



# Final Environmental Impact Statement for Extension of F-Line Streetcar Service to Fort Mason Center

## Executive Summary



## Final Environmental Impact Statement Extension of F-Line Streetcar Service to Fort Mason Center

### GOLDEN GATE NATIONAL RECREATION AREA, SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK, CALIFORNIA

Lead Agency: National Park Service, U.S. Department of Interior  
Cooperating Agencies: San Francisco Municipal Transportation Agency,  
Federal Transit Administration

The *Environmental Impact Statement for the Extension of F-Line Streetcar Service to Fort Mason Center* presents and analyzes alternatives to lengthen the historic streetcar F-line from Fisherman's Wharf to the San Francisco Maritime National Historical Park and on to the Golden Gate National Recreation Area, ending at the Fort Mason Center. The intended effect of this action is to provide park visitors and transit-dependent residents with high-quality rail transit that improves transportation access and mobility between existing streetcar service at Fisherman's Wharf to San Francisco Maritime National Historical Park and Fort Mason Center. The Environmental Impact Statement (EIS) presents and analyzes the potential consequences of implementing the alternatives.

Alternative 1, the No-Action Alternative, would provide no change from the existing historic streetcar line and would not provide transit connections to the Fort Mason Center.

Alternative 2, the Preferred Alternative, would extend the existing F-Line from Fisherman's Wharf to the Fort Mason Center. The track extension would include a street-running segment along Beach Street, a transition zone between the street-running segment and the Fort Mason Tunnel, a tunnel segment and a turnaround segment with two options for locations, Alternative 2A: North Loop (Fort Mason parking lot) and 2B: South Loop (Great Meadow). Project elements would include the construction of streetcar track for approximately 0.85 miles, construction of 8-9 station platforms, upgrades to the existing Fort Mason Tunnel, and installation of signals, crossings, wires and poles.

Based on issues identified during the public and agency scoping process, and public correspondence received during the 60-day Draft EIS comment period, the impact analysis focuses on land use, socioeconomics, transportation and circulation, air quality, noise and vibration, cultural resources, recreation and visitor use, visual and aesthetic resources, night sky visibility and light pollution, geological resources, biological resources, public health and safety, and public services and utilities.

**Decision Process:** The National Park Service will execute a Record of Decision (ROD) no sooner than 30 days following publication by the Environmental Protection Agency of the Notice of Availability of the Final EIS. The Final EIS will be available for public inspection as follows: at <http://parkplanning.nps.gov/streetcar>; in the Office of the Superintendent (Bldg. 201 Fort Mason, San Francisco, CA); at local public libraries (San Francisco Public Libraries: Marina Branch, Main Branch, Golden Gate Valley Branch, North Beach Branch, Eureka Valley Harvey Milk Library, Presidio Branch Library), or by requesting a copy (contact Steve Ortega at 415-561-2841, or e-mail at [goga\\_planning@nps.gov](mailto:goga_planning@nps.gov)). Written inquiries can also be sent to:

Superintendent, Golden Gate National Recreation Area  
Attention: F-Line FEIS  
Fort Mason, Building 201  
San Francisco, CA 94123-0022

Golden Gate National Recreation Area  
San Francisco Maritime National Historical Park  
February 2012

National Park Service  
U.S. Department of the Interior



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# EXECUTIVE SUMMARY

## INTRODUCTION

The National Park Service (NPS) is preparing an environmental impact statement (EIS) for an extension of the historic streetcar F-line from Fisherman's Wharf to the Fort Mason Center. The National Park Service is the lead agency and the San Francisco Municipal Transportation Agency (SFMTA) and the Federal Transit Administration are the cooperating agencies under the National Environmental Policy Act (NEPA). The proposed Project is the culmination of a cooperative effort by the National Park Service with the Golden Gate National Recreation Area and the San Francisco Maritime National Historical Park, the City and County of San Francisco, the SFMTA, and the Presidio Trust. Studies from these agencies showed that these urban national park destinations could benefit from improved regional and local transit connectivity. This improved service connectivity would help accommodate existing and future visitor demand. Based on those studies, conceptual approaches to address alternative transportation needs were identified and evaluated against the purpose and need of the Project, park management objectives, and operability constraints.

The Project proposes to extend the F-Market & Wharves Line (F-line) from Fisherman's Wharf through the San Francisco Maritime National Historical Park (SF Maritime NHP) and the Golden Gate National Recreation Area (GGNRA), in San Francisco, California. The GGNRA and the SF Maritime NHP are two separate National Park Service units in San Francisco's northeastern waterfront; SF Maritime NHP is adjacent to the GGNRA, which includes Fort Mason. The GGNRA was established in 1972, and encompasses over 80,000 acres of land in San Francisco, Marin, and San Mateo Counties. The 50-acre SF Maritime NHP, established in 1988, includes the Maritime Museum and a Senior Center (both housed in the original Aquatic Park Bathhouse), Aquatic Park, Municipal Pier, Hyde Street Pier, and a collection of National Historic Landmark vessels.

One Action alternative (the Proposed Action) and the No Action alternative were identified to be carried forward for detailed evaluation in this EIS. This document has been prepared in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (42 United States Code 4321 et seq.), and *Director's Order No. 12: Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2001). The *Director's Order No. 12* and NEPA regulations require consideration of a project's potential environmental impacts as early as possible in the planning process. This helps to ensure environmental values are considered as the project takes shape. At the same time, because the NEPA process occurs early in the planning stages, some of the project elements being evaluated can be conceptual in nature, and subject to change through subsequent state or local planning processes.

This document closely examines the potential impacts of the F-line extension from Fisherman's Wharf to the Fort Mason Center, while recognizing that decisions regarding various elements of the proposed project, such as in-street track alignment, platform location, and shelter design, will be determined during a subsequent local public planning and design process managed by SFMTA, with additional oversight from the San Francisco Planning Department. That process will provide additional opportunity for consideration of operational and design characteristics, with input from

public stakeholders and federal agencies. At the outset, all owners and interested parties within 300 feet of the project would be sent notification informing them of the proposed project and planning process. Initial drawings and concepts would be shared at one or more public meetings, and after a period of outreach, a general public hearing would be held by the SFMTA to receive comments on the initial work. The findings would then be reported to the San Francisco Planning Department, which may choose to hold their own public meetings on the issue. Following comments from the Planning Department, design and engineering would be refined and shared with the public stakeholders and federal agencies once again. When the majority of parties are in agreement, the design and engineering work would then proceed to the advanced level. The process would repeat until the SFMTA completed a final design for the project, and that would be the project that is constructed.

### **Project Study Area**

The study area for the Project in San Francisco’s northeastern waterfront is bounded by Mason Street on the east, Bay Street on the south, Fillmore Street on the west and the bayfront, including the piers and parklands within the east-west boundary, on the north.

Part of the SF Maritime NHP has been designated as the Aquatic Park National Historic Landmark District (NHLD). Fort Mason—which includes the San Francisco Port of Embarkation NHLD<sup>1</sup>—consists of Upper Fort Mason and Lower Fort Mason. Lower Fort Mason encompasses the historic piers and buildings in which Fort Mason Center (the Center) is located. Fort Mason Center is a non-profit entity that is a destination for programs, events and organizations. Both the NHLDs mentioned above are in dense, urban locations, directly adjacent to high-density residential and commercial districts. These districts are characterized by high visitation rates, high pedestrian and automobile traffic volumes, and intense recreational and commercial use.

## **PROJECT PURPOSE AND NEED**

### **Purpose of Project**

The purpose of this project is to provide park visitors and transit-dependent residents with high-quality rail transit that improves transportation access and mobility between existing streetcar service at Fisherman’s Wharf and Fort Mason Center in GGNRA. The streetcar service would have connection to the regional transit rail services, while respecting the settings, context, and resources of these two national park destinations and avoiding or minimizing adverse effects to National Historic Landmarks and National Register of Historic Places (NRHP) listed or eligible properties.

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<sup>1</sup> The San Francisco Port of Embarkation NHLD includes all of Lower Fort Mason and only Building 201 in Upper Fort Mason.

## Need for Project

The need for this project resulted from the following issues:

- **Inadequate Regional Transit Access to Fort Mason Center**

Visitors traveling to Fort Mason on regional transit are required to make multiple transfers to reach their destination. For regional riders using the Bay Area Rapid Transit (BART), or regional services offered by Caltrain, access to Fort Mason frequently requires at least two transfers. Alameda-Contra Costa Transit District (AC Transit) and ferry riders must transfer at least two, and often three, times to reach Fort Mason. Multiple transfers are a deterrent to the use of regional transit to reach Fort Mason.

Nearby transit service does not directly link the Fort Mason Center with transit lines. The 28 bus line provides the closest connection to Fort Mason Center with a station at Marina Boulevard and Laguna Street; however this bus line originates in Daly City and only services the western and northern parts of San Francisco.<sup>2</sup> Passengers arriving near Upper Fort Mason via the 47 or 49 bus lines disembark at Van Ness Avenue and North Point Street and then walk approximately 0.6 miles along streets or a path through the Great Meadow to reach Fort Mason Center. Passengers arriving via the 30 bus line would disembark at Chestnut Street and Laguna Street and then walk approximately 0.3 miles along Laguna Street to the Fort Mason Center entrance. Visitors coming from Fisherman's Wharf take the existing F-line to Jones Street and then walk approximately 1 mile to reach the Fort Mason Center.

- **Limited Transportation Options for Transit-Dependent Residents**

In the spirit of bringing national parks to the people, GGNRA and SF Maritime NHP reach out to, and promote the richness and breadth of the national park system to a diverse urban community, including city residents who may be experiencing a national park for the first time and who may not have access to private vehicles. One of the goals of NPS is to provide recreational and cultural facilities and destinations to transit-dependent residents. Although the GGNRA and SF Maritime NHP are in the City of San Francisco (the City) and therefore closer to these residents than many other national parks, the public transportation access required by most potential park patrons continues to be insufficient, often requiring multiple transfers to reach the NPS sites along the waterfront. As noted above, multiple transfers can be a deterrent to transit use.

Underserved populations living outside San Francisco may require transfers within their communities to reach the regional transportation network, as described above. Underserved residents living inside San Francisco are interspersed throughout most of the City. However, according to the 2006 San Francisco Mayor's Office of Community Investment *2005-2010 Consolidated Plan*, underserved areas are in the eastern and southeastern portions of the City. While most San Francisco residents generally require at least one transfer to access the parks, those living in the eastern/southeastern portion of the City may require additional transfers. For example, portions of the Bayview Hunters Point neighborhood require a minimum of two transfers to access the parks. The 1980 GGNRA General Management Plan identified the need for an extension of transit service between the park and transit dependent neighborhoods (1980).

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<sup>2</sup> SFMTA's *Transit Effectiveness Project* recommends changes to the 28 and 28L bus line that would eliminate the bus stop closest to Fort Mason Center at Marina Boulevard. The new route would run along Lombard Street and terminate at Van Ness Avenue and North Point Street (SFMTA 2008b).

- **Limited Connectivity to Northeastern Waterfront Cultural and Recreational Corridor**

Over the past 20 years, San Francisco’s northeastern waterfront has been transformed from an underused industrial area to a vibrant waterfront cultural corridor stretching from AT&T Park to the Presidio. This corridor includes South Beach Marina, the Ferry Building, Pier 7, Pier 39, the Aquarium of the Bay, Fisherman’s Wharf, SF Maritime NHP and Fort Mason Center. Throughout the northeastern waterfront corridor there is a high level of pedestrian activity, with visitors seamlessly moving between the commercial establishments and the NPS facilities. Many of these attractions are linked by SFMTA’s historic streetcar service (the F Line), which has proven to be popular with visitors and residents alike. However, this service does not currently reach the National Park Service’s recreational and historic attractions including the Hyde Street Pier, Aquatic Park, the Maritime Museum, the Municipal Pier, nor Upper and Lower Fort Mason including the Fort Mason Center.

The facilities within Fort Mason and SF Maritime NHP are integrated into the fabric of the City, serving as an arts and cultural activity center. Many of the 14 million annual visitors to Fisherman’s Wharf, a major tourist destination immediately adjacent to SF Maritime NHP, are also drawn to the neighboring national park destinations. The necessity of multiple transfers slows trips and increases the difficulty for visitors or residents unfamiliar with the local transit network.

- **Insufficient Transportation Infrastructure to Accommodate Existing and Projected Visitor Demand**

Fort Mason Center hosted more than 11,400<sup>3</sup> events in fiscal year 2009 (October 2008-September 2009), bringing approximately 1.7 million visitors to the site (FMC 2009a). Table ES-1 shows a breakdown of projected attendance at major events hosted by the Fort Mason Center in 2010. These figures do not include regularly scheduled meetings, classes, and smaller events. Many events at Fort Mason Center are attended by thousands of visitors, with the largest events attended by 8,000 visitors. Other events in the area that impact the Fort Mason Center such as the Bridge to Bridge Run bring over 10,000 visitors to the area.

**TABLE ES-1: FORT MASON CENTER PROJECTED ATTENDANCE FOR MAJOR EVENTS<sup>a</sup> IN 2010**

Visitor Attendance <sup>b</sup>	Number of Events
0-100	88
101-500	349
501-1000	83
1001-5000	66
Over 5000	2

<sup>a</sup> Major events do not include the daily regularly scheduled meetings, classes and smaller events at the FMC  
<sup>b</sup> Crowd numbers for events are estimates  
 Source: Fort Mason Center Parking Impact Notice, 2010.

<sup>3</sup> Events include classes, meetings, conferences, exhibitions and performances; many occur simultaneously each day.

Transportation access to Fort Mason Center is primarily by automobile, in part due to the inadequate regional and local transit access described above. The Fort Mason Center is served directly by only one bus line (the 28-19th Avenue); this line does not originate from downtown or other parts of the City frequented by visitors, and it has poor connections to regional transit lines and to local transit lines serving the rest of San Francisco. Existing transit service to the Fort Mason Center may be further impacted in the future by a proposed bus rapid transit project on Van Ness Avenue.<sup>4</sup> At the Fort Mason Center, there are 446 parking spaces available. While parking volumes for this lot are highly cyclical and depend on the events occurring at the Center, the annual volume of cars for 2009 was 236,271 (FMC 2009b). This results in substantial parking problems, especially on weekends, when parking spills over into the adjacent Marina neighborhood and adjacent parking areas (Gashouse Cove and Marina Green) that are not under NPS jurisdiction. Some event organizers hire valet services or use Marina Middle School for overflow parking.

SF Maritime NHP has 4 million visitors each year. The SF Maritime NHP relies on the availability of on-street or commercial parking lots available for the Fisherman's Wharf area. The number of visitors coming to the Fort Mason Center and SF Maritime NHP is expected to increase in the future. With the San Francisco Bay Area<sup>5</sup> population projected to grow 18.8 percent by 2030 (presently 7.3 million) (ABAG 2009), transit links will be critical to maintaining access to the Parks. The Bay Area region recognized the importance of the expansion of historic streetcar service by including it as one of the "Strategic Expansion" projects in San Francisco in the *Transportation 2030 Plan* for the San Francisco Bay Area (MTC 2005.) The planned restoration of a historic pier at the Fort Mason Center will provide additional exhibition space, as will the renovated Maritime Museum recently re-opened to the public. These improvements are anticipated to draw a greater number of visitors to the national park destinations, which would in turn exacerbate existing parking and traffic capacity demands.

The *Fort Mason Center Long-Term Lease Environmental Assessment* projects an increase in visitor levels to the Fort Mason Center by 14.5 percent contingent upon the renovations of Pier One, which is currently not used as an event space. If Pier One was restored, the 2003 Environmental Assessment (EA) projected that the 1.6 million annual visitors would be increased to 1.9 million for the entire Fort Mason Center. The EA also predicts that the increase in visitors from the development of Pier One could increase transit demand.

The 2007 *Fort Mason Center Employee Survey* (URS 2009f) concluded that approximately 17 percent of Fort Mason Center employees currently arrive at work by transit and that 48 percent of employees noted they would have taken the F-line if it already served Fort Mason directly. Similarly, the 2007 *Fort Mason Intercept Survey* (URS 2009f), which surveyed 729 visitors to Fort Mason Center found that approximately 11-14 percent of current visitors reported that they took transit to Fort Mason and 45 percent of visitors said that they would have taken the F-line if it already served Fort Mason Center.

NPS goals for transportation in the GGNRA include the reduction of automobile-based trips for recreational travel, and inter- and intra-park transportation networks coordinated with existing transportation systems (NPS 1980). The *San Francisco Maritime National Historical Park Climate Change Action Plan* (NPS 2010a) and the *Golden Gate National Recreation Area Climate Change Action Plan* (NPS 2008b) both seek to reduce fuel consumed by visitors by maximizing

<sup>4</sup> The Van Ness Avenue Bus Rapid Transit (BRT) Project would implement transit improvements along the Van Ness Corridor from Mission Street to Lombard Street.

<sup>5</sup> Bay Area region includes the following counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma (ABAG 2009).

transportation options in the parks and providing linkages to public transportation systems. This is particularly desirable, appropriate, and feasible at dense, urban national parks such as SF Maritime NHP and GGNRA, where existing public transit infrastructure can be extended at a reasonable cost.

- **Infrastructure Constraints Impacting Effectiveness and Operations of Fort Mason Center**

Fort Mason Center is an international model for an urban park setting which preserves historic buildings for uses consistent with and related to the mission of the National Park Service and GGNRA.

Fort Mason Center hosts numerous expositions, conferences, and events throughout the year however, the closest hotels are in the Fisherman's Wharf area and along Lombard Street and Van Ness Avenue. The lack of a direct transit connection between the hotels in the Fisherman's Wharf area and Fort Mason Center limits the potential of the center as an event destination. With better transit, Fort Mason Center would also function better as a conference/meeting location. The lack of direct transit limits the number of transit-dependent visitors who participate in activities at the center, and may be a deterrent to others who avoid the area due to roadway congestion and difficulty of parking. Furthermore, the lack of transit to the Center directly contributes to roadway congestion along Marina Boulevard which is a direct link to the Golden Gate Bridge. Its unique position as a large multi-use venue offers a tremendous opportunity to benefit businesses and nonprofit organizations as well as 1.7 million visitors per year.

Under the lease terms with the National Park Service, Fort Mason Center has a financial obligation to assist with funding historic preservation and rehabilitation of all of the buildings and amenities on the campus. Funds to support operations are generated by tenant rentals at the Center, including a restaurant, a café, art galleries, non-profit organizations, and museums. Additional revenues are generated by visual, performing and literary arts events, large and small expositions, conferences and meetings. Funds for rehabilitation and restoration of the Center will be derived from financing supported by these revenues. Major funding is also derived from the philanthropic community which supports the Center's programs.

## **PUBLIC REVIEW PROCESS**

The Notice of Intent (NOI) for the Project was published in the Federal Register on March 29, 2006. The NOI announced the preparation of an EIS by the National Park Service, as the federal lead agency. The NOI also provided information on Project issues and potential impacts and invited comments, questions, and suggestions on the scope of the EIS during the 60-day public scoping period, which ended on May 29, 2006. Postcards notifying the public of the commencement of the planning process were sent to approximately 4,000 individuals; the mailing list was developed from GGNRA, SF Maritime NHP, and SFMTA databases. A half-page ad announcing the public scoping meeting and requesting input was placed in the *San Francisco Examiner* on May 3, 2006, and a legal notice was posted in the *San Francisco Chronicle* on May 6, 2006. Public and agency scoping meetings were held on May 9, 2006 at the Fort Mason Officer's Club in San Francisco. A meeting with the NPS and the cooperating agencies was held from 2:00 p.m. to 4:00 p.m. and the public meeting was held from 6:00 p.m. to 9:00 p.m.

During the scoping period, the National Park Service received 101 comments from individuals, organizations representing environmental, conservation and recreational interests, and governmental agencies. The primary environmental concerns focused on changes in traffic and parking, impacts on parklands and recreational facilities, noise and vibration, visual impacts, and cultural resources.

Input was also solicited from the National Park Service Historic Streetcar Extension Technical Advisory Committee (TAC), which consists of members of GGNRA, SF Maritime NHP, SFMTA, Fort Mason Center, Market Street Railway, San Francisco County Transportation Authority, Golden Gate National Parks Conservancy, San Francisco Recreation and Park Department, and the Federal Transit Administration (FTA). NPS staff with expertise on park resources were also consulted. After the initial scoping period, the National Park Service continued to update the public about the Project during the park's quarterly open houses.

The Draft Environmental Impact Statement for the Historic Streetcar Extension was published in March of 2011. Public notice of availability and opportunity to comment, along with an invitation to attend a public open house meeting, were provided through mailers, email, public postings, and publication in the Federal Register. The public comment period remained open for 60 days; from March 18 to May 17, 2011. A public open house meeting was held at the Fort Mason Center on April 20, 2011, from 7:00pm to 9:00pm.

Approximately 37 people attended the open house meeting. The public was invited to submit comments through the NPS' Planning, Environment, and Public Comment (PEPC) website, regular mail, email, and park comment posters and forms during the public open house meeting. A total of 97 pieces of correspondence were received during the DEIS public comment period.

## **THE ALTERNATIVES**

The study area is divided into the following four segments analyzed separately in the alternatives: In-Street; Transition; Fort Mason Tunnel; and Turnaround. During the alternatives development process alternatives were examined for each of these segments.

**In-Street Segment.** This approximately 2,500 foot street segment runs west down Jefferson Street (from its intersection with Jones Street) to Leavenworth Street, then south to a section of Beach Street extending from Jones Street to the base of Polk Street (approximately adjacent to the Maritime Museum). This segment would connect the terminus of the existing F-line at Jones Street with the proposed F-line extension.

**Transition Segment.** This approximately 750 foot segment connects the In-Street Segment from Beach Street, through San Francisco Maritime NHP, and up to the Fort Mason Tunnel Segment. This segment crosses Van Ness Avenue before entering the tunnel.

**Fort Mason Tunnel Segment.** The existing 1,500 foot tunnel segment runs underneath Fort Mason and the Great Meadow from the east tunnel portal at Van Ness Avenue to the west tunnel portal at Marina Boulevard and Laguna Street. It is a single-track tunnel, used for freight train movements until

the late 1970s. This tunnel segment would need to accommodate the bi-directional movement of streetcars on a single track. Structural rehabilitation of the tunnel would be required for its use.

**Turnaround Segment.** The turnaround segment occurs between the west tunnel portal at Marina Boulevard and Laguna Street. The areas considered in the alternatives include the lower Fort Mason (Fort Mason Center) parking lot and the Great Meadow. The turnaround segment would be the terminus of the proposed F-line extension and would allow for westbound streetcars to turnaround in a loop of track before returning eastbound back through the Fort Mason Tunnel.

### Alternative 1 – No Action

Alternative 1 provides a baseline for comparing the other alternative, evaluating the magnitude of proposed changes, and measuring the effects of those changes. The No Action alternative follows the guidance of the Council on Environmental Quality, which describes the No Action alternative as representing no change from the current management direction. Under the No Action Alternative, the F-line would not be extended beyond Fisherman’s Wharf; the Transition Segment within the Aquatic Park NHLD would remain undisturbed; the Fort Mason Tunnel would remain closed and would not be renovated or made seismically sound; and the Turnaround Areas (Great Meadow or lower Fort Mason) within the Fort Mason National Register Historic District and the San Francisco Port of Embarkation NHLD would remain undisturbed.

The 2007 *Fort Mason Center Employee Survey* (URS 2009f) concluded that approximately 17 percent of Fort Mason Center employees currently arrive at work by transit. The 2007 *Fort Mason Intercept Survey* (URS 2009f), which surveyed 729 visitors to Fort Mason Center found that approximately 11-14 percent of current visitors reported that they took transit to Fort Mason

The lack of connectivity between the Fort Mason Center and nearby transit lines would continue. The 28 bus line provides the closest connection to Fort Mason Center with a station at Marina Boulevard and Laguna Street; however this bus line originates in Daly City and only services the western and northern parts of San Francisco.<sup>6</sup> Passengers arriving near Upper Fort Mason via the 47 or 49 bus lines, disembark at Van Ness Avenue and North Point Street and then walk approximately 0.6 miles along streets or a path through the Great Meadow to reach Fort Mason Center. Passengers arriving via the 30 would disembark at Chestnut Street and Laguna Street and then walk approximately 0.3 miles along Laguna Street to the Fort Mason Center entrance. Visitors coming from Fisherman’s Wharf take the existing F-line to Jones Street and then walk approximately 1 mile to reach the Fort Mason Center.

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<sup>6</sup> SFMTA’s *Transit Effectiveness Project* recommends changes to the 28 and 28L bus line that would eliminate the bus stop closest to Fort Mason Center at Marina Boulevard. The new route would run along Lombard Street and terminate at Van Ness Avenue and North Point Street (SFMTA 2008b).

## Alternative 2 – Proposed Action Alternative (with Turnaround Options)

The Proposed Action would extend the existing F-line streetcar service from Jones Street to Fort Mason Center. This section describes the Proposed Action components, as well as anticipated construction requirements and operation. Alternative 2 includes a preferred In-Street alignment, Transition, Fort Mason Tunnel, and Turnaround Segments. The Turnaround Segment presents two options, Alternative 2A: North Loop (located in the Fort Mason Center parking lot) and Alternative 2B: South Loop (located in Great Meadow), which are analyzed separately. The In-Street Segment presents both mixed traffic and semi-exclusive options (autos do or do not share track right-of-way); however these would be determined during the final design phase. They have been analyzed separately as appropriate in the resource sections.

**Project Components.** If implemented, the extension would include approximately 0.85 mile of new rail track; associated features such as signals, crossings, wires and poles; approximately 8-9 new platforms; new designated stops; retrofitting of the historic State Belt Railroad tunnel (Fort Mason Tunnel); and construction of a track turnaround in the Fort Mason Center parking lot or Great Meadow (see Table ES-2 for details).

**TABLE ES-2: ALTERNATIVE 2 PROJECT SEGMENT DETAILS**

	In-Street Segment	Transition Segment	Fort Mason Tunnel Segment	Turnaround Segment
<b>Alternative 2 Options</b>	<p>Operates west down Jefferson Street to Leavenworth Street, south to Beach Street, and in both directions along Beach Street between Jones Street and the transition at Van Ness Avenue. Four platforms would be added to this segment.</p> <p>Options to be determined during design phase:</p> <ol style="list-style-type: none"> <li>1) shared auto/streetcar operation</li> <li>2) semi-exclusive for the eastbound alignment and shared operation for the westbound alignment</li> <li>3) hybrid of the two options</li> </ol>	<p>The transition segment takes the alignment from the double-track, street-running segment to the east, shifting the alignment to NPS property to the west of Polk Street. The line would move from double track to single track between two new platforms and the tunnel portal.</p>	<p>The streetcar extension would run on a single track through the tunnel. Tunnel improvements would include installation of new track and overhead lines and reconstruction of the tunnel interior</p>	<p><b>Alternative 2A: North Loop (Preferred).</b> In the North Loop turnaround tracks would loop north out of the Fort Mason Tunnel and enter the Lower Fort Mason parking lot. Two platforms would be constructed within the loop.</p> <p><b>Alternative 2B: South Loop.</b> In the South Loop turnaround tracks would loop south out of the Fort Mason Tunnel and enter the Great Meadow. One platform would be constructed in this loop.</p>

## PREFERRED ALTERNATIVE

The Preferred Alternative is Alternative 2 – Action Alternative. This alternative was determined after a multi-year alternative development and screening process during which time alternatives for the project's street-running alignment, transition segment, and turnaround segment were analyzed. These alternatives were evaluated based on a standard set of criteria. Alternatives that were unreasonable were eliminated from further analysis. Following this process a preferred street-running alignment and transition segment were selected. However, two options remained for the turnaround segment.

The North Loop (Alternative 2A) and South Loop (Alternative 2B) Turnaround Alternatives were analyzed during a 1.5-day Value Analysis (VA) workshop held in August of 2010. In the Value Analysis Workshop, the North Loop and South Loop turnaround alternatives were evaluated using a process called Choosing by Advantages (CBA), where decisions are based on the weighted importance of the advantages between alternatives with capital and life cycle costs factored in last, to illustrate benefits to cost. In using CBA to determine a preferred alternative, the VA team identified the alternative that offers the highest total importance of advantages at the lowest cost (in both initial and life cycle).

In this workshop, the North Loop was identified as best value due to the following advantages:

- Significantly Better at Limiting Disruption to Natural Resources;
  - No impervious surface is added (can increase pervious surface between rail);
  - Does not remove vegetation;
  - Emits the least amount of emissions during construction (less earth moved).
- Somewhat Better at Improving Visitor Experience;
  - Limited view shed impacts by adding streetcars and infrastructure in the Fort Mason Center (FMC) parking lot;
  - Provides direct interior connection between SF Maritime NHP and Fort Mason Center.
- Slightly Better at Protecting Public Health, Safety and Welfare;
  - All the alternatives create potential conflicts between pedestrians, auto and transit. This alternative limits those conflicts particularly with bicycles. It may include conflict with bicycles in the future;
  - Allows for redesign of the Bay Trail with less change required (this is an independent project).
- Slightly Better at Supporting Criteria for Large Events;
  - It is best able to manage headway (frequency and storage of streetcars);
  - Creates more room to queue visitors away from Laguna Street.
- Somewhat Better at Accessing Disabled Streetcar;
  - Creates better access to disabled streetcar in the storage area for repair via service truck in this location.

- Slightly Better at Minimizing Noise & Sound Impacts;
  - Minimizes noise impacts on residential neighborhoods since it is the farthest from the residential areas;
  - Minimizes vibration impacts. All the options create vibration but this option is 10 feet farther away from the historic structures than the other alternatives.
- Somewhat Better at Attracting New Tenants:
  - This alternative gives Fort Mason Center the ability to attract new tenants (via *Fort Mason Center Long-Term Lease Environmental Assessment*).

## ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Preferred Alternative (Alternative 2) would also be the environmentally preferred alternative. Alternative 1 (the No-Action Alternative) does not meet project goals, purpose, or need, and does nothing to reduce the number of automobiles used to access the park and/or the Fort Mason Center. Changes to the mix of transportation modes [autos and transit] serving the project area resulting from the Preferred Alternative identified a 14.4 percent increase in transit use for daily person trips to Fort Mason Center between the No Project and implementation of the Project with the F-line extension. The result would be a long-term, moderate, beneficial impact which leads to the conclusion that the Preferred Alternative is the environmentally preferred alternative.

This conclusion is reached looking at current conditions. The environmental preference for an alternative that provides increased transit is further supported by future conditions. The Fort Mason Center Long-Term Lease Environmental Assessment projects an increase in visitor levels by 14.5 percent contingent upon the renovations of Pier One, which is currently not used as an event space. If Pier One were restored, the 2003 EA projected that the 1.6 million annual visitors would be increased to 1.9 million for the entire Fort Mason Center. Increased transit would support these visitors and be in compliance with renewable goals set out in Director's Order #12.

## ENVIRONMENTAL CONSEQUENCES

The following topics were raised during the scoping process and selected for detailed analysis: Land Use; Socioeconomics; Transportation and Circulation; Air Quality; Noise and Vibration; Cultural Resources; Recreation and Visitor Use; Visual and Aesthetic Resources; Night Sky Visibility and Light Pollution; Geology, Soils and Seismicity; Biological Resources; Public Health and Safety; Public Services and Utilities. Rational for selection of each impact topic was based on potential for substantive impact; environmental statutes, regulations, and executive orders; and/or NPS management policies and guidance. **Table ES-3** summarizes the potential impacts of the Project and proposes mitigation measures.

**TABLE ES-3: SUMMARY OF IMPACTS AND MITIGATION**

ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 ACTION ALTERNATIVE	ALTERNATIVE 2A PROPOSED ACTION WITH NORTH LOOP OPTION	ALTERNATIVE 2B PROPOSED ACTION WITH SOUTH LOOP OPTION	MITIGATION MEASURES
<b>Land Use</b>				
Alternative 1 would result in no direct, indirect impacts to land use	The implementation of Alternative 2 would result in a minor long-term adverse impact to land use practices due to change in land use of the existing site, however the Project would remain consistent with applicable land use plans and policies	The North Loop Turnaround Option would result in a negligible impact to land use	The South Loop Turnaround Option would result in a long-term moderate adverse impact	N/A
<b>Socioeconomics</b>				
Alternative 1 would have no economic impacts to the San Francisco economy	Alternative 2 would have short-term negligible beneficial construction related economic impacts and long-term negligible beneficial operations related economic impacts on the San Francisco economy	The North Loop Turnaround Option would result in negligible positive short-term economic impacts to the City and County of San Francisco economy	The South Loop Turnaround Option would result in negligible positive long-term economic impacts to the City and County of San Francisco economy.	N/A
<b>Transportation and Circulation</b>				
Transit Operations				
Alternative 1 would result in no impacts to transit operations	Alternative 2 would result in a long-term, moderate, beneficial impact	The North Loop Turnaround Option would result in a long-term, moderate, beneficial impact	The South Loop Turnaround Option would result in a long-term, moderate, beneficial impact	N/A
Traffic Safety				
Alternative 1 would result in long-term, minor, adverse impacts to traffic safety conditions	<u>In-Street Segment</u> : long-term, negligible, adverse impact <u>Transition Segment</u> : long-term, minor, adverse impact	The North Loop Turnaround Option would result in a long-term, minor, adverse impact	The South Loop Turnaround Option would result in a long-term, minor, beneficial impact	TRANS-2: Install Wayfinding Devices

**TABLE ES-3: SUMMARY OF IMPACTS AND MITIGATION (CONTINUED)**

ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 ACTION ALTERNATIVE	ALTERNATIVE 2A PROPOSED ACTION WITH NORTH LOOP OPTION	ALTERNATIVE 2B PROPOSED ACTION WITH SOUTH LOOP OPTION	MITIGATION MEASURES
<b>Transportation and Circulation (cont.)</b>				
Parking				
Alternative 1 would result in no impacts to parking conditions	The overall impact would be long-term, minor and adverse	The North Loop Turnaround Option would result in a long-term, minor, adverse impact	The South Loop Turnaround Option would not affect parking conditions at Fort Mason Center, and would not displace any parking spaces resulting in no impact	TRANS-3: Reconfigure On-Street Parking Spaces TRANS-4: Implement Parking Time Restrictions
Traffic Flow				
Alternative 1 would result in long-term, minor, adverse impacts to traffic flow	The result with implementation of the Public Realm Plan would be a long-term, minor, adverse impact, and without implementation of the Public Realm Plan would be a long-term, major, adverse impact	N/A	N/A	TRANS-1: Optimize Traffic Signal Timing
<b>Air Quality</b>				
Alternative 1 would result in no short- or long-term air quality or greenhouse gas emission impacts, either beneficial or adverse	Short-term adverse air quality impacts would result from daily maximum construction activities. With implementation of mitigation measures, short-term air quality impacts would be minor to moderate and adverse  Alternative 2 would result in negligible to minor beneficial operational impacts to both regional and local air quality as well as greenhouse gas emissions	The North Loop Turnaround Option would result in a net negligible to minor beneficial operational air quality impact.  Construction-related GHG emissions are considered a minor adverse impact with respect to global climate change.  The North Loop Turnaround Option would result in a minor net beneficial impact to GHG emissions.	The South Loop Turnaround Option would result in a net minor beneficial operational air quality impact.  The South Loop option would have the same net minor adverse construction-related GHG emission impact with as would occur with the North Loop Option  The South Loop option would have the same net minor beneficial impact with regard to GHG emissions as would occur with the North Loop Option.	AIR-1: Implement BAAQMD Basic Construction Mitigation Measures

**TABLE ES-3: SUMMARY OF IMPACTS AND MITIGATION (CONTINUED)**

ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 ACTION ALTERNATIVE	ALTERNATIVE 2A PROPOSED ACTION WITH NORTH LOOP OPTION	ALTERNATIVE 2B PROPOSED ACTION WITH SOUTH LOOP OPTION	MITIGATION MEASURES
<b>Noise and Vibration</b>				
<p>Alternative 1 would result in no new short- or long-term noise or vibration impacts, either beneficial or adverse</p>	<p>Alternative 2 would result in major adverse impacts to the residential units on the corner of Hyde and Beach Streets and at Ghirardelli Square as well as hotels along Beach Street and the Maritime Museum. Impacts would result from construction noise, construction-related vibration, operational noise and operational vibrations. Identified mitigation would reduce these major adverse impacts to the moderate level</p>	<p>The North Loop Turnaround Option would result in the following:                      Construction Noise: minor adverse impact                      Construction Vibration: minor adverse impact.                      Operational Noise: moderate adverse impact                      Operational Vibration: minor adverse impact similar to existing vibration levels monitored in the area</p>	<p>The South Loop Turnaround Option would result in the following:                      Construction Noise: minor adverse impact                      Construction Vibration: minor adverse annoyance impact at the residences on Laguna Street.                      Operational Noise: moderate adverse impact                      Operational Vibration: minor adverse impact</p>	<p>NOISE-1: Implement Construction Noise Mitigation                      NOISE-2: Implement Operational Noise Mitigation                      VIBR-1: Implement Construction Vibration Mitigation                      VIBR-2: Implement Operational Vibration Mitigation</p>
<b>Cultural Resources</b>				
<p>Alternative 1 would not result in any new short- or long-term impacts, either beneficial or adverse</p>	<p>Impacts to NRHP-listed, eligible, or contributing building, structure, object, site or cultural landscape features in the In-Street and Transition segments range from negligible to moderate adverse impact, see Table 4.7-1 and Table 4.7-2 for details</p>	<p>The North Loop Turnaround Option would result in impacts to NRHP-listed, eligible, or contributing building, structure, object, site or cultural landscape features range from negligible to moderate adverse impact, see Table 4.7-1 for details</p>	<p>The South Loop Turnaround Option would result in impacts to NRHP-listed, eligible, or contributing building, structure, object, site or cultural landscape features range from negligible to moderate adverse impact, see Table 4.7-2 for details</p>	<p>CUL-1: Measures to mitigate the adverse impacts of the loss of individual resources at Aquatic Park NHL District (stone retaining wall)                      CUL-2: Measures to mitigate the adverse impacts due to the introduction of new, incompatible uses to the Aquatic Park NHL District                      CUL 3: Measures to mitigate the adverse impacts of the alteration of individual resources at San Francisco Port of Embarkation U.S. Army NHL District and Fort Mason National Register Historic District                      CUL 4: Measures to mitigate the adverse impacts due to the introduction of new, incompatible uses to the San Francisco Port of Embarkation U.S. Army NHL District/Fort Mason National Register Historic District</p>

TABLE ES-3: SUMMARY OF IMPACTS AND MITIGATION (CONTINUED)

ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 ACTION ALTERNATIVE	ALTERNATIVE 2A PROPOSED ACTION WITH NORTH LOOP OPTION	ALTERNATIVE 2B PROPOSED ACTION WITH SOUTH LOOP OPTION	MITIGATION MEASURES
<b>Cultural Resources (cont.)</b>				
				CUL-5: Measures to mitigate negligible impacts to archeological resources due to inadvertent discovery during ground-disturbing activities
<b>Recreation and Visitor Use</b>				
Alternative 1 would result in no impacts to recreational opportunities	Alternative 2 would result in short-term and long-term, minor, adverse impacts on recreation and visitor use in the project area	The North Loop Turnaround Option would result in short and long-term minor adverse impacts	The North Loop Turnaround Option would result in short and long-term minor adverse impacts	REC-1: If necessary, relocate the bocce ball courts to suitable location REC-2: Post signage to direct Bay Trail users of temporary re-routes. REC-3: Coordinate the Bay Trail reroutes with Association of Bay Area Governments (ABAG)
<b>Visual and Aesthetic Resources</b>				
Alternative 1 would result in no direct, indirect, or cumulative impacts to visual resources	Alternative 2 would result in a long-term moderate adverse impact	The North Loop Turnaround Option would result in long-term minor and moderate, adverse effects	The South Loop Turnaround Option would result in long-term minor and moderate, adverse effects	VIS-1: Install temporary visual screening during construction. VIS-2: To the extent feasible, construction staging areas shall be located to the largest extent possible away from view of public viewsheds and remain clear of all trash, weeds and debris etc. VIS-3: Signs will be limited to the minimum necessary to meet information, warning, and regulatory needs and to avoid confusion and visual intrusion.
<b>Night Sky Visibility and Light Pollution</b>				
Alternative 1 would result in no direct or indirect, impacts to night sky visibility	Alternative 2 would result in long-term minor impacts due to increased night lighting	Same as Alternative 2 Action Alternative conclusions	Same as Alternative 2 Action Alternative conclusions	NIGHT-1: The project would be required to minimize the use of lighting in areas already well lit and to use full cutoff light fixtures throughout the project.

**TABLE ES-3: SUMMARY OF IMPACTS AND MITIGATION (CONTINUED)**

ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 ACTION ALTERNATIVE	ALTERNATIVE 2A PROPOSED ACTION WITH NORTH LOOP OPTION	ALTERNATIVE 2B PROPOSED ACTION WITH SOUTH LOOP OPTION	MITIGATION MEASURES
<b>Geology, Soils, and Seismicity</b>				
Alternative 1 would result in negligible impacts with respect to soil erosion and seismic or landslide events for all segments of the alternative, except for the Fort Mason Tunnel Segment, which could experience a moderate, long-term, adverse impact from dynamic settlement caused by a design-basis earthquake. This moderate impact would be reduced to minor intensity with implementation of the proposed mitigation measure(s).	Alternative 2 would result in minor adverse effects	The North Loop Turnaround Option would result in minor adverse effects after implementation of mitigation measure GEO-3.	The South Loop Turnaround Option would result in minor adverse effects after implementation of mitigation measure GEO-2.	GEO-1: Conduct further analyses to determine whether or not the tunnel is vulnerable to additional damage due to compaction of soil during an earthquake GEO-2: Slope stability evaluation and adherence to California Building Code GEO-3: Fort Mason Tunnel rehabilitation
<b>Biological Resources</b>				
Alternative 1 would result in no measurable change to vegetation, wildlife, or special-status species (if present)	Alternative 2 would result in negligible impacts to biological resources after implementation of the mitigation measures BIO-1 and BIO-2, construction and operation impacts	Same as Alternative 2 Action Alternative conclusions	Same as Alternative 2 Action Alternative conclusions	BIO-1: Preconstruction Nesting Bird Surveys BIO-2: Preconstruction Roosting Bat Surveys
<b>Public Health and Safety</b>				
Alternative 1 would result in no direct or indirect impacts to public health and safety	Alternative 2 would result in a short-term, minor, adverse impact	Same as Alternative 2 Action Alternative conclusions	Same as Alternative 2 Action Alternative conclusions	HEA-1: Pre-Construction Hazardous Materials Assessment HEA-2: Soil and Groundwater Management Plan HEA-3: Health and Safety Plan (HSP)
<b>Public Services and Utilities</b>				
Alternative 1 would result in no impacts to public services or utilities under this alternative	Alternative 2 would result in moderate adverse impacts	Same as Alternative 2 Action Alternative conclusions	Same as Alternative 2 Action Alternative conclusions	PUB-1: Maintain Utility Services