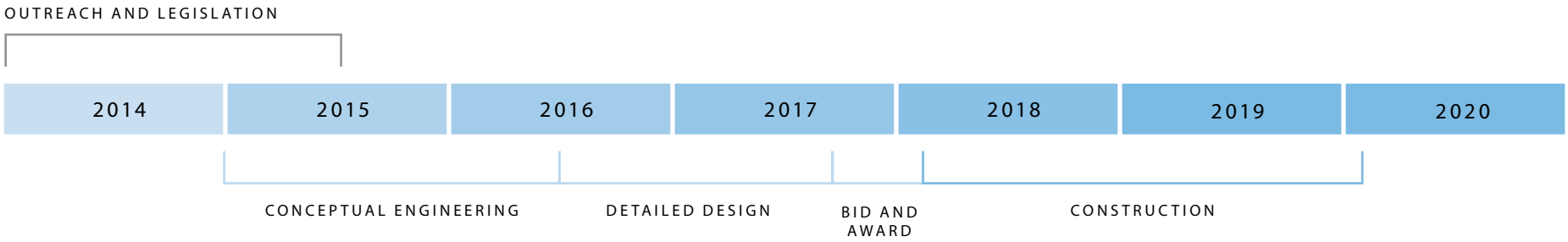
The following budget breakdown details the major elements and associated costs of the project.

TABLE 5. PROJECT BUDGET

	#	Unit	Unit Cost	Project Cost Estimate
TRANSIT ENHANCEMENTS				**$ 10,144,720**
Transit Bulbs/Sidewalk Improvements	21	Each	$ 118,000	$ 2,478,000
OCS Ductbank Underground	1	Mile	$ 3,150,000	$ 3,150,000
OCS -foundation and poles	1	Mile	$ 1,367,300	$ 1,367,300
OCS - overground	1	Mile	$ 3,149,420	$ 3,149,420
OCS - Caltrain Crossing*	1		TBD	$ 0
STREETSCAPE ENHANCEMENTS				**$ 6,105,000**
Streetscape elements on bulbs (Greening)	21	Each	$ 75,000	$ 1,575,000
Pedestrian Bulb Outs	8		$ 50,000	$ 400,000
Accessible Curb Ramps	26		$ 5,000	$ 130,000
Pedestrian Scale Lighting, Trees and Landscaping	1		$ 4,000,000	$ 4,000,000
ROADWAY IMPROVEMENTS				**$ 3,900,000**
Repave Potrero to 7th Street	240,000	Sq. Ft.	$ 5	$ 1,200,000
Transit-Only Lanes (in red), Final Striping, bike lanes on 17th Street	500,000	Sq. Ft.	$ 1	$ 500,000
Traffic Signal Upgrade	5	Each	$ 200,000	$ 1,000,000
New Traffic Signal	4	Each	$ 300,000	$ 1,200,000
UTILITY RELOCATION				**$ 11,196,000**
Sewer	1	mile	$ 3,696,000	$ 3,696,000
Water	1	mile	$ 2,500,000	$ 2,500,000
Emergency Auxiliary Water Supply System	1	mile	$ 5,000,000	$ 5,000,000
Others- Allowance, mob/demob, hazard material management, traffic control, permits (15%)				$ 4,701,858
Hard Costs TIGER Project				**$ 36,047,578**
SOFT COSTS				
Environmental & Planning Outreach 5%				$ 1,802,379
Pre-development 2%				$ 720,952
Conceptual Engineering Report 7%				$ 2,523,330
Detail Design 15%				$ 5,407,137
Construction Support 20%				$ 7,209,516
Soft Cost TIGER Project				**$ 17,663,313**
Project Contingency 20%				**$ 13,427,723**
Total TIGER Project				**$ 67,138,614**

PROJECT SCHEDULE

FIGURE 4: PROJECT TIME LINE



All necessary pre-construction activities will be complete by the third quarter of Fiscal Year 2018 and the SFMTA will be able to obligate funds to this project by June 30, 2016. With construction expected to start in January 2018, the funds will be spent steadily from that point through the completion of the project in January 2020.

All work for this project will be completed in the existing public right-of-way and the SFMTA will not need to acquire any additional land.

TABLE 6: PROJECT MILESTONES

Milestones	Start	End
Planning & Environmental Studies	May 2014	June 2015
Conceptual Engineering	January 2015	May 2016
Detailed Design	June 2016	July 2017
Advertise & Award Contract	August 2017	January 2018
Construction	February 2018	January 2020

NEPA CLEARANCE

The 16th Street Project was cleared in March 2014 under the California Environmental Quality Act (CEQA) as part of the overall clearance of the Transit Effectiveness Project. With the significant environmental review, technical studies, and community engagement already completed in conjunction with the TEP's CEQA approval process, it is expected that the project will move quickly through the NEPA clearance process and receive a determination by FTA by June 2015.

ASSESSMENT OF PROJECT RISKS AND MITIGATION STRATEGIES

In an effort to serve the current and projected needs for this evolving corridor, the San Francisco Municipal Transportation Agency (SFMTA) has identified the 22 Fillmore trolley bus route as part of the Rapid Network and developed a Travel Time Reduction Proposal (TTRP) for the route in the Transit Effectiveness Project (TEP) Implementation Strategy. With the extensive state-level environmental review process complete, no right-of-way acquisition, and little need for procurement beyond the established levels, there is little risk to this project not remaining on schedule and budget.

Building upon past outreach, the SFMTA and the Planning Department will finalize conceptual design for the corridor in June 2015. During this time, the two agencies will conduct a collaborative community outreach process to engage known stakeholders and the public at large to address specific questions regarding project design. By addressing the community with specific questions and alternatives, the two agencies will be able to streamline the outreach process and effectively engage the public without jeopardizing the overall project schedule. This effort will build upon the initial corridor proposal as detailed in the *Scope of Work* section, which has already been vetted and approved by the SFMTA Board of Directors.

ADDITIONAL INFORMATION AND MATERIALS

For the Federal Wage Rate Certification, Benefit-Cost Analysis, letters of support for the project, links to the California Environmental Quality Act (CEQA) review documentation, and other supporting materials, please go to:

WWW.SFMTA.COM/PROJECTS-PLANNING/PROJECTS/16TH-STREET-MULTIMODAL-CORRIDOR

For any difficulties with the website or to request additional information, please contact:

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