TREASURE ISLAND COMMUNITY TRANSPORTATION PLAN

Final Report

March 2009

San Francisco Department of Public Health and
The San Francisco Bicycle Coalition

AUTHORS

Cyndy Comerford Scully
San Francisco Department of Public Health
Neal Patel
San Francisco Bicycle Coalition

CO-AUTHOR

Jennifer McLaughlin
San Francisco Department of Public Health

ACKNOWLEDGMENTS

The San Francisco Department of Public Health (SFDPH) and San Francisco Bicycle Coalition (SFBC) would like to thank the many people who contributed to this plan.

Technical Advisory Committee (TAC)
Robert Talley and Beth Thomas, Caltrans District 4
Jack Sylvan and Michael Tymoff, San Francisco Mayor's Office
Peter Albert and Frank Markowitz, San Francisco Municipal Transportation Agency
David Alumbaugh, San Francisco Planning Department
Jared Blumenfeld, San Francisco Department of the Environment
Rachel Redondez, Supervisor Chris Daly's Office
Maureen Gaffney, Bay Trail Project
Tom Steinbach and Mike Howe, Greenbelt Alliance
Tom Radulovich, Livable City
Jen Clary, San Francisco Tomorrow
Pi Ra, Senior Action Network
Becky Evans, San Francisco Sierra Club
Dave Snyder, San Francisco Planning and Urban Research
Stuart Cohen, Transform (Formerly Transportation and Land Use Coalition)
Phil Olmead, Urban Ecology
Manish Champsee, Walk SF
Jay Wallace, Treasure Island Community Development, LLC
Peter Summerville, Treasure Island Development Authority
Mirian Saez, Treasure Island Development Authority
Sherry Williams, Treasure Island Homeless Development Initiative
Eric Stromberg, Landscape Architect
John Ciccarelli, Bicycle Solutions
Bert Hill, Bicycle Advisory Committee

EDITOR
Constance Cavallas

In Addition, a special thank-you goes out to the following individuals who contributed to this plan:
Megan Gaydos, San Francisco Department of Public Health
Megan Wier, San Francisco Department of Public Health
Rajiv Bhatia, San Francisco Department of Public Health
Andy Thornley, San Francisco Bicycle Coalition
Leah Shahum, San Francisco Bicycle Coalition
Jack Sylvan, San Francisco Mayor's Office
Michael Tymoff, San Francisco Mayor's Office
Peter Albert, San Francisco Municipal Transportation Agency
Keith Orlesky, Treasure Island Community Development
Kevin Conger and Brennan Cox, CMG Landscape Architects
Bill Burton, AECOM
Todd Adair and Tom Morse, BKF
Ruth Gravanis
Randall Orr, Research Assistant

Cover photo by Conway Liao - MinimalCozy.com
Design by Fabian Falconett

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The California State Department of Transportation awarded a Community-Based Transportation Planning Grant to the City and County of San Francisco Department of Public Health (SFDPH) and the San Francisco Bicycle Coalition (SFBC) to create a plan for a walkable and bikeable Treasure Island. This Final Plan documents our efforts and details our final recommendations for the bike and pedestrian environments on the redeveloped island. The SFDPH and SFBC led meaningful outreach among stakeholders of the Treasure Island and San Francisco communities to engage them in the process of transportation planning on and to Treasure Island. Treasure Island is being converted from a former Naval base to one of San Francisco's newest neighborhood. Most existing infrastructure on the island will be demolished and new commercial, residential, and recreational spaces will be put in place. This process offers a rare opportunity to create a new, walkable, bikeable, and livable neighborhood in a dense and otherwise built-out urban environment in the San Francisco Bay Area. Inclusive planning conducted now and in the near future will affect the sustainability and the public health of Treasure Island and the Bay Area for decades to come.

There is great hope and excitement that Treasure Island will be built to the highest degree of transportation sustainability. This project has examined what exactly what this could look like. It is our belief that we must design communities and enact policies that create wider more inviting sidewalks, that encourage development near a transportation hub, that provide a safe route for an eight year old to bike to school or an 80 year old to bike to the grocery store, and that we make getting to a destination by transit more attractive than getting there by automobile. These strategies prioritize the safety of the bicyclist and pedestrian and works toward creating a healthier community where daily exercise can be achieved through daily commuting and where the air is cleaner because of less automobile use.

The transportation infrastructure that currently exists in San Francisco and elsewhere in the nation is not sustainable. The private automobile has top priority on many streets, sidewalks are sometimes too narrow or uninviting, and bike routes either don't exist or don't provide enough protection for all users. To move in the right direction, we must often place retrofits on our streets to help carve out space for other users.

This report outlines our recommendations and outreach efforts to ensure that Treasure Island is built to encourage bicycling and walking as primary modes of transportation.

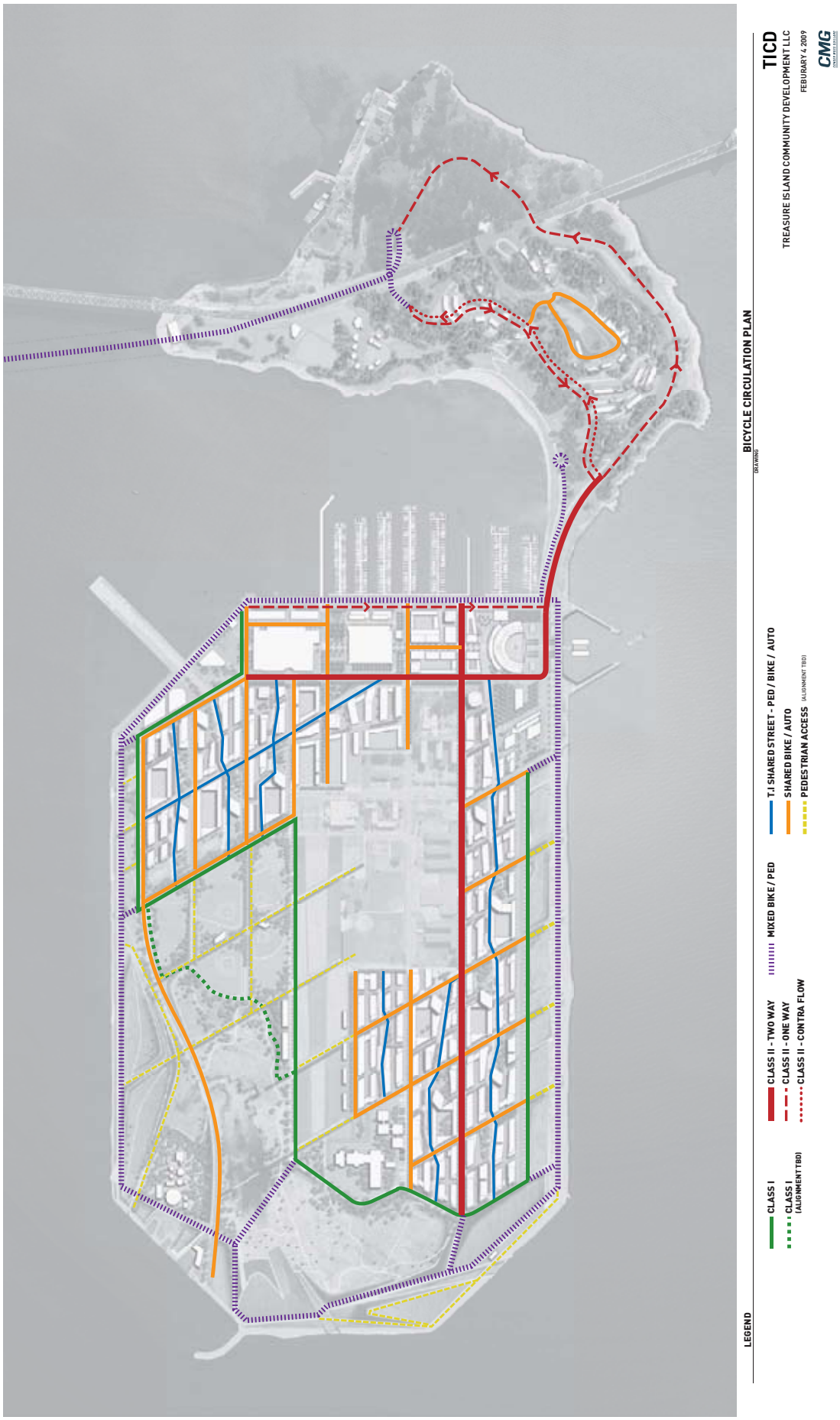
The Draft Treasure Island Transportation Plan prepared by Treasure Island Community Development, LLC goes through great length to maximizing walking and bicycling and provide sustainable transit options. Many of our recommendations mirror goals and objectives set forth by that Plan. In an effort to improve the Plan and mitigate potential impacts, we make the following recommendations for the redeveloped Treasure Island:

- ***Focus on utilizing the "shared public way" concept and other traffic calming features*** – A shared street design will work well on many streets of Treasure Island. Low automobile speeds, a continuous street surface, and numerous other built-in traffic calming devices can be used to create a rich pedestrian-priority lane, while still allowing for occasional automobile access.
- ***Brand the island as pedestrian- and bicycle-focused*** – Treasure Island transportation management should include strategies to promote bicycling and walking through signage, printed materials, and events targeted at both residents and visitors.
- ***Safe Walkway and Bikeway between TI, YBI and the East Span Bike and Pedestrian path*** – The safest routes possible should be constructed for ease of travel for bicyclists and pedestrians travelling between the new East Span bike and pedestrian path through Yerba Buena Island to Treasure Island.

- ***Encourage a West Span Maintenance/Bike/Pedestrian Path*** – This future possible construction project would provide a direct route for pedestrians and bicycles between downtown San Francisco and Treasure Island and would help support the island's overall sustainability goals. Also, routes on Yerba Buena Island should be planned for the possibility of a future path on the West Span.
- ***Design Innovations for Aesthetics and Amenities for Treasure Island's Pedestrian Environment*** – All of Treasure Island's streets should include numerous seating options, pedestrian-oriented lighting and other street furnishings to enhance the pedestrian experience and encourage more walking for transportation.
- ***Establish new pedestrian only routes*** – In areas with potential conflict between pedestrians and automobiles, pedestrian-only routes should be considered. This is most important in areas close to the multi-modal transportation hub and commercial areas.
- ***Comprehensive bicycle parking program*** – Abundant bike parking should be planned according to location type, including for residences, the transportation hub, commercial areas, and other destinations.
- ***Well-designed bicycle routes*** – A safe and continuous network of bike lanes and paths should be implemented leading to all destinations and to encourage both new and experienced riders to travel by bike for transportation.
- ***Institute a Bike-Sharing program*** – Centered at the central transportation hub, a bike-sharing program should be implemented to encourage residents and visitors to bike for transportation.
- ***Increased bike capacity on transit*** – To increase the feasibility of traveling to and from Treasure Island without a private vehicle, all transit options servicing the island should be equipped with adequate capacity for bicycles. This includes the ferry, bus, on-island shuttle, and the possibility for a specific bike-shuttle servicing the island.
- ***Strategies to reduce automobile dependence*** – These can be accomplished through the future Treasure Island Transportation Demand Management program and parking policies.
- ***Transit Improvements*** – Bus service between Treasure Island and the East Bay and downtown San Francisco should be expanded to serve new locations and at a higher frequency.
- ***Recommendations from the Health Impact Assessment (HIA)*** – There a number of additional recommendations described in Section 5 born from several HIA tools including The Healthy Development Measurement Tool (HDMT), Pedestrian Environmental Quality Index (PEQI), and the Bicycle Environmental Quality Index (BEQI).

The SFBC and SFDPH are committed to ensuring these recommendations remain in the Transportation Plan or are implemented further along on Treasure Island's redevelopment. For the latest updates on this project and Treasure Island's Redevelopment please visit sfbike.org/TreasureIsland, sfphes.org/comm_ti_bicycle_ped.htm, and sfgov.org/TreasureIsland.

Current Bicycle Circulation Diagram (March 2009), from Treasure Island Community Development (TICD)



VARIED EDGE

›NON PARALLEL STREET WALL

›AVARIATION IN SCALE OF SPACE

CONTINUITY OF STREET

›STREET RUNS THRU, PUNCTUATED BY PARKS

›SIMILAR ELEMENT ARE REPEATED THROUGHOUT - SEATS, PAVING, TREES, LIGHTING

›SIMILARITY OF MATERIALS FROM BLOCK TO BLOCK

DEFINITION OF THE STREET

›BUILDING FACADE DEFINES EDGE BETWEEN PUBLIC AND PRIVATE SPACE

›DO NOT ALLOW STREET TO LEAK INTO ADJACENT SPACE

GREEN

›LUSHGROUNDCOVER AND CANOPY ALONG THE PEDESTRIAN STREET

›ECO-FRIENDLY AND SUSTAINABLE MATERIALS THROUGHOUT THE PEDESTRIAN STREET.

PEDESTRIAN FRIENDLY

›PRIMARY CIRCULATION ROUTES FOR PEDESTRIANS

›ACTIVATE STREET WITH PARK, SEATING, STOPS, DOORS, AND WINDOWS

›PARKS VARY IN PROGRAM

›ACTIVATE BUILDIN EDGES

DIVERSITY OF ARCHITECTURE

›VARIETY OF MATERIAL AND TEXTURE

VARIED EDGE

CONTINUITY OF STREET

DEFINITION OF THE STREET

GREEN

PEDESTRIAN FRIENDLY

DIVERSITY OF ARCHITECTURE

TREASURE ISLAND - PEDESTRIAN STREET STUDY

NOVEMBER 13 2008

CMG

Illustration of the Shared Street Concept (March 2009), from Treasure Island Community Development (TICD)

1. INTRODUCTION

PATHWAYS TO HEALTH

Creating safe, functional places for people to walk and bicycle could have a profound impact on health. Promoting walking and bicycling through community design and supporting community programs are all important strategies to enhance physical activity and at the same time reduce traffic congestion and improve air quality. This project helps to ensure that Treasure Island's development includes safe, affordable, convenient transportation options for people choosing to walk or bike.

Treasure Island faces special transportation challenges. It is physically separated from the San Francisco mainland and Oakland, and the Bay Bridge is already at capacity for carrying automobiles. Through this project, the SFDPH and SFBC have conducted community workshops, surveys, bike tours, interviews, and design strategy meetings – all geared toward educating and empowering stakeholders to be involved in planning for pedestrian and bicycle access for Treasure Island. This Plan acts as our community action plan with recommendations aimed at ensuring equitable transportation for residents, commuters, and visitors on and to Treasure Island with an emphasis on building healthy, active neighborhoods.

Throughout our planning process, community stakeholders have been actively involved in helping realize the goals of our project. In order to arrive at the most informed plan possible, the following groups of people have been involved: people who currently live, work, attend school or other programs on Treasure Island; people who may be living on or working on Treasure Island in the future; people who wish to walk or bicycle between San Francisco and Treasure Island to visit, or as a commute method between San Francisco and Oakland; tourists visiting the island; and people interested in recreational uses on Treasure Island and between S.F. and the Island. The techniques used to reach out to the community and plan development are described in Chapter 2.

Treasure Island is a manmade island in the middle of the San Francisco Bay, and consists of approximately 403 acres (see Figure 1). In this plan, when referencing "Treasure Island" or "T.I.", it is also referring to the southern section of the island, Yerba Buena Island. More information about the community setting, demographics and land use features of Treasure Island can be found in Chapter 3 – "Existing Conditions". For this plan, the geographic location of Treasure Island plays a crucial role. The establishment of an integrated, transportation system that promotes bicycling and walking as a viable alternative to automobile travel which can increase connectivity between San Francisco and Oakland and provide equity for all populations is the transportation system envisioned by this community planning process.

FIGURE 1

The ability for people on Treasure Island to be healthy, active, and connected to others is largely determined by the transportation system put in place. This plan brings a unique health perspective, in that our recommendations not only focus on non-motorized transportation alternatives, but these polices are aimed to increase the number of positive health outcomes. The "Health Impact Assessment" (HIA) and evaluation of the current Treasure Island Transportation Plan are summarized in Chapter 4.

Our primary focus and most important part of this plan are the key transportation recommendations and considerations for implementation in Chapter 5. These are the solution to address the transportation gaps identified by the community which have been heavily researched and prioritized. Chapter 6 concludes our efforts put forth by this plan.

2. COMMUNITY TRANSPORTATION PLAN PROCESS AND OUTREACH

In July of 2006, the San Francisco Department of Public Health (SFDPH) and the San Francisco Bicycle Collation (SFBC) were awarded a grant from Caltrans to create a community transportation plan for Treasure Island. The outreach process focused on open public participation to create strategies to encourage walking and biking on the island.

Outreach to community members, city agencies and community based organizations was crucial to the success of this community based planning process. All affected groups were approached and encouraged to discuss transportation gaps and respond to potential solutions. The project team employed a multitude of strategies to inform the Treasure Island community transportation planning process and solicit feedback on the final plan and recommendations.
These strategies included:

- Convening a Technical Advisory Committee
- Presentations to Community Organizations and City Agencies
- Participation in Treasure Island Community Events
- Participation in inter-departmental streets working group
- Regular meetings with TIDA, TICD, and design team for the redevelopment project
- Community Workshops
- Bike Tours
- Key Stakeholder Interviews
- Surveys
- Bike Rack Design Contest

To better understand all parties' involvement in the community transportation project, the SFDPH put together an informational piece on "Roles and Responsibilities". Table 1 describes the role of Caltrans, SFDPH, SFBC, stakeholders and the technical advisory committee. The next sections details the planning process and outreach process along with participation levels.

TABLE 1

ROLES AND RESPONSBILITIES for Community-Based Planning to Create a Walkable/Bikeable Treasure Island
THE CALIFORNIA DEPARTMENT OF TRANSPORATION (CALTRANS)
Caltrans has awarded a Community Based Transportation Planning Grant to the City and County of San Francisco Department of Public Health to Create a Walkable/Bikeable Treasure Island. The San Francisco Bicycle Coalition is a sub-recipient of this grant, meaning that although SFBC and SFDPH have a separate agreement between them as to sharing the workload; SFDPH is contractually responsible to Caltrans for performance under our grant contract. CalTrans will attend community meetings, oversee the scope of work, receive deliverables from SFDPH, review expense invoices and recommending their approval, or not, for payment. CalTrans is to be informed of all community meeting and presentations.
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH (SFDPH)
The SFDPH will lead the development of a detailed project work plan with anticipated activities, milestones, and timelines. SFDPH will ensure the work plan is updated in response to needed changes and require detailed monthly activity reports from the sub-recipients, including budget expenditure updates. The team will conduct at least twice monthly project meetings in which the team will continuously evaluate progress and challenges, develop responses to challenges, and document tasks and responsible parties. SFDPH will include summaries of work plans, activity reports, accomplishments, challenges, and responses to challenges in its quarterly and final progress reports to Caltrans. The SFDPH will work on the development of Community Transportation Plan; provide technical assistance, and present plan to Treasure Island Development Authority and S.F. Board of Supervisors.
SAN FRANCISCO BICYCLE COALITION (SFBC)
The SFBC will lead meaningful outreach among stakeholders of the Treasure Island community to engage them in the process of transportation and land use planning on and to Treasure Island. The SFBC will conduct training workshops, community meetings, focus groups, surveys, and events geared toward educating and empowering stakeholders and community members to be involved in planning for pedestrian and bicycle access. This will include developing and distributing outreach materials, conducting media outreach, researching best practices, aiding report development and presenting plans and presentation to stakeholders, the Technical Advisory committee, the Treasure Island Development Authority and S.F. Board of Supervisors. To ensure a successful outcome and inclusion of key stakeholders – the SFBC will be directly involved with these organizations and interested individuals to prioritize goals and receive feedback on plans and presentations. and deliver to SFDPH as scheduled.
THE TECHNICAL ADVISORY COMMITTEE (TAC)
The role of the TAC will be to provide technical assistance to the project directors (SFDPH and SFBC) in the development of the community transportation plan. The TAC will consist of staff representatives from various city agencies and community based organizations, which are invited to work with the SFBC and SFDPH in the development of the community transportation plan. Key members of the TAC include the San Francisco Mayor's Office, Treasure Island Development Authority and Treasure Island Community Development, LLC. The role of the TAC will be to develop a community outreach plan, to review and provide feedback on work products prior to distribution and presentation and assist directors in the preparation of the various work products during the development of the plan. The TAC will meet on a quarterly basis to review the progress of work. Letters have been sent out to invite key organizations with expertise in environmental and healthy transportation practices to help guide this process.
COMMUNITY STAKEHOLDERS
Community stakeholders are defined as community groups or individuals with a stake, i.e., an interest or an investment in the community transportation plan and/or outcome. Community Stakeholders will work with the SFBC and SFDPH to learn about transportation issues, give input on the assessment needs for walkability and bicycling, identify and evaluate possible solutions, and recommend a list of improvements.

THE OUTREACH PROCESS

CONVENING A TECHNICAL ADVISORY COMMITTEE (TAC)

The TAC consists of 22 individuals from the following groups: government officials involved in transportation, the environment, and/or local politics; individuals from community groups from around the SF Bay Area who possess a broad knowledge of community planning and bicycle and pedestrian friendly environments and specific Treasure Island stakeholders who are heavily involved in Treasure Island governance and community activities. The goal of the TAC was to provide technical assistance to the project directors (SFDPH and SFBC) in the development of the community transportation plan. During the planning process, the TAC has had the opportunity to participate in community outreach, review and provide feedback on major work products prior to distribution and had the opportunity to participate in the preparation of the various final work products during the development of the plan.

PRESENTATIONS TO COMMUNITY ORGANIZATIONS AND CITY AGENCIES

In order to build support, pique interest and gain insight into Treasure Island's existing and future communities, the project team has presented preliminary and final findings and held informational meetings in a variety of settings. The first public presentation about the Treasure Island community transportation planning process was a lunchtime forum discussion at San Francisco Planning and Urban Research (SPUR). The SFDPH, SFBC, Mayor's Office, and Kenwood Investments led a one-hour-long presentation on the project.

Since then, the project team has gone to great lengths to keep all groups and agencies apprised of our work and allow them to comment on our progress, including the following bodies:

- Good Neighbors of Treasure and Yerba Buena Islands
- SF Municipal Transportation Agency Board of Directors
- Treasure Island Development Authority (TIDA) Board of Directors
- Citizens Advisory Board (CAB) of Treasure and Yerba Buena Islands
- Treasure Island Streets Working Group.

PARTICIPATION IN TREASURE ISLAND COMMUNITY EVENTS

With redevelopment drawing nearer, there has been greater attention focused on the island. The Treasure Island Music Festival (TIMF) and Treasure Island Community Festival were two events the SFBC and SFDPH conducted outreach at during this project. The TIMF, a two-day music festival on the great lawn of Treasure Island, attracted 10,000 concert-goers per day in 2007 and 2008. The SFBC provided free valet bike parking and operated a prominent public booth on the festival grounds. This was an extraordinary outreach opportunity as we were able to discuss Treasure Island with a large number of individuals who may not have normally thought about the island and may have never been there before. These individuals would be likely to revisit the island in the future, and through a survey we were able to ascertain their transportation preferences around and to and from the island.

The SFBC operated a booth at the Annual Treasure Island Community Festival as well. However, due to low attendance at the festival, we were not able to reach out to a large number of community members. We did meet and foster relationships with numerous community stakeholders including the TI Homeless Development Initiative, Job Corps, and Director of Island Operations.

COMMUNITY WORKSHOPS

The San Francisco Department of Public Health (SFDPH) and the San Francisco Bicycle Coalition (SFBC) held two Community Transportation Workshops to solicit community feedback on the future of sustainable transportation on the redeveloped Treasure Island. Below is a summary of the promotion, content, and outcomes of those workshops.

Workshops were held at two different locations (one on Treasure Island and one in downtown San Francisco) in order to give the opportunity for all interested parties to attend. In 2007, the focus of the workshop was to introduce the fundamentals of the official Transportation Plan for Treasure Island, and then to solicit broad transportation needs and solutions from participants, especially as they related to bicycling and walking. After an initial presentation, participants broke off into groups to conduct a visioning exercise based on five major themes: Land Use, Walking, Bicycling, Reduced Automobile Dependency, and Transit. Participants were encouraged to brainstorm how each theme could be handled to maximize the bikeability and walkability of Treasure Island. Participants gave comments on existing components of the Transportation Plan, as well as provided new insight and ideas into the various transportation themes on Treasure Island. At the end of the allotted time, each group presented some notable ideas that came from their discussions.

The second community workshop provided a great opportunity to share our refined recommendations for bicycling and walking on the islands, as well as solicit ideas on the streetscape design. The first 40 minutes of the workshop were allotted to an informal poster session allowing people to view the 13 posters describing what are now the Final Plan recommendations summarized in this Report. Attendees were able to view all posters, or focus on those they were knowledgeable or interested in, and provide written comments and suggestions. Following the poster session, the project team gave a 15-minute presentation on the status of the project and a broad overview of project timeline, recent activities, and upcoming events. The goal of the second-half charette portion of the workshop was to delve further into design issues related to bike and pedestrian environments on Treasure Island. Participants formed small groups, and with a large map in front of them, discussed design options that would help solve a number of "problems." These common problems are deemed barriers to more bicycling and walking in many communities and included: "Parents feel unsafe bicycling with their kids;" "Pedestrians often lack public plazas and open space;" "Pedestrian-only paths can often feel empty or unsafe;" and "Residents sometimes have to carry too many goods to bike or walk to shops." Responses from participants helped shed light on how Treasure Island's street design can reduce or eliminate these barriers. Participants engaged in great conversations on how best to solve these problems, and the topic often flowed to other design issues that were also important to the bike and pedestrian environment.

BIKE TOURS

Some of the most informative outreach experiences provided to the community were two bike tours of Treasure Island organized by the SFBC and SFDPH in 2007 and 2008. The rides were open to the public, though due to limited space, participants had to RSVP. Each tour met in downtown San Francisco, and participants were transported to Treasure Island by minibus, with bicycles loaded into a moving truck. About 25 people attended each tour with varied interests and backgrounds including environmental issues, transportation, urban planning, public health, government, and many members of the general public.

Both tours made a loop around the island with a number of stops to discuss various aspects of Treasure Island's past and future, focusing on plans for the proposed transportation network, open space elements, housing, and environmental issues. For some participants this was their first time on the island, and many expressed how touring the island by bike allowed them to better visualize the proposed changes.

Participants also provided suggestions on how to improve transportation around and to the island during these tours. People were most interested in seeing separate bicycle facilities, better pedestrian routes, an around-the-island bicycle and pedestrian path, as well as direct pedestrian and bicycle access on the West Span of the Bay Bridge.

KEY STAKEHOLDER INTERVIEWS

Throughout our planning process, identified stakeholders have guided our recommendations, proposals, and process and helped shape this Final Report. The SFBC and SFDPH have specifically sought insight into outreach strategies, environmental issues and clean-up, best practices in transportation planning, and strategies for creating an effective community-based plan. The following individuals contributed valuable insight into our project:

Peter Summerville, TIDA

Ruth Gravanis

Palak Joshi, Treasure Island Homeless Development Initiative

Michael Tymoff and Jack Sylvan, Mayor's Office

Frank Markowitz, SF MTA

Adam Varat, Planning Department, Better Streets Plan

Manish Champsee, WalkSF

Tom Raduolovich, Livable City

John Ciccarelli, Bicycle Solutions

Brooke Dubose, Fehr and Peers

Mark Conners, Good Neighbors of Treasure and Yerba Buena Islands

Nathan Brennan, TI/YBI CAB

BIKE RACK DESIGN CONTEST

The SFBC and SFDPH also conducted a bike rack design contest for the Redeveloped Treasure Island. An open call for designs was announced in 2009 for an original bike rack design that would somehow reference Treasure Island. This contest was meant to increase awareness of the island's redevelopment and this project's role in that process, as well as the possibility of identifying a unique bike rack design that could be mass-produced for the island. Bicycle parking is an important component of our recommendations, and having an artful design will enhance Treasure Island's overall environment.

Over 60 designs were submitted and 3 designs were chosen as winners. The winning designs will be fabricated in the spring of 2009 and shown at various art and public locations across the City. The showings will highlight the winning designs, but also discuss the bicycle amenities being proposed for Treasure Island, and the importance the island is placing on bicycling and walking. Ultimately, one or more of the designs from this contest may be selected for use throughout or at specific locations around the island.

One of the submissions for the contest that references Treasure Island well, by Kirk Scott.

SURVEYS

In September of 2007, we administered a paper survey to 296 concertgoers at the Treasure Island Music Festival – a two-day festival on the Great Lawn. This concert attracted approximately 20,000 people from all over the Bay Area and beyond. The survey was administered to those individuals who utilized the bike valet service and those who visited the SFBC booth on the festival grounds. Cars were restricted on the island for this event, and most individuals had to utilize shuttles from AT&T Park in San Francisco. Free bike parking was provided by the SFBC. This survey reflects the ideas of bicyclists somewhat disproportionately due to the locations where the survey was administered, but nonetheless provided a unique opportunity to get opinions about transportation on Treasure Island.

DEVELOPMENT OF THE TREASURE ISLAND TRANSPORTATION PLAN

In the beginning of this project, the SFDPH started working on creating an Existing Conditions Report and a Health Impact Assessment of Treasure Island and the Treasure Island Community Transportation Plan. The following planning research was conducted to create an existing conditions and opportunities profile for bikeability-walkability planning:

- Creation of the Bicycle Environmental Quality Index (BEQI)
- Use the BEQI and the Pedestrian Environmental Quality Index (PEQI) to assess the pedestrian and bicycle environment of Treasure Island.

- Apply the Healthy Development Measurement Tool (HDMT) to Treasure Island Plan**,** focusing on the HDMT objectives related to transportation, land use, and community design features that affect walking and biking.

- Transportation Matrix

In June 2007 the SFDPH developed a physical survey to assess the quality of the bicycle network on Treasure Island called the Bicycle Environmental Quality Index (BEQI). We developed measures that are empirically linked to evidence that either promote or discourage bicycle riding and connectivity to other forms of travel.

For the BEQI there are five categories and each category contains several indicators with indicator values. The values were obtained by sending a survey to bicycle experts and members of the bicycle community in July 2007. SFBC staff worked with SFDPH to prepare and promote the BEQI Survey. Once ready, the survey was posted to the online survey service, Zoomerang, where individuals could easily fill out the survey online. The survey was promoted through the SFBC newsletter and emailed to thousands of people in the bicycle community. We had 88 respondents complete the survey. The survey responses were used to devise numerical scores and weights for the BEQI. The total score for each street segment and intersection will reflect the bicycle quality for the area the BEQI is applied to.

In July 2007, we used these measures in field surveys to collect data on the existing bicycle environment, and also applied a similar pedestrian index to pedestrian environment, to understand factors which facilitate or impede biking and walking. Data was collected again in the summer of 2008 with the revised index. Results are shown in chapter 3, Existing Conditions.

In order to create a transportation Health Impact Assessment, the SFDPH applied the Healthy Development Measurement Tool (HDMT) to Treasure Island. The application provided an evaluation of the current Treasure Island transportation development plans with regards to how the plan would positively and/or negatively affect community health objectives. The objective of this task was to assess existing community health conditions and the likely effects on community health of the Treasure Island plans as described in current planning documents. The HDMT was developed through a three-year community stakeholder process in San Francisco to support more accountable, evidence-based, and health-oriented planning and policy-making. It includes about 140 community health indicators and associated development targets. Only a portion of this application will be used to provide baseline environmental and health data for Treasure Island and an existing conditions profile of community health.

Lastly, the SFBC and SFDPH have put much work into creating a Transportation Matrix. This document includes major transportation gaps on the island, whether these gaps are addressed in the Transportation Plan and to what extent, where to look for information on best practices, whether the issue is covered by City policy, time-frame, priority, City Department responsible for the issue, population affected and health outcomes. This tool helped us to prioritize issues for inclusion in our Draft Plan and was a useful tool to summarize the results from our outreach activities. The Transportation Matrix will be presented in the Transportation Solutions chapter of this report.

TREASURE ISLAND STREETS WORKING GROUP

Starting in late 2008, the SFBC and SFDPH have become regular participants in the Treasure Island Streets Working Group – a body committed to tackling issues of many of Treasure and Yerba Buena Island's transportation network. The Working Group is composed of the following agencies and organizations:

- Mayor's Office

- SF Municipal Transportation Agency (MTA) – with representatives from DPT, Better Streets Plan, Bike Program, Livable Streets Program, Capital Planning, and MUNI

- Treasure Island Development Authority (TIDA)

- Planning Department

- Department of Public Works
- SF Fire Department
- Mayor's Office of Disability
- Department of the Environment
- Treasure Island Community Development (TICD)
- CMG Landscape Architecture
- BKF Engineers, Surveyors, Planners
- AECOM
- Nelson/Nygaard

Many of the design recommendations in this report have been vetted and informed through these Working Group meetings, and the SFBC and SFPDH have been able to enhance the bicycle and pedestrian planning with specific design recommendations. Most notably, this group has tackled the following components of the Street Design:

- Overall bicycle and pedestrian networks and connectivity
- Street section dimensions and typologies
- Multi-modal transportation hub circulation
- Pedestrian and bicycle circulation on Yerba Buena Island, and leading to the new East Span
- Shared public way design

The Treasure Island Streets Working Group will continue to meet past this report's publication, and the SFBC and SFDPH will continue to play a role in the island's planning process. We feel these meetings are the forum for making some of the most important transportation decisions, and as such, we shall continue to push for new and innovative bicycle and pedestrian facilities and policies, as well as make sure the existing components remain in the plan through planning, design, and redevelopment.

3. EXISTING CONDITIONS

COMMUNITY SETTING

Treasure Island is a former Naval base situated midway between San Francisco and West Oakland. The island is in the process of being transferred from the US Navy to the City and County of San Francisco. Between 1940 and 1990, more than 900 residential units and more than 2.5 million square feet of office/retail/institutional space were constructed on Treasure Island. Treasure Island supports a residential population just over 3,000 people in 905 residential units, with a high proportion of low-income families, and a daily employee population of nearly 2,000. Future redevelopment plans for Treasure Island call for an additional 6,000 residential units, 2,500 new permanent jobs and 2,450 construction jobs per year through the project build-out (25% of which will be reserved for low-income individuals).

Treasure Island's unique history has shaped its current day community setting. Treasure Island (T.I.) is a 403 acre manmade island constructed by the Army Corp of Engineers. The first use of the island was for the Golden Gate International Exposition between 1936 and 1940. The World's Fair brought visitors all across the globe to enjoy the astonishing Mayan and Asian art deco architecture, multiple fountains and garden, and diverse sculptures that represented the Pacific. Multiple countries provided the fair with displays and there were a slew of restaurants, theatres, and entertainment facilities. Today, there are few remnants of the World Fair, but the unique architecture from the past will play a role in the redevelopment design.

T.I. was originally intended to be an international airport after the World's Fair, but America's increased involvement in World War II led it to be transformed for military use. During WWII, T.I. was used by 3,500 service personnel daily. Major functions on the island included the Fleet Training Center, Commander Naval Base San Francisco, waterfront facilities, troop and family housing, personnel support including the processing of Pacific-bound and homecoming personnel, and an aviation, military and exposition museum.

In 1993, the U.S. Congress approved plans for the base closure and redevelopment of Naval Station Treasure Island. In 1994, a Citizens Reuse Committee was formed to develop goals and objectives for the island. The Treasure Island Development Authority (TIDA) has operated the area since base closure under agreement with the Navy, and leases portions of the base for residential housing and other activities. TIDA is currently working to secure the transfer of Naval Station Treasure Island from the Navy.

Currently, there are over 900 residential buildings and non-residential buildings covering 2.5 million square feet, including an administration building (historic), fire training facility, former aircraft hangars (historic), offices, a brig, a conference center, a school, restaurants, a chapel, storage, equipment buildings, and the Nimitz House (historic). The school was shut down in 2005 due to low enrollment and many of the stores are not currently operating. Currently, there are few amenities for residents and workers on the island.

Today people mostly visit T.I. to work or to experience the spectacular views of San Francisco and the East Bay. Businesses that occupy the island include the Treasure Island Villages Rental Housing Leasing Office, Treasure Island Creative, T.I. Mini-Market, and the T.I. Photo Booth. A number of organizations operate on the island as well, including the Treasure Island Homeless Development Initiative (TIHDI), Delancey Street Life Learning Academy, T.I. Sailing Center, Boys and Girls Club, Treasure Island Gymnasium, T.I. Child Care Center, T.I. Marina, and Good Neighbors of TI/YBI.

Most of the visitors coming to T. I. are interested in the views, but T.I. also offers a host of recreational activities. Twenty-five percent of the island is designated to recreational facilities and open space including a marina, a sailing center, ball fields, a gym, a theater, a bowling alley, a fitness center, tennis courts, a picnic area, and open space. There is a strong community involvement with youth sports in T.I., including soccer, baseball, tennis, and rugby.

DEMOGRAPHICS

Treasure Island hosts a diverse population of just over 3,000 people, including a considerable low- to moderate-income population, in part drawn by homeless employment and housing programs (includes about 250 formerly homeless individuals and families), and a strong emphasis on low-income housing at the Villages at Treasure Island (578 residential units). The majority of households on T.I. do not have children (68%) and are between the ages of 18 - 44 (69%). The residential population includes about 250 formerly homeless families. The following statistics were compiled by property managers, the John Stewart Company.

Treasure island residents' ethnic diversity is as follows:

56%	Caucasian
28%	African American
10%	Latino/Hispanic
4%	Asian
2%	Other

Languages spoken by T.I.'s residents include English, Spanish, Chinese, and Hindi. Treasure Island residents' income levels are as follows: 100% of the estimated 200 individuals living in the housing for formerly homeless individuals have a median income under $10,000/year. Among other T.I. residents, the breakdown of individuals' median income levels is as follows:

23%	$15K-$20K/year
30%	$20K-$35K/year
40%	$35K-$65K/year
3.5%	$65K-$80K/year
3.5%	$80K-$115K/year

*(*The median income for an individual in San Francisco is $60,031, according to U.S. Census)*

There will be a continued emphasis on providing low to moderate-income housing as T.I. is developed, with one-third of the 6,000 planned new residential units slated to be set aside for low- or moderate-income households. In addition, plans will include prioritizing jobs for this low-income population: At least 25% of new permanent jobs and temporary construction jobs on Treasure Island will be reserved for homeless and low-income individuals

LAND USE

ENVIRONMENTAL ISSUES

During the time T.I. was occupied by the Navy, it was exposed to toxins. Other hazardous products found include petroleum, lead, PCB's, dioxins, VOCs, DTSC, and medical waste. Most of the contaminated sites have been addressed and cleaned up, but there are still remaining sites undergoing the remediation.

Since the mid-1980's T.I. and Y.B.I. have been under environmental clean-up through two programs: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Program and the Petroleum Program. Presently, the Navy has identified 33 sites where further investigation is needed due to possible contamination in soil, sediment, and groundwater. These sites include a landfill, former fire training area, former dry cleaning facility, bunker area, fuel farms, and a service station. Most of these sites were exposed to petroleum products during fueling operations and training. Hazardous waste materials were also disposed and stored that need to be cleaned up. Out of the 33 sites on T.I. and Y.B.I., 23 have been selected as CERCLA sites, where six sites have been cleaned up and are closed. The remaining nine sites are under the Petroleum Program, where four sites have been cleaned up and closed and all have been initially addressed.

The Treasure Island Restoration Advisory Board (RAB) was established by the Navy to bring together community members to discuss local interests of T.I. and is involved in giving feedback on environmental clean-up draft documents though RAB members do not make decisions regarding clean up on T.I.

TRANSPORTATION

Being an island, T. I. faces special transportation challenges. It is not currently well-served by transit, and there is no direct pedestrian or bicycle access between T.I. and the San Francisco mainland; so, without proper attention and action, T.I.'s residents and employees could be isolated and deprived of sustainable, healthy transportation options and thus forced to rely on autos more than necessary. This would be particularly costly and perhaps most prohibitive for low-income families. Currently, private vehicle access is the main form of transportation for many residents on T.I. According to the 2007 Census Update, more households in T. I. own cars (100%) in comparison to the San Francisco city average (92%). The high rate of car ownership is most likely associated to the geographic location, lack of public transportation, and abundant parking supply.

While there is limited service, San Francisco's public transportation system serves Treasure Island. All of T.I.'s housing units are within a quarter mile access of the local bus. There is only one bus line provided by San Francisco Municipal Railway (MUNI), bus # 108/Treasure Island, operating 24 hours a day seven days a week. It takes approximately 30 minutes to reach the Financial District in San Francisco and could require taking an additional bus line if going to the northeast Financial District. The bus comes every 15 minutes during peak hours and every 20 minutes during the midday and weekday evenings. The bus runs every 30-45 minutes throughout the night and early morning. Currently, traveling to the East Bay requires that one must take bus #108 into San Francisco and then continue on the Bay Area Rapid Transit (BART) out towards the East Bay. This route is estimated at 45-50 minutes.

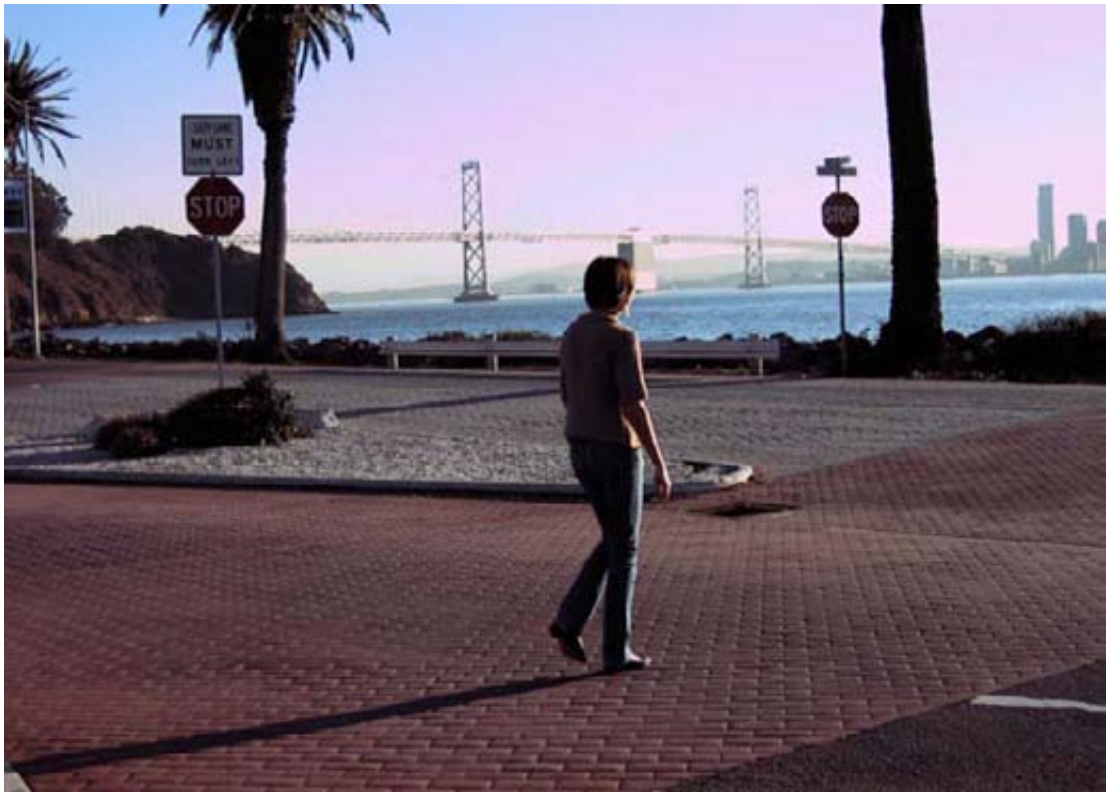
San Francisco's MUNI recently expanded the #108 bus service area to include the Mission Bay area at 4th and King. This added stop in afternoon and evening hours affords Treasure Island residents access to Caltrain and the South Bay, as well as more services such as a large full-service grocery store and a public library.

There are no regional transportation systems currently serving T.I.. The San Francisco Transbay Terminal in South of Market (SoMa), the closest regional transportation hub, is approximately four miles from Treasure Island and provides regional bus service around the Bay Area. The #108 bus line goes to the Transbay Terminal, so passengers must stop here before transferring to another station. With the recent extension of service to the Caltrain Station at 4th St. and King St., access to another regional transportation system is afforded, though a transfer is still necessary.

WALKING AND BIKING ON TREASURE ISLAND

In providing a safe, supportive environment for bicyclists, bike lanes and paths are fundamental. Citywide, there are 63 miles of bike lanes and paths and 930 miles of road, for a ratio of .07. For every mile of roadway in T.I. and Y.B.I., there is .07 mile of bicycle lanes or paths (1:.07 or 17.64 road miles and 1.26 bike lane/path). Although, there are currently barriers and closed roads in T. I. which discontinue the bicycle route. Due to remediation, portions of Perimeter Road on the northern end of the island are currently closed. Being the only pathway on the island without motor traffic, this is especially detrimental to the pedestrian and bicycle environment of T.I. None of these bike lanes connect to the citywide bicycle network and bicycles must be transported over the Bay Bridge on the bus or by private automobile. While the bicycle infrastructure is minimal and the quality of the bicycle network may not be very notable, the lack of vehicle traffic may make T.I. an enjoyable place for people to ride their bicycles if they are able to reach the island.

A low proportion of Treasure Island commuters walk or bike to work (12%) – slightly lower than the citywide proportion of 14%. One of the major drawbacks of walking and biking on T.I. is its geographic isolation and lack of proximity to commercial development, public transit, and people's residential, employment, and other (e.g. shopping, errands, social) activities. Treasure Island had a low number of pedestrian collisions, with one collision from 2001-2005 – much lower than the city of San Francisco's rate. Similarly, bicyclists hit by motor

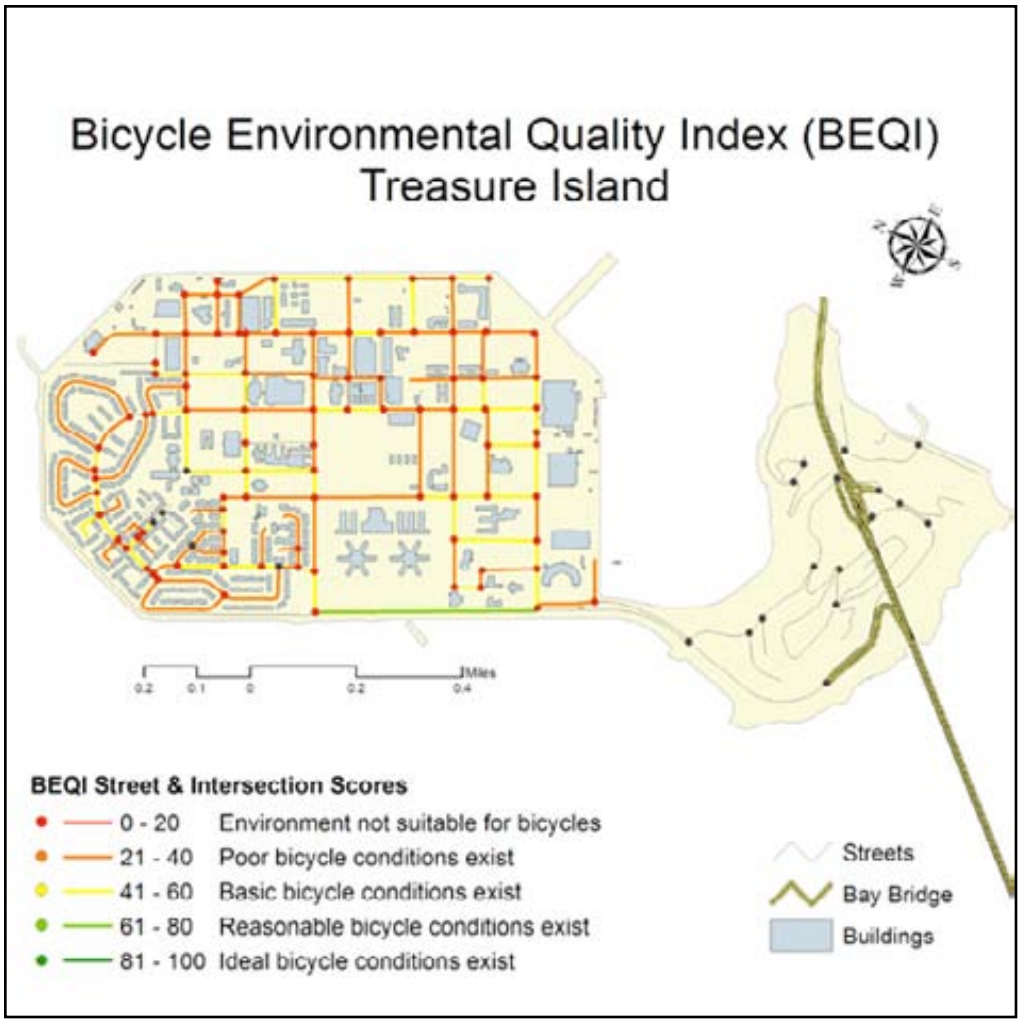


vehicles in are low – with 3 bicycle collisions from 2001 – 2005 compared to a city neighborhood median of 21 bicycle collisions.

In order to assess the bicycle and pedestrian environment the Pedestrian Environmental Quality Index (PEQI) and Bicycle Environmental Quality Index (BEQI) was used. The PEQI is used to evaluate existing barriers to walking and assess the quality of the physical pedestrian environment. The PEQI is aimed at increasing pedestrian activity and safety in land use and urban planning processes. The BEQI is used to assess the bicycle environment on roadways and evaluate what streetscape improvements can be made in land use and planning processes to promote bicycling in San Francisco. The indices are designed to address what environmental factors support or prevent a walkable or bikeable environment. For a comprehensive review of indices, please visit www.sfphes.org/HIA_Tools.htm.

The data for both indices was collected by trained observers in the Summer of 2008. The new Treasure Island Transportation Development Plan intends to revamp the entire transportation infrastructure. The expectation is the PEQI and BEQI will show a before and after comparison of the neighborhood walking and biking design. Thus, the PEQI and BEQI will not be very constructive on a micro level, but will serve as an important tool on a macro level, measuring the future development against plan objectives and current pedestrian and bicycle conditions.

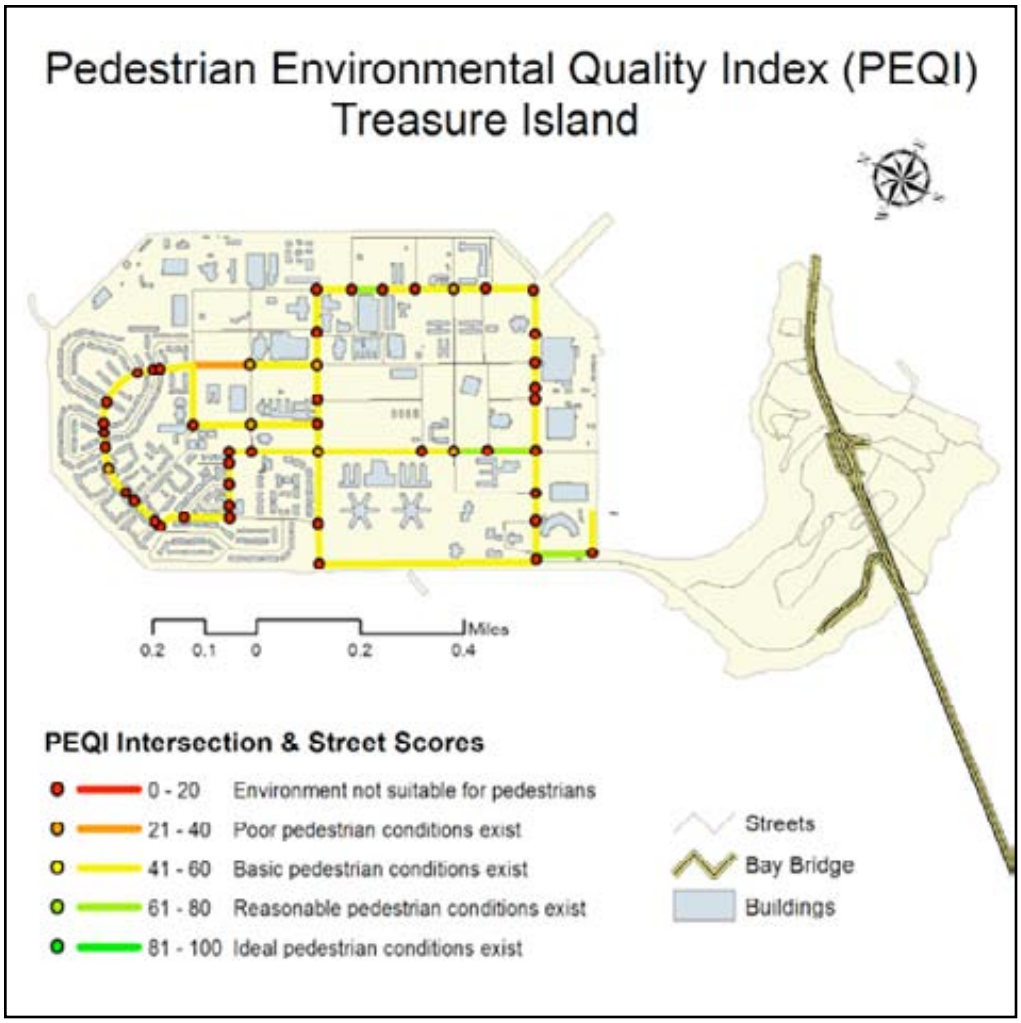
The portions of the Study Area that received low PEQI/BEQI scores represent an environment that provides a disincentive to walking and other non-motorized transportation. General recommendations that improve the pedestrian and bicycle environment are included in the Key Issues and Transportation Solutions chapter.



TRAVEL PERCEPTIONS

The results from the September 2007 survey provided us with insights of bicycle enthusiasts traveling to Treasure Island for a day of music and fun. Forty-seven percent of those surveyed had never been to T.I. before, even though 92% of respondents lived in the Bay Area, suggesting that currently, there is little to attract visitors to the island. Sixty-percent of respondents said they chose their neighborhood they live in based on how accessible it was to transit. When asked how they would prefer to travel on T.I., 91% preferred to bike and 3% preferred to walk.

Respondents were asked to rank a list of conditions most important in order to provide an accessible and sustainable transportation system on T.I. The top three responses were 1) better facilities for bicycling (79%), 2) a full bike and pedestrian pathway on the Bay Bridge (76%), and 3) better facilities for walking (44%). When asked which three improvements would most encourage them to walk or bike on T.I., people most responded to 1) bike paths separate from cars (73%), 2) bike lanes on streets (54%), and 3) space designed to prioritize biking and walking (48%). These survey responses indicate a strong desire for better bicycling and walking facilities on T.I. People seemed interested in the island and its future, and most agreed that they would like to come back in the future (66%).


Pedestrian Environmental Quality Index (PEQI)
Treasure Island
0.2 0.1 0 0.2 0.4
Miles
PEQI Intersection & Street Scores
0 - 20 Environment not suitable for pedestrians
21 - 40 Poor pedestrian conditions exist
41 - 60 Basic pedestrian conditions exist
61 - 80 Reasonable pedestrian conditions exist
81 - 100 Ideal pedestrian conditions exist
Streets
Bay Bridge
Buildings

4. HEALTH IMPACT ASSESSMENT

THE CASE FOR INTEGRATING PUBLIC HEALTH AND TRANSPORTATION PLANNING

Being healthy requires living in a healthy environment (WHO, 1986). Viewed broadly, a healthful environment means good quality housing and schools; access to public transit, childcare, and parks; safe routes for pedestrians and bicyclists; meaningful and productive employment; unpolluted air, soil, and water; social cohesion and cooperation, and inclusive social participation.

Increasingly, inter-disciplinary research demonstrates the root causes of disease and illness, as well as strategies to improve health and well-being is dependent on the built environment, including transportation systems (Ewing, 2006). For example, vehicle trips are directly proportional to air pollution and greenhouse gas emissions. Air pollutants, including ozone and particulate matter, are causal factors for cardiovascular mortality and respiratory disease and illness. Areas with high levels of motor vehicle driving also tend to have higher motor vehicle collision and higher injury rates.

Most redevelopment decisions affect traditional health outcomes indirectly through effects on social and environmental conditions. The practice of Health Impact Assessment (HIA) aims to answer the question: Is our public policy healthy? Or in the case of the Treasure Island Redevelopment Plans, we are specifically examining if the built environment increases opportunities for physical activity and reduces time people spend in their vehicles. By evaluating these health effects, positive and negative, policy decisions become more transparent and HIA helps to shape those decisions in ways that improve and protect health for all. HIA also offers recommendations to decision-makers for alternatives or improvements that enhance the positive health impacts and eliminate, reduce, or mitigate negative impacts.

METHODS

The Healthy Development Measurement Tool (TheHDMT.org) is an evidence-based guide to evaluate population health needs in land use planning. The HDMT uses a set of community-level health indicators along with criteria for healthy development to connect physical and environmental planning to a wider set of social interests and to assess the extent to which urban development projects, plans and policies affect conditions and resources required for optimal health. This application of the HDMT to the Treasure Island Transportation Plan is using all ten community level health objectives within only one of the six healthy city vision elements: Sustainable and Safe Transportation.

The overall aim of the application is to inform the public decision making process and raise awareness of how alternative planning scenarios might affect future health conditions for San Francisco and Bay Area residents. The application of the HDMT to the Treasure Island Transportation Plan has three specific aims:

1. Assess the health needs of the neighborhoods undergoing planning, as evidenced by the community health indicators.

2. Evaluate whether the Transportation Plan meets the health needs of the neighborhoods, primarily as determined by the Transportation Plans' achievement of HDMT development targets.

3. Make recommendations for policies and implementing actions in the Transportation Plan in order to meet community health objectives.

APPLICATION PROCESS AND OUTCOMES

The assessment of existing conditions and health needs involves reviewing neighborhood-specific HDMT primary indicator data to assess baseline community health conditions in Treasure Island. Evaluation of the Transportation Plan against health needs involved review of draft written plan policies and implementing actions to assess the achievement of HDMT objectives and development targets. The final aim is to provide feasible and effective recommendations for the Transportation Plan.

The Transportation Plan evaluation is organized as follows

1. Evaluate Treasure Island's existing conditions based on measurable Indicators and baseline data specific to each objective;

2. Evaluate the Transportation Plan based on development targets that, if achieved by a plan, are a proxy for improvement of an indicator and support the community health objective; and finally,

3. Detail any further recommendations we have, based on the HDMT evaluation.

*Please note the HDMT Pricing Strategies, Transportation Demand Programs, Traffic Calming Interventions and Pedestrian Interventions referenced in the following tables can be found in Appendix A.

SUSTAINABLE AND SAFE TRANSPORTATION

ST.1 DECREASE PRIVATE MOTOR VEHICLE TRIPS AND MILES TRAVELED

Existing Conditions

People's transportation behaviors, including how much and how far they drive, as well as whether they own a private vehicle, are shaped by numerous factors. These factors include, but are not limited to, whether there is a mix of land uses providing access to jobs, goods, and services near residential development, the area's public transit service, walking or biking environment, driving conditions, and socio-demographic factors including population age, income, or household size. The existing built environment of Treasure Island is primarily auto centric. The existing land use design was not originally intended for a residential neighborhood; therefore the existing conditions encourage the ownership and use of private vehicle trips.

HDMT Indicator	Treasure Island	San Francisco	Source
ST.1a: Proportion of housing units with vehicle access	92%	72%	2000 Census 2007 Census
ST.1.b: Average vehicle miles traveled by San Francisco residents per day	N/A	SF residents: 8,293,100 VMT Bay Area: 154,172,000 VMT	Metropolitan Transportation Commission 2006 forecast
ST.1.c: Gross number of vehicle trips per San Francisco resident per day	Treasure Island = 0.89 By the Year 2018 - 2,359 weekday daily vehicle trips and 190 weekend trips are made by current residents in Treasure Island	Citywide = 1.32 Bay Area = 1.85	Bay Area Metropolitan Transportation Commission, 2006 Treasure Island Transportation Plan 2006
ST.1.d: Number of motor vehicle collisions (2001 – 2007)	25 motor vehicle collisions	24,885 motor vehicle collisions	San Francisco Police Department

EVALUATION OF DEVELOPMENT TARGETS

Density and Parking

The Treasure Island Transportation Plan projects 90 to 100 dwelling units per residential acre, which well exceeds the development target for ST.1.a. Higher density neighborhoods tend to have lower vehicle pollution and increase physical activity. Treasure Island Sustainability Plan, Strategy S1 states that Treasure Island will have a land use plan based on a dense, compact, and walkable design with a target of 90% of Treasure Island residents to be less than 0.75 miles access to all retail uses. Close retail access would create an "urban village" and create less reliance on private vehicles.

This development target ST.2.b is not met for residential parking as the Plan has a one to one parking ratio for each residential unit. However, Treasure Island Transportation Plan, Goal 4.1f states that half of the parking spaces in Treasure Island will not be connected to the actual residential units and will be designated as parking storage facilities. Therefore, it will be more difficult to access one's vehicle and other modes of transportation will be encouraged (i.e., walking, biking, or public transportation). If the storage facilities are not utilized, there is flexibility in the Plan to transfer the facility into retail parking and charge hourly rates. The geographic isolation of Treasure Island may make it difficult for new residents not to own a car and the availability of parking spaces may encourage car ownership.

It is likely the minimum development target for ST.2.c is met through unbundling parking from the provision of housing and the coordinating off-street and on-street parking pricing through parking management, such as a fee structure for parking garages and on-street parking. Treasure Island Transportation Plan, Goal 4.1a-b, is geared towards discouraging automobile ownership by unbundling parking from the provision of housing and hotel room rates. Unbundling parking would create an economic incentive to encourage a reduction of vehicle ownership or use of a vehicle when staying in Treasure Island and therefore, encourage alternative forms of transportation. Unbundling of parking is required in the Plan and parking spaces will be sold or rented at market-rate for both market-rate and inclusionary housing. Unbundling of parking would also lower housing prices, as the cost of parking spaces would not be directly factored into the cost of housing unit prices.

The Plan also states there will be a parking cost associated with commercial/retail spaces (off and on-street parking) and will be located away from the retail core. On-street parking will have an hourly charge of $1.50 and be enforced early morning to late evening (approximately 6am – 10pm). The level of coordination between off-street and on-street parking pricing is not specified and will need to be detailed by the T.I. Transportation Agency.

The Treasure Island Transportation Plan has additional policies not included in the development targets which support the reduction of private vehicle trips such as a Congestion Pricing Program, which will charge a fee to residents who drive on and off the island during peak periods and Ramp Metering on-ramps on Treasure Island to control the volume of vehicles accessing the bridge and limit the projects impact on the bridge.

Transportation Demand Management

The Treasure Island Transportation Plan details a comprehensive transportation demand management program and meets the benchmark for development target for ST.1.c - Transportation demand management policies and programs. Comprehensive traffic demand management can work to promote more trips by bicycle, foot, or transit by providing incentives and programs to make those modes of transportation more accessible and well known. Through a number of programs, the Treasure Island Transportation Plan meets this benchmark by providing adequate and secure bike parking, a bicycle library, promotion of alternative transportation options around and to and from the island, guaranteed rides home, financial incentives, carpool/vanpool options, meeting telecommuting needs, shuttle service, as well as dedicated staff to monitor travel demands.

Traffic Calming

The Treasure Island Transportation Plan incorporates traffic calming features, as well as direct guidelines designating most of the streets to have speed limits set at 25 mph or lower (Goal 1.2e) – therefore the benchmark is met for ST.1.d. By reducing vehicle speeds and separating pedestrian pathways and vehicle roadways, it is likely that there will be decreased vehicle collisions and pedestrian injuries compared other projects of this caliber. Traffic calming features in the Plan (Goal 1.2a-d) include avoiding multilane streets, raised medians and pedestrian refuges where multilane streets are present, and creating short blocks with pedestrian pass-throughs where blocks are long. Treasure Island Transportation Plan designs streets to promote reduced vehicle speeds and will incorporate street trees and pedestrian crosswalks as a traffic calming feature.

HDMT Indicator: ST.1.a - ST.1.b - ST.1.c - ST.1.d		
HDMT Development Target	**Target Met**	**Supporting Plan Policies**
1) Transit:		
Benchmark #1: Is the project within _ mile of regional transit (e.g., BART, Cal Train) OR does the project include dedicated shuttle trips to regional transit, with timing and frequency based on estimates of area demand?	YES	Treasure Island Transportation Plan, Goal 1.1d-e. The project will maximize the number of residential units within a 5-minute walk to bus or shuttle stops.
Benchmark #2: Is the project within 1/4 mile of local transit?	YES	Treasure Island Transportation Plan, Figure 6: On-Island Shuttle Service illustrates all shuttle stops being within _ mile to all residential units which transport residents to the transit hub to transfer to the bus or ferry service.
2) Density, residential:		
Benchmark: Is the project designed with a residential density at or above 25 dwelling units per net residential acre (or at or above 40 dwelling units per net residential acre for projects ≤1/2 mile from regional mass transit stops including rail, ferry, or bus service)?	YES	Treasure Island Transportation Plan, Goal 1.1 c- d. The total projected dwelling units for Treasure Island is 6,000, producing 90-100 dwelling units per net residential acre or 65 dwelling units per gross residential acre (including streets, parking, and parks).
3) Parking, residential zoning:		
Benchmark: Does the project provide structured parking at a ratio less than or equal to one space for every two households?	NO	Treasure Island Transportation Plan, Goal 4.1c. The project has a 1:1 parking/household ratio.
Minimum: Does the project provide structured parking at a ratio less than or equal to three spaces for every four households?	NO	
4) Parking, pricing:		
Benchmark: Does the project address parking through at least 4 of the following pricing strategies recommentded by the HDMT?	NO	
Minimum: Does the project address parking through at least 2 of the following pricing strategies recommended by the HDMT?	YES	Treasure Island Transportation Plan, Goal 4.1a-b is geared towards discouraging automobile ownership by unbundling parking from the provision of housing and hotel room rates. Treasure Island Transportation Plan, Goal 4.2a-c. The project will establish parking management, such as a fee structure for parking garages and on-street parking, create “shared parking” facilities between TI residents, and setting aside desirable parking areas for rideshare and alternative fuel vehicles

HDMT Indicator: ST.1.a - ST.1.b - ST.1.c - ST.1.d		
HDMT Development Target	**Target Met**	**Supporting Plan Policies**
5) Transportation demand management policies and programs:		
Benchmark: Does the project provide at least 5 of the HDMT transportation demand management strategies?	YES	Treasure Island Transportation Plan, Goal 2.1b and 2.2a. The project will provide adequate bicycle racks and/or lockers (long-term and on-demand) near major destinations, such as the transit hub. Treasure Island Transportation Plan, Goal 2.4a will establish a bicycle library for residents who do not own bicycles. Treasure Island Transportation Plan, Goal 3.3a. The project will staff a full-time travel coordinator position. Treasure Island Transportation Plan, Goal 3.3b-c will provide a TI webpage for transit alternatives and an information and way-finding system for residents and visitor with real-time transit information. Treasure Island Transportation Plan, Goal 3.3d will provide a guarantee ride home program for TI residents and workers. Treasure Island Transportation Plan, Goal 4.1a-b is geared towards discouraging automobile ownership by unbundling parking from the provision of housing and hotel room rates to provide financial incentive to walk and bike. Treasure Island Transportation Plan, Goal 4.1d and 4.2b. The project will establish a car-share program with pods near residential units and set aside desired parking for rideshare and alternative fuel vehicles. Treasure Island Transportation Plan, Goal 4.3a. Equip residential units to meet telecommuting needs. Treasure Island Transportation Plan, Goal 5.2a. The project will provide a clean-fuel or electric shuttle service. Other alternatives to the shuttle are currently being looked into. The Transportation Demand Management Program will provide carpool and vanpool programs, which will provide free parking spaces close to the transit hub and will not be subject to congestion pricing (pg. 34). All reasonable sized employers are expected to provide showers and clothes lockers but this is not required in the Plan (pg 36).
Minimum: Does the project provide at least 2 of the HDMT transportation demand management strategies?	YES	
6) Transportation Calming:		
Benchmark: Does the project include at least 4 of the HDMT traffic calming interventions to slow traffic speeds?	YES	Treasure Island Transportation Plan, Goal 1.2a-b ensures multilane streets, which will be avoided, will have raised medians and pedestrian refuges.
Minimum: Does the project include at least 2 of the HDMT traffic calming interventions to slow traffic speeds?	YES	Treasure Island Streets Sections, Design Guideline Figures describe several street types which will include street trees on all street types and planters and/or planter strips on the Transit Plaza, East Parkway, Neighborhood Connector, Cityside Parkway, and all Neighborhood Circulation Streets.

FURTHER RECOMMENDATIONS:

- Eliminate parking requirements so that structured or off-street parking is not required and parking maximums are specified.
- Reduce residential parking to .25 to .75 spaces per unit, even though the maximum ratio has been endorsed by the CAB, TIDA Board, and the SF Board of Supervisors.
- The Plan should specify where traffic calming will be targeted. Targeted areas should be chosen based on areas where vehicle traffic flow will be the highest. Create a Pedestrian / Bicycle / Traffic Calming Improvements Map for the Treasure Island Transportation Plan.
- Include more detail regarding potential parking pricing strategies in Final version of the plan.

ST.2 PROVIDE AFFORDABLE AND ACCESSIBLE PUBLIC TRANSPORTATION OPTIONS

Existing Conditions

The use of public transportation provides exercise, reduces fatal accidents, increases social contacts and reduces air pollution. There are a number of factors that affect the use of public transportation. Factors external to the transportation system include socio-demographic characteristics such as income, land use features such as density, development, and urban area size, transportation cost in relation to employment, gas prices, car ownership, and parking supply. Multiple land use strategies are often employed to influence these factors and ultimately increase the use of public transportation. Decreased availability and increased price of parking significantly increases the use of public transportation. Socio-demographic factors also play a role in the use of public transportation. Public transportation is much less expensive than commuting by private vehicle. Lower income communities tend to rely more heavily on public transportation than higher income communities, in part due to less car ownership.

Transportation system characteristics (internal factors) which influence the use of public transit include frequency, pricing, reliability, perceived and actual safety, and coverage. For example, decreasing the cost of public transit would encourage increased rider utilization. Peoples' access to resources can also be determined by their use and access to public transportation. Transit ridership tends to increase if more people live and work near transit stops. Other non-motorized forms of transportation, such as walking and biking also have the potential to improve access to public transportation. Per capita transit ridership tends to increase with the quality of the pedestrian and bicycle environment. In addition to these factors, transportation management programs can help facilitate trip reductions, reduce car ownership, and promote the use of public transportation.

Treasure Island is currently served by one bus – the MUNI #108. This service route provides access to Treasure Island (within a 1/4 mile of all residential units), the Transbay Terminal at Mission and 1st St. in San Francisco, and the Caltrain Station at 4th St. and King St. Buses run 24 hours a day and seven days a week, with a 15-20 minute frequency during peak and non-peak hours. The Extension of service to the Caltrain Depot went into effect February 2008 only between the hours of 2:00 pm and 10:00 pm. Treasure Island is not served by any regional transit options, and a transfer is necessary to connect to other regional transit systems. Yet according to 2000 Census Data, 38% of Treasure Island residents commute by transit, compared to 33% for San Francisco overall.

HDMT Indicator	Treasure Island	San Francisco	Source
ST.2.a: Proportion of commute trips made by public transit	38%	33%	2000 Census
ST.2.b: Proportion of households with 1/4 mile access to local bus or rail link	100%	100%	San Francisco Municipal Railway, 2008
ST.2.c: Proportion of households with 1/2 mile access to regional bus, rail or ferry link	0% - Treasure Island does not have any regional transit stops.	22%	SFDPH, Environmental Health Section
ST.2.d Proportion of workers with 1/2 mile access to regional bus, rail or ferry link	0%	61%	SFDPH, Environmental Health Section 2000 Census
ST.2.e Proportion of average income spent on transportation expense	34% ($14,264/$41,989) (Transit exp / Per capita income)	28% ($13,491/$47,718) (Transit exp / Ave per capita income)	2007 Census

Evaluation of Development Targets

Proximity to public transit is one means of assessing resident and employee access to this vital service. Although Treasure Island does not have any regional transit, the project will have on island shuttle trips to the transportation hub which will have transportation to regional areas. Furthermore, the project will maximize the number of residential units within a five-minute walk to bus or shuttle stops. The development target for ST.2.a will be met through these policies.

However, other important factors including: cost, reliability, frequency, perceived and actual safety, and amenities at transit stops such as benches, lighting and maps also impact whether people use transit. These factors are addressed to varying degrees by the Treasure Island Transportation Plan and were major concerns in our community workshops. A number of policies that address public transit amenities are now in our Transportation Solutions chapter.

See evaluation for development targets ST.2.b – ST.2.d in the section above.

According to the Treasure Island Transportation Plan, transit passes are proposed to be built into the homeowner's fee to be provided for all Treasure Island residents at a rate of $50 per month. The cost of transit is subsidized in part by Transportation Demand Management strategies on the island, and the monthly rates will be monitored and adjusted by the future TI Transportation Management Agency. The transit pass would be good for riding the bus and ferry throughout the month. This also would apply for hotel guests where transit passes would be provided and the cost would be incorporated into the hotel room rate. Low- and moderate-income residents will be able to take advantage of additional programs to further subsidize transit costs.

HDMT Indicator: ST.2.a - ST.2.b - ST.2.c - ST.2.d - ST.2.e		
HDMT Development Target	**Target Met**	**Supporting Plan Policies**
1) Transit:		
Benchmark #1: Is the project within _ mile of regional transit (e.g., BART, Cal Train) OR does the project include dedicated shuttle trips to regional transit, with timing and frequency based on estimates of area demand?	YES	Treasure Island Transportation Plan, Goal 1.1d-e. The project will maximize the number of residential units within a 5-minute walk to bus or shuttle stops.
Benchmark #2: Is the project within 1/4 mile of local transit?	YES	Treasure Island Transportation Plan, Figure 6: On-Island Shuttle Service illustrates all shuttle stops being within _ mile to all residential units which transport residents to the transit hub to transfer to the bus or ferry service.
2) Density, residential:		
See ST.1.b		
3) Parking, residential zoning:		
See ST.1.c		
4) Parking, pricing:		
See ST.1.d		
5) Transportation demand management policies and programs:		
See ST.1.d for other indicators		
Benchmark: Does the project subsidize public transit passes for households earning <200% of the poverty line?	NO	Treasure Island Transportation Plan, Goal 5.4a-b. Each resident (owner or renter), Treasure Island employees, and hotel guests will receive transit passes for bus and ferry services. The price will be imbedded into the home owner's fee, rent, and hotel rate.

FURTHER RECOMMENDATIONS:

- See recommendation for ST.1
- Include a policy within the Traffic Demand Management section to address economic barriers to public transit utilization, and could include subsidizing transit passes based on household income (e.g., <200% poverty level) or transit passes for housing BMR units.

ST.3 CREATE SAFE, QUALITY ENVIRONMENTS FOR WALKING AND BIKING

Existing Conditions

The number of people who walk in an area is affected by the quality of the pedestrian environment including: street and sidewalk design and connectivity, presence of street furniture, traffic volume, traffic calming features, pedestrian safety interventions, the aesthetics and safety of the surrounding environment. Mixed, dense residential and commercial development, as well as close (i.e. <½ mile) proximity of development to public transit, decreases the distance between people's residential, employment, and other (e.g. shopping, errands, social) activities and increases walking as a means of transportation. Walking is further impacted by socio-demographic factors, as many low-income people walk regardless of environmental quality because it is their primary means of transportation. Also, children, seniors or people with certain disabilities may have a limited ability to walk. The number of people biking in an area is largely impacted by factors including the presence and quality of bike lanes and bicycle network connectivity, proximity of development to public transit and other destinations, traffic volume and speed, and presence of bike storage, bike locks, and bike racks (including on public transit). Biking is further impacted by population socio-demographic factors, including ability to ride a bike and for what distance.

The pedestrian and bicycle conditions on Treasure Island have been analyzed through the use of the Pedestrian and Bicycle Environmental Quality Indices. The results from this research can be found in the "Esixisting Conditions" chapter. Generall, bicycle conditions are basic to poor on the island on the 1.26 miles of bike lanes and paths. There are also barriers and closed roads which discontinue the bicycle route. Pedestrian conditions are basic on T.I., with the number of bicycle and walking trips to work on Treasure Island (12%) is only slightly lower than San Francisco as a whole (14%). There are fewer opportunities to walk on Treasure Island due to fewer services and places of employment on the island.

HDMT Indicator	Treasure Island	San Francisco	Source
ST.3.a: Ratio of miles of bike lanes and paths to miles of roads.	For every mile of roadway in Treasure Island and Yerba Buena, there is .07 mile of bicycle lanes or paths (1:.07 or 17.64 road miles and 1.26 bike lane/path). Although, there are currently barriers and closed roads in Treasure Island which discontinue the bicycle route.	Citywide = .07, 63 miles of bike lanes and paths and 930 miles of road	Treasure Island = 2007 San Francisco Bicycle Plan (Draft) and San Francisco Department of Public Works streets file Citywide Average = San Francisco Department of Parking and Traffic, 2006 and 2003 Highway Performance Monitoring System
ST.3.b: Proportion of commute trips made by walking or biking	12%	14%	Census 2000
ST.3.c: Rate and number of pedestrian injury collisions	1 pedestrian injury collisions	4,523 pedestrian injury collisions	San Francisco Police Department 2001-2007
ST.3.d: Number of bicycle collisions	3 three bicycle collisions	2,075 bicycle collisions	San Francisco Police Department 2001-2007
ST.3.e: Area score on the Pedestrian Environmental Quality Index	See previous section on existing conditions	N/A	SFDPH
ST.3.f: Proportion of residential streets with 20 mph speed limit	Data on this indicator are currently unavailable for Treasure Island. The PEQI found the majority of posted speeds are at or under 25 mph.	Data is not currently available to address the indicator. City departments only record speed limits of streets with 25 mph or higher (since 25 mph is the de facto speed limit for residential and most commercial streets).	N/A

Evaluation of Development Targets

The Treasure Island Transportation and Sustainability Plan include a bicycle network on Treasure Island to promote bicycle use. Due to the geographical isolation of Treasure Island to other San Francisco neighborhoods, the HDMT development target of including bike lanes linked to the City's existing bicycle network will not be met. Goal 2.2c will provide accommodations on buses and ferries to allow bicycle transport to the existing City bicycle network. For example a Treasure Island resident could take the ferry over to the Ferry Building in San Francisco, which is connected to the bicycle network.

As earlier stated, The Treasure Island Transportation Plan incorporates traffic calming features, as well as direct guidelines designating most of the streets to have speed limits set at 25 mph or lower (Goal 1.2e). Streets will be designed and enforced to be low speed, creating an environment that is compatible with walking/biking and one that emphasizes attractiveness and safety.

The Treasure Island Transportation Plan contains many notable policies to improve the pedestrian environment of Treasure Island. Community oriented land uses are all located within a short walk for most Island residents. Approximately 80% of the residential units are within a 1/2-mile of the primary transit hub and neighborhood commercial area. The island's walkways will connect to the planned shared-use path on the Bay Bridge East Span and will be designed to allow for future possible construction of a pedestrian and bicycle connection on the West Span of the Bay Bridge. The proposed plan has approximately 11 streets, which are primarily for pedestrian, and bicycle access and vehicles will be limited. Most other streets are designed to emphasize non-auto movement, and walking routes are designed to minimize conflict with automobiles. The street grid is a cross-section oriented towards maximizing sun exposure and providing wind protection. There will be a continuous network of walking and biking pathways that loop around the shoreline and connect to recreational paths around the island, which will be part of the San Francisco Bay Trail.

There is currently a very low number of pedestrian injuries/fatalities on Treasure Island. With an increase to 13,500 residents, it is unlikely for pedestrian injuries to decrease, but it cannot be determined at this time. The Plans aim to increase pedestrian presence/activity and thus requires established design and engineering strategies empirically known to reduce pedestrian injuries and promote traffic calming and pedestrian safety. The Plan does not currently indentify areas where pedestrian injury/ collisions have occurred in or near the project area, but could identify where potential future conflicts will exist and target those areas for traffic calming.

HDMT Indicator: ST.3.a - ST.3.b - ST.3.c - ST.3.d - ST.3.e		
HDMT Development Target	**Target Met**	**Supporting Plan Policies**
1) Bicycle environment:		
Benchmark: Does the project include bicycle lanes and/or paths linked to the city's existing bicycle network?	NO	Treasure Island Transportation Plan, Goal 2.2b-c. The project will provide bicycle accommodations on bus and ferry systems, as well as encourage vanpool and other transit providers to have on-vehicle bicycle racks.
2) Pedestrian environment:		
Benchmark: Does the project incorporate at least 8 HDMT Pedestrian Interventions?	NO	
Minimum: Does the project incorporate at least 4 HDMT Pedestrian Interventions?	YES	Treasure Island Transportation Plan, Goal 1.2a-b ensures multilane streets, which will be avoided, will have raised medians and pedestrian refuges. Treasure Island Transportation Plan, Goal 1.3b. The project will provide adequate sidewalk lighting for safe pedestrian circulation. Treasure Island Transportation Plan, Goal 5.2a. The project will provide a clean-fuel or electric shuttle service. Other alternatives to the shuttle are currently being looked into. Treasure Island Design Concepts and Strategies: Open Space: Strategies Integrate permanent and temporary public art installations and events
3) Pedestrian safety analysis:		
Benchmark: Does the project: a) identify areas (intersections, streets, small areas) where pedestrian injury collisions have occurred in or near the project area - OR - b) identify where potential future conflicts exist in or near the project area (e.g., when new residents or employees are being introduced to an area with a previously low population and/or high traffic volumes on streets) - AND - target pedestrian environment improvements to those areas?	NO	The TI Transportation Plan does not mention pedestrian injury collisions.
4) Traffic Calming:		
Benchmark: Does the project include at least 4 of the HDMT traffic calming interventions to slow traffic speeds?	YES	Treasure Island Transportation Plan, Goal 1.2a-b ensures multilane streets, which will be avoided, will have raised medians and pedestrian refuges.
Minimum: Does the project include at least 2 of the HDMT traffic calming interventions to slow traffic speeds?	YES	Treasure Island Streets Sections, Design Guideline Figures describe several street types which will include street trees on all street types and planters and/or planter strips on various Neighborhood Circulation Streets.
Also See ST.1.d		

FURTHER RECOMMENDATIONS:

- Support the future possible construction (by Caltrans) of a pedestrian and bicycle connection on the West Span of the Bay Bridge.
- Include a specific policy with implementations to study, propose and prioritize pedestrian improvements at locations with potential high frequencies of pedestrian collisions.

5. KEY ISSUES AND TRANSPORTATION SOLUTIONS

The outreach for the Community Based Transportation Plan for Treasure Island has produced a great deal of feedback on transportation solutions and policies for a more sustainable Treasure Island. The following chapter lists and explains our process for organizing and compiling community feedback, and moving forward to produce a set of recommendations for transportation projects and programs. Feedback was first organized by topic into a Transportation Matrix that examined the value of each solution according to a set of variables, thus producing a ranked list. This list helped us to prioritize some transportation solutions that were far-reaching in scope and effect over other lower-ranked ideas. A Matrix Summary was then created in which similar specific solutions were grouped together to form a broader Transportation recommendation. Finally, each broad transportation solution was expanded upon into a two or three page policy brief, detailing the solution, its background, and how it could be implemented on Treasure Island. At the last community meeting in October of 2008, these policy briefs were presented to the community and further revised based on feedback. Key stakeholders and field experts were consulted on the policy brief content. The policy brief details were further enhanced with the participation of the Treasure Island Streets Working Group.

TRANSPORTATION MATRIX

From the Community Transportation Workshops, we developed a long list of specific transportation problems (both potential and actual) for the Redeveloped Treasure Island, as well as solutions or ideas for an improved Treasure Island. Examples of suggested solutions include "There should be a lot of trees on Treasure Island," "there should be a lot of bus shelters," or "art should be incorporated into the streetscape." We took each of these solutions and grouped them according to the following five categories: bicycle, pedestrian, transit, reducing automobile dependency, and land use. We then scored each transportation component based on the following variables:

- ***Has Community Support*** – number of times each item came up in discussion at the different groups during the Community Planning Workshops. One point for an item mentioned once, two points for an item mentioned twice, and three points for an item mentioned three or more times.
- ***Addressed in Plan*** – we looked at each component and noted how well it was addressed in the current Transportation Plan. One point if it was addressed well, 2 points if it was addressed but with an incomplete analysis, and 3 points if it was not addressed at all.
- ***Compatibility with Existing Plans*** – what entity is able to initiate each item. Three points if the developers can implement it, 2 points if the developers or City can implement it, or 1 point if it is out of the purview of City and developers.
- ***Planning Timeframe and Ease of Implementation*** – 3 points if the solution can be implemented pre-development, 2 points if it can be implemented during development, and 1 point if it can only be implemented during or after development.
- ***Population Affected*** – includes the following populations: residents, bicycle commuters, transit

commuters, tourists, recreational users, and pedestrians. We gave 0.5 points for each component of the population that would be affected by each implementation.

- ***Health Outcomes*** – includes the following health outcomes: physical activity, social cohesion, mental health, safety and injury, equity and access, and ambulatory care sensitive conditions. We gave 0.5 points for each health outcome affected by the strategy. A full copy of the Matrix can be found in Appendix B.

After scoring and ranking each transportation solution, we grouped similar solutions in order to arrive at broader transportation recommendations for the redeveloped Treasure Island, described in the following summary:

SUMMARY OF TRANSPORTATION SOLUTIONS FOR TREASURE ISLAND

PEDESTRIAN AND BICYCLE TOPICS

- Focus on utilizing the "shared public way" concept and other traffic calming features
- "Brand" island as a pedestrian- and bicycle-focused island
- Safe walkway and bikeway between TI, YBI and East Span
- Encourage a West Span maintenance/bike/pedestrian Path

PEDESTRIAN TOPICS

- Design innovations for aesthetics and amenities for Treasure Island's pedestrian environment
- Establish new pedestrian-only routes

BICYCLE TOPICS

- Comprehensive bicycle parking program
- Well-designed bicycle routes
- Institute bike sharing program
- Bike capacity on public transit

OTHER

- Strategies to reduce automobile dependence
- Transit Improvements - bus stops in East Bay and San Francisco other than Transbay Terminal that are close to retail and essential services
- Recommendations from the Health Impact Assessment (HIA)

FOCUS ON UTILIZING THE "SHARED PUBLIC WAY" CONCEPT AND OTHER TRAFFIC CALMING FEATURES

PROJECT OR STRATEGY RECOMMENDATION:

Treasure Island's neighborhood streets (designated Type 6 in the Transportation Plan) should be designed to prioritize bicycling and walking, and should incorporate innovative traffic calming design measures.

PROBLEMS ADDRESSED:

Streets on Treasure Island should be designed with innovative features to fully promote bicycling and walking as means of transportation, especially neighborhood streets. The streetscape design should help to control traffic volumes and control traffic speeds. Physical design aspects that control automobile traffic can engender higher levels of bicycling and walking while providing for higher levels of bicyclist and pedestrian safety. Calmer, slower streets can also impact the sense of community in a neighborhood.

POTENTIAL HEALTH IMPACTS:

These design aspects can help to encourage more people to walk or bicycle for daily trips, thus reducing the number of automobile trips and resultant air pollutant emissions. Through appropriate street design and lower automobile speeds, pedestrian and bicyclist safety is improved, and lower accident frequencies are reported. The benefits of increased physical activity walking and cycling include increased protection from cardiovascular disease, diabetes, hypertension, and obesity.

BACKGROUND:

Traffic calming features have been utilized in countless cities across the world. In many cases in North America, this involves a retrofit of existing roadways that are dominated by automobiles traveling at fast speeds. Numerous structures and design features are often pooled into a "toolbox" of available traffic calming features that can be implemented on various kinds of streets. Many of these features should be investigated for possible use on Treasure Island's streets.

On a larger scale, many European cities have a more comprehensive way to think about streets called the "woonerf." Thought of as a "shared street" or "living street" the woonerf removes traditional barriers within a street such as sidewalks, curbs, lane stripings, and street right-of-ways are often interrupted by buildings and plantings. The effect is that automobile traffic is slowed considerably, often to 20 mph or less, and automobile drivers are more aware of other users of the road. Limited research has shown that the number of collisions between automobiles and pedestrians and bicyclists have decreased after redesign into a woonerf.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

Treasure Island's neighborhood streets should incorporate as many traffic calming features as possible. This will entail a comprehensive street design that limits automobile volume and speed on the neighborhood shared streets. The specific design of these streets will need to be resolved on a site-specific scale but may incorporate some of the following features:

- Narrow lanes with short blocks and T-intersections
- Plantings along streets to create a sense of enclosure
- Chicanes – alternating curb extensions and/or planters
- Limited number of traffic lanes
- Bulb-outs, or curb extensions, that reduce pedestrian crossing distances and tighten automobile turning radii
- Special pavement treatments designating slow and special areas
- Use of pedestrian gateways or speed table to signify entrance to a woonerf.
- Low grade separated crossings, woonerf identification signs and other appropriate intersection traffic calming features should be used for intersections between woonerfs and regular streets.

When designing streets, consideration needs to be made for allowing for appropriate emergency vehicle access, and to ensure ease of mobility for people with disabilities. Specific design guidelines to limit and slow down automobile traffic should be implemented on Treasure Island's residential streets. Educational outreach on shared routes and proper signage will be important to the success of woonerf.

CASE STUDIES AND EVIDENCE:

The San Francisco Better Streets Plan will provide a useful "toolbox" for designing features of the pedestrian realm that help to calm traffic and improve pedestrian safety, especially at intersections. Elements from this plan can be utilized in designing Treasure Island's streets, though in many cases Treasure Island will be able to incorporate more innovative ideas.

Left - Plantings, narrow lanes and bollards help define this woonerf.
Right - Signage Used to indicate you are entering a woonerf.
(Source: Pedestrian and Bicycle Information Center Image Library)

Stamped concrete and colored pavement signify an intersection of a woonerf.
(Source: Pedestrian and Bicycle Information Center Image Library)

BRAND THE ISLAND AS PEDESTRIAN- AND BICYCLE-FOCUSED

PROJECT OR STRATEGY RECOMMENDATION:

It is recommended that Treasure Island place an emphasis on bicycling and walking through printed materials, signage, public art, and educational campaigns to promote the benefits of these forms of transportation and inform the population of the available resources.

PROBLEMS ADDRESSED:

Currently, driving a vehicle is the main mode of transportation used to travel in and around Treasure Island. Public transit is limited to one bus route to San Francisco. The promotion of bicycling and walking and the benefits associated within is a necessary component in trying to achieve the goal of increasing the number of trips by bike and on foot. In conjunction with building appropriate facilities for pedestrians and bicyclists, this strategy can yield higher levels of walking and bicycling for everyday trips, and can inform visitors and residents of the available options.

POTENTIAL HEALTH IMPACTS:

Through a comprehensive promotion program, levels of bicycling and walking could rise due to an increased awareness of available options. This rise would help lessen congestion and associated air and noise pollutants in the environment, as well as increase levels of physical activity among residents and visitors.

BACKGROUND:

Promoting bicycling and walking for daily trips can help boost the numbers of people who utilize these forms of transportation over other modes. Successful campaigns to increase rates of walking or bicycling have been implemented in numerous cases.

The following benefits of bicycling and walking instead of driving should be conveyed:

- Reduced commute costs – fuel, tolls, parking fees
- Saved commute time in many cases
- Saved money and time from gym memberships
- Health benefits of more physical activity
- Potential “alternative commute” employee benefits

Campaign components to promote bicycling and walking:

- Walking and bicycle route maps
- Informational fliers or brochures that state the availability and location of pedestrian and bicycle facilities – location of bike shops, popular walking routes, transit connections
- Events that encourage people to begin and continue to walk and bicycle – group bike rides/walks to work, weekend leisure rides and walks, daily morning/lunchtime/evening walks, events targeted for seniors, and bike commute clubs
- Media campaigns to promote health benefits and walking and bicycling events
- Self- and tour-guided walking and bicycling tours around the island with informational kiosks that narrate the history of the island and environmental features of the islands and region.
- Physical activity stations incorporated into the bicycling and walking trails for additional opportunity for exercise
- Appropriate signs that direct people on how to navigate and utilize available bicycling and walking facilities, including public maps
- Incorporate bicycling and walking into a logo for Treasure Island that could be used on signs, printed materials, and apparel.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

The planning focus should be around a built environment that prioritizes bicycling and walking. Through the transportation demand management, a bicycle and pedestrian advisory commission, along with a travel coordinator, could be created to develop programs to encourage bicycling and walking, educate the community, and implement changes on the Island geared towards walking and biking. For example, banning school buses, providing bicycle education classes, and putting up several signs (with a bicycle symbol) stating Treasure Island is a bicycle and pedestrian friendly community all will help contribute to branding the island. Kiosks can be added to the central transportation hub displaying all of the pedestrian and bicycle routes, paths and lanes. Additional way finding can be added throughout the island to continue to promote the walking and biking.

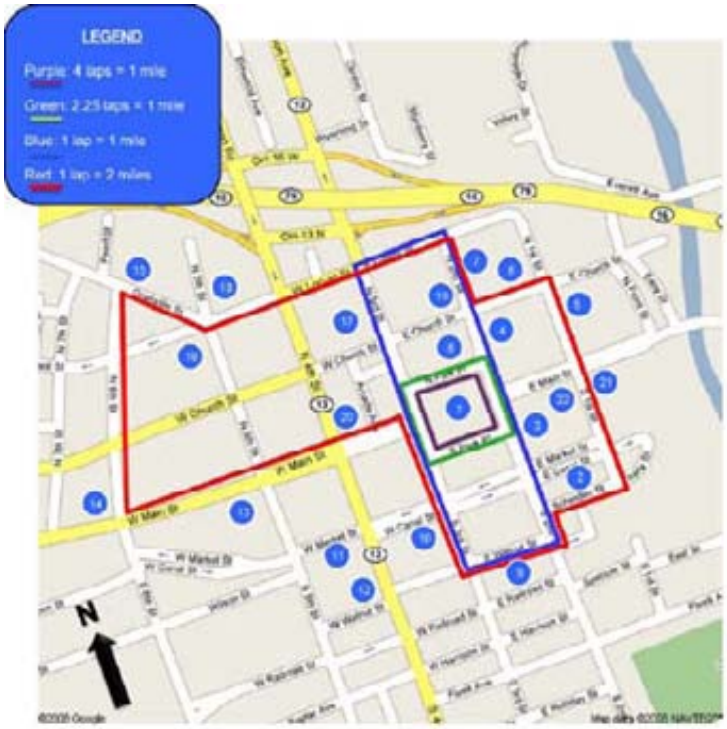
CASE STUDIES AND EVIDENCE:

The City of Davis was one of the first cities in the U.S to having bicycle infrastructure incorporated into their transportation infrastructure. Today, Davis is the only platinum bike city in America, named by the League of American Bicyclists, where 17% of commute trips are made by bicycle. There are several ways Davis encourages bicycling which have branded it as a bicycling community. Every May the city celebrates the bicycle by holding historic bike tours, bike auctions, and bike commuter days. The city also provides free bicycle maps, tips on riding, and the university offers bike education courses. The residents of Davis voted to have all school buses removed, therefore encouraging all children to bike and walk to school. To go even further, they have made the bicycle their city symbol, appearing on street signs, commercial signs, and even decorative pins.

Cities around the world organize a Bike to Work Month and Bike to Work Day. These events act as a promotional campaign to increase the number of bicyclists during that specific time period, but also act as a way to increase the number of everyday cyclists. Through large-scale promotion in the media, employers, and community groups, individuals are encouraged to bike to work on a specific day. A number of events lead up to Bike to Work Day including recreational rides, advertising, bicycle education, and social events. Other events on Bike to Work Day help to empower commuters to try bicycling and to ultimately continue throughout the year.

The Go for Green program in Canada conducts a "Commuter Challenge" where individuals are encouraged to travel to work by means other than driving an automobile. Through event promotions and footprint calculations, participants can determine their effect on the environment by not driving to work.

The City of San Francisco launched a program to "increase the awareness of and opportunities for increased physical activity and improved nutrition where people live, play, work and learn," called Shape Up SF. This collaborative effort seeks to improve levels of physical activity through events such as Walk/Run races, walking challenges, sports tournaments, and programs for employee fitness.



Top left: Pavement markings indicating a bike tour of Davis, California

Top right: A walking map of Portland, Oregon

Left: A walking map and guide for Newark, New Jersey

CONSTRUCT A SAFE WALKWAY AND BIKEWAY BETWEEN T.I., Y.B.I. AND THE EAST SPAN BIKE/PED/ MAINTENANCE PATH ON BAY BRIDGE

PROJECT OR STRATEGY RECOMMENDATION:

It is recommended that safe and convenient connectors be designed to link bicycle and pedestrian paths on Treasure Island to the new East Span bicycle and pedestrian path through Yerba Buena Island. The proposed plan should address the safety and ease of mobility for bicyclists and pedestrians.

PROBLEMS ADDRESSED:

The new East Span of the Bay Bridge will offer commuters and visitors direct bicycle and pedestrian access from the islands to the East Bay. Safe and convenient connections at Yerba Buena Island are necessary to complete this connection and should encourage more people to utilize this route. The routes should be well designed and well marked. The steep terrain of Yerba Buena Island poses difficulties for optimal routes at many locations.

POTENTIAL HEALTH IMPACTS:

The main public health impact with this improvement would be increased bicycle and pedestrian safety. A well-designed safe route should help to minimize collisions with vehicles by providing protected routes for bicyclists and pedestrians. This strategy should also encourage more people to use the new path of the East Span for commuting and recreation, and increase levels of physical activity for area residents and visitors.

BACKGROUND:

Caltrans, the state department of transportation, is constructing a new East Span of the Bay Bridge including a bicycle, pedestrian, and maintenance path, which will afford direct access to Treasure and Yerba Buena Islands from the East Bay. Caltrans' design and construction responsibility ends at Yerba Buena Island. Treasure Island Community Development, LLC should adopt the recommendations proposed by traffic engineer consultants and design to construct these paths as they meet the goals of providing for safe and convenient travel between the new East Span and Treasure Island.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

For both the Pedestrian and Bicycle connecting routes, the following should be considered:

- Routes should be separated from motorized traffic to the largest degree possible. With limited connections for all over-land modes of transportation to and from the island (automobile, bus, truck, taxi, bicycle, and pedestrian), it essential that bicycle and pedestrian routes be given as much of a buffer as possible to ensure safety. This may include a completely separate path or a buffer by means of a railing, curb change, or other barrier.

- Routes should be at lowest grades possible. In order to make walking and bicycling accessible to as many people as possible, the grade change should be minimized. This is difficult due to the steep topography of Yerba Buena Island, but consideration should be made to make the trip comfortable for bicyclists and pedestrians.

- The routes should be marked to clearly direct pedestrian and bicycle traffic to and from the path near the causeway at the entrance to Treasure Island. This area, including near Building One, are likely to present areas with the most interaction among bicyclists, pedestrians, and vehicles, and should be planned in a safe manner to minimize the likelihood of collisions.

- Also, as part of the on-island shuttle route, the route serving Yerba Buena Island should connect to the East Span path for ease of access for all users.

- Currently, Macalle Road is the most direct access between Treasure Island and the new East Span of the Bay Bridge. In order to provide direct bicycle and pedestrian access to the East Span of the Bay Bridge from Treasure Island, this road must be reconfigured to accommodate pedestrians and bicyclists. The following recommendations would ensure safe and convenient connectors:

- Conversion of this street to one-way for automobile traffic. Significant traffic calming features should be added to this one way street to slow traffic and prevent pedestrian and bicycle conflicts with vehicles.

- A controlled intersection should be added at the point where motor vehicles and bicyclists and pedestrians exit the East Span of the Bay Bridge and begin to travel down Macalle road.

- Contra-flow bike lane going uphill should use physical barriers at points with low visibility due to sharp curves. The addition of rubble strips and/or other markings should be added to separate bicycles from traffic. Furthermore, other precautions should be in place to discourage cyclists from cutting corners and going into the lane of traffic.

- Class II bicycle lane in the downhill direction.

- Pedestrian walkway installed for the length, currently none exist. Adequate lighting should be provided on the hillside to promote pedestrian activities. Regular landscape maintenance is needed to ensure lighting is not obstructed.

Treasure Island Road also allows access to new East Span with a more gentle slope, and allows for future connections to West Span. The following recommendations would ensure safe and convenient connectors:

- Bike lanes in both directions where possible.

- A pedestrian walkway should be added where possible given dimensional constraints, with resting points and vista view areas towards San Francisco. If the initial phase of the project does not include a pedestrian walkway, steps should be taken to construct the street in a manner where a walkway could be added in the future.

- Other routes may be added to comply with ADA requirements and/or for access by foot or bike to the central parts of Yerba Buena Island.

Great care should be taken at the causeway linking Treasure Island to Yerba Buena Island as many modes of transportation will have to pass through this relatively small space. These recommendations are in line with the goals set forth in the Treasure Island Transportation Plan to “connect the island’s streets and paths to the Bay Bridge East Span path with reasonable grades, resting areas, and no need to dismount.”

Top left: Singage inform bicyclist of the contra-flow bike lane and a short median barrier is there to discourage cyclists from cutting the corner. Source: John S. Allen's Bicycle Facilities, Laws and Program Pages.

Top Right: Rendering of a East Span Bicycle/Pedestrian/Maintenance Pathway, Source: Bay Bridge Bike/Pedestrian Feasibility Study

Bottom: current bicycle circulation diagram for Yerba Buena Island

ENCOURAGE A WEST SPAN MAINTENANCE/BIKE/PEDESTRIAN PATH

PROJECT OR STRATEGY RECOMMENDATION:

City, county and state officials should designate funding for the construction of a bicycle, pedestrian, and maintenance path on the West Span of the Bay Bridge.

PROBLEMS ADDRESSED:

Construction of a West Span multi-use path would help ease automobile congestion on the Bay Bridge, which is already operating at capacity. Pedestrians and bicyclists traveling to and from Treasure Island from downtown San Francisco would be able to complete an emissions-free trip and ease burdens on cross-bay transit options.

With the East Span bicycle and pedestrian pathway being constructed, connecting the East Bay to Treasure and Yerba Buena Islands, the West Span Pathway would complete the bike and pedestrian network across the Bay.

POTENTIAL HEALTH IMPACTS:

The health impacts of this proposal would be to increase the level of physical activity for commuters who walk or bicycle across the Bay. The 1.75 mile-long span would provide a good amount of physical activity for the commuter.

Similar to the Golden Gate Bridge, many tourists and residents of the Bay Area would be expected to traverse the West Span of the Bay Bridge on foot or bicycle for recreational purposes, providing additional physical activity in the form of recreation.

BACKGROUND:

Currently, bicycle access across the Bay is limited. BART does not allow bicycle aboard trains during peak hours, AC Transit can only carry a limited number of bicycles per bus, and the Bike Shuttle has limited capacity and only runs a few hours a day. A new East Span of the Bay Bridge is currently being constructed with the addition of a bicycle, pedestrian, and maintenance path, providing direct access between Treasure and Yerba Buena Islands and the East Bay. There are currently no plans for construction of a West Span Bike, Pedestrian, and Maintenance Pathway of the Bay Bridge. Caltrans and the Metropolitan Transportation Commission conducted a feasibility study and developed two design alternatives that would be technically sound.

The most inexpensive option involves a lightweight, state-of-the art design with a bi-directional bicycle and pedestrian path on both sides of the upper deck. The plan is estimated to take approximately 34 months to construct at a cost of $160 million (dollar amount at the time the study was completed).

The Treasure Island Transportation Plan includes provisions for increased bike and pedestrian capacity aboard the various transit options servicing the region (bus, ferry, shuttle), but providing a West Span pathway would

offer continuous and free bike and pedestrian access on and off the island. A bicycle and pedestrian path would allow for a large capacity of bikes and pedestrians at all hours of the day and night. This would also be the most equitable transportation option for all residents in the Bay Area.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

In order to complete this regional transportation link, a large number of groups need to come together to identify a funding source for this project. Advocates, government officials at all levels, and other members from the public and private sectors will all play roles in this effort.

Treasure Island Community Developers (TICD) should be a part of this coalition to encourage this important connection to make the development on Treasure Island as sustainable as possible. Most trips to and from Treasure Island are expected to start or end in San Francisco, and Bridge access to pedestrians and bicyclists could help alleviate automobile traffic as well as lessen the load on the different transit operators going across the Bay. TICD should actively recommend that funding be secured for this construction.

CASE STUDIES AND EVIDENCE:

San Francisco Oakland Bay Bridge West Span Bicycle/Pedestrian/Maintenance Pathway Feasibility Study, 2001.

Top left - Rendering of a West Span Bicycle/Pedestrian/Maintenance Pathway, Source: Bay Bridge Bike/Pedestrian Feasibility Study
Bottom left - Construction of the new East Span of the Bay Bridge, Source: Neal Patel
Right - The West Span of the Bay Bridge has reached maximum automobile capacity, Photo: Flickr user Marilyn M.

DESIGN INNOVATIONS FOR AESTHETICS AND AMENITIES FOR TREASURE ISLAND'S PEDESTRIAN ENVIRONMENT

PROJECT OR STRATEGY RECOMMENDATION:

There should be trees, plantings, decorative paving, adequate sidewalk widths and sidewalk design, benches, signage, pedestrian-scaled lighting, trash receptacles, and public art included in the street and pedestrian network design.

PROBLEMS ADDRESSED:

Treasure Island currently has a lack of high-quality pedestrian thoroughfares, which discourages residents and visitors from walking or biking on Treasure Island. The sidewalk conditions in Treasure Island are inadequate for walking throughout the neighborhood, and many are narrow in width, lacking continuity between street segments and lack pedestrian-scale lighting to provide a sense of safety for pedestrians. There are opportunities to improve the pedestrian environment on Treasure Island, including the aesthetics and amenities, in the Treasure Island Transportation Plan proposed by the Treasure Island Community Development, LLC. More specifically, the Plan includes goals and policies to prioritize land use and street design with certain focuses on walking and pedestrian safety.

POTENTIAL HEALTH IMPACTS:

Providing new and innovated design to pedestrian amenities would benefit public health in a variety of ways. A high quality pedestrian environment can support walking both for utilitarian purposes and for pleasure. Certain pedestrian amenities, such as benches, are critical to subgroups, such as seniors, people with disability and young children, and also create general pedestrian comfort, meeting locations, and encourages more frequent and longer visits and walks. Recent studies in the United States have demonstrated that people walk on average 70 minutes longer in pedestrian-oriented communities. In turn, walking contributes to minimum requirements for physical activity, an established protective factor for cardiovascular diseases, diabetes, and some types of cancer. As a form of transport, pedestrian trips do not contribute to noise or air pollution emissions. Finally, a vibrant pedestrian environment may contribute to both economic vitality and social interaction in a place, furthering the development of social capital. An area which is aesthetically pleasing with adequate pedestrian amenities will promote and encourage residents to choose walking or biking over motor vehicles as their mode of transportation in Treasure Island and increase physical activity and social interaction between residents and visitors.

BACKGROUND:

A healthy and safe pedestrian environment is desired in all city neighborhoods, especially in Treasure Island where the attention to these amenities has never been considered. Currently, there are few public areas with seating where people can rest and relax or public plazas incorporating public art, neighborhood signs and information, and landscaping.

The San Francisco Better Streets Plan speaks to a variety of streetscape designs to improve the pedestrian environment. Depending on the street type (e.g., residential throughway or neighborhood commercial), basic improvements could include more consistent street trees in grates, pedestrian scale lighting at corners, parking lane planters to increase aesthetics and visually narrow the street and a wide variety of furnishing for pedestrians. The City and County of San Francisco,Municipal Code requires all improved through pedestrian passages (i.e. sidewalks and paths) to be a minimum of six feet with no obstructions. General walkability studies suggest 5 – 8 feet sidewalks to accommodate two people passing each other.

There are city requirements for street trees on a new development or redevelopment, where street trees installed should be spaced 20 feet apart in front of the property along each street or alley. The Planning Commission can also determine whether the project applicant must provide additional streetscape improvements: benches, bicycle racks, paving treatments, sidewalk widening, lighting, and trees and plantings. Specific recommendations for these amenities are not present in the Code for all of San Francisco neighborhoods and could be explored in greater depth.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

For pedestrian routes, the following should be considered:

All roads should have sidewalks in both directions where feasible.

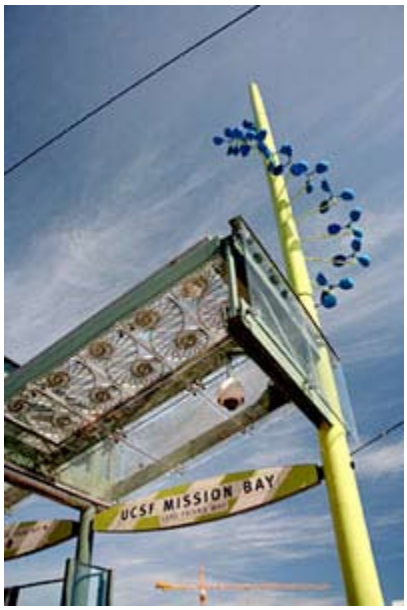
- Sidewalks should be at least five feet and should be wider in high volume pedestrian areas.
- A “furnishing zone” should be added to each sidewalk which would include pedestrian scale street lighting, trees, trash receptacles, bike racks and benches.
- Street trees should be planted at least every 20 feet apart.
- One bench or other seating should be located every 40 feet along walkways and sidewalks.
- Pedestrian scale lighting shall be a maximum of 12 - 15 feet in height and should create adequate visibility at night.
- Bike racks should be added to sidewalks near public and service entrances when bicycle parking is not available on street.
- Trash receptacles should be added where appropriate.
- Sidewalks should incorporate space for public art.
- Decorative paving treatments, colored sidewalks and stamped concrete can help separate the pedestrian zone from the vehicle and bicycle traffic. These paving treatments can be used to visualize a theme, such as a woonef or commercial area or be used as a traffic calming measure at intersections and pedestrian crossings.
- Creating a Sidewalk & Crosswalk Design Master Plan will help ensure all appropriate amenities are included in the pedestrian realm and illustrates where these different levels of sidewalk design should occur.

The current and ongoing Design for Development process is addressing these and other issues related to the pedestrian environment. The SFBC and SFDPH are participants in helping shape the pedestrian realm, as the Transportation Plan moves from a conceptual design to actual block-by-block details. The Treasure Island Transportation Plan supports the recommendations above and the pedestrian realm will include amenitities not seen in many other parts of San Francisco.

CASE STUDIES AND EVIDENCE:

Vermont Transportation adopted their first Bicycle and Pedestrian Plan (*Pedestrian and Bicycle Facility Planning and Design Manual*) in 2002, which had specific guidelines for improving the pedestrian environment. The manual recommended sidewalks to be at least six feet with street trees planted every 20-25 feet or a five-foot sidewalk if there was a seven-foot green or landscaped buffer in between the sidewalk and the street.

The T-Third Street Light Rail Public Arts Project in San Francisco outreached to local artists to create teams to design public art along a new light rail line that was opened in 2007. Local artists were recruited to design and distinguish the transit stop in each neighborhood the light rail traveled through. This is an excellent example of how to include the community in creating an identity for their neighborhood.



A recent study (Clifton et al., 2007) to develop an audit for the pedestrian environment found that buffers between the road and path, such as street trees, are important factors in evaluating pedestrian environments for physical activity and pedestrian safety and can help prioritize investments for street segment improvements. This was also true for pedestrian furniture, pedestrian scale lighting, and sidewalk presence and width.

In Squamish, British Columbia, the Downtown Waterfront Initiative (Draft) Concept Plan incorporates pedestrian and bicycle networks, including a publicly accessible waterfront walkway. The Plan requires "street trees on all local roads and permeable paving materials, such as unit pavers, cut stone or gravel, should be used on pedestrian walkways to allow water to infiltrate the ground".

The City of Marina, CA developed a Pedestrian and Bicycle Master Plan in 2004 emphasizing the need for several pedestrian amenities to encourage walking. The Plan requires sidewalk to be at least five feet, but vary depending on the street type (schools – 8 ft, commercial – 8-20 ft, and park and special uses – 15+ ft). Planting stripes are required to be at least 6 feet with street trees placed every 30 to 50 feet, and pedestrian lighting required in commercial districts and school routes and recommended for primary boulevards. Lighting for pedestrians should be placed at lower levels and hang over the sidewalk to increase pedestrian visibility. In commercial districts "surfaces must be clean, smooth, well maintained and attractive." It is suggested that popular models include white, scored concrete with decorative edging treatments. Pavers or stamped, colorized concrete is also an option as long as it's smooth in surface. Private owners are encouraged to provide benches for the public adjacent to the right-of-way. In main street locations, benches are recommended every 200 feet or so for older citizens and should be designed to compliment the neighborhood. Other recommendations and emphasis are placed on the importantance of public art and community involvement, as well as street and informational signs for residents and visitors to create a sense of place.

Top left: UCSF Mission Bay platform on the T-third Light Rail,
Source: San Francisco Arts Commission

Left: Public Art can also be functional – Pedestrian Lighting in Santa Barbara California. Source: Pedestrian and Bicycle Information Center Image Library

Top left: Example of a Sidewalk and Crosswalk Master Plan, Source: Downtown Master Plan - City of Georgia, Texas 2004

Top right: Example of Colored Pavement used in Newport California, Source: Pedestrian and Bicycle Information Center Image Library

Bottom left: Decorative paving creates an exciting sidewalk, Source: Pedestrian and Bicycle Information Center Image Library

Middle right: Public Art can also be functional – Bike Racks in Lake Osego Oregon, Source: Pedestrian and Bicycle Information Center Image Library

Bottom right: Public Seating serves many purposes. Source: Pedestrian and Bicycle Information Center Image Library

ESTABLISH NEW PEDESTRIAN-ONLY ROUTES

PROJECT OR STRATEGY RECOMMENDATION:

Establish pedestrian-only routes (moved and new footways separated from the road) – especially leading to central transportation hub, central services, and the school.

PROBLEMS ADDRESSED:

Treasure Island currently does not have separate pedestrian pathways where motor vehicles are prohibited, nor are there adequate barriers between traffic and pedestrian walkways to encourage pedestrians to walk and increase the sense of safety. The current transportation plans for Treasure Island call for some pedestrian-only routes, and the design team is investigating further areas where these treatments might be appropriate. Our recommendations below may be useful in identifying additional locations where pedestrian-only strets may be appropriate. "Neighborhood Connector" street types in the Plan limit the use of vehicles to loading and unloading but these designated streets do not directly connect to the proposed transportation hub or school.

POTENTIAL HEALTH IMPACTS:

San Francisco residents suffer approximately 800 pedestrian injuries and 18 fatalities every year. This rate of injuries is approximately four to five times the Health People 2010 Objective for injuries and more than double for fatalities. Separating pedestrians from vehicle traffic, with either a barrier or pedestrian-only streets, will reduce the number of pedestrian/vehicle conflicts which can lead to injuries or fatalities. A high quality pedestrian environment can support walking both for utilitarian purposes and for pleasure. Recent studies in the United States have demonstrated that people walk on average 70 minutes longer in pedestrian-oriented communities. Presenting safe routes to school, work, or recreation can increase walking and/or bicycling in a community. Walking or biking to work helps people meet minimum requirements for physical activity. Twenty-nine percent of people using transit to get to work meet their daily requirements for physical activity from walking to work. Health benefits of physical activity include a reduced risk of premature mortality and reduced risks of coronary heart disease, hypertension, colon cancer, and diabetes mellitus. Regular participation in physical activity also appears to reduce depression and anxiety, improve mood, and enhance ability to perform daily tasks throughout the life span. As a non-vehicle form of transport, pedestrian trips do not contribute to noise or air pollution emissions.

BACKGROUND:

Creating a pedestrian-safe environment, where walking and biking are the main modes of transportation, is becoming increasingly desired for neighborhood design. Treasure Island does not have any pedestrian-only routes to date. The San Francisco Better Streets Plan has two street designs, Multi-way Boulevards and Alleys, which are designed to provide "shared streets," where all or part of the street segment is allocated to pedestrian/neighborhood space and vehicles may carefully pass.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

Details for the pedestrian routes and infrastructes are being finalized in the Design for Development process. Treasure Island Community Development, LLC (TICD) and a number of city agencies are refining the transportation plan to create a safe and connected pedestrian network complete with pedestrian-scaled lighting, seating, and other pedestrian amenities.

To ensure walking is viable for transportation around Treasure Island, direct and convenient pedestrian routes should be added in the following locations:

- One of the Neighborhood Connector streets in the residential part of Treasure Island should be designated as pedestrian only, with no motor vehicle access, and this street should be expanded to connect to the transportation hub and the future school.
- A pedestrian path through the Federal Job Corps Land.
- On Yerba Buena Island, pedestrian paths should be constructed to connect the cul-de-sacs of the residential areas.
- Routes to the elementay school should be prioritized for safe pedestrian access, possibly using Safe Routes to School methodology.

CASE STUDIES AND EVIDENCE:

In 1997, Freiburg, Germany created a sustainable city model for a former army base in the Vauban District, including pedestrian car-free streets. Similar to Treasure Island, the project was to develop a residential area for 5,000 people and 600 jobs on 38 hectares (approximately 94 acres). Most of the streets were pedestrian-only or designed for pedestrian use with vehicle access with maximum speeds of 5 km/hr (approximately 3 mph). The car-free zones have encouraged residents to walk and bike as their main mode of transit. This strategy reduced the amount of private vehicles by forty to fifty percent.

Whistler, British Columbia is another great example of a city with pedestrian-only streets. Whistler Village has several shops, restaurants, businesses, and amenities for visitors and residents (approximately 9,000, but up to 25,000 people during ski season) and is the center of the city. The streets are designated to be outside of the city center, where people park their cars and walk into the village. There are a few smaller streets entering the village but these are only for loading and unloading, usually in a roundabout street design.

Curitiba, Brazil was the first city in Brazil to create a pedestrian only street (Rua das Flores) in 1972, providing all key goods and services for residents and visitors. Some of the services include banks, pharmacies, restaurants, shops, churches, and office buildings along 20-25 linear blocks.

COMPREHENSIVE BICYCLE PARKING PROGRAM

PROJECT OR STRATEGY RECOMMENDATION:

Treasure Island bicycle planning should include appropriate facilities to lock or store one's bicycle in a secure and protected manner. This should include parking structures at residences, retail outlets, commercial locations, places of employment, recreational sites, and at the central transportation hub. The design of these facilities should maximize utility, security, convenience, and protection from elements, and will vary based on the site.

PROBLEMS ADDRESSED:

Lack of a secure parking space prevents many people from using their bikes for everyday transportation. Without adequate facilities, people might choose not to bike, and bike theft may become a problem. Supplying abundant bike parking for each location type will help encourage more trips by bicycle, and help ensure the safety of the bicycle. Longer-use bicycle parking requires a higher level of security, including bike rooms or lockers with key or fob access.

POTENTIAL HEALTH IMPACTS:

Providing bicycle parking options is one part of a successfully program to encourage more people to bicycle for transportation. This will benefit the health of the individual by increasing the daily level of physical activity, and will improve the environmental air quality of the region.

BACKGROUND:

In order to encourage and maximize the number of on-island trips by bicycle, it is imperative to plan for appropriate bicycle parking facilities all around the island. Traditional U-shaped racks placed on the sidewalk may be an appropriate solution in some areas, however there are opportunities for superior parking solutions that will help to encourage more cycling and enhance the overall character o the island.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

For each destination type on Treasure Island there should be enough high-quality bicycle parking to encourage people to utilize the bicycle for transportation. At each of the following locations, it is recommended to utilize appropriate parking facilities:

Long-term Bicycle Parking Solutions

- **Residences** – Due to the planned residential density of Treasure Island, there is a unique opportunity to plan for shared bicycle parking facilities serving a number of residents within certain proximity of each other. For example, in the residential towers, there could be a designated room that is easily accessible (i.e. on the

ground floor and close to main entrances) and allows residents to store bicycles. This would help residents avoid cluttering their own apartments with bicycles and prevent residents from having to climb up stairs or take elevators with their bicycles. These parking rooms should have limited access to ensure that only residents storing bicycles have keys. Within the room there should be some rack element to lock bicycles to, or a set of bicycle lockers.

- **Central multi-modal transportation hub** – The most comprehensive bicycle parking program should be located at this transportation hub. It is likely that many bicycle commute trips will terminate here as commuters travel from their residences. The most secure bicycle parking option is a bicycle valet service like that offered at Bike Station Facilities at various BART stations, as well as at the Caltrain terminus at 4th St. and Townsend St. Bicyclists can ride up to the facility, hand their bicycle to an attendant in exchange for a numbered stub, and return the stub for their bicycle at the end of the trip. The bicycle is kept under staff supervision in an enclosed area, affording the maximum security.

Alternatively, electronic lockers can provide the necessary amount of bicycle parking. A "smart-card" chip opens an empty electronic locker and users pay for the time they need. As opposed to subscription-based lockers, the electronic lockers allow for greater turnover and utilization, fostering an overall higher usage.

Short-term Bicycle Parking

- **At retail, commercial, and points of interest** – These locations provide a different set of needs for the bicycle parker. Trips to these locations are often short and do not require overnight usage. While designated rooms and attendants may not be required here, it is still important to provide high-quality parking that affords convenience and some degree of safety from bicycle theft.
- The Association of Pedestrian and Bicycle Professionals (APBP) have drawn a set of Bicycle Parking Guidelines that gives detailed specifications on appropriate bike rack designs, the bike rack area, and that area in the larger context of buildings and uses. These specifications should be adapted for the specific locations of bike parking on Treasure Island.
- In the denser commercial areas, on-street bike parking in clusters should be considered to avoid sidewalk clutter. The parking areas should be as close to destinations as possible, and provide safe entry and exit points. These areas can be enhanced with seating or greening, which in turn would enhance the environment for all users.
- Treasure Island should provide bike parking at the following points of interest: the elementary school, all retail and commercial locations, at trailheads and park entrances, and at the organic farms.

An important considerations for Treasure Island to take into account is protection from elements. Indoor parking is ideal for residences and the central transportation hub because these are used for longer time periods. At sites of short-term parking, protection from wind, rain, and salt spray should still be provided through awnings or other coverings. New York City has installed shelters (similar to bus shelters) that not only provide protection, but that can also provide bike-specific information such as maps and events.

The guidelines listed here are minimum criteria, and should be expanded upon in site-specific and creative ways. One method may be to incorporate art into bicycle parking structures. As long as structural requirements are met that help prevent theft, installers can use creative designs that reflect the local character. For Treasure Island, racks can be designed that reflect the maritime history, portray natural aspects of the Bay, or are designed by local artists.

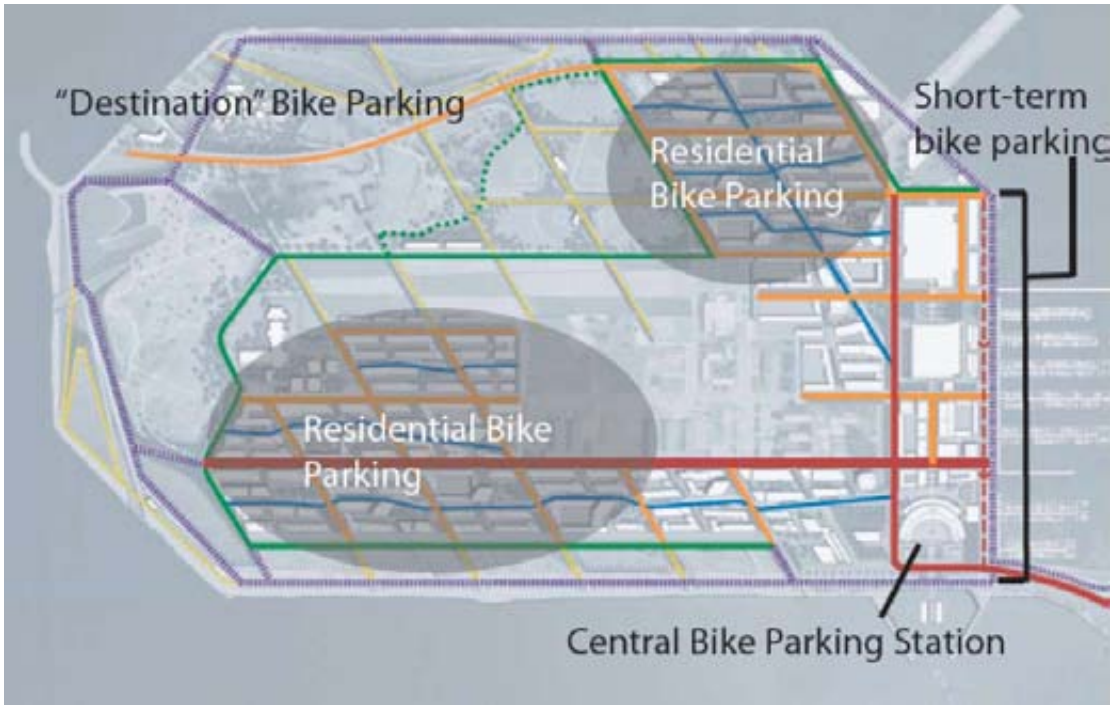
The final decisions for the numbers of racks and spaces for bikes will depend on the final population distributions and expected trips from the central transportation hub. The bike parking supply should be monitored by the T.I. transportation demand management program and adjusted as necessary.

CASE STUDIES AND EVIDENCE:

Association of Pedestrian and Bicycle Professionals, Bike Parking Guidelines, 2002

Bay Area Rapid Transit (BART) Board of Directors Meeting, January 2008

Bike Station Parking Facilities www.bikestation.org

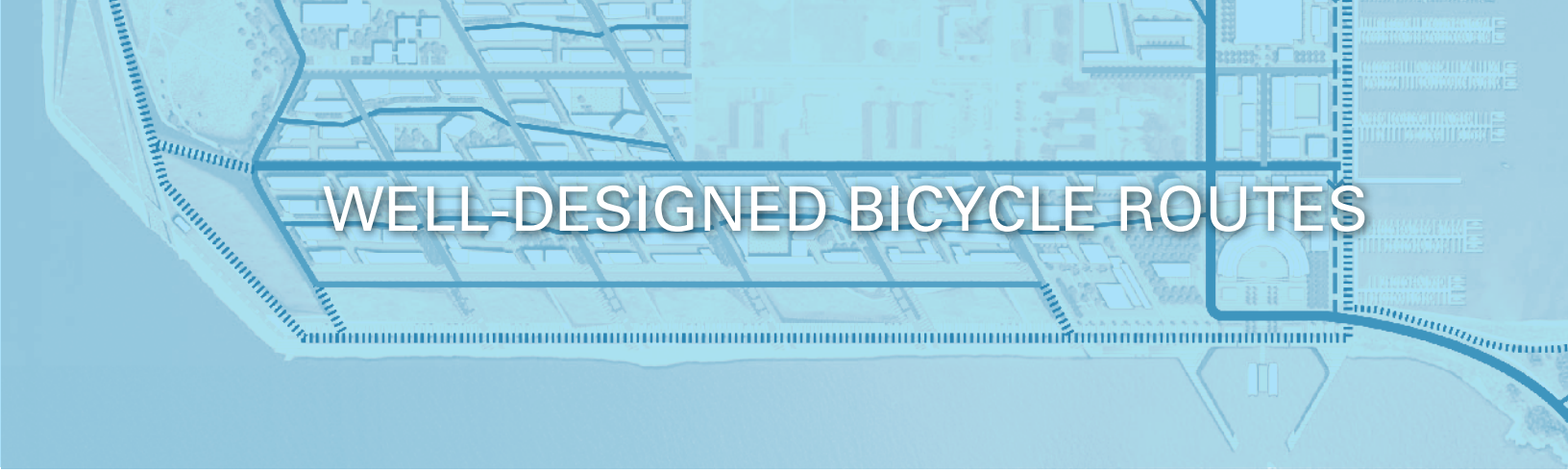


Top left: Sheltered bike parking in New York

Top right: On-street bike parking in SF

Middle: Different kinds of bike parking are required for each area of Treasure Island.

Bottom left: Space-saving solutions for bike parking at residencies



WELL-DESIGNED BICYCLE ROUTES

PROJECT OR STRATEGY RECOMMENDATION:

Treasure Island's street design should include a comprehensive bicycle network, connecting all major destinations on the island. A comprehensive bike network includes the various types of on and off street bicycle facilities and should be chosen based on street type. Route types should be specified according to street typology, predicted use, and automobile traffic.

PROBLEMS ADDRESSED:

Studies have shown that bicyclist safety is greatly improved when such facilities such as separated bike paths, bike lanes, "sharrow" markings, and other on-road markings are present. Treasure Island's street design should incorporate these facilities organized in a comprehensive network to connect residences to all major destinations including the transportation hub, commercial areas, elementary school, and places of recreation. The Treasure Island Transportation Plan includes these provisions, and works to "design streets to include appropriate bicycle facilities given their individual street classification and purpose." Including bicycle infrastructures in a community's design can help encourage more people to bicycle as a form of transportation and increase safety.

POTENTIAL HEALTH IMPACTS:

An established bicycle network affects the health of an individual and communities in a number of ways. Studies have shown that bicyclists traveling on marked routes have a much lower rate of collisions with motorists. Among the different types of bike routes, there is a varying degree of safety for the cyclist. Routes that are completely separated from automobile traffic afford the cyclist with the greatest level of safety and should be utilized on Treasure Island in appropriate places of higher automobile traffic, such as leading to and away from the central transportation hub.

Bicycle counts in San Francisco have showed dramatic increases in the number of bicyclists on a street once bike lanes are striped on the pavement. This increase has seen to increase in subsequent years as well. With an increase in safety, more people choose to ride bicycles for commuting and other transportation purposes. This raises the level of physical activity, which can protect from numerous adverse health conditions. Daily trips by bicycle do not contribute to air or noise pollution emissions and can improve air quality.

BACKGROUND:

The redesign of Treasure Island with an emphasis on bicycling and walking affords a unique chance at building excellent bicycle facilities without many of the constraints that are present when these facilities are adopted retroactively. For example, striping a bike lane on an existing street with automobile traffic, parking spaces, and perhaps transit lines requires a shifting of traffic flow, and sometimes a removal of parking spaces. By placing world-class bicycle traffic facilities in the original street design of Treasure Island, planners can create an ideal and safe bicycle network.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

All streets on Treasure Island, with or without automobile traffic, should be designed with some kind of bicycle facility.

- Physically separated bicycle lanes should be utilized on the most important bicycle routes. The current Transportation Circulation Diagrams calls for a physically separated pathways around most of the island connecting residences to the large open space, school, multi-modal transportation hub and commercial Marina area. Physically-separated bike lanes are those that are separated from automobile traffic and are most appealing to new riders and those uncomfortable riding in traffic.
- The current proposed separated routes will be unique to San Francisco as no other neighborhood has such a facility. While the transportation planning process continues, direct access to these separated routes should include paths that extend into the residential areas and that continue directly into various destinations.
- Bicycle lanes (a Class II facility) are useful to designate space for bicyclists on a roadway, and should be implemented on Treasure Island as an alternative to the separated pathway. More experienced cyclists prefer to take a more direct route and bike lanes provide a safe option for accessing points throughout the island. The current network shows bike lanes servicing both residential arms of the island, connecting to the multi-modal transportation hub and other bike facilities.
- Where automobile traffic is expected to be lower, as in the neighborhood streets and in one direction on the Marina, the "sharrow" marking should be utilized as a signal to motorists that the road is shared with bicyclists. This has been utilized in San Francisco and has resulted in increased bicycle ridership on major routes.
- Other innovations pertaining to bicycle facilities that should be considered for Treasure Island are bike boxes at intersections, traffic lights for bicyclists, and colored pavement for bike lanes for better visibility.

CASE STUDIES AND EVIDENCE:

The City of Davis, California is the only city with Platinum rating by the League of American Bicyclists, the highest ranking possible. Through comprehensive planning and policies, Davis maintains high ridership in a safe environment. Their Guiding Principles are to "assure safe and convenient bicycle access to all areas of the city" and to "promote use of bicycles as a viable and attractive alternative to cars. Source: 2006 Davis Bike Plan

Previous page: Bike paths such as this one in the Panhandle in San Francisco are more suitable for young and inexperienced riders

This page: Bicycle paths in Davis, California, lead directly to residences and other points of interest. Photo by flickr users Cheryl and Rich

INSTITUTE A BIKE-SHARING PROGRAM

PROJECT OR STRATEGY RECOMMENDATION:

Treasure Island should develop a bicycle-sharing program, to allow low-cost bicycles for use by island residents, employees, and visitors.

A main pod should be installed at the multi-modal transportation hub with possible additional pods around the island. Many cities in Europe and the US have adopted these programs, and Treasure Island's size and topology suggests this kind of program would be successful there.

PROBLEMS ADDRESSED:

The street design, density, and flat topography of the redeveloped Treasure Island make it conducive for individuals to bicycle as a means of transportation and recreation. In order to maximize the number of trips by bicycle within the island, a bike-sharing program should be implemented that provides bicycle access to those who do not have their own, or to those who do not bring them to the island. For residents, this program will allow those who do not own a bicycle to travel around the island quickly. For visitors to the island, a bike-sharing program would address the problem of limited bicycle access on the various transit options. It could provide a convenient way for visitors to travel around the island and visit destinations quickly. This program would also lessen the burden on the intra-island shuttle system.

POTENTIAL HEALTH IMPACTS:

Bicycle sharing programs in Europe have been shown to dramatically increase the number of trips made by bicycle. Using this kind of program increases the level of physical activity for the rider, resulting in a reduced risk of numerous chronic health diseases and conditions. Also, bicycling does not contribute to air and noise pollution emissions. Increasing the number of bicycling trips could help reduce congestion on the island, and encourage visitors to arrive by means other than an automobile.

BACKGROUND:

Various forms of bicycle sharing programs have been used in Europe for decades, but new programs in major European cities have seen great success in recent years. Some American cities have also recently expressed interest in these programs and some plan on implementing bike sharing programs in 2008. There are two different kinds of programs currently in use around the world. The "community" bike-sharing model allows you to check out a bicycle from a kiosk and return it to any other kiosk within a network. The "residential" bike-sharing model requires that bicycles be returned to the same kiosk from where they were checked out.

Current programs around the world generally use electronically locking and unlocking systems, usually by way of a smartcards, magnetic stripe cards, or through a cellular phone. These programs are often funded by advertising companies as part of larger city-wide advertising contracts.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

Treasure Island presents an encouraging environment for a bicycle-sharing program. The topography is flat and the island is small. The current Transportation Plan also calls for a street network that promotes the use of bicycles for transportation. With a bike-sharing program in place providing bicycles for all residents and visitors, the number of trips by bicycle would be expected to increase.

A bicycle-sharing program for Treasure Island could be structured in a number of ways, and the following details will be investigated.

- Whether to follow the "community" or "residential" format for placing the bike-sharing kiosks. It is likely the central multi-modal transportation hub would carry the largest supply of bicycles, so that visitors to the island will be able to check one out upon arrival to the island. However, if residents are to be encouraged to utilize the system, other sites may want to be included, such as at the residential towers. Also, placement of kiosks at recreational sites and retail and commercial destinations should be investigated. If only one kiosk is installed, riders would not be able to make breaks in a trip and visit certain destinations without having their own lock.
- Bikes should be available by a swipe of a credit card to allow for 24/7 access.
- If the system requires a user fee, there should be an annual fee option for residents and frequent visitors or employees on the island, and an hourly fee option for one-time visitors.
- The operator for the system should be decided upon. In San Francisco, the Metropolitan Transportation Agency has partnered with Clear Channel, the advertising firm that is responsible for transit shelter construction and maintenance. There is an agreement that Clear Channel has first choice to implement a bicycle-sharing program upon request by the SFMTA, based upon future negotiation of terms. Treasure Island Community Developers should look into the option of having Treasure Island's bike sharing system be an extension of the San Francisco system, or whether to create a unique program, operated by the future Travel Demand Management Program or other department, as well as appropriate funding sources for the two options.

CASE STUDIES AND EVIDENCE:

The "Bicing" bike-sharing program in Barcelona has been implemented since March 2007 and currently operates 3,000 bikes at 200 different stations spread over the city. A yearly fee allows one to activate any bicycle with a smartcard. The first 30 minutes of usage is free, and it costs 0.30 Euros per 30 minutes thereafter, with fares increasing even more after two hours of use. Since it's start, the program has been rapidly increasing in the number of registered users, number of bicycles checked out, and miles traveled. As of February 2008, bicycles were utilized over 5 million times.

Governors Island In New York City has plans to implement a bike-sharing program for the historic island. The island was recently handed over to the city of New York from the federal government, and will be adding significant park and open space to the array of historic structures currently in place. The City plans to introduce 3,000 bicycles that will be available for free to visitors.

The Velib bike-sharing system in Paris is similar to that in Barcelona. Bicycles are free for the first half hour, and moderate prices for longer duration. The Velib system also includes day and week passes in addition to the annual pass. And like the Bicing program, Velib has seen dramatic increases in demand since instituting the program in July 2007. The number of bicycles and stations has almost doubled since.

Washington DC SmartBike

- 120 bikes, 10 pods, $40/year annual fee, and no hourly charge. Pre-registration required.

Governor's Island, NYC

- 250 bikes, one central pod, no annual fee, first hour is free, $5 for 30 minutes or $10 up to 2 hours
- Credit card or ID is retained upon rental; bikes are free on Fridays; this island is a car-free island

Tulsa, Oklahoma "Townies"

- 75 bikes, 4 pods, no annual fee, free unlimited rides, $100 deposit on credit card upon rental
- Sponsored by St. Francis Health Program - designed for recreational use on riverside path

Lexington, Kentucky Yellow Bikes

- 80 bikes, 9 pods downtown, $10 annual fee, credit card deposit, and bikes must be returned to pick-up locations

Top left: dispersed location of bike pods in Washington, DC

Top right: Tulsa Townies

Bottom: Unique design for Washington, DC's Smartbikes.

INCREASED BIKE CAPACITY ON TRANSIT

PROJECT OR STRATEGY RECOMMENDATION:

Without a direct route between Treasure Island and downtown San Francisco, bicyclists must rely on various transit vehicles for travel. In order to encourage more people to bike for transportation, these transit vehicles need to have sufficient bicycle access. Adequate bicycle capacity on transit encourages longer commute distances to be completed without an automobile, and an inadequate supply may discourage the use of the bicycle for transportation. Bicycle access to and from the island can be supplied through increased capacity on buses, a large capacity on ferries, and through the use of a bike shuttle.

PROBLEMS ADDRESSED:

With no direct bicycle access between Treasure Island and downtown San Francisco, bicyclists will be looking to carry bikes on transit to and from the island. By combining bicycling and transit as a commute or travel option, one can travel farther distances in less time than by either mode alone. And with the island-wide promotion of bicycle use on the redeveloped island, a significant number of trips will be to and from the island. By maximizing the ability to carry one's bicycle across the Bay Bridge, automobile trips can be minimized reducing automobile congestion and reducing emissions.

POTENTIAL HEALTH IMPACTS:

As with other strategies to increase the use of bicycles, the combination of bicycles and transit options should function to reduce emissions and improve air quality. Adequate bike capacity on transit is critical to reducing vehicle trips to and from the island. Bicycle commuters enjoy higher levels of daily physical activity and associated health benefits as well.

BACKGROUND:

Bikes aboard buses, ferries, and a bike shuttle are three strategies that can be used in tandem to encourage multi-modal transportation. The current Transportation Plan for the island somewhat addresses this need by calling for more frequent bus service and for bike space aboard ferries. The upcoming planning process should push for a large bike capacity on these ferries as well as consider some of the following recommendations.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

1. **Increased bike capacity on buses** – One method to increase bike capacity on buses is to utilize a three-bike rack system. Currently, MUNI buses are outfitted with a front rack that can hold up to two bicycles per bus. Buses that service Treasure Island could be fitted with a rack that holds three bicycles per bus, resulting in a 50% increase in bike capacity.

   Buses in King County, Washington utilize a rack that carries three bicycles on the front rack of the bus.

2. **Bike Shuttle service between Treasure Island and downtown San Francisco** – A bicycle shuttle is one way to transport bicycles across the Bay Bridge. Caltrans has utilized a bike shuttle to carry bicyclists over the Bay Bridge during peak commute hours when bringing a bicycle aboard BART is prohibited. Current service is between the Transbay Terminal building in San Francisco and the MacArthur BART station in Oakland. The fare is $1.00 and there is capacity for 14 bikes and riders.

   Demand for a shuttle to the East Bay may not be sufficient due to the planned bicycle and pedestrian pathway on the new East Span of the Bay Bridge. It would be useful to reach out to the resident and visiting Treasure Island population to determine if there is a need for this service.

   - Additional bike capacity across the Bay during peak times and if capacity on ferries does not meet the demand
   - Service during hours the ferry is not operating
   - A more affordable option than the ferry
   - Bicycle access to the East Bay, where ferry service is not currently planned

   If there is a demand, this service could be expanded or duplicated to include Treasure Island. Bike Shuttle service should initiate at the central inter-modal transit hub planned near Building One on Treasure Island. The network could operate with two shuttles simultaneously leaving Treasure Island – one heading to the East Bay and the other to San Francisco. This would allow for maximum utility in servicing bicycle commuters during peak times.

   Appropriate terminals in the East Bay and San Francisco could be determined through surveying potential riders, or surveying all transit users to find their ultimate destinations needs.

3. **Bike capacity on shuttle buses** – Like the MUNI buses servicing Treasure Island, the intra-island shuttle buses should be outfitted with front-loading bike racks. This will allow bicycle commuters the option of carrying their bikes on the shuttle in case of inclement weather, or if the bike malfunctions. The shuttle route servicing Yerba Buena Island in particular needs to be have some bike capacity as an option for people traveling between the East Span pathway and Treasure Island. The steep terrain of Yerba Buena Island may not be suitable for all bicyclists, and having the shuttle option may encourage more people to bike across the East Span.

4. **Large bike capacity aboard ferries** – Treasure Island's ferry connection to San Francisco will provide access between the multi-modal transportation hub on Treasure Island and the Ferry Building in San Francisco, with an estimated 15-minute travel time. Due to limitations of the number of bicycles allowed on MUNI buses, ferries could provide the highest amount of bicycle capacity across the Bay. Ferry service should aim to accommodate bicyclists during peak times for work commuting purposes, as well as tourists and visitors at other times.

   The bicycle storage area on the ferry should be protected from rain, wind, and salt spray from waves. It is also recommended that passengers traveling with their bicycles be able to wait in a comfortable area with view of the bicycle storage area in order to prevent theft.

Another component of successful ferry and bicycle connection is ensuring safe bicycle routes at the ferry terminals both at Treasure Island and San Francisco's Ferry Terminal. Near the proposed site for ferry terminals at Treasure Island, many forms of transportation will converge in a relatively small space – buses, on-island shuttles, pedestrians, and bicyclists. A safe and unobstructed route for bicyclists needs to be planned. These routes should be well marked so travelers are aware of how to make the connection.

Lastly, the bikes on ferries program should be well publicized so users and potential users understand the benefits and method of operation.

In an effort to increase ferry users who board with their bicycles, Washington State Ferries provide accommodations for bicyclists, and have instituted a Bicycle Permit Program where regular bicycle commuters save money over the regular fee structure per trip. Most ferries in the San Francisco Bay Area allow bikes aboard. The San Francisco – Oakland – Alameda Ferry has a designated rack for bicyclists and does not charge an extra fee.

CASE STUDIES AND EVIDENCE:

Caltrans Bike Shuttle information: http://www.dot.ca.gov/dist4/shuttle.htm

Bike Shuttles have been implemented in numerous other areas including University of California – Santa Cruz, through the George Massey tunnel in British Columbia, Canada. The Santa Cruz shuttle has been in operation since 2001 and has seen steady increases in ridership. New bicycle commuters reportedly resulted in fewer commute trips alone in an automobile.

Top left: King County in Washington State utilizes a three-rack design for buses.

Right: an example of bike capacity on buses in the San Francisco Bay. The ferry serving Treasure Island will likely need a higher capacity and be protected from the weather.

Bottom left: Bike Shuttle currently in operation between Oakland and San Francisco.

STRATEGIES TO REDUCE AUTOMOBILE DEPENDENCE

PROJECT OR STRATEGY RECOMMENDATION:

Residential Off-Street Parking (spaces per dwelling unit):

Minimum requirements: There should be no residential off-street parking minimum requirements.

Maximum allowable: The maximum allowed parking should be less than one parking space per one residential dwelling unit. This ratio may vary based on number of bedrooms and proximity to public transit (case examples included on the next page).

PROBLEMS ADDRESSED:

Eliminating minimum parking requirements and decreasing the maximum allowable number of parking spaces per residential dwelling unit supports both the Treasure Island Plan goals of discouraging auto use and encouraging transit use. As stated by the Plan, "Every aspect of the proposed design facilitates convenient access by foot, bicycle, and transit, and seeks to reduce the use of private cars for single occupant trips both on and off Treasure Island. TICD has accomplished this integration by designing a dense, compact development pattern centered around an active Ferry and Intermodal Transit Hub and commercial center."[1] Reducing parking spaces and number of private vehicle trips also supports transportation environments with fewer hazards for both pedestrians and bicyclists.

Reduces car ownership and driving: Including a parking space with each residential unit reinforces the expectation that each household will own and drive a private vehicle. Reducing the supply of parking spaces, and therefore the number of residents' private vehicles on Treasure Island, would discourage driving by Treasure Island residents. Implications for environmental health impacts are addressed in the next section.

Support of public transit use: Reducing the residential parking supply on Treasure Island supports the reduction in parking demand when residents use public transit to meet daily transportation needs instead. The Treasure Island Plan presents a particularly unique opportunity for creating strong support for public transit utilization when bringing new residents into a dense, transit-oriented, sustainable community with buildings designed to be less auto-centric through less space devoted to parking.

Promotes a walkable, bikeable environment: Parking supply reductions, coupled with public transit and neighborhood services within walking distance nearby, support a walkable, bikeable environment when there is less dangerous traffic and a reduced need for people to own cars or drive to daily destinations to access key goods, services, work and recreation.

Reduces development costs: Maximum parking requirements typically determine the number of parking spaces that are built, where each parking space comes at a financial cost. Even when parking is unbundled, the maximum parking requirements strongly determine how many spaces will be built, and therefore the financial as well as environmental cost of the development. Based on the findings of a Caltrans report, "Reduced

1. Treasure Island Community Development, LLC. Treasure Island Transportation Plan. September 2006.

parking requirements can lower TOD [transit-oriented development] construction costs, which in turn helps make housing more affordable and/or allows more development to be built on sites near transit. For example, in one case study of six San Francisco neighborhoods, reducing the standard requirement for off-street parking was found to decrease costs for condominiums by more than ten percent."[1] Other California-based research has conservatively estimated structured parking spaces cost at least $125 per month per space.[2]

Preserves land and space for housing, open space, or other community serving uses: By not constructing parking spaces, land, space and economic resources are thus available for housing or open space.

POTENTIAL HEALTH IMPACTS:

Car ownership is directly related to driving behaviors. Vehicle driving, in turn, is directly related to a number of health determinants and health outcomes. Reducing driving through measures including reducing the parking supply could address a number of health issues, including:

Air pollutants, including ozone and particulate matter, are causal factors for cardiovascular mortality and respiratory disease and illness, contributing to restricted activity and levels of exertion for thousands of Americans, particularly children, each year.

Greenhouse gas emissions lead to climate change and are associated with temperature-related disease and death (e.g., heatstroke), health effects of extreme weather events (e.g., hurricanes), water- and food borne diseases, and vector- and rodent-borne diseases – in addition to air pollution related health effects. Notably, 50% of greenhouse gas emissions in the Bay Area are from transportation sources including cars and trucks.

Moderate levels of vehicle-associated noise significantly affect sleep, school and work performance, temperament, hearing impairment, and high blood pressure.

The risk of being injured or killed when struck by a car while walking or biking decreases when there are fewer cars on the streets. Nationally, for people aged one to 40, traffic injuries are the single greatest cause of disability and death.

Fewer cars on the road has also been associated with increases in sense of community or social cohesion – with people living on streets with lighter traffic more likely to know their neighbors. Less traffic creates a more pleasant environment for walking, biking and children of all ages playing outside – encouraging increased physical activity, which can reduce risk of obesity, diabetes, and heart disease.

BACKGROUND:

Parking policies are one of the most important tools for managing the amount people drive as well as whether or not they decide to own cars. Reducing parking requirements is one of the key strategies included in the Metropolitan Transportation Commission's handbook, "Reforming Parking Policies to Support Smart Growth."[3] Reducing parking is most promising in changing people's travel behaviors when also supported by accessible, quality public transit and environments that encourage people to walk or bike – as proposed by the Treasure Island Plan.

1. California Department of Transportation. State-wide Transit-Oriented Development Study: Factors for Success in California, Executive Summary. May 2002. Accessed online (February 2008): http://transitorienteddevelopment.dot.ca.gov/PDFs/TOD%20Study%20Exectutive%20Summary.pdf

2. Shoup, D. The High Cost of Free Parking. Chicago, IL: American Planning Association, 2005.

3. Metropolitan Transportation Commission. Reforming Parking Policies to Support Smart Growth -Toolbox/ Handbook: Parking Best Practices & Strategies For Supporting Transit Oriented Development in the San Francisco Bay Area. Oakland, CA: June 2007. Accessed online (February 2008): http://www.mtc.ca.gov/planning/smart_growth/parking_seminar/Toolbox-Handbook.pdf.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

Implementing this policy on Treasure Island would require modifying the Planning Code, as done for other zoning districts in San Francisco (see case studies, below). Reducing parking requirements is one of the key strategies included in the Metropolitan Transportation Commission's handbook, "Reforming Parking Policies to Support Smart Growth"[1], which is designed to help technical professionals to develop and implement parking policies tailored to the needs of specific communities.

CASE STUDIES AND EVIDENCE:

San Francisco, California: There are no minimum parking requirements in San Francisco's Downtown Residential (DTR) or C-3 Districts. The maximum permitted parking spaces are described in the table, below, copied from the City's Planning Code, Section 151.1.[2]

OFF-STREET PARKING ALLOWED AS ACCESSORY

TABLE INSET:

Use or Activity	Number of Off-Street Car Parking Spaces or Space Devoted to Off-Street Car Parking Permitted
Dwelling units in DTR Districts, except as specified below	P up to one car for each two dwelling units; up to one car for each dwelling unit, subject to the criteria and procedures of Section 151.1 (d); NP above one space per unit.
Dwelling units in C-3 Districts, except as specified below	P up to one car for each four dwelling units; up to 0.75 cars for each dwelling unit, subject to the criteria and procedures of Section 151.1(e); NP above 0.75 cars for each dwelling unit.
Dwelling units in C-3 Districts with at least 2 bedrooms and at least 1,000 square feet of occupied floor area	P up to one car for each four dwelling units; up to one car for each dwelling unit, subject to the criteria and procedures of Section 151.1(e); NP above one car for each dwelling unit.
Group housing of any kind	P up to one car for each three bedrooms or for each six beds, whichever results in the greater requirement, plus one for the manager's dwelling unit if any. NP above.
SRO units	P up to one car for each 20 units, plus one for the manager's dwelling unit, if any. NP above.
All office uses	P up to seven percent of the gross floor area of such uses; NP above.

Additionally, the draft Eastern Neighborhoods Area Plan *New* Residential Off-Street Parking Zoning Guidelines (December 2007) include a number of zoning controls with no minimum parking requirement, and with maximum permitted off-street residential parking spaces ranging from 0.25 – 0.75 for 1 bedroom units.[3]

1. Metropolitan Transportation Commission. Reforming Parking Policies to Support Smart Growth -Toolbox/ Handbook: Parking Best Practices & Strategies For Supporting Transit Oriented Development in the San Francisco Bay Area. Oakland, CA: June 2007. Accessed online (February 2008): http://www.mtc.ca.gov/planning/smart_growth/ parking_seminar/Toolbox-Handbook.pdf.

2. City and County of San Francisco Municipal Code. Planning Code, Section 151.1. December 2007. Accessed online (February 2008): http://www.municode.com/Resources/gateway.asp?pid=14139&sid=5.

3. San Francisco Planning Department. Eastern Neighborhoods Community Planning Proposed Zoning, Appendix. December 2007. Accessed online (February 2008): http://www.sfgov.org/site/uploadedfiles/planning/Citywide/pdf/ EN_Appendix_Maps.pdf.

Portland, Oregon: "The City of Portland, Oregon has established maximum parking requirements for new development in each central business district. Additionally, the City has also applied a parking maximum for development across the entire Portland metro area. Parking maximums are set based upon the availability of transit service. Lower maximums are set based upon a ¼ mile walk from a frequently served bus stop or ½ mile walk from a transit station. The parking maximum in the central downtown core is 0.7 per 1,000 sq. ft. up to 2.5 in adjacent business districts."[1]

---

1. Metropolitan Transportation Commission. Reforming Parking Policies to Support Smart Growth -Toolbox/ Handbook: Parking Best Practices & Strategies For Supporting Transit Oriented Development in the San Francisco Bay Area. Oakland, CA: June 2007. Accessed online (February 2008): http://www.mtc.ca.gov/planning/smart_growth/ parking_seminar/Toolbox-Handbook.pdf.

TRANSIT IMPROVEMENTS

PROJECT OR STRATEGY RECOMMENDATION:

Treasure Island is currently serviced by only one transit line – the 108 MUNI bus that connects Treasure Island to the Transbay Terminal and the 4th and King stop. Bus service should be expanded to include additional locations in San Francisco and the East Bay.

PROBLEMS ADDRESSED:

For many travelers and commuters, bus service presents the most affordable option for traveling around the Bay Area. In order to address the transportation needs of the increased population on the redeveloped Treasure Island, service should be extended to other locations. The current Transportation Plan calls for an additional bus route between the transit hub on Transportation Island and the Civic Center in San Francisco as well as a potential route between Treasure Island and BART's 19th St. station in Oakland.

A survey of traveler needs should be conducted to determine additional destinations that would afford better access to jobs and services for Treasure Island residences.

POTENTIAL HEALTH IMPACTS:

Increased transit use would decrease dependence on the automobile for daily trips. This would help to ease congestion on the regional roadways and improve air quality for all residents.

BACKGROUND:

As stated in the Treasure Island Transportation Plan, increased bus service to San Francisco and the East Bay is planned. Bus service remains the most equitable transportation option to and from the island, and relieves congestion on the Bay Bridge. In order to meet transportation needs for work, access to services, and recreation, bus service should be expanded.

The current Transportation Plan examined two routes: one leading to the Transbay Terminal, and the other leading to the Civic Center/City Hall area. The first route is meant to provide connection to other regional transit connections such as Caltrain, BART, Golden Gate Transit, Samtrans, and other MUNI routes. The second route was chosen based on comments from a previous version of the Transportation Plan and confirmed based on employment data from the San Francisco County Transportation Authority model.

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

Through continued transportation demand management strategies and community surveying, the Treasure Island Transportation Agency should monitor transit service to and from the island. Once the commercial services for the island are identified, community needs off the island should be accessible by transit. The Agency can also look at commute patterns and adjust transit service accordingly.

CASE STUDIES AND EVIDENCE:

Treasure Island Transportation Plan, Treasure Island Community Development, LLC.

RECOMMENDATIONS FROM THE HEALTH IMPACT ASSESSMENT (HIA)

PROJECT OR STRATEGY RECOMMENDATION:

To promote health at the neighborhood level, the San Francisco Department of Public Health (SFDPH) used several Health Impact Assessment (HIA) Tools (The Healthy Development Measurement Tool - HDMT, Pedestrian Environmental Quality Index - PEQI and the Bicycle Environmental Quality Index - BEQI) to evaluate conditions on Treasure Island. Recommendations from those assessments include:

- Explore the possible construction (by Caltrans) of a pedestrian and bicycle connection on the West Span of the Bay Bridge.
- Include a specific policy with implementations to study, propose and prioritize pedestrian improvements at locations with potential high frequencies of pedestrian collisions.
- Include a policy within the Traffic Demand Management section to address economic barriers to public transit utilization could include subsidizing transit passes based on household income (e.g., <200% poverty level) or transit passes for housing BMR units.
- Eliminate parking requirements so that structured or off-street parking is not required and parking maximums are specified.
- Reduce residential parking to .25 - .75 spaces per unit
- The Plan should specify where traffic calming will be targeted. Targeted areas should be chosen based on areas where vehicle traffic flow will be the highest. Create a Pedestrian / Bicycle / Traffic Calming Improvements Map for the Treasure Island Transportation Plan.
- Include more detail regarding potential parking pricing strategies in Final version of the plan.

PROBLEMS ADDRESSED:

The Health Impact Assessment Tool focuses on broadening the range of social, economic, and environmental resources needed for health on a population level. It does so by recognizing a range of resources needed for optimal health at the societal level and identifying measurable and actionable ways to meet those needs through urban development. It combines quantitative analysis of health indicators with a qualitative assessment of whether plans and projects meet Tool development targets.

POTENTIAL HEALTH IMPACTS:

The avoidable economic costs of acute and long-term illness are significant. The Health Impact Assessment tools used in this assessment identify a range of actions that could also reduce the costs associated with problems such as vehicle injuries, obesity, asthma, diabetes. For example:

- Fatal and nonfatal vehicle injuries in California resulted in over $3.9 billion in direct and indirect costs ($692,000 per injury).
- Overweight, obesity and physical inactivity in California in the year 2000 resulted in over $21.6 billion in health care, lost productivity and workers compensation costs.[2]

BACKGROUND:

For more information about the HDMT, please visit TheHDMT.org. For an overview of the importance on the Pedestrian Environmental Quality Index, please see http://www.sfpes.org/HIA_Tools_PEQI.htm and for an overview of the importance on the Bicycle Environmental Quality Index please see http://www.sfphes.org/HIA_Tools_BEQI.htm

HOW THIS WOULD BE IMPLEMENTED ON TREASURE ISLAND:

As an on-going effort, this plan is recommending a monitoring plan for the HIA, which would include 1) goals for long term monitoring, 2) outcomes and indicators for monitoring and 3) resources to conduct and report the monitoring.

Furthermore, this plan recommends that the Transportation Demand Management program should strive to improve public health and social equity by continuing to work with the Department of Public Health to assess the impacts, both positive and negative, of the development on Treasure Island and the many recommendations in this plan which reflect those efforts.

6. CONCLUSION

This Treasure Island Community-Based Transportation Plan has yielded a diverse set of recommendations for the pedestrian and bicycle environments on the redeveloped Treasure Island. We have succeeded in our goal to involve stakeholders, community groups, residents, citizens, and professionals in the planning process for the island and utilized a diverse toolkit including community workshops, bike rides, surveys, analyses of existing plans, and research into best practices. The SFBC and SFDPH have made the recommendations in this report in order to ensure that bicycling and walking continue to be prioritized in Treasure Island's streetscape and policy framework.

This Plan and outreach process includes strong public health justifications for advancing the bicycle and pedestrian planning for the island. Planning for active modes of transportation as a way to reduce levels of pollution and increase levels of physical activity has been given a greater importance through this Plan by utilizing the Healthy Development Measurement Tool and the Bicycle and Pedestrian Environment Quality Indices in this Report.

Going forward, the SFDPH and SFBC will continue to participate in Treasure Island's planning and redevelopment process. We look forward to enlisting the support of other organizations, agencies, and the community at large to help implement the policies and recommendations set forth here and will continue to partner with Treasure Island Community Developers as the streetscape, transportation network, and policy decisions are decided and refined. The SFDPH and SFBC will work to ensure the Treasure Island planning process achieves the innovative transportation solutions that it strives to create, and that the redeveloped island becomes San Francisco's newest sustainable and healthy community.

7. REFERENCES AND RESOURCES

Alta Planning & Design for California Department of Transportation. (2005).

Pedestrian and bicycle facilities in California: A technical reference and technology

Transfer synthesis for Caltrans planners and engineers. Prepared for the California

Department of Transportation.

BKF Engineers – prepared for Treasure Island Community Development, LLC (2006) Treasure Island Redevelopment Project Infrastructure Plan.

Caltrans Bike Shuttle information available at: dot.ca.gov/dist4/shuttle.htm.

City and County of San Francisco. Draft San Francisco Better Streets Plan: Policies and Guidelines for the Pedestrian Realm. June 2008.

City of Davis, California. "City of Davis Comprehensive Bicycle Plan." October 2006.

City of Marina, California. "Marina Pedestrian and Bicycle Master Plan." January 2004.

Clifton, K. J., Smith, A. D., & Rodriguez, D. (2007). The development and testing of an audit for the pedestrian environment. Landscape and Urban Planning, 80(1,2), 95–110.

Community Design and Architecture (2007) Better Streets Plan (Draft) Prepared for the San Francisco Planning Department.

Conger Moss Guillard Landscape Architecture (2005). Treasure Island Street Sections. San Francisco, CA.

Conger Moss Guillard Landscape Architecture (2009). Treasure Island Street Sections. San Francisco, CA.

Cowern, Bill and M. Sweeney (200X) "55th Street Corridor Improvements". City of Boulder, CO

Ewing R, Frank L, Kreutzer R. Understanding the Relationship between Public Health and the Built Environment: A Report to the LEED - ND Core Committee. 2006. Available at: http://www.usgbc.org/ShowFile.aspx?DocumentID=1736

First Edition: Treasure Island Design for Development: Design Principles, July 2005, Treasure Island Development Authority.

Lt. Comdr. E.A. McDevitt, USNR. The Naval History of Treasure Island. 1946. Treasure Island, CA.

Mare Island Naval Shipyard. Base Realignment and Closure Environmental Technical Division. Historical study of Yerba Buena Island, Treasure Island, and their buildings. Mare Island, CA. 1995.

North Carolina Department of Transportation (2005) "Bicycle Facilities Guide: Types of Bicycle Accommodations – Grade-separated Crossing". Raleigh, NC.

Shangaan Webservices Incorporated, All Rights Reserved (2007) "Whistler". http://www.britishcolumbia.com/regions/towns/?townID=3379. Accessed on February14, 2008.

Squamish, British Columbia. "The Squamish Downtown Waterfront Initiative (Draft) Concept Plan." University of British Columbia.

Treasure Island Community Development, LLC (May 2006). Treasure Island Transportation Plan, San Francisco, CA.

Treasure Island Community Development, LLC. Treasure Island Design Concepts and Strategies. September 2006.

Treasure Island Museum Association. http://www.treasureislandmuseum.org/. 2003. April 25, 2007. Photos: The Museum of the City of San Francisco - Gladys Cox Hansen. 1999.

Vauban district, Freiburg, Germany (2006) http://www.vauban.de/info/abstract5.html
Accessed website on February 12, 2008.

Vermont Agency of Transportation (2002) "Vermont Pedestrian and Bicycle Facility Planning and Design Manual. Prepared for the Vermont Agency of Transportation by the National Center for Bicycling and Walking.

World Health Organization. 1986. Ottawa Charter on Health Promotion. Geneva, Switzerland: World Health Organization. Available at:http://www.euro.who.int/AboutWHO/Policy/20010827_2

APPENDIX 1

HEALTHY DEVELOPMENT MEASUREMENT TOOL PRICING STRATEGIES

- On-street parking priced for a target utilization rate of 85%
- Variable rate parking pricing (e.g. it costs more per hour the longer you park)
- Coordinated off-street and on-street parking pricing (to increase utilization of off-street parking)
- Unbundled parking (charging for parking costs separate from residential/commercial property/rental costs, making parking costs transparent and optional instead of a hidden cost)
- Parking cash-out policies (allowing employees to choose between receiving subsidized parking or the equivalent amount of money that would be used for the parking space)

HEALTHY DEVELOPMENT MEASUREMENT TOOL TRANSPORTATION DEMAND PROGRAMS

- Carpool matching programs
- Car-Sharing services
- Dedicated employee or resident transportation coordinator
- Financial incentives for walkers and bicyclists
- Free transit passes
- Guaranteed ride home
- Preferential carpool/vanpool parking
- Provision of bus schedules, bike maps, other transportation alternatives
- Secure bike parking
- Showers/changing facilities for employees
- Shuttle service
- Telecommuting

HEALTHY DEVELOPMENT MEASUREMENT TOOL PRICING TRAFFIC CALMING INTERVENTIONS

- Bollards
- Channelization islands
- Chicanes
- Curb extensions, planters, or centerline traffic islands that narrow traffic lanes
- Horizontal shifts
- Median islands
- Mini-circles
- Pavement treatments

- Perceptual design features
- Reductions in the number and width of traffic lanes
- Roundabouts
- Rumble or warning strips
- Semi-diverters, partial closures
- Speed humps
- Street closures
- Street Trees
- Tighter corner radii
- Woonerfs

HEALTHY DEVELOPMENT MEASUREMENT TOOL PEDESTRIAN INTERVENTIONS

- Corner bulb-outs
- Median refuge islands
- Pedestrian scale design on building frontages
- Pedestrian scale lighting
- Pedestrian specific building entrances
- Public art in streetscape
- Public seating in streetscape
- Restaurants and retail - at least one per block
- Safe routes to schools or other key pedestrian destinations, including senior facilities, health care, grocery stores, and public transit stops/stations
- Street trees
- Signage for pedestrians, specific to the neighborhoodSidewalks free of impediments (so that people may walk safely)
- Sidewalks that are at least 5 feet wide and at least 8 feet wide when there is not a sidewalk buffer along arterial streets
- Sidewalks with a continuous curb with appropriately placed curb cuts for people with disabilities
- Signalized crosswalks (preferably with a countdown signal - especially when more than 2 lanes of traffic)
- Street segments with 4 or fewer driveway cuts

MODE	TRANSPORTATION GAP	POTENTIAL SOLUTION	ADDRESSED IN PLAN	TIDA Comments	BEST PRACTICES	CITY POLICY	PLANNING TIMEFRAME	PRIORITY	CITY DEPARTMENTS	Population Affected	Health Outcomes
			A = Adequately Addressed in Plan I = Insufficient Information in Plan N = Not addressed at all	NIP = Not in Project OS = Outside Scope TBA = To be Addressed TBC = To be considered D4D = Design for Development		TEP = Transit Effectiveness Project BS = Better Streets BP = SF Bicycle Plan	Early = pre - development Mid-term = during develoment Long-term = during or after development Continuous	H=High M=Medium L = Low	MO = Mayor's Office SFMTA SFDPH DPW FIRE CALTRANS ECT	R = Residents BC = Bicycle Commuters TC = Transit Commuters T = Tourist U = Recreational Users (Walker/Bikers) P= Pedestrians	PA = physical activity SC = social cohsion MH = mental health SI = safety and injury EA = equity and access AC= = Ambulatory Care Sensitive Conditions
Transit	Slow bus service connecting TI to downtown SF	Bus only lane on Bay Bridge	N	NIP; queue jumping proposed for on ramps		TEP	Long-term		CALTRANS	TC	MH, EA, AC
Transit	Difficult and time consuming to access retail needs and essential services for TI residents (all are off-island)	Bus stops in East Bay and downtown SF other than Transbay Terminal that are close to retail and essential services	I	Civic Center stop proposed; Mission Bay, CalTrain, others TBD		TEP	Early		SFCTA, SFMTA, AC TRANSIT	TC, R	MH, EA, AC, SC, PA
Transit		Time transfers for on-island, TI-Ebay-SF buses, and intra-Ebay and intra-SF buses	A			TEP	Mid-Term		SFMTA	TC	MH, EA
Transit		BART stop for TI (with new potential BART tube)	N	NIP			Long-term		BART	TC	MH, EA, AC, SI
Transit	Crowded buses restrict capacity for passengers, strollers, and personal items such as groceries	More frequent bus service	A	pg 45-47, 5 min headway to Transbay, 13 to Civic Center		TEP	Early		SFMTA	TC	MH, AC
Transit		Designated space for strollers, and personal effects	N	OS		TEP	Early		DPW	TC, R	MH, EA
Transit	Inadequate water transit connections to TI	Comprehensive, high quality, fast ferry service to SF Ferry Building	A	pg 41-43, 10 min headway		TEP	Mid-Term		WTA, SFMTA	TC, R	MH, SI, EA, AS
Transit		24 hour water taxi service	I	NIP, privately operated			*Mid-Term*		WTA	TC, R	MH, SI, EA, AS
Transit	Inferior conditions aboard buses	Improve ventilation, cleanliness, and enforce better passenger behavior	N	OS		TEP	Early		SFMTA	TC, R	MH, SC, EA
Transit	Unsatisfactory Transit stop conditions	Better shelters, increased cleanliness, and better lighting	I	TBA, high quality intermodal hub planned		TEP	Early		SFMTA, DPW, SFPUC	TC, R, P	MH, SC, EA, SI
Transit		Passenger information at stops (nextbus)	I	TBA, high quality intermodal hub planned		TEP	Early		SFMTA	TC	MH, EA
Transit		Logically placed close to pedestrian zones, residences, and services	I	Intermodal hub		TEP	Early			TC, R	
Transit	On-island transit shuttles	Bus lanes separate from traffic lanes	N	OS	Look at island neighborhoods - Center Island (Toronto), Catalina (CA), Mackinac (MI)	TEP	Early		SFMTA	TC	MH, EA, ACSC
Transit		Low-floor vehicles	N	TBD		TEP	Early		SFMTA	TC	SI, EA
Transit		Free bus service for on-island bus	A			TEP	Mid-Term		TITA	TC, R	EA
Transit		Alternative-fuel vehicles	A			TEP	Early		SFMTA, TITA	TC, R	EA, ACSC
Pedestrian	Lack of high-quality pedestrian thoroughfares	Build wide sidewalks	I	TBD in D4D	SF Better Streets Plan may assist in developing many aspects of the Pedestrian Environment	BS	Early		DPW	P, R	PA, AC
Pedestrian		Trees and plantings lining pedestrian thoroughfares and streets; consistent throughout island	I	TBD in D4D		BS	Early		DPW (Bureau of Urban Forestry)	P, R, T	SC, MH
Pedestrian		Incorporate local art and fountains into streetscape	I	TBD in D4D			Mid-Term		SF Planning, SF Arts Commision	P, R, T	SC, MH
Pedestrian		Place adequate number of benches in high-activity places	I	TBD in D4D		BS	Mid-Term		DPW	P, R, T	SC, SI
Pedestrian		Install decorative paving for an aesthetic environment	N	TBD in D4D		BS	Early		DPW, SF Arts Commission	P, R, T	SC, MH
Pedestrian		Maintain cleanliness with adequate trash receptacles	N	TBD in D4D		BS	Mid-Term		DPW	P, R, T	SC, MH
Pedestrian		Promote street vendors and other on-street activities	N	TBC			Long-term		SF Planning	P, R, T	SC
Pedestrian		Utilize street medians as active public space	N	TBC; safety/space concerns			Long-term		DPW	PP, R, T	SC
Pedestrian	Increase pedestrian safety	Install pedestrian-scaled lighting	I	TBD in D4D		BS	Early		SFPUC	P, R	SI
Pedestrian		Segregate pedestrian routes from vehicles, especially leading to central transportation hub, and in central hub	I	TBD in D4D		BS	Early		DPW	P	PA, SI, EA, AC
Pedestrian		Construct safe walkway between Treasure and Yerba Buena Islands	I	TBD in D4D		BS	Early		DPW	P	PA, SI, EA, AC
Pedestrian		Raised crosswalks to shorten crossing distance and slow down auto traffic	N			BS	Early		DPW	P	SI

MODE	TRANSPORTATION GAP	POTENTIAL SOLUTION	ADDRESSED IN PLAN	TIDA Comments	BEST PRACTICES	CITY POLICY	PLANNING TIMEFRAME	PRIORITY	CITY DEPARTMENTS	Population Affected	Health Outcomes
			A = Adequately Addressed in Plan I = Insufficient Information in Plan N = Not addressed at all	NIP = Not in Project OS = Outside Scope TBA = To be Addressed TBC = To be considered D4D = Design for Development		TEP = Transit Effectiveness Project BS = Better Streets BP = SF Bicycle Plan	Early = pre - development Mid-term = during develoment Long-term = during or after development Continuous	H=High M=Medium L = Low	MO = Mayor's Office SFMTA SFDPH DPW FIRE CALTRANS ECT	R = Residents BC = Bicycle Commuters TC = Transit Commuters T = Tourist U = Recreational Users (Walker/Bikers) P= Pedestrians	PA = physical activity SC = social cohsion MH = mental health SI = safety and injury EA = equity and access AC= = Ambulatory Care Sensitive Conditions
Pedestrian		Sidewalks on both sides of streets	I	TBD in D4D		BS	Early		SFMTA	P, R	SI, PA, EA, AC
Pedestrian		Limit curb cuts	N	TBD in D4D		BS	Early		DPW	P	SI
Pedestrian	Promote walking as a primary mode of transportation	Place schools next to pedestrian routes to encourage walking to school and to make it safer	I	addressed		BS	Early		SFMTA	P, R	SC, SI, EA, PA
Pedestrian		Small-scaled streets to promote walking	A	addressed		BS	Early		DPW	P	PA, SI, AC
Pedestrian		Place retail within walking distance to residences and on ground-floor	A	addressed			Early		SF Planning	P, R, T	SC, PA, AC
Pedestrian		Place building fronts close to streets to encourage walking	I	TBD in D4D		BS	Early		SF Planning	P, R, T	SC, PA, AC
Pedestrian		Pedestrian-only shortcuts in high-density areas	N	TBD in D4D		BS	Early		DPW	P	PA, SI, EA, AC
Pedestrian		Sidewalks that lead to transit stops	A			BS	Early		SFMTA/DPW	P, TC	PA, SI, EA, AC
Pedestrian		Accessible pedestrian environment - for disabled, children, etc.	I	TBD in D4D		BS	Early		DPW	P	SI, MH, EA
Pedestrian		Incorporate art, signage, and printed materials to educate residents and visitors of walking benefits and options around island	I	TBC		BS	Mid-Term		SF Planning	P, R, T, U	SC, MH, EA
Pedestrian		"Brand" island as a pedestrian and bicycle island	N	TBC		BS	Mid-Term. Long-term		SF Planning	P, R, T, BC, U	SC
Pedestrian	Promote walking as recreation	Self- and/or tour-guided historical/environmental/cultural walking tour, with informational kiosks and art	N	TBC		BS	Long-term		SF Planning	P, R, T,	PA, SC
Pedestrian		Place recreational walking paths leading to important destinations	I	TBA		BS	Early		DPW/SFRP	U	PA, SC, SI, EA, AC
Pedestrian		Pathways around island	A			BS	Early		DPW	R, U	PA, AC
Bicycle	Unsafe bicycle routes	Segregate bicycle routes from vehicles	I	TBA in D4D		BP	Early		SFMTA	BC, U	PA, SI, AC
Bicycle		Wide bike boulevards	I			BP	Early		SFMTA	P	PA, SI, AC
Bicycle		Utilize the idea of a "Woonerf" - no curb street where bikes, cars, and pedestrians share and navigate space	N	TBA in D4D		BP, BS	Early		SFMTA	P, R	SC, MH, SI, AC
Bicycle		Striped bicycle lanes	I	TBA in D4D		BP	Early		SFMTA	BC, U	PA, SI, AC
Bicycle		Physically separated bicycle lanes (with rumble strips, or barrier from vehicles)	N	TBA in D4D		BP	Early		SFMTA	BC, U	PA, SI, AC
Bicycle		Curbed bike lanes (between parked cars and sidewalk)	N	TBA in D4D	City of Montreal, New York City	BP	Early		SFMTA	BC, U	PA, SI, AC
Bicycle		Limit bike lane blockages from un/loading vehicles	N	TBA in D4D			Long-term		SFMTA	BC, U	PA, SI, AC
Bicycle		Different bike lanes for fast and slow bike traffic	N	TBA in D4D			Mid-Term		SFMTA	BC, U	PA, SI, AC
Bicycle	Promote bicycling as primary mode of transportation	Plan for continuous bike network from Transit Hub throughout island to residences and points of interest	I	TBA in D4D		BP	Early		SFMTA	BC, U	PA, SI, AC, EA
Bicycle		Bike Boxes and Bike signals at intersections with traffic signals	N	TBA in D4D	Vancouver	BP	Early		SFMTA	BC, U	SI
Bicycle		Institute Bike Sharing program (connected to East Bay and SF systems) at central transportation hub and possibly other on-island locations	I		Paris, Barcelona, New York (Governors Island)	BP	Mid-Term		SFMTA, DPW, SFPUC, SF Planning	BC, U, T	PA, SC, AC
Bicycle		Bike Station at central hub with secure indoor parking, and repair services	I				Early		SFMTA, DPW, SFPUC, SF Planning	BC, U, T, R	SC, MH
Bicycle		Bike repair kits, "how-to" classes, trailers at residential units	N				Early		MOED	BC, U, T, R	SC, MH
Bicycle		Extensive bicycle promotion and educational campaign for residents and visitors	I	TBC (soft infrastructure/community program)			Mid-Term. Long-term		SFMTA	BC, U, T, R	SC, MH
Bicycle		"Brand" island as a pedestrian and bicycle island	I	TBC		BP	Mid-Term		SF Planning	P, R, T, BC, U	SC

MODE	TRANSPORTATION GAP	POTENTIAL SOLUTION	ADDRESSED IN PLAN	TIDA Comments	BEST PRACTICES	CITY POLICY	PLANNING TIMEFRAME	PRIORITY	CITY DEPARTMENTS	Population Affected	Health Outcomes
			A = Adequately Addressed in Plan I = Insufficient Information in Plan N = Not addressed at all	NIP = Not in Project OS = Outside Scope TBA = To be Addressed TBC = To be considered D4D = Design for Development		TEP = Transit Effectiveness Project BS = Better Streets BP = SF Bicycle Plan	Early = pre - development Mid-term = during develoment Long-term = during or after development Continuous	H=High M=Medium L = Low	MO = Mayor's Office SFMTA SFDPH DPW FIRE CALTRANS ECT	R = Residents BC = Bicycle Commuters TC = Transit Commuters T = Tourist U = Recreational Users (Walker/Bikers) P= Pedestrians	PA = physical activity SC = social cohsion MH = mental health SI = safety and injury EA = equity and access AC= = Ambulatory Care Sensitive Conditions
Bicycle	Poor bicycle connections to East Bay and San Francisco	connect bike lanes to potential East Bay Ferry Dock	N	TBA in D4D		BP	Early		SFMTA	BC, T	EA
Bicycle		Increased bike capacity on buses	A			BP	Mid-Term		SFMTA	BC, T	EA, AC
Bicycle		Large bike capacity on ferries, protected from elements, and with space to stay next to one's bike	I	TBA		BP	Mid-Term		SFMTA, WTA	BC, T	
Bicycle		Bike Shuttle between East Bay and SF and TI	N	TBC	CalTrans Ebay-SF shuttle	BP	Mid-Term		SFMTA, CALTRANS	BC, T	EA
Bicycle		Safe, comfortable bike connections from TI to East Span Bike/Ped Path	I	TBA in D4D		BP	Early		CALTRANS	BC, T	EA, SI
Bicycle		Encourage West Span Maintanence, Bike, Pedestrian Path	N	NIP		BP	Early		CALTRANS	R, P, T, U	PA, EA, AC
Bicycle		Promote folding bikes to fit more bikes on transit	N	OS	CalTrain, Stanford		Mid-Term		SFMTA	BC	
Bicycle		Prohbit black-out times for bikes on transit	N	TBC w/MTA		BP	Mid-Term		SFMTA, AC TRANSIT, CALTRANS	BC	EA
Bicycle		Space aboard buses for bikes	N	TBC w/MTA		BP	Long-term		SFMTA	BC	EA
Bicycle	Lack of adequate bicycle parking facilities	Bike parking in front of all retail services and destinations	I	TBA in D4D		BP	Early		SF PLANNING	BC, U	PA, MH, AC
Bicycle		Indoor, protected bike parking at residences on ground floor	I	TBA in D4D		BP	Early		SF PLANNING	BC, R	PA, MH, AC
Bicycle		Incoporate art with bike parking to enhance streetscape	N	TBA in D4D		BP	Early		SF Planning/Arts Commission	BC, R	
Bicycle		Place bike parking on street to avoid sidewalk clutter	N	TBA in D4D	SF main Library	BP	Early		SFMTA/SF Planning	BC, R	
Bicycle		Shower facilities for TI employees	N	TBA in D4D		BP	Mid-Term		TITA	BC, P	PA, MH, AC
Land Use	Natural conditions make bicycling and walking difficult	Trees to protect from wind	A			BS	Early		DPW (Bureau of Urban Forestry)	R	
Land Use		Orient houses to maximize sun exposure and minimize negative wind effects	A				Early		TIDA, SF Planning	R	AC
Land Use	Built environment makes it difficult to bike or walk to reach essential services	Place essential services (child care, dry cleaning, etc) at central hub	I	addressed			Early, Mid-Term		TIDA, TICD, SF Planning	R, TC	MH, SC, EA
Land Use		Plan for a number of on-island services easily accessible by foot or bicycle (ex. - medical care, library, laundry, playground, etc.)	I	addressed			Mid-Term		TIDA, SF Planning	R	PA, SC, MH, AC
Land Use	Best natural views and settings obstructed by automobiles and difficult to access by foot or bike	Limit best vistas to bike and pedestrian access only	N	addressed			Early		TIDA, TICD, SF Planning, DPW	U, P, T	SC, MH
Land Use		Bay Trail around all of the island sompletely separated from motor traffic	N	TBA in D4D	Bay Trail Project		Early		DPW, SF RP	U, R, T	PA, MH, SI, AC
Land Use	Lack of mixed use setting with "complete neighborhoods and streets"	People-scaled public spaces	I	TBA in D4D		BS	Early		TIDA, TICD, SF Planning	R	SC
Land Use		Encorporate art into streetscape	I	TBA in D4D		BS	Mid-Term		SF Planning/Arts Commission	R, T	SC
Land Use		Encourage smaller dispersed markets and restrict "superstores"	I	addressed			Early		TIDA, SF Planning	R	SC
Land Use		Promote diverse neighborhoods with mixing of units by income, age, etc	I	TBA in D4D			Mid-Term		TIDA, SF Planning	R	SC, MH, EA
Land Use	Few enticements for visitors to come to Treasure Island	Encourage outdoor events, festivals, films, amphitheater	I	TBC (soft infrastructure/community program)			Mid-Term. Long-term		SF Planning, SF Entertainment Commision	R, T	SC
Land Use	Poor utilization of natural environment	Install vertical wind turbines	N	TBA in D4D			Early		SFPUC	R	AC
Land Use		Wetlands area with nature facility	A	addressed			Early		SFRP	R, T	AC
Land Use		Sports equipment rental facilities	N	TBD w/Sports oper.			Early, Mid-Term		SFRP	R, T, U	PA, AC
Land Use		Self sufficient initiatives - stormwater capture, blackwater composting, green roofs	I	TBA in D4D			Early, Mid-Term		SFPUC, DPW	R	AC
Land Use		small-scaled places within larger open spaces	N	TBA in D4D			Early		TIDA, SF Planning	R	
Land Use		Install physical activity stations around island	N	TBC in open space design phase			Early, Mid-Term		SFRP, TIDA	R, U	PA, AC

MODE	TRANSPORTATION GAP	POTENTIAL SOLUTION	ADDRESSED IN PLAN	TIDA Comments	BEST PRACTICES	CITY POLICY	PLANNING TIMEFRAME	PRIORITY	CITY DEPARTMENTS	Population Affected	Health Outcomes
			A = Adequately Addressed in Plan I = Insufficient Information in Plan N = Not addressed at all	NIP = Not in Project OS = Outside Scope TBA = To be Addressed TBC = To be considered D4D = Design for Development		TEP = Transit Effectiveness Project BS = Better Streets BP = SF Bicycle Plan	Early = pre - development Mid-term = during develoment Long-term = during or after development Continuous	H=High M=Medium L = Low	MO = Mayor's Office SFMTA SFDPH DPW FIRE CALTRANS ECT	R = Residents BC = Bicycle Commuters TC = Transit Commuters T = Tourist U = Recreational Users (Walker/Bikers) P= Pedestrians	PA = physical activity SC = social cohsion MH = mental health SI = safety and injury EA = equity and access AC= = Ambulatory Care Sensitive Conditions
Land Use	Lack of promotion of bicycling and walking built into environment	Initiate biking and walking for health program	I	TBC (soft infrastructure/community program)	Shape Up Campaign		Mid-Term. Long-term		SFDPH	R, U, T	PA, AC, MH
Land Use		Host athletic events (walks, marathons, bike rides/races)	I	TBC (soft infrastructure/community program)			Mid-Term. Long-term		TIDA, SF Planning	R, T	PA, SC, AC
Reduce Automobile Use	Lack of incentive to reduce automobile use	Congestion Pricing	A	Details to be negotiatied			Early		SFCTA, TIDA, TITA	R,T,BC, P, TC	AC, SI
Reduce Automobile Use		Car-share facilities	I	TBA w/carshare operator; parking TBC			Early		TITA	R	EA
Reduce Automobile Use		charging stations for plug-in hybrid vehicles	N	TBA in D4D			Early		TITA	R	AC
Reduce Automobile Use		Incentives and priorities for car-pooling	I	queue jumping TBC			Early		TITA	R	AC, SC
Reduce Automobile Use		Real-time carpool management	N	TBC (TMD coordinator)			Early		TITA	R	MH
Reduce Automobile Use		Economic incentives for not owning a car	I	Unbundled parking saves $			Early		TITA, TIDA	R	PA, SI, EA, AC
Reduce Automobile Use		Charge a toll to access island by car	A	congestion pricing at peak hours only			Early		TITA	TC, R, BC, P, U	AC
Reduce Automobile Use		Coordinate transportation on island, understanding demands to plan accordingly for alternative travel options	A	Robust TDM			Mid-Term. Long-term		TITA	TC	
Reduce Automobile Use		Initiate program to inform people before they reach the island of alternative travel options, especially to those staying in hotels	I	OS			Mid-Term. Long-term		TITA	R	
Reduce Automobile Use	Built environment encourages automobile use	Design streets to make driving feel out of place; mix with pedestrians and bicycles	I	TBA in D4D		BS	Early		DPW, TIDA, SF Planning	R, BC, T, U, P	
Reduce Automobile Use		Restrict high-speed auto thoroughfares	I	TBA in D4D		BS	Early		DPW, TIDA	TC, R, BC, P, U	SI, AC
Reduce Automobile Use		Traffic from Bay Bridge should be restricted around Buidling One, and people encouraged to park there	I	TBA in D4D		BS	Mid-Term. Long-term		CALTRANS, DPW, TIDA	R	SI, AC
Reduce Automobile Use	Automobile traffic travels at fast, unsafe speeds	Install speed humps	I	TBA in D4D		BS	Early		DPW	P	SI
Reduce Automobile Use		Design narrow streets	A	TBA in D4D		BS	Early		DPW, SFMTA	P	SI
Reduce Automobile Use		Utilize bulb-outs	A	TBA in D4D		BS	Early		DPW	P	SI
Reduce Automobile Use		Institute a maximum 25 mph speed limit, with most streets at 20 mph.	I	TBA in D4D			Early		SFMTA, DPW	P, BC, U	SI, AC
Reduce Automobile Use		Utilize round-a-abouts	I	TBA in D4D		BS	Early		DPW	P	SI
Reduce Automobile Use		No four-way streets (two travel lanes in each direction)	N	TBA in D4D		BS	Early		DPW, SFMTA	P	SI
Reduce Automobile Use		Prohibit right turns on red light	N	TBA in D4D			Early, Mid-Term		DPW, SFMTA	P, BC	SI
Reduce Automobile Use		Promote use of bollards (remote activated, moveable) to limit auto access on certain streets. May convert auto streets to public spaces at certain times	N	TBA in D4D		BS	Early, Mid-Term		DPW	P	SI
Reduce Automobile Use	Increased amounts of parking promotes automobile use	Parking should be unbundled from housing and hotel units	A	unbundled physically and economically			Early		TIDA, SF Planning	P, BC	EA, AC
Reduce Automobile Use		Less than 1:1 parking ratio to residential units	I				Early		TIDA, SF Planning	R, BC,TC, T,P	SI, AC
Reduce Automobile Use		Enforce time-sensitive parking for quick automobile trips	I	TBA in D4D			Early, Mid-Term		TIDA, SF Planning	R, BC,TC, T,P	
Reduce Automobile Use		Place parking structures underground or otherwise out of sight	I	TBA in D4D			Early		TIDA, SF Planning	R, BC,TC, T,P	
Reduce Automobile Use		Make parking cheaper at transportation hub than elsewhere on island	I				Early		TIDA, SF Planning	R, BC,TC, T,P	

MODE	TRANSPORTATION GAP	POTENTIAL SOLUTION	ADDRESSED IN PLAN	TIDA Comments	BEST PRACTICES	CITY POLICY	PLANNING TIMEFRAME	PRIORITY	CITY DEPARTMENTS	Population Affected	Health Outcomes
			A = Adequately Addressed in Plan I = Insufficient Information in Plan N = Not addressed at all	NIP = Not in Project OS = Outside Scope TBA = To be Addressed TBC = To be considered D4D = Design for Development		TEP = Transit Effectiveness Project BS = Better Streets BP = SF Bicycle Plan	Early = pre - development Mid-term = during develoment Long-term = during or after development Continuous	H=High M=Medium L = Low	MO = Mayor's Office SFMTA SFDPH DPW FIRE CALTRANS ECT	R = Residents BC = Bicycle Commuters TC = Transit Commuters T = Tourist U = Recreational Users (Walker/Bikers) P= Pedestrians	PA = physical activity SC = social cohsion MH = mental health SI = safety and injury EA = equity and access AC= = Ambulatory Care Sensitive Conditions
Reduce Automobile Use		Make parking costly	I				Early		TIDA, SF Planning	R, BC,TC, T,P	SI, AC
Reduce Automobile Use		Sign on Bay Bridge indicating status of parking levels on Treasure Island.	N				Mid-Term. Long-term		CALTRANS	R, BC,TC, T,P	
Reduce Automobile Use		Transfer parking revenues into bike and pedestrian programs	I	revenues will fund all transit programs, details TBD			Mid-Term. Long-term		TITA	R, BC,TC, T,P	EA