





SAN FRANCISCO
PLANNING
DEPARTMENT



Executive Summary

Project Description

The San Francisco Municipal Transportation Agency (SFMTA), the Port of San Francisco (Port), the San Francisco Planning Department (Planning), and the San Francisco Department of Public Works (DPW) are collaborating on the Embarcadero Enhancement Project (Project) to increase the safety and comfort of travel along The Embarcadero and improve options for people and goods accessing attractions and businesses along the waterfront and adjacent neighborhoods. The Project will result in a program concept, conceptual design and cost estimate for a bikeway along The Embarcadero from Third Street in South Beach to Powell and Jefferson Streets in the Fisherman's Wharf area. It will include stakeholder participation and a public process to review and comment on alternative concepts, costs and tradeoffs, with the objective of arriving at a recommended Project that is physically and financially viable, reflects public values, and enhances safety and the experience of travelers and visitors on foot, on cycle or in a vehicle along the Project route.

Problem Statement

Recent counts of pedestrians and cyclists collected along The Embarcadero found high pedestrian volumes and showed The Embarcadero to be the fourth most traveled cycling corridor in San Francisco. However,

this popularity comes with ongoing concern about public safety, as conflicts between people walking, cycling and driving have increased and, in some cases, compromised the shared public space on the Promenade. Portions of The Embarcadero appear on the WalkFirst "High Injury Network," a collection of streets that represent just 6 percent of all city streets but account for 60 percent of severe and fatal pedestrian injuries. The street has a high rate of bicycle collisions as well.

Bikeways

A bikeway is a bicycle facility that is physically separated from moving or parked vehicles and pedestrians. It is expected to improve safety and comfort of travel for everyone on The Embarcadero by creating clearly defined areas for pedestrians, cyclists and drivers. Bikeways can be one-way or two-way, and may be at street level, at sidewalk level, or at an intermediate level.

The overarching goal is improved safety and comfort for all travel modes, including pedestrians, bicyclists, drivers, and freight. The objectives of the Embarcadero Enhancement project are to:

- Make The Embarcadero safer and more comfortable for all roadway users, including but not limited to people who walk, ride a bicycle, or drive;
- Support economic development and accommodate growth;
- Increase and improve access for residents, workers and visitors through the provision of a safe, viable bicycle facility;
- Better manage curbside parking and loading to improve the efficiency of The Embarcadero;
- Maintain and enhance the high quality urban design of the Embarcadero; and
- Integrate bicycle improvements with planned public transit, pedestrian and other transportation projects.

Public Process

There is no preferred bikeway concept or design at this time. This will be developed as part of a robust outreach process over the course of the planning effort which will involve a series of one-on-one meetings with some stakeholders, presentations, public open houses and workshops. The trade-offs associated with any design option will be fully understood and communicated to stakeholders, including the public at large. Given the relatively long distance of the project limits (3-miles in length), and varying characteristics of the roadway (for example presence of on-street parking, number of travel lanes, demand for



Crowded conditions on The Embarcadero indicate the level of popularity of the roadway

curbside activities), a range of design options may be needed at different points along the roadway.

This endeavor is one of the key transportation projects identified in the Waterfront Transportation Assessment, an inventory of transportation and land use programs, strategies and solutions meant to address anticipated development along the waterfront over the next five to twenty-five years. Project goals are consistent with and supported by several City and regional policies and initiatives that guide the strategic direction of the SFMTA and partner agencies.

Introduction

The Embarcadero waterfront is one of San Francisco's most popular regional and international destinations. With numerous port attractions, shops, restaurants and the waterfront to enjoy, and the characteristics of flat terrain, wide sidewalks, smooth pavement and a lack of cross streets on the east side of the street, The Embarcadero has become an important public and recreational gathering place enjoyed by scores of visitors and locals alike. While the roadway serves its traditional role as the primary access for the Port-related and other businesses lining The Embarcadero, its design has become iconic and distinctly San Francisco; historic piers, a broad Promenade, and palm tree-lined streetcar tracks all contribute towards making this one of the City's most beloved streets.

Accordingly, the public demand for walking and biking along the waterfront has grown rapidly, particularly on the east side of The Embarcadero on the Embarcadero Promenade (Promenade), also known as Herb Caen Way. This trend is expected to continue with the predicted growth in jobs, residents and numbers of attractions both citywide and along the Waterfront.

By 2040 it is estimated that San Francisco will grow to nearly one million residents, a 35 percent increase, and 759,000 jobs, a 34 percent increase. San Francisco has also been hosting a record number of visitors in recent years, recording 16.9 million visitors in 2013 alone.

With this success, however, comes concern about public safety on The Embarcadero, as conflicts between people walking and biking as well as vehicles accessing The Embarcadero piers have also grown, and in some cases compromised the shared public space on the Promenade. Added to this

are concerns for a lack of cyclist compliance with road rules which can be exacerbated with limited guidance for cyclists and pedestrians on the multi-use Promenade.

To address these concerns, the SFMTA, the Port, DPW are working together to develop a preliminary design for a "bikeway" from AT&T Park to Powell Street. A bikeway is a bicycle facility that is physically separated from moving or parked vehicles and pedestrians. It is expected to improve the safety and comfort of everyone traveling along The Embarcadero by creating clearly defined areas for people walking, cycling, taking transit, and driving.

The project is being primarily funded by an MTC Priority Development Area (PDA) grant with supplemental funding from the SFMTA and the Port of San Francisco.



Project Description

The Embarcadero Street Enhancement Project is a planning exercise to develop a conceptual design for a bikeway along The Embarcadero, from AT&T Park to Powell Street.

What are the goals of the project?

The overarching goal is improved safety and comfort for all travel modes, including pedestrians, bicyclists, drivers, and freight. The objectives of the Embarcadero Enhancement project are to:

- Make The Embarcadero safe and comfortable for all roadway users, including people who walk, cycle, drive, and ride transit;
- Support economic development and accommodate expected population and employment growth;
- Increase and improve access along the waterfront for residents, workers and visitors;
- Manage curbside parking and loading to improve the efficiency of The Embarcadero;
- Maintain and enhance the high quality urban design of the Embarcadero; and
- Integrate transportation improvements on The Embarcadero with those planned for public transit, pedestrian safety and other related projects.

What is a bikeway?

A bikeway, also known as a cycle track, is a physically separated bicycle facility that is distinct from both the roadway and the sidewalk. By separating cyclists from other road users, bikeways can offer a higher level of security than traditional bike lanes and attract a broader spectrum of the public, including tourists, children and less confident people on bicycles. These facilities can also increase safety and comfort for all road users by minimizing potential conflicts between those on foot, bicycle or in a



One-Way Bikeway, 8th Avenue, New York City

vehicle, and by adding predictability to roadway operations.

Bikeways can be one-way or two-way, and may be at street level, at sidewalk level, or at an intermediate level. If at sidewalk level, a curb or median separates people biking from motor traffic, while different pavement colors and textures may separate the bikeway from the sidewalk. If at street level, bikeways can be separated from motor traffic by raised medians, on-street parking, bollards, planters, or bicycle parking.

What could a bikeway on The Embarcadero look like?

The location and design of the bikeway on The Embarcadero, are unknown at this time. The constraints of the roadway, which includes the Muni right-of-way, narrow sidewalks on the west side, and the widths of the existing travel lanes, will dictate what design elements are technically feasible. Trade-offs between parking, Promenade width and travel lane width will be defined as part of the design process and the public will help to weigh-in on what they prefer.



Multi-Use Path Sign, Boston, MA

As an initial step, City staff will analyze basic, broad design concepts to determine if they can physically fit into the roadway. For example, it is unlikely that a two-way bikeway would be able to fit into the west side of The Embarcadero given the limited right-of-way on that side of the street. Design options will be tested for 'fatal flaws' to give the project team and the public direction on which elements of the enhancement can be technically considered. Other design concepts may arise during the planning process.

Because of the relatively long distance of The Embarcadero, which is over 3-miles in length, and the varying characteristics of the roadway from location to location (the presence of on-street parking, number of travel lanes, width of sidewalks, and demand for curbside activities, for example), consideration of a variety of design options may be needed at different points along the roadway. Thus, an 'one-size-fits-all' approach to the process will likely not be possible, and the final design may include different design approaches and/or different sets of trade-offs required to achieve a final recommended design depending on the exact location along The Embarcadero.

Some of the broad design concepts that will be considered include:

- Two-way bikeway on the water side (either within the roadway or on the Promenade)
- Two one-way bikeways, curbside, on either side of The Embarcadero
- Two one-way bikeways, in the center of the roadway adjacent to the Muni right-of-way
- Two-way bikeway in the center of the roadway adjacent to the Muni right-of-way

This project is quite different than the interim bikeway that was temporarily installed to accommodate visitors to the America's Cup events in 2012 and 2013. That bikeway was in place for only a short time and for a short distance. It used temporary barricades and fencing to provide separation between vehicles and cyclists. The intent of the Embarcadero Streets Enhancement project is that it would result in a facility that is permanent and an attractive part of the infrastructure on The Embarcadero, enhancing the streetscape.

How might a bikeway impact The Embarcadero?

Studies of similar bicycle facilities from other American cities indicate that protected bike lanes result in large increases in people riding bicycles, (particularly for two-way bikeways), increases in cyclist compliance with road rules, (specifically at intersections with separate bicycle signals), increases in perceived safety for all road users, even among people in motor vehicles, and overall support among residents for an increase in installation of bikeways in other locations. Importantly, residents overwhelmingly felt that the protected bike lanes led to an increase in the desirability of their neighborhood and that had a positive impact in economic activity in their community. Perceptions among people driving on the street was generally positive as well, with over half of residents who had driven a motor vehicle on the street stating that predictability of people on bikes and in cars had increased. Parking was the key issue with the reallocation of road space, with the impact to parking being the most negative perception.

Data to track changes in collisions over time were not available given the recent installation dates of the sample projects, but study authors suggest that notable safety problems were not observed

What is 'conceptual design'?

The scope of this project is the development of a conceptual design for the bikeway on the Embarcadero. Conceptual design is the very first phase of design. This preliminary design will bridge the gap between a design concept and the detailed design phase when the project can be designed fully for construction. In the conceptual design task, the overall project is defined, and schematics, diagrams, and layouts of the project are developed to provide early project configuration, including indications of what the project should do and look like. While the conceptual design phase focuses on creating the general framework from which the project will build on, the detailed design phase will fulfill the vision of this framework even if the parameters of the part being created can change. Thus, a broad indication of the trade-offs associated with the project, including potential on-street parking loss, and reduction in width of Promenade for example, will be indicated but not made fully firm until the detailed design phase.

The final product of this project will be a planning report with conceptual drawings that illustrate, broadly, the type of facility that will be provided with typical cross-sections of The Embarcadero with project included. A recommended design is expected to be completed in the Fall of 2015.

Subsequent phases would include environmental review, detailed design, and construction. Currently these phases are unfunded.



Two-Way Bikeway, New York City

How will the public be involved in the Project's development?

The Project includes a stakeholder participation and public process to review and comment on alternative concepts, trade-offs, and costs, with the objective of arriving at a recommended Project that is physically and financially viable, and enhances the public values, pedestrian safety and experiences along The Embarcadero waterfront.

The outreach process will consist of 'formal' meetings and workshops, available to all interested members of the public and the business community, as well as 'informal' discussions with members of the project team, as requested.

The formal outreach process will consist of the following meetings:

• Public Open House #1

The Project Team will provide open house attendees with a broad introduction to the project, including project intent and goals. Conversations with the public about design considerations and transportation desires for the roadway will be initiated.

Design Workshops (3)

Three location-based workshops (i.e., The Embarcadero from Broadway to Harrison) will allow attendees to discuss location-specific issues and opportunities with the Project Team. A facilitated exercise at each of the three workshops will help participants to identify the trade-offs associated with specific design treatments in each block of The Embarcadero and have discussions about those potential tradeoffs. These potential trade-offs will start to be identified at the workshops, which will help to guide subsequent discussions with the public and stakeholder groups, as design alternatives are further developed.

Public Open House #2

Attendees can provide feedback on two or three design alternatives

How will this project benefit San Francisco?

Safety

- Minimize opportunities for conflict and collisions among all people on The Embarcadero, with the goal of eliminating serious and fatal injuries;
- Create an Embarcadero that is welcoming and comfortable to people of all ages and abilities;
- Encourage all road users to comply with the rules of the road;
- Reduce the feeling of chaos among all users of The Embarcadero.

Access

- Make it easier for people to access the waterfront, and also provide better access for employees and the movement of goods;
- Improve transportation connections between the various attractions along The Embarcadero and beyond;
- Relieve some of the burden off of the crowded Muni F-Line;
- Encourage more visitors to leave their cars at home.

Support Business

 Shift more visitors to transportation by foot, bike and transit to free up roadway and parking space for critical goods access and port industry needs. and cost estimates at the open house and via an online survey. The purpose of this meeting will be to confirm the design goals and identify design alternatives and/or elements that have strong support. At this stage stakeholders should understand the transportation related trade-offs associated with the design elements.

"Meet Us on The Embarcadero"

Members of the Project Team will schedule regular office hours on The Embarcadero for casual one-on-one or small group discussions to discuss ideas, address concerns or answer questions about the Project.

Individual Conversations and Presentations

As requested, members of the Project Team will have individual meetings or will give presentations about the project at neighborhood or other scheduled group meetings with sufficient advanced notice.

A second set of Workshops and a third Public Open House may be scheduled, as required.

How will this project benefit San Francisco?



Two-Way Bikeway, Seattle, WA

Ultimately, this project aims to

create a safer and more comfortable Embarcadero by more clearly defining areas for each of the different user groups. This should help to bring a sense of order to what may now sometimes feel chaotic and should help to attract more users on foot and bicycle of all ages and abilities.

The addition of a safe and comfortable bicycle facility on The Embarcadero can provide a vital link between the growing number of attractors on The Embarcadero and other neighborhoods, including employment, commercial, cultural, educational, entertainment-related, recreational and transportation hubs such as BART. Attracting more visitors by foot and bicycle will relieve some of the existing pressures on Muni and on- and off-street parking facilities, while increasing access to these attractions.

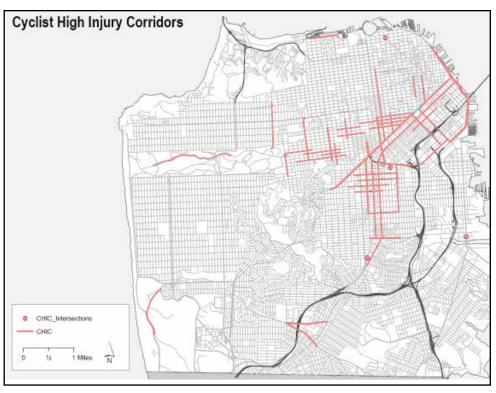
This project would not reinvent The Embarcadero. The intent is to build upon its phenomenal success. Certain core aspects, such as the Muni rail tracks, will remain as they are. Other elements of the roadway however, such as curbs, on-street parking, and loading activities may be re-examined to look for opportunities for improvement.

It is important to note that this project will take into account the needs of all roadway users and will strive to achieve a balanced solution. The Embarcadero provides primary or exclusive access to many Port waterfront businesses, so any design must respond to those operational needs as well as to improve access, public safety, and enjoyment of the waterfront.

Existing Conditions

Current Design

Five-foot wide bicycle lanes are generally available alongside northbound and southbound moving vehicle lanes on The Embarcadero roadway, though the bicycle lanes are not continuous. While these bicycle lanes are generally used by faster, more experienced cyclists, users must still compete with many other curbside activities that encroach into the cycle lanes which generally discourage all but the most confident of bicyclists. This includes parking, goods



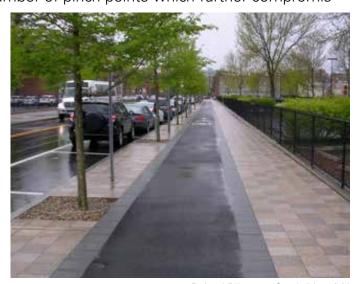
delivery, taxi, shuttle bus, and para-transit operations, among other activities.

It is therefore not surprising that most people on foot and on bicycles prefer to travel along the Promenade. The Promenade is unusual in San Francisco in that it is not designated as a pedestrian-only sidewalk. This designation is a reflection of Port's historic character where trucks, trains, and vehicles intermingled with pedestrian and worker access. Pedestrians, bicycles and pedicabs currently have shared access on the Promenade.

However, the popular Promenade can look and feel like an obstacle course for its many users. Cyclists and pedestrians must compete with vehicles, street furniture, wide pedicabs and other people on foot or bicycle traveling in the opposite direction. Furthermore, the width of the Promenade varies throughout the corridor, creating a number of pinch points which further compromis-

es user comfort. These conditions have led to some collisions, many close calls, and detract from the comfort of all users.

The popularity of the waterfront (east) side of The Embarcadero comes at the expense of the west side of the roadway, which is underutilized as a walking and biking route. Narrow sidewalks, and a large number of wide and multi-legged intersections discourage people on foot and bicycle from using the west side. Nonetheless, this project may seek to address the imbalance in safety, comfort and utilization of the two sides of The Embarcadero to help distribute some of the road users to the City side.



Raised Bikeway, Cambridge, MA

Travel Data

Travel data collected on The Embarcadero illustrate the high level of demand for walking and cycling. Data collected by Gehl Architects who helped to develop pedestrian-oriented improvement plans for Jefferson Street in Fisherman's Wharf, found that portions of The Embarcadero at Pier 39 have higher pedestrian volumes than some of the busiest pedestrian corridors in the world, including Broadway in New York, George Street in Sydney, Australia, and Regent Street in London, England.



Improvements on Prospect Park West, New York NY

As part of the City's annual data collection on bicycling, the SFMTA observed the number of people on bikes at several different locations on The Embarcadero on a typical evening commute in September 2013, from 4:30-6:30PM. At each location, the numbers of people on bicycles on The Embarcadero ranged from 800 to over 1,000 during this two-hour period. These numbers indicate an approximate 25 percent growth in cycling on The Embarcadero between 2011 and 2013 in the same locations, ranking the corridor as the fourth most travelled street in San Francisco for people riding bikes.

By contrast, one-way peak hour vehicle counts range from approximately 1,000 to 2,000 vehicles per hour, depending on the specific location along the corridor.

Special events like Giants games draw many more people on foot and bicycle to the area. Additionally, significant growth in jobs and housing envisioned by several major development projects along the waterfront, SOMA, South Beach, Mission Bay and Central Waterfront, are expected to lead to even more demand for walking and bicycling on The Embarcadero.

With so much activity, conflicts between users are a regular occurrence. As identified by the City's WalkFirst initiative, which analyzed locations across San Francisco where vehicle collisions with pedestrians are happening and why, over one-third of The Embarcadero falls onto on the City' "High Injury Network," a collection of streets that represent just 6 percent of all city streets but account for 60 percent of severe and fatal pedestrian injuries.

Additionally, approximately 75% of the roadway is categorized as a Cycling High Injury Corridor indicating the need to address both cycling and pedestrian safety along the corridor.

Between 2006 and 2011, data from the San Francisco Police Department indicate that 84 people were injured on The Embarcadero while walking or riding a bike; including two pedestrians that were fatally injured, four pedestrians that were severely injured, and three cyclists that were severely injured.

While this project may not address all causes of collisions on The Embarcadero, its future design through this planning process can accommodate measures to address some of the collision trends along the corridor.

Policy Support

The intent of this project is consistent with and supported by several City and regional policies and initiatives that guide the strategic direction of the SFMTA and partner agencies.

This project is under the purview of the Waterfront Transportation Assessment (WTA), which provides a strategic focus on coordinated transportation improvements and investments to serve

current and future growth planned along the waterfront and eastern side of the City. This project is one strategy that has been identified as part of the WTA assessment which, collectively with the other identified strategies, are intended to address transportation conditions over the next 25 years along the San Francisco waterfront in anticipation of proposed major developments, including the Warriors, Mission Rock and Pier 70 projects.



Conditions on The Embarcadero, May 2014

Pedestrian and Bicycle Safety

Resolution.pdf)

 <u>Vision Zero</u> – Adopted by the SFMTA Board and the San Francisco Board of Supervisors in early 2014, and recently adopted by the SF Planning Board, Vision Zero provides a framework for reducing traffic deaths to zero by 2024 through a combination of engineering measures, education, and enforcement practices. (www. sfmta.com/sites/default/files/agendaitems/2-4-14%20Item%2010%20Vision%20Zero%20

The intent of this project supports Vision Zero by reducing conflicts on the Promenade while addressing some of the primary collision trends along the corridor.

• Mayor's Pedestrian Safety Executive Directive/WalkFirst initiative – The Mayor's Directive focuses on actionable recommendations to reduce serious or fatal pedestrian injuries by 25 percent by 2016 and by 50 percent by 2021. The WalkFirst initiative uses a data driven approach to identify where and why collisions with pedestrians are occurring, as well as make recommendations for pedestrian safety projects and programs to reduce serious pedestrian injuries and fatalities. Over one third of the project area is on the list of High Injury Corridors identified as part of this directive. High Injury Corridors represent 6 percent of San Francisco's street miles (70 miles), but 60 percent of severe and fatal pedestrian injuries. (http://walkfirst.sfplanning.org) This project supports the Mayor's Directive by aiming to reduce conflicts between modes, particularly between pedestrians and cyclists on the Promenade.

Transportation Choices

<u>Transit First Policy</u> – Initially adopted in 1973 and voted into the City Charter in 1999, the
Transit First Policy states that the City should prioritize street improvements that enhance
travel by public transit, by bicycle and on foot as an attractive alternative to travel by private

automobile. This policy also appears in the Transportation Element of the General Plan in Section 1.3 and the SFMTA Strategic Plan

- o (www.sf-planning.org/ftp/general plan/l4 Transportation.htm),
- o (www.sfmta.com/sites/default/files/FY%202013%20-%20FY%202018%20 SFMTA%20Strategic%20Plan.pdf).

This project clearly promotes walking and biking as viable forms of transportation and as attractive alternatives to travel by private automobile.

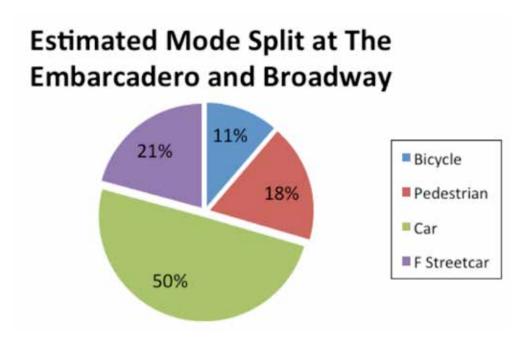


Image descriptions

SFMTA Strategic Plan - The SFMTA's vision is "San Francisco: great city, excellent transportation choices." Identified strategic goals include creating a safer transportation experience for everyone; making transit, walking, bicycling, taxi, ridesharing, and car sharing the preferred means of travel; and improving the environment and quality of life in San Francisco. Included in the Strategic Plan is the objective that half of trips made in the City in 2018 are via non-private automobile. (www.sfmta.com/about-sfmta/reports/sfmta-strategicplan-fy-2013-fy-2018) The SFMTA's core values include a commitment to prioritize the most affordable and accessible modes of transportation. The Embarcadero Enhancement project provides better transportation choices and promotes cycling and walking as preferred, as well as safe, forms of transportation.

Quality Urban Design and Enhancing the Bay

Better Streets Plan – Adopted by the City in December 2010, these policies guide infrastructure investment in the public right-of-way to consider and design for the needs of all users as well as environmental quality. The Plan seeks to balance the needs of all street users, with a particular focus on the pedestrian environment and how streets can be used as public space. (www.sfbetterstreets.org) This project addresses some of the key issues of congestion on

the Promenade and balances walking and biking with transit and other modes.

- Waterfront Design & Access Element Approved by the Port Commission as part of the Port of San Francisco Waterfront Land Use Plan in 1997, as amended, these policies establish the framework for waterfront open space and public access, to promote walking, riding and transportation access, and recreational pursuits along the Port's 7-1/2 mile waterfront. The Port's policies provide site-specific direction in support of the San Francisco Bay Trail.
- The San Francisco Bay Trail Passed into State law in 1989, the intent of the San Francisco Bay Trail is the creation of a 500 mile recreational Shoreline "ring around the Bay." The Bay Trail, which encompasses the entire Embarcadero project area, provides easily accessible recreational opportunities for outdoor enthusiasts, including hikers, joggers, bicyclists and



Shared Use Path Sign, The Embarcadero

skaters. It offers a setting for wildlife viewing and environmental education, and it increases public respect and appreciation for the Bay. It also has important transportation benefits, providing a commute alternative for cyclists, and connecting to numerous public

transportation facilities (including ferry terminals, light-rail lines, bus stops and Caltrain, Amtrak, and BART stations). (www. baytrail.org) This project provides a strengthening of the key San Francisco link in the Bay Trail and achieves multiple Bay Trail objectives.



Conditions on The Embarcadero, May 2014

Next Steps and Timeline

The general scope of work and timeline for this project is as follows:

Phase 1: Project Kick-Off

Define City Team staffing, tasks and roles, and project scope

Fall 2013 - Winter 2013/14

Phase 2: Data collection

Existing conditions, land use survey, initial feasibility analysis

Winter 2013/14 - Fall 2014

Phase 2 will involve various data collection exercises in order to provide the project team with an accurate understanding of existing and projected conditions along the Embarcadero.

• Phase 3: Initial Stakeholder Engagement

Public Open House #1, one-on-one meetings, Workshops (round #1)

Summer 2014 - Winter 2014/15

Phase 3 represents the initial engagement with project stakeholders and the general public about the project. The purpose is to introduce the stakeholders to the project, obtain input on issues related to travel along The Embarcadero, and work together towards direction of the initial design treatments.

Phase 4: Develop Design Alternatives

Detailed feasibility analysis, Workshops (round #2 – if needed), cost estimates, trade-off identification

Winter 2014/15 - Spring 2015

Interested stakeholder groups representing diverse points-of-view will work collaboratively in Phase 4 to develop conceptual designs that meet the goals of the project. Each alternative will be screened for fatal flaws and vetted with technical staff at the Port and SFMTA.

Phase 5: Final Design Selection

Public Open House #2, Public Open House #3 (if needed), final recommended design

Spring 2015 – Fall 2015

Phase 5 will result in further input from project stakeholders and the public about the two design alternatives. The end product of Phase 5 will be a final recommended design.