Chapter 5: Planning and Expansion

Muni's current service design and basic route structure has been in place since the early 1980s. While Muni's current service covers the city well, there is room for improvement of the system. Corridor planning, investments in technology, and coordination with other modes and projects in the City are key efforts that Muni is undertaking to improve service to riders. Muni is also undertaking a systematic and in-depth review of the entire system through the Transit Effectiveness Project, the first in 25 years. This chapter describes these efforts in system improvement.

San Francisco's Transit First Policy is the basis for Muni's planning for major corridors. In 1974, the City's Board of Supervisors adopted this Transit First policy, which was reiterated by Proposition E in 1999. The policy prioritizes transit improvements, such as designated transit lanes and streets and improved signalization, to expedite the movement of public transit vehicles, along with other alternatives to the private auto, such as walking and bicycling. Furthermore, the policy states that new transportation investment should be allocated to meet the demand for public transit generated by new public and private commercial and residential developments.

Transit Effectiveness Project

The Transit Effectiveness Project (TEP) is a partnership between the Municipal Transportation Agency (SFMTA) and San Francisco Controller's Office to increase the effectiveness of the Muni transit system. Transportation Management and Design (TMD) is the primary consultant for this project. The TEP is funded in part by SFMTA and in part through Proposition C, which provides support for consultant and Controller's Office assistance in improving the efficiency and effectiveness of City & County operations.

TEP Background

The TEP offers a unique opportunity to examine Muni's transit system to determine how well it works for riders today, how we can increase ridership, and how to use limited resources more efficiently. It is expected to lead to fundamental change in Muni service and operations. Its focus is from the passenger's perspective: how to retain and recruit satisfied passengers.

Our transit network was last updated in the late 1970s and early 1980s. Since then, many factors affecting local travel have changed such as extensive development south of Market Street and double the number of San Franciscan residents who commute to jobs outside the City.

While the route network has served us well over the years, these changing travel patterns, increasing costs, operational and physical constraints and other challenges highlight the need for system-wide improvements. The TEP will help us identify short and long-range ways to enhance our system, increase ridership, and lower costs.

TEP Objectives

The TEP objectives are to:

- improve overall performance and promote long-term financial stability of SFMTA;
- provide faster, more convenient travel that reflects current travel patterns;
- develop more cost-effective operating practices; and

- develop an action plan that clearly articulates goals, strategies and resources, and provides a 5-7-year road map for the SFMTA.

TEP Scope of Work

The TEP includes three key phases of work:

1. Analysis of Transit Ridership Potential (conclusion: summer 2007);
2. Development of Policy Framework and Service Planning Recommendations (including early action proposals, conclusion: fall 2007); and
3. Financial and Operations Plan (winter 2007-08).

The first phase is of work is to analyze the transit ridership potential. This phase began in summer 2006 and is being concluded in summer 2007. In this phase, a number of sources are examined to learn about the market in San Francisco. Computer travel models were used to help understand San Francisco land use and demographics, and local and regional travel patterns. Data from previously conducted on-board surveys provided information about the travel patterns of existing riders. Lastly, a new telephone survey of San Francisco residents determined the altitudinal factors driving travel choices.

In the current second phase, service planning recommendations are being developed, some for Early Action projects to be implemented in the short-term, and other longer term service plan concepts. One of the first Early Action projects was to install Automatic Passenger Counters on 10% of the bus fleet to provide rich data about travel time, passenger miles by route, and on/off volumes for each stop and cumulative load. This data, combined with analysis of service coverage (e.g. network gaps) and the ease of transfers, will drive the creation of service plan concepts such as route adjustments or bus stop relocations/removals.

In the last phase, an operations/financial plan will be created to provide a 5-7 year roadmap for implementation. This will use a sophisticated operating cost model that can differentiate among the costs of operating alternatives (e.g., trolley bus vs. motor coach, or different uses of vehicle storage/maintenance facilities). More detailed analysis of fare and funding options can also be undertaken. All necessary environmental assessment will follow this work.

Initial Findings

Early results show that Muni is strong in serving radial trips to/within the urban core, but most trips in San Francisco are not radial, and there is significant unmet demand for peripheral travel within and between outer districts. Better transit options are also needed for people traveling in the extended downtown area (including Chinatown and North Beach).

Almost half of all Muni riders don't own a car, compared to just over a quarter of all San Francisco households. While average income is somewhat lower among Muni riders than all San Francisco households, there is a broad range income levels among passengers.

A revealed preference telephone survey of approximately 600 San Francisco residents, including both Muni riders and non-Muni riders, found that reliability is the most important factor when San Franciscans make travel decisions, followed by travel time, then flexibility. Personal security, comfort and cost were found to be less important in travel decisions.

The first phase also included an operations review of scheduling, service delivery, division management, operator availability and workforce planning processes, benchmarking SFMTA

efficiency and effectiveness relative to peer agencies, and recommending changes to improve operations efficiency/effectiveness.

A TEP comparison of Muni to peer transit systems found that Muni's service is more extensive than other operators and is relatively lower cost per mile than its peers:

- Muni carries about 51% of Bay Area public transit passengers, with boarding's almost equal to the population of the city every day;
- Muni's density of service (transit hours per square mile) is the significantly higher than other peer transit agencies; and
- As a system, Muni's costs are lower than most peers (lower cost per passenger trip), with Muni's bus service providing the lowest cost per passenger trip compared to its peers.

Muni bus lines in 2004 carried 64 unlinked trips per vehicle revenue hour, with an operating cost of $1.75 per passenger trip and a farebox recovery ratio (fares as a proportion of operating costs) of 27%. The operating cost per passenger trip was lower than eight peer systems. The passenger trips per hour was greater than all but one of the eight peer systems.

Muni light rail lines in 2004 carried 77 passengers per vehicle revenue hour, with an operating cost of $2.34 per passenger trip and a farebox recovery ratio of 20%. The operating cost per passenger trip was about the middle of the range of three peer systems, while the passenger trips per hour was somewhat lower than average.

However, Muni's share of the overall commute mode has been gradually decreasing since the late 1970s. System productivity has fallen 19% since 1991 to roughly 65 passengers per service hour. This is related in part to declining speed, gradually dropping over the last 30 years, from over 9.0 mph to about 8.0 mph, a substantial percentage change, due primarily to congestion and lack of transit-only corridors.. Reliability has also largely hit a plateau below service standards, with 95.6% of scheduled service hours delivered in Winter Quarter 2008 (compared to the 98.5% goal) and on-time performance at 73.5% for Winter Quarter 2008 (compared to the 85% goal).

Reliability depends principally on management of staff, vehicle availability, and on-street operations. However, a portion of reliability is due to factors beyond Muni's control. These include the fact that Muni operates primarily on-street and is very sensitive to traffic congestion, as well as budget reductions in 2004 and 2005. Vehicle availability has been more successful recently than operator availability. Vehicle availability has been close to 100%, but operator availability has been about 90-95% of needed levels. Operator unscheduled absences have averaged 10-15% in recent years. While Muni provides extra board operators to cover for absences, overall operator staff levels are below the need. On-street operations are affected by double parking and traffic congestion, as well as "real time" adjustments to operations. Increased enforcement, dedicated transit lanes, transit signal priority, reduced bus stops and faster boarding (e.g., through proof-of-payment or level boarding) and other measures could improve on-street reliability.

Muni operating cost per revenue vehicle hour increased 12% in the 14 years between 1991 and 2005 to about $140 per hour. (The cost varies substantially by mode, from about $126 per service hour for trolley coach to $135 per hour for motor coach, $191 for light rail and $296 for cable car.) The cost per passenger trip has increased 30% since 1991 (to about $2.10 per passenger trip), the result of the combination of lower productivity and higher unit costs.

In looking at future changes, the TEP has found that about 12-29% more trips are expected in San Francisco over the next 25 years. With 17% of all trips made on Muni, this translates into the potential for a major expansion of ridership. However, commute travel by residents is increasingly destined outside of the city. Muni also faces challenges from increasingly congested streets and rising auto ownership.

Early Action Projects

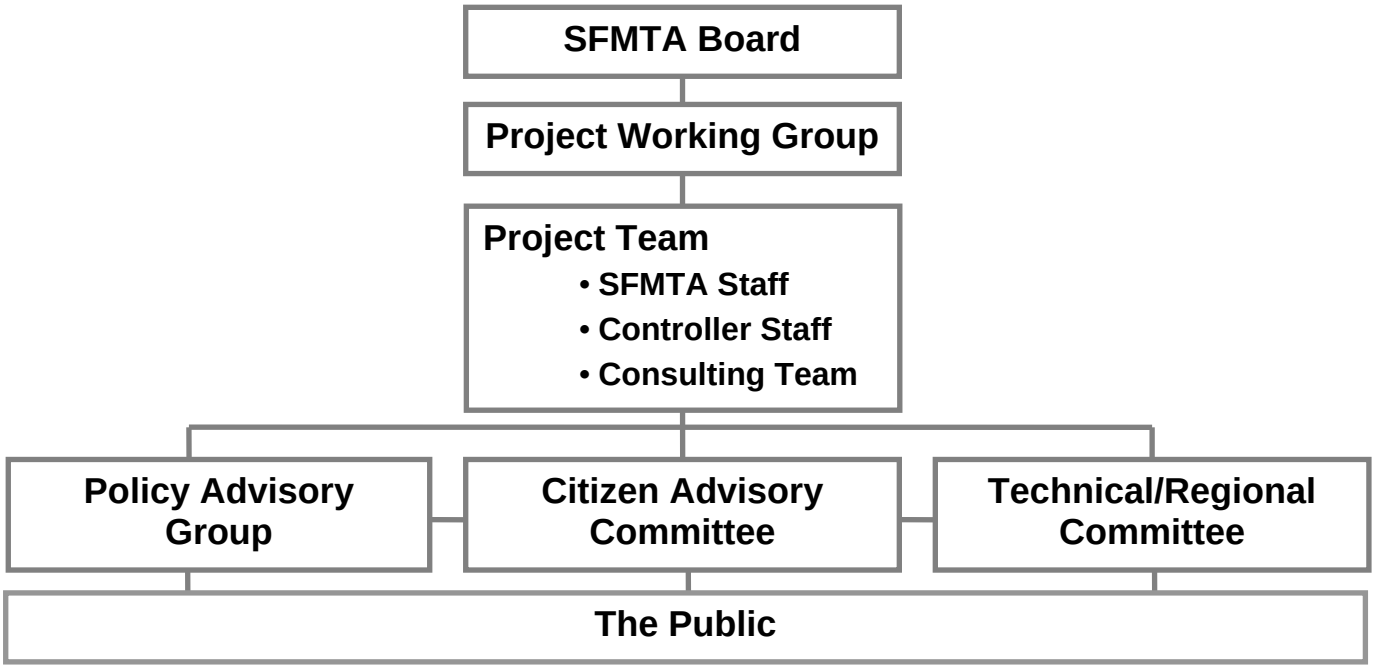
A number of other Early Action projects have already been completed or are underway. From November 2006 to February 2007, an On-time Performance Bus Case Study was conducted on the 1-California bus line. In this 90-day focused effort, there was 100% availability of operators and vehicles, increased street supervision, and strategic deployment of Parking Control Officers (PCOs), resulting in an increase in on-time performance from 81% to 88% on-time performance. An On-time Performance Rail Case study began in March 2007 and will continue for 6 months. This case study of the J-Church, the rail system's most-unreliable Metro line, includes many of the same elements of the bus case study, but each component is being implemented incrementally to quantify each one's impact. In addition, traffic signal changes were made to improve the transit signal priority, and other traffic engineering measures will be taken to prevent rail blockages by parked cars. The 29-Sunset is the focus of a Lifeline Project starting in spring 2007, which will revise the schedule to accurately reflect running time and use overtime to reduce the frequency of missed runs.

In Fall/Winter 2007, two additional Early Action projects will commence. A pilot study of multi-door boarding will be conducted to address slow transit travel time and concerns about rear door fare evasion on heavily-used SFMTA bus service. In this pilot, selected buses will become designed "Proof of Payment" (POP) lines, mimicking the proof of payment system already existing on Muni Metro surface rail services. Cash- paying customers would continue to use the front door and pay their fare as they do now, but pass holders and riders with transfers will have the ability to board through any of the doors, subject to presentation of their pass or transfer at times of random on-board fare inspections. This study will monitor the effect of POP on dwell times, crowding at the front of the bus, fare evasion, operator/passenger interaction and other factors. Also, Geary BRT Fast Track Projects will begin in fall 2007, which will include enhanced limited service with NextMuni passenger information at all Limited bus stops and improved Transit Signal Priority.

TEP Stakeholder Structure

The TEP will ultimately be approved by the SFMTA board. The Project Team is directed by the Project Working Group, which consists of the SFMTA Board chair, the SFMTA Executive Director/CEO, and the Controller. The project is managed on a day-to-day basis by the Project Team, which consists of staff from the SFMTA, Controller and Consulting Team. There are three advisory committees that will inform the process, the Policy Advisory Group, Citizen Advisory Committee, and the Technical/Regional Committee. Input from the various advisory groups Advisory Committee, will be considered at every step of the process, as well as public comment at milestone points.

Figure 5-1: TEP Stakeholder Structure



Financial Impacts and Implementation

The TEP is expected to lead to major changes in future SRTPs, as well as in service. Unfortunately, the timeframe of the TEP is not fully compatible with the SRTP schedule. Although the specific changes resulting from the TEP planning process are not itemized in this Short Range Transit Plan, it is the intention to implement these changes within the short-range planning period of this document. Following the TEP study period (which will end in December 2007), Muni will proceed with the processes necessary to make the recommended changes to our service standards and to the actual services. Key TEP findings will be presented in the FY 2009 Mini-SRTP Update.

A Vision for Rapid Transit

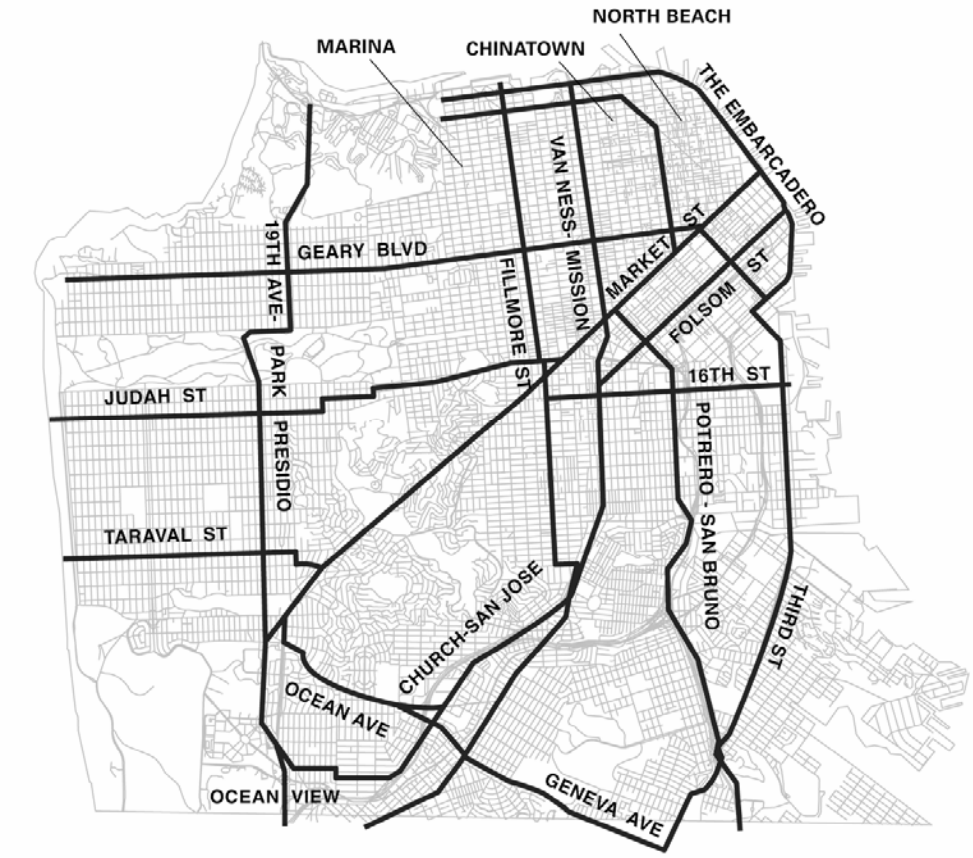
Muni published *A Vision for Rapid Transit in San Francisco* in February 2002. The purpose of the document was to propose a vision for moving people in San Francisco along major corridors in a rapid transit mode. Development of this document began as an effort to identify major capital improvements and funding mechanisms for Muni as a follow-up to Proposition E. The vision was developed in consultation with transit advocates, civic and business organizations, and the staffs of other City departments and other Bay Area transit agencies.

The Vision Plan lists 12 major transit corridors, shown in Figure 5-2, that have high volumes of riders, but suffer from chronic capacity and reliability problems. Corridors were also chosen based on anticipated growth and geographic coverage of the City. The aim is to make improvements in all of the corridors to bring each one up to a minimum level of speed and reliability. The underlying principles are as follows:

- Integrate local and regional transit into a seamless transit network.

- Physically separate transit service from automobile traffic on major corridors by creating exclusive rights-of-way (where feasible in view of trade-offs with traffic, parking, bicycles, pedestrians, and support for the economic vitality of the community).
- Provide high-capacity, rapid transit-style service in major corridors.
- Upgrade transit service in increments as ridership builds and as funding becomes available.

Figure 5-2: Vision Plan Corridors



Muni developed a "toolbox" of improvements that can be implemented with varying amounts of funding. The toolbox allows for a multi-phase approach. The tools range from relatively low-cost Transit Preferential Streets (TPS) improvements to more costly improvements such as light rail in a subway right of way, and include the options of converting from diesel bus to electric trolley bus service, and implementing Bus Rapid Transit service. TPS tools include transit signal priority, low floor buses, level boarding, proof of payment, and NextMuni.

Combined together, the principles, corridors, and toolbox outlined a blueprint for Muni's future. For instance, on Geary, the first phase could be Bus Rapid Transit (BRT) designed to be upgradeable to LRT in a second phase, given demand and funding. In other corridors where demand does not currently justify a large transit investment, TPS treatments could be appropriate for the first phase. When the low volume corridors are fully built out, BRT could then be implemented to provide a more appropriate level of service. Muni will work with SFCTA, DPT,

Planning, DPW, Redevelopment, and other city agencies to ensure that transit projects are part of a coordinated corridor-wide improvement effort.

The Vision will be modified through additional planning and public outreach efforts and should be considered a living plan. For example, priority rating of corridors may be adjusted. Individual projects still require much community work, technical analysis, and capital and operating funding before they can be implemented. Projects also depend on the feasibility of operation including service plans, vehicle availability, and storage and maintenance facilities.

SRTP Amendment

In February 2001, Bayview Advocates and other community groups filed suit against MTC, Muni, and AC Transit, alleging that the defendants violated the Clean Air Act by failing to comply with Transportation Control Measure 2 (TCM2) of the 1982 Bay Area Air Quality Plan. Muni and AC Transit settled with the plaintiffs. MTC eventually prevailed on its appeal of the lower court's decision. As part of its settlement with the plaintiffs, Muni analyzed 20 of the projects from the *Vision Plan* for potential ridership increases, capital and operating costs, implementation timelines, and demographic analyses. Muni produced an Amendment to the FY2002-2021 SRTP, which incorporated these projects into the SRTP and CIP. The SFMTA Board adopted the Amendment in December 2002. Detailed information about the BRT and TPS projects is below; information about the electrification program can be found in the Infrastructure Program, Chapter 8. The 20 projects were:

- Geary BRT
- Van Ness BRT (Van Ness-Mission)
- 19th Avenue BRT or TPS
- Stockton-Columbus TPS
- N-Judah TPS
- L-Taraval TPS
- M-Ocean View TPS
- Potrero-San Bruno TPS
- Fillmore-16th TPS
- K-Ingleside TPS
- J-Church TPS
- 19-Polk TPS
- Geneva TPS
- Market TPS
- Folsom TPS
- 47-Van Ness Electrification
- 9-San Bruno Electrification
- 19-Polk Electrification
- E-line Terminal

The projects are prioritized in the Capital Improvement Program according to Muni's established criteria and with consideration to potential ridership effects. Implementation of these projects is subject to Muni's funding priorities.

Of the projects analyzed, the route electrification projects and the MMX terminal improvement were already included in the CIP. The remaining projects were grouped into three Infrastructure programs: the BRT Program, the TPS Rapid Rail Program, and the TPS Motor Coach/Trolley Coach Program.

Bus Rapid Transit

Bus Rapid Transit (BRT) is a new mode of transit for San Francisco, developed to deliver rapid transit along major corridors using buses. It is a high-quality transit service that utilizes several design features which result in reduced travel time, increased reliability, and improved passenger comfort. BRT technology was pioneered in South America and has also been implemented in

Australia, Asia, and Europe. It is currently being deployed in many United States cities, including Los Angeles, Las Vegas, and Boston, because it is cost-effective and allows communities to experience the benefits of faster transit service relatively quickly.

BRT was a key element in the expenditure plan for Proposition K, the half-cent sales tax, for transportation improvements in San Francisco that was approved by San Francisco voters in 2003. Proposition K superseded Proposition B which had been approved in 1989. Proposition K identified the Geary, Van Ness, and Potrero Corridors for BRT treatments over the next 30 years. *A Vision for Rapid Transit in San Francisco (Vision Plan)*, completed by Muni in 2002, also highlighted Geary and Van Ness as the corridors highest in priority for BRT treatments. In addition the *Vision Plan* included Potrero Avenue and 19th Avenue as BRT Corridors, but 19th Avenue was not included in the Proposition K plans.

Two corridors identified for future BRT service, Van Ness and 19th Avenue, are state highways, and Caltrans is a partner with SFMTA in planning work for these corridors. Caltrans is part of the Van Ness technical advisory committee and has continuing input into the Van Ness BRT planning process. Caltrans will also be part of a 19th Avenue working group to plan corridor improvements, when this group is formed. Currently, SFMTA is working with Caltrans on signal improvements in the 19th Ave. Corridor.

Elements of a Bus Rapid Transit System

BRT encompasses a variety of features designed to reduce delays, improve reliability and improve

passenger comfort. Components of the BRT system and related benefits may include:

- **Exclusive Lane or Lanes, preferably fulltime,** to provide a BRT vehicle with its own travel lane free of conflicting traffic, double-parked or stopped vehicles, and other obstructions.
- **Modern, Low-Floor, High Capacity Buses** with wide doors and aisles allow for more convenient and faster passenger boarding/exiting, and provide passengers with a more comfortable and quieter ride. BRT is flexible enough to be implemented with existing buses, but it is a Muni goal to implement BRT service with new equipment so the benefits of BRT can be maximized from the outset of new service.
- **High Quality Bus Stops / Stations** for BRT range from protected shelters to large transit centers, and are designed to serve both as traveler amenities and as neighborhood enhancements. BRT bus stops / stations will consist of high-quality shelters that include improved signage and maps, abundant lighting, and real-time information to enhance comfort for waiting passengers, and to strengthen neighborhood identity. They may include bus bulb-outs (sidewalk extensions) to improve boarding and provide space for amenities.
- **Stop/Station Spacing Greater than Local Service** to allow for maximum speed and efficiency so that BRT service can save additional time for all users. Stop/station spacing may be double the local stop spacing
- **Pre-paid Fare Collection**, making it faster and more convenient to pay fares, often paying before boarding the vehicle. The system might include ticket vending machines at certain stops / stations so that passengers can purchase tickets before

boarding. Regular riders will be expected to heavily utilize prepaid TransLink cards or monthly passes that allow multi-door boarding. Once on the bus, the TransLink card, single-ride ticket or monthly pass serves as proof of payment (POP) when requested by inspectors.

- **Advanced Transit and Traffic Management Systems** provide an array of state-of-the-art technologies to enhance the traveler's experience riding BRT and to improve overall traffic flow.

  Advanced technologies being considered include: **signal priority** for buses at traffic signals to allow buses to spend less time stopped at red lights, enabling faster trips and more reliable overall service; and **real-time information** that tells riders when the next bus is coming, allowing users more control over their time.

- **Pedestrian Safety/Accessibility and Streetscape Improvements and Amenities,** such as landscaping, countdown signals, bicycle racks, curb bulb-outs, and well-designed crosswalks, enhance the adjacent neighborhoods to make the street safer and more comfortable for pedestrians and bicyclists accessing the bus stops, residents, shoppers and other users. These improvements give the street a cohesive sense of identity.

- **Frequent All-Day Service** is an integral element of BRT. Preferred service levels are a service span of 16 hours or more, and a schedule of at least four buses per hour (15 minute frequency), or more.

Van Ness Bus Rapid Transit (BRT)

Van Ness Avenue is a major priority corridor for Muni. Van Ness Avenue is a designated state highway (U.S. 101). Although the street appears to be relatively automobile-oriented, the adjacent blocks have up to 100 housing units per net acre, among the highest residential densities in the U.S. Van Ness Avenue is a major north-south transportation spine, as well as a destination that includes many commercial, government, cultural and entertainment uses. Muni carries approximately 42,000 daily passengers on the two main bus lines that operate on Van Ness between Mission Street and North Point Street. (Lines 47 and 49). Both of these routes have route segments that extend beyond Mission and North Point. Golden Gate Transit also runs several lines on Van Ness.

Currently, Muni service is frequently delayed on this street due to heavy overall traffic volume and due to other vehicles parking in bus zones, making it an appropriate location for a BRT project. Van Ness is one of the corridors identified in SFCTA's Four Corridors Plan for primary investment in rapid transit solutions and funding was committed in Proposition K for BRT implementation.

Van Ness Bus Rapid Transit (BRT) – Van Ness Corridor BRT Feasibility Study (2002-2006)

In 2003 Muni and the SFCTA received a Caltrans Community Planning Grant to study BRT on Van Ness Avenue. The study scope included evaluation of existing conditions on Van Ness Avenue and development of alternatives. Alternatives were selected that promoted transit ridership and mode share growth efficient, effective, and equitable transit service; improved pedestrian conditions; and BRT system development in San Francisco. Key project benefits

identified included improved travel times, reliability, passenger comfort, and safety. Public involvement was solicited throughout the process to ensure that the preferred alternative reflects the priorities of the community.

The Van Ness Corridor BRT Feasibility Study was completed in December 2006. Study findings indicated that mixed traffic congestion increases the travel times and delays for transit throughout the day, not just in the PM peak, and primarily in the southern portion of the corridor between Mission and California Streets. The findings pointed to the need to separate transit from auto traffic to reduce travel time and increase reliability through measures such as level boarding; proof of payment/multi-door boarding;; and reducing the number of stops. They also pointed to the need for improvement in on-time pullouts at the start of the routes. Both the SFMTA Board and the SFCTA Board recommended proceeding with a full environmental review analysis of the preliminary alternatives identified in the Van Ness BRT Study.

Four preliminary alternatives, plus a no project alternative were identified in the Van Ness BRT Study. These are: Alternative 1: No Project, Alternative 2: Side BRT (Curb-Lane BRT), Alternative 3: Center BRT (Side Platforms with Two Medians), Alternative 4: Center BRT (Side Platforms with One Median), and Alternative 5: Center BRT (Center Platform with Center Median). The Van Ness BRT Study estimated a preliminary cost of implementation to range from $60-$70 million dollars for Alternatives 2, 3, 4, or 5, and significantly less for Alternative 1 (No Project). A brief summary of the preliminary alternatives that were considered in the Van Ness BRT Study is below.

Alternative 1: No-Project would reflect conditions in 2010 with no BRT improvements. Upgrades to Van Ness Avenue, including pavement resurfacing, some landscaping, replacement of street lights and of Muni overhead support poles, replacement of some traffic signals, and the installation of real-time traffic management system (SFGo) to better coordinate traffic on major arterials in the city.

Alternative 2: Side BRT (Curb-Lane BRT) converts the outside traffic lanes (one in each direction) to dedicated bus lanes alongside existing parallel parking. Mixed traffic may enter the bus only lane to park to the right of the bus lane or make right turns to the right of the bus lane. Transit stops stations to serve Muni passengers are located on sidewalk bus bulbs. Four traffic lanes (two in each direction) remain for mixed traffic. Left turns off Van Ness would continue to be allowed at the same location as today.

Alternative 3: Center BRT (Side Platforms with Two Medians) converts the existing median and two inside traffic lanes (one in each direction) to dedicated bus lanes – separated from traffic by two 8 foot landscaped medians. Transit station platforms would be located on the medians to the right side of the bus lanes. Four traffic lanes (two in each direction) remain for mixed traffic. Left turns off Van Ness would continue to be allowed, but in fewer locations than today. Recent median landscaping changes on Van Ness near City Hall would need to be modified for the Center BRT options.

Alternative 4: Center BRT (Side Platforms with One Median) converts the inside traffic lanes (one in each direction) to dedicated bus lanes. One large median (14 feet in width) would be present along much of the right of way, but this median would be reconfigured at station platforms. Transit station platforms are located to the right side of the bus lanes. Traffic lanes (two in each direction) remain for mixed traffic. Left turns off Van Ness would continue to be allowed, but in fewer locations than today.

Alternative 5: Center BRT (Center Platform with Center Median) converts the inside traffic lanes (one in each direction) to dedicated bus lanes. Transit station platforms for both directions are located on a shared median. This alternative requires the purchase of buses with doors that open to both right and left sides. Left turns off Van Ness would continue to be allowed, but in fewer locations than today.

In all alternatives, two lanes of traffic in each direction are maintained at all times, and parking loss is minimized. Pedestrian improvements such as extended and enlarged median refuges, corner bulbs, and countdown signals, will be a part of any Van Ness project.

In parallel to the Van Ness Corridor BRT Study, the Octavia Boulevard project opened in summer 2005. The Planning Department is also finalizing the Better Neighborhoods Study for the Market/Octavia area. The Department of Public Works is improving the landscaping along the center median of Van Ness Avenue, and there are plans to resurface the southern part of Van Ness Avenue in FY2009. The Van Ness Corridor BRT study will coordinate extensively with these concurrent efforts, and with other planning activities in the corridor.

The environmental analysis stage of the Van Ness BRT project was initiated in spring 2007. A Draft Environmental Impact Statement (DEIS), as required by NEPA, and an Environmental Impact Report (DEIR), as required by CEQA, are scheduled to be completed in 2008. Preliminary engineering is expected to follow the environmental work, and construction of the BRT infrastructure is tentatively scheduled for FY 2009/2010. The timing for construction is expected to align with available funding sources: Federal Transit Administration (FTA) Small Starts funding, Proposition K funding, Federal Highway Administration (FHWA) Urban Partnerships Program funding, and other sources such as developer fees and public private partnership funds. Van Ness BRT service is tentatively projected to begin in FY 2010/2011.

Geary Bus Rapid Transit (BRT)

Geary is one of Muni's highest-ridership corridors, serving major destinations and residential areas in Downtown**,** the Western Addition, Japantown/Fillmore, and the Richmond District. The corridor contains 17% of the City's population at a density of 41 persons per acre, so it is an appropriate corridor for a large transit investment. Geary is the highest priority corridor for transit improvements, after the completion of the Central Subway. The Geary BRT is intended to be upgradeable to LRT in a second phase, given demand and funding.

Geary Corridor System Planning Study (1995)

The Geary Corridor was identified for improvement in the 1989 Proposition B sale tax expenditure plan. In 1995, Muni conducted the Geary Corridor System Planning Study. The study started with 31 different options, evaluated seven of them, and narrowed the options to four alternatives:

- Transportation System Management;
- Subway/Surface Light Rail (with three routing options on the east end);
- Subway/Surface Electric Trolley Bus;
- All Surface Light Rail.

These alternatives were evaluated with respect to ridership, capital and operating costs, land use and economic impacts, and environmental impacts. This effort also studied the effect a BART

extension along a portion of the Geary Corridor would have on the Muni alternatives, and recommended that BART initiate a more definitive study. The 1995 study examined many issues for light rail on Geary, including options for locating a western terminal, technical issues at Fillmore Street, and subway construction impacts.

The study concluded that a median right-of-way for light rail was feasible with retention of on-street parking, and the community was generally supportive of the project. Muni was governed at the time by the Public Transportation Commission, which elected not to move forward on staff recommendation to perform a Major Investment study (MIS) and EIS/EIR until a viable financial plan could be developed. The PTC also elected not to select a preferred mode and alignment.

Geary Bus Rapid Transit (BRT) - Phase 1 Transit Improvement Project (2003-05)

Muni completed a short-term, low cost project on Geary and O'Farrell Streets between Van Ness Avenue and Market Street that was intended to serve as a first phase of Geary BRT in late 2005. The main project elements included a wider, more effective transit-only lane, bus bulbs at combined local/limited stops; consolidated stops; turn pockets for vehicles; more and better placed loading zones; and improved parking management and enforcement. One lane of traffic was removed on Geary and O'Farrell Streets between Polk and Mason, and some parking was removed to create the turn pockets. The project was designed to improve service along the most congested part of the corridor, and to improve the rider experience in terms of reliability, travel time, and passenger comfort, while preserving or enhancing business vitality and neighborhood livability. It was implemented in coordination with the repaving of Geary and O'Farrell Streets. The project also resulted in calmed traffic, an improved streetscape, and improved safety for all users of the street – pedestrians, transit riders, bicyclists, and motorists.

Geary Bus Rapid Transit (BRT) - Geary Corridor BRT Feasibility Study (2004-2007)

The Proposition K expenditure plan approved by San Francisco voters in 2003 included funding for planning and construction of BRT on the Geary Corridor. The Geary Corridor Bus Rapid Transit Feasibility Study was recently completed in spring of 2007. The Study was a joint effort between Muni and the San Francisco Transportation Authority (SFCTA), which was managed by SFCTA The goal of the Geary BRT Study, was to define the key features of BRT on Geary through in-depth technical analysis and an extensive community outreach process, and to determine the feasibility of BRT service on the Geary Corridor. The study team also included staff from the Department of Parking and Traffic (DPT), the Planning Department, the San Francisco Department of Public Works (DPW), and a consultant team to provide expertise on technical analysis, microsimulation modeling, public outreach, and urban design. SFCTA also convened a Geary Citizens Advisory Committee to serve as a critical liaison between the Study's technical team and local stakeholders.

This Geary BRT Study addressed three main questions:

- Are dedicated lanes separating buses from general traffic required on Geary?
- Should the dedicated lanes (if needed) be center or side lanes?
- What other transportation changes are desirable on Gary to support the BRT System (e.g. improved pedestrian crossings, better transit shelters, real time transit information).

The performance targets for the alternatives in the study were a 15-30% reduction in total travel time and 25-50% improvement in reliability. These targets are consistent with other BRT systems that have been implemented in the United States and Canada.

Five preliminary alternatives were identified in the Geary BRT Study. These are: Alternative 1: Basic Transit Priority, Alternative 2: Basic Plus Transit Priority, Alternative 3: Side BRT (Curb-Lane BRT), Alternative 4: Center BRT (Side Platforms with Two Medians), and Alternative 5: Center BRT (Center Platform with a Center Median). The Geary BRT Study estimated a preliminary cost of implementation to range from $172-$212 million dollars for Alternatives 3, 4, or 5, and significantly less for Alternative 1 (Basic Transit Priority) or Alternative 2 (Basic Plus Transit Priority). A brief summary of the preliminary alternatives that were considered in the Van Ness BRT Study is below.

Alternative 1: Basic Transit Priority is the baseline against which all other alternatives were evaluated. It describes conditions in 2015 with no BRT improvements. It retains service as-is, but would include improvements that are currently planned for the Geary Corridor (and much of the system) even if BRT is not built on Geary, including transit signal priority at many existing signals, low-floor buses, and some real-time information. Alternatives 2-5 incorporate all features in Alternative 1, and provide additional features to increase benefits or manage impacts.

Alternative 2: Basic Plus Transit Priority would include the "Basic Transit Priority" treatments described in Alternative 1, plus a dedicated transit lane in the peak direction during the peak period (eastbound 7am-9am and westbound 4pm-7pm) with increased enforcement of the bus lanes. It would include possible stop removal, bus management strategies, and enhanced on-street line management, longer bus stops where needed, and bus bulbs at the busiest stops.

Alternative 3: Side BRT (Curb-Lane BRT) would convert the existing outside traffic lane (one in each direction) into a dedicated transit lane. The dedicated BRT lanes would operate between the parking lane and the two remaining traffic lanes in each direction. Both Local and BRT vehicles would operate in the dedicated lane. Non-transit vehicles would be able to cross the bus lane to park or make right turns. BRT station platforms would be located on new bus bulb-outs created by extending the sidewalk into the parking lane. Local buses would continue to pull-in to the curb to serve Local stops, allowing BRT vehicles to pass Local buses at Local stops. Left turns off Geary would continue to be allowed, but in fewer locations than today.

Alternative 4: Center BRT (Side Platforms with Two Medians) would convert the center traffic lanes (one in each direction) and the existing median into dedicated transit lanes separated from traffic by two side islands. These islands would serve as BRT platforms at station locations, and landscaped medians along the entire corridor. This landscaped buffer would physically separate all bus and auto movements, minimizing bus and auto conflicts. Local buses could either operate in the center transit lane or at the curb. In the service plan where Local and BRT buses both operate in the center busway, BRT buses could pass Local buses at Local stations or stops by narrowing islands at these locations to provide a passing lane. Left turns off Geary would continue to be allowed, but in fewer locations than today.

Alternative 5: Center BRT (Center Platforms with Center Median) would also convert the center traffic lanes (one in each direction) to a dedicated transit lane, but buses would run on either side of a single, shared, wide center island. Like Alt. 3, this alternative would essentially preserve the existing landscaped median along the corridor. The island would serve as a transit platform at BRT station locations, and waiting passengers would be buffered from auto traffic by

transit lanes. The transit lanes would be physically separated from auto movements through a street treatment (e.g. raised curb) minimizing bus and auto conflicts. This alternative requires the purchase of new left/right door buses because the center station platform is located on the left side of the bus. An option for BRT buses to pass Local buses if both types of service operate in the center busway has yet to be developed as a sub-alternative for this alternative. Design of such an option could be explored in the environmental analysis stage of the project. Left turns off Geary would continue to be allowed, but in fewer locations than they are today.

In all alternatives, two lanes of traffic in each direction are maintained at all times, and parking loss is minimized. Pedestrian improvements such as extended and enlarged median refuges, corner bulbs, and countdown signals, will be a part of any Geary project. The Geary BRT Study reviewed preliminary options available for each of the BRT alternatives (3-5) to successfully navigate the Fillmore and Masonic underpasses, but no preferred concepts were settled upon. This means the issue will be further analyzed in the environmental analysis stage of the project.

The center busway BRT alternatives have initially been designed to light rail standards in terms of horizontal and vertical clearances, grades, minimum tangent sections, and turning radii. The Geary BRT Study also determined preliminary costs and feasibility of implementing a more extensive definition of "rail-ready". The goal was to see if overall construction impacts and costs could be minimized if more "rail-ready" features were implemented early on, so if resources become available and if SFMTA chose to convert Geary BRT to light rail, such a conversion would be easier and less expensive than if the BRT project was built with minimal "rail-ready" features. This more extensive definition included sub-surface electrical work, relocating utilities, and building longer platforms to accommodate light rail vehicles during the initial BRT construction. The BRT study calculated the magnitude level costs of separate incremental rail-ready elements.

The environmental analysis stage of the Geary BRT project is to be initiated in fall 2007. A Draft Environmental Impact Statement (EIS), as required by NEPA, and a Draft Environmental Impact Report (EIR), as required by CEQA, are scheduled to be completed in 2009. Assuming project approval, identification of adequate facilities, and funding for required vehicles and operations, preliminary engineering is expected to follow the environmental work, and construction of the BRT infrastructure is tentatively scheduled for FY 2010/2011. The timing for construction is expected to align with available funding sources: Federal Transit Administration (FTA) Small Starts funding, Proposition K funding, Federal Highway Administration (FHWA) Urban Partnerships Program funding, and other sources such as developer fees and public private partnership funds. Geary BRT service is tentatively projected to begin in FY 2011/12.

Conceptual Bus Rapid Transit Routes: 19th Avenue and Potrero Avenue

Several corridors were identified for improved and faster transit service within the document *A Vision for Rapid Transit in San Francisco* (2002). In addition to the Third Street –Chinatown corridor, which has become the T-Third Street LRT route and the Central Subway project, and the Van Ness Avenue and Geary Boulevard corridors, both of which have been tentatively identified as bus rapid transit projects, the document listed a total of nine other corridors should be considered for improved and faster transit service. Two of the nine corridors that are strong potential candidates for bus rapid transit improvements are 19th Avenue and Potrero Avenue.

The 19th Avenue Corridor lies in the western part of San Francisco between the Golden Gate Bridge in the north and the San Mateo County Line in the south. It is the route of State Highway 1, a six-lane arterial roadway with parallel parking and no left turns, along its entirety within San Francisco. The corridor passes through the neighborhoods of the Presidio (part of Golden Gate National Recreation Area (GGNRA), the Richmond District, the Sunset District, the Parkside District, Stonestown and the Ocean View District. The majority of the corridor is 19th Avenue, but in the northern end (Richmond District), the road transitions into Park Presidio and Doyle Drive.

The implementation of BRT service on this corridor will be a challenge due to the highest traffic volumes on any surface street in San Francisco on a roadway that largely transverses a highly residential area of single and multi-family dwellings with minimal street setbacks. Muni Lines #28-19th Avenue, 28L -19th Avenue Limited, 29-Sunset, and M-Ocean View LRT serve all or part of the corridor. Combined weekday ridership on Lines 28 and 28L, which operate as the trunk routes of the corridor, is nearly 15,000 passengers per day (including portions of the routes off 19th Avenue). Service on these routes, affected by traffic congestion, is in need of improvements to increase speed and reliability to better serve passengers.

The Potrero Avenue Corridor lies in the eastern part of San Francisco between Division Street in the north and Cesar Chavez Avenue in the south. The majority of the street is four lanes of through traffic with parallel parking and a large paved turn lane median area. The corridor runs along the eastern boundary of the Mission District adjacent to the US 101 freeway. San Francisco General Hospital is located in a large multi-block complex on the east side of Potrero Avenue between 20th and 23rd Streets.

The implementation of BRT service on this corridor could connect with the proposed Van Ness Avenue BRT, connect with improved service on Bayshore Boulevard to the south, or connect with a Muni route in the area south of Market Street. Much of Potrero Avenue in this segment is comprised of a mix of single and multi family dwellings and smaller commercial businesses. Muni Line 9-San Bruno serves this corridor, and also provides service on Bayshore Boulevard to the south as far as Silver Avenue, where it moves west to continue on San Bruno Avenue to a southern terminal in Visitacion Valley. North of Division Street the 9 proceeds via 11th Street to Market Street with a daytime terminal at Mission and Main Streets and evening terminal at Market Street and 2nd Street. Weekday ridership on this route averages about 16,000 passengers per day. Service on Potrero Avenue used to be operated by trolley coach Line 47 which extended north on Van Ness Avenue to a terminal at Northpoint Avenue. Prior to Line 47, service along the same route was provided by streetcar Line H, which ceased operations in 1950. BRT type improvements on Potrero Avenue would assist in improving reliability on Line 9 and would return Potrero Avenue to the status of a major transit thoroughfare in San Francisco.

Rail Transit Expansion

As a major rail transit operator, Muni is considering rail transit expansion in corridors where rail can provide better service to the riders, and where justified based on ridership levels, operating considerations, and land use. Muni has successfully expanded rail service incrementally in San Francisco over the last 25 years, beginning with the opening of the Muni Metro subway in February 1980. This was followed by the opening of the M-Line Extension to Balboa Park, the J-Line Extension to Balboa Park, the restoration of streetcar service on the surface of Market Street (F-Line), the Muni Metro South Embarcadero Extension to Caltrain, and the F-Line

Extension to Fisherman's Wharf. This trend continued with the opening of the new Muni Metro Third Street line in April 2007.

Over the years, Muni has worked with community and business groups to develop additional extensions. The one that has generated the most interest repeatedly has been the Geary Corridor. In 1989, the voters of San Francisco approved Proposition B, which included funding for a rail extension project, and authorized the funding to be spent in the four corridors listed in the ballot measure:

- Bayshore Corridor
- Geary Corridor
- North Beach Corridor
- Van Ness Corridor

Muni first began planning work on a rail extension in the Bayshore Corridor (partially completed as the Third Street LRT Project Phase 1 – Initial Operating Segment), and then performed a corridor study in the Geary Corridor. Funding constraints meant that only one corridor could proceed with the funds available in Proposition B, and Third Street was chosen as the first project to proceed. In order to establish a rational basis for linking the corridors, in 1995 SFCTA produced the *Four-Corridors Plan*, which defined linkages between the corridors and identified which projects should move forward first, given the limited funding available from Proposition B.

The 2002 *Vision Plan* recommended rail expansion for several corridors, either as an immediate first step or as an incremental second or third step following a first-phase BRT project. The corridors identified in the *Vision Plan* are shown in Figure 5-2, earlier in this chapter. Of the corridors identified in the *Vision Plan*, the corridor with the highest potential for future rail development after the Third Street LRT Project is completed is the Geary Corridor. This section briefly describes the status of development of rail expansion projects in each of the major corridors.

Third Street

The first phase of the Third Street LRT project has provided rail service through most of the Bayshore Corridor, and the second phase (Central Subway) will construct the remainder of the Bayshore Corridor and a portion of the North Beach Corridor. Although the planning issues for the first phase have been largely resolved, the Central Subway portion is in Preliminary Engineering (PE), and there are still planning issues to be resolved as this project moves forward through PE and into Detailed Design. A more complete description of this project is available in Chapter 3.

Geary

As outlined in the preceding section on BRT development in the Geary Corridor, this corridor has had a significant amount of work to develop rapid transit and rail expansion projects in the corridor. Geary was identified for improvement in the 1989 Proposition B sales tax expenditure plan, and in 1995, Muni conducted a system planning study on the Geary Corridor. The study started with 31 different options, evaluated seven of them, and narrowed to four final alternatives, of which two were rail:

- Transportation System Management
- Subway/Surface Light Rail (with three routing options on the east end)
- Subway/Surface Electric Trolley Bus
- All-Surface Light Rail

These alternatives were evaluated with respect to ridership, capital and operating costs, land use and economic impacts, and environmental impacts. This effort also studied the effect of building a BART extension on Geary, and recommended that BART initiate a more definitive study. The 1995 study examined many issues for light rail on Geary, including options for locating a western terminal, technical issues at Fillmore Street, and subway construction impacts.

The study concluded that a median right-of-way for light rail was feasible with retention of on-street parking, and the community was generally supportive of the project. Muni was governed at the time by the Public Transportation Commission, which elected not to move forward on staff's recommendation to a Major Investment Study (MIS) and EIS/EIR until a viable financial plan could be developed. The PTC also elected not to select a preferred mode and alignment.

Geary remains a corridor in which there is much community interest in pursuing a rail project. The focus of activity in the corridor is on the BRT project that is currently undergoing study (described above). Center-running BRT alternatives are designed to be upgradeable to light rail at some point in the future if the decision is made to build a rail project.

Chinatown/North Beach

The North Beach Corridor was one of the original corridors in Proposition B. This corridor would be a logical extension of the Central Subway in the future to serve the significant traffic generators in North Beach and the Fisherman's Wharf area, and there is community interest in such an extension. Muni's Vision Plan did consider a light rail extension from Chinatown to the Marina through North Beach as a possible future extension of the Central Subway.

Van Ness

The Van Ness Corridor was listed in Proposition B as a future rail extension, from 16th Street in the Mission District to Aquatic Park. As described above in the section on BRT projects, a BRT project on Van Ness is currently being studied through a multi-agency effort, and there is no current activity to look at a rail extension in this corridor. Muni's Vision Plan did consider light rail as a possible third phase of transit improvements in this corridor, following electrification of the 47-line and implementation of a BRT project.

Other Corridors

As possible rail projects further out in the future, Muni's Vision Plan did list several other corridors for consideration for future rail projects. These corridors would be lower priority than the corridors already outlined above. These additional corridors would be:

- Fillmore/16th Street
- Geneva/Ocean
- 19th Avenue/Park Presidio

Historic Streetcar Expansion

In addition to expansion of Muni Metro service, Muni is studying expansion of historic streetcar service in several areas.

E-line Start Up

As part of the F-Market extension to Fisherman's Wharf, connecting tracks were built on The Embarcadero between the F-Market tracks north of Mission Street and the Muni Metro Extension (MMX) tracks south of Folsom Street (to Fourth and King Streets). These tracks give Muni the ability to operate rail service along the entire waterfront, from Fisherman's Wharf to the Caltrain Terminal at Fourth and King Streets.

While full 20-hour-a-day service would require additional historic vehicles, operating and capital funding, a terminal configuration on the southern end, and additional maintenance facility capacity, it is possible to start a limited E-line service with existing double-ended vehicles and tracks. Pending operating funds, Muni's plan is to initiate basic 20-hour-a-day service in 2010, using existing double-ended vehicles, as well as double-ended vehicles that are planned to be rehabilitated by then. The non-profit Market Street Railway has also proposed extending future E-line service along the Third Street alignment to a terminal at Third Street & 18th Street, south of Mission Bay.

Historic Streetcar Extension to Fort Mason and the Presidio

As part of initial planning, an historic streetcar extension to Fort Mason/Presidio Feasibility Study, managed by the Presidio Trust with SFMTA/Muni participation, and funded through the National Park Service (NPS), was completed in December 2004. Two entities of the NPS, the Golden Gate National Recreation Area (GGNRA) and the San Francisco Maritime National Historic Park (SFMNHP), participated in this study. The study focused strictly on identifying potential historic streetcar extension alignments that are technically feasible from engineering and operational standpoints. These alignments were to be analyzed in detail, with full public participation and input, in future environmental studies. In December 2005, a Geotechnical/Structural/Seismic Study of the Fort Mason Tunnel, conducted by the NPS and funded by FHWA, determined that the tunnel could be rehabilitated and reopened for the historic streetcar extension to Fort Mason.

The NPS has identified some funds for the environmental study for the historic streetcar extension to Fort Mason. Currently, the NPS, SFMTA and FTA are cooperating in the preparation of an Environmental Impact Statement (EIS), funded by the NPS, for an historic streetcar extension from Fisherman's Wharf to Fort Mason Center. The EIS is currently planned for completion in late 2008 or early 2009. It is possible that a precursor to E-line operation could consist of the simple extension of F-line streetcars from their current terminal near Fisherman's Wharf to Fort Mason.

Figure 5-3: Map of E-line Alignment

A potential, subsequent extension would further extend historic streetcar service to The Presidio, possibly serving Crissy Field Environmental Center, the Letterman office complex, as well as the Presidio Main Post. This extension will need to be analyzed in detail, with full public participation and input, in a future environmental study. Either extension would require additional vehicles, expanded operations funding, and possibly new or expanded operation and maintenance facilities.

G-line to Golden Gate Park

In July 2000, the SFCTA published the G-line Feasibility Study. This study looked at the issues involved in implementing a new historic light rail line into Golden Gate Park via 9th Avenue, operating over portions of the N-Judah line and the F-Market line. Operation of this line would require acquisition or rehabilitation of additional vehicles and track construction.

Transit Preferential Streets

San Francisco's Transit Preferential Streets (TPS) program is designed to make streets more transit-friendly in a city that depends heavily on public transit. While San Francisco is a densely

developed city with high transit ridership, public transit operates mostly on the surface by streetcar, electric trolley coach, or motor coach. In effect, the streets function as the rapid transit arteries, carrying loads that would be carried on subways or on rail in exclusive rights-of-way in other cities. For example, Geary and Mission have surface bus lines that each carry over 50,000 riders per day, which is heavier ridership than on many systems' rail lines. (For example, the 38-Geary, including limited/express service, carries about 53,000 weekday riders, while Caltrain carries about 34,000 weekday riders and Santa Clara County's Vasona light rail extension between Campbell and Downtown San Jose carries only about 3,000 weekday riders.)

The TPS program was launched in the mid-1970s after the adoption of the Transit First policy. Initially, the TPS program was funded through a federal grant, and a number of projects were completed. The program was dormant through the mid-1980s until Proposition B set aside funding for TPS planning and implementation. One of the early efforts at this stage was to define the TPS network, those streets with the highest ridership, highest frequency of vehicles, rail or trolley infrastructure, and special locations with high transit-auto conflicts. In general, the TPS family of improvements includes signal priority, signal synchronization, semi-exclusive transit lanes, bus bulbs, bus stop consolidation and relocation, and boarding islands. To date, the TPS program has implemented many improvements:

- Semi exclusive transit lanes on 16 streets;
- Exclusive right of way for rail on the Embarcadero as well as parts of other Metro routes;
- Over 30 bus bulbs;
- 100 boarding islands;
- Queue jumps (signal "head starts" for buses);
- Signal priority at over 100 intersections, including new infrared transit signal priority on the Mission, Geary, and Potrero corridors.
- Traffic signal offsets have been synchronized for transit progression on streets such as Market, Stockton, Third, and The Embarcadero.
- New Third Street Light Rail line with exclusive right-of-way segments and "intelligent" signal priority through the City's Integrated Traffic Management System. (SFGo).

In addition, bus stop removal and relocations and replacement of STOP signs with traffic signals have contributed to faster service in some cases.

Recent Accomplishments

- The Geary/O'Farrell Phase 1 TPS Improvements package was implemented in 2005.
- Completed installation, testing, and activation of infrared-based Transit Signal Priority at 39 intersections on the Mission and Geary corridors and 11 along the Potrero corridor.
- Stockton-Fourth Street Transit Lane extended from Stockton & O'Farrell across Market Street to Fourth & Clementina, providing a continuous transit lane from the south end of the Stockton tunnel.
- Irving/Arguello corner bulb designed and constructed, improving safety for passengers using the Second Avenue N-Judah outbound LRV stop.

Figure 5-4: Existing Transit-only Lanes (part time or full time)

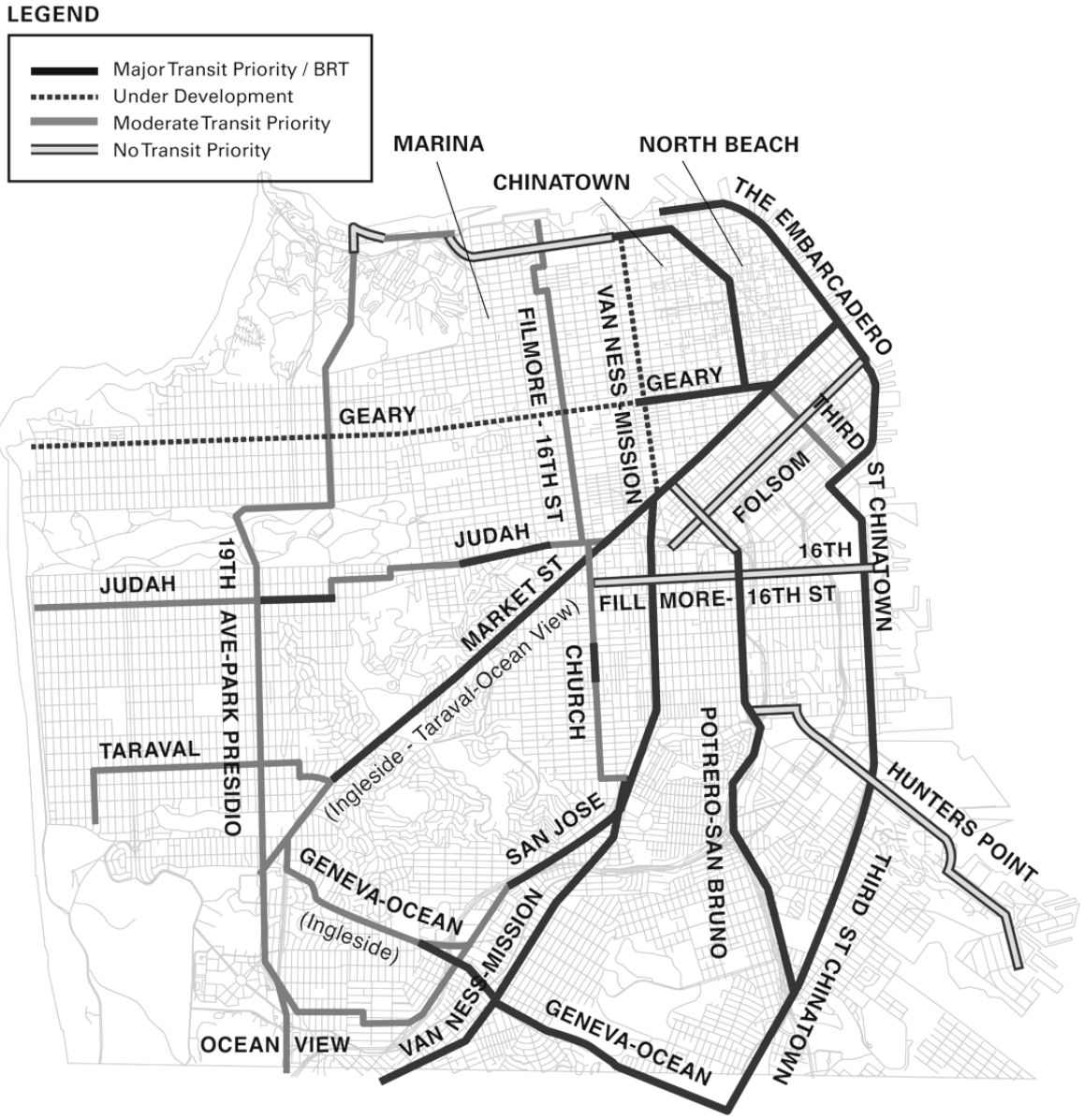
Five-Year Program

The Expenditure Plan for Prop K includes funding for both BRT and TPS projects. The current Five Year Program of Projects (through FY09) includes approximately $5 million for TPS corridor projects. These corridors have been included in the TPS program.

- Market Street: implementation;
- 19th Avenue: planning, implementation;
- Potrero Avenue: planning, signal work implementation;
- Outer Mission; and
- Geneva Avenue.

The program is subject to change, depending on support from the community and opportunities for coordination with other projects on other corridors.

Figure 5-5: Muni TPS 5-Year Program



Related Planning Inputs

A number of other efforts around the City affect and feed into Muni's service and capital planning. The following sections describe the major initiatives in which Muni is participating.

Market Street Study

The Market Street Study, led by SFCTA in partnership with Muni, DPT, and the Bicycle Coalition, along with a group of businesses, pedestrian advocates, and other agency staff and stakeholders, sought to develop a set of improvements that would benefit all users of San

Francisco's most important street. The purpose of the study was to address the following four goals while preserving Market Street's character and its preeminence as one of San Francisco's truly grand streets:

- decrease transit travel time and improve transit reliability;
- improve pedestrian circulation and safety;
- create a safer, more inviting bicycle route;
- accommodate necessary motor vehicle trips.

The intent of the Market Street Study was to identify cost-effective short-term improvement measures that meet the above goals. At the end of 2003, the Study produced a number of recommendations, some of which were deemed "early action," such as restriping the crosswalks, developing a new transit-only lane symbol, and striping bicycles lanes from Octavia to 8th Street. These measures have generally been implemented.

"Short term" improvements (1-2 years) that would benefit Muni included changing the signal timing, improving transit-only lane enforcement, and a proposal (never implemented) that would have required eastbound motorists to turn right at 8th Street during peak periods. The full Market Street Study is available on the TA website.

Better Streets Plan

The Better Streets Plan (BSP) is an interdepartmental policy plan that will guide how the City improves walking conditions on San Francisco's streets, resulting in enhanced pedestrian safety, accessibility, convenience, and attractiveness of our streets. Responding to the City's Transit First and related policies, it should promote streets that balance the needs of all street users, with a particular focus on walking and how streets can be used as public space. It will reflect the understanding that streets are about more than transportation, that they also serve a multitude of social, recreational, and ecological needs.

The BSP has fully integrated two planning processes: the Pedestrian Transportation Master Plan and the Streetscape Master Plan. It is also closely coordinated with the ADA Transition Plan for sidewalks and curb ramps. SFMTA is leading the transportation analysis, while the City Planning Department leads the analysis of urban design issues. Several other departments are involved as core team members in preparing the BSP.

The BSP will establish a unified set of standards and guidelines for the design and management of sidewalks and street crossings. These standards and guidelines will focus especially on topics such as landscaping, lighting, street furnishings, ecological functioning of streets, pedestrian safety features, and improvement for people with disabilities. It will be a tool to focus and attract funding for physical improvements, as well as for education/outreach and enforcement efforts. Transit stop/station access improvements will be prioritized. Muni service and access needs will be fully addressed.

After extensive community involvement, a public draft of the BSP is expected to be issued by late 2007. The level of environmental review is still being determined. Policies approved by the SFMTA Board, the Planning Commission, and the Board of Supervisors will be reflected in changes in the General Plan Transportation Element.

Bike Plan Update

By maintaining an approved bicycle plan, the City and County of San Francisco is eligible for selected State and regional funds to develop bikeways and related facilities. Additionally, San Francisco City Charter sections 16.102 and Section 8A.113 state that San Francisco should develop "a safe, interconnected bicycle circulation network." Travel "by bicycle and on foot must be an attractive alternative to travel by private automobile." The City Charter also states that "bicycling shall be promoted by encouraging safe streets for riding, convenient access to transit, bicycle lanes, and secure bicycle parking."

The San Francisco Draft Bicycle Plan consists of the "Policy Framework" document, "Network Improvement" document, and Implementation Phasing of specific improvements identified within the Plan. The first part of the Bike Plan, the "Policy Framework", is primarily a statement of goals, policies and action items. The second component of the Bicycle Plan, the "Network Improvement" document, contains detailed design and engineering studies and proposals for improvements on the Bicycle Network established by the Plan's Policy Framework Document. The current Draft Plan is actually an update of the 1997 San Francisco Bicycle Plan.

As the result of a recent legal ruling, however, the entire Plan is considered a draft until environmental review is completed and the Board of Supervisors formally adopts it, anticipated in 2009. Implementation of bicycle projects specified within the Plan also awaits formal adoption and also the Superior Count lifting an injunction. The following provides background on the legal situation:

In June 2005, the SFMTA Board adopted the San Francisco Bicycle Plan Policy Framework by itself. However, in November 2006, the California Superior Court issued a ruling in the lawsuit challenging the San Francisco Bicycle Plan's CEQA compliance. The court ruled in issuing its injunction staying bicycle projects that the analysis of the Bicycle Plan should have included review of the Policy Framework and the draft Network Improvement document as one document. Additionally, the California Superior Court ruled that the Policy Framework document may have environmental impacts and therefore should not have been exempted from CEQA.

In January 2007, the SFMTA Board of Directors directed staff to perform the necessary environmental review of the Bicycle Plan. The SFMTA is now satisfying the requirements of CEQA by obtaining the adequate environmental clearance for the San Francisco Bicycle Plan

More information can be found at http://www.sfmta.com/bikeplan.

Better Neighborhoods Planning

Muni participated actively in the City Planning Department's Better Neighborhoods planning process to formulate a vision for the future in Balboa Park, Market and Octavia, and the Central Waterfront. The three neighborhoods were chosen in part because of their good transit infrastructure. It was critical for Muni staff to work closely with the Planning Department to examine Muni's operations and facilities in the various neighborhoods, identify opportunities, and develop ideas for transit that improve operations and are compatible with the neighborhood plans.

Draft plans for each of these neighborhoods were released in 2002. A programmatic EIR has been prepared for the Market and Octavia plan; this effort encompasses the southernmost part of

the proposed Van Ness BRT project. Along with the Central Freeway demolition and recent opening of Octavia Boulevard, many elements of this plan are being realized.

Balboa Park: For Balboa Park, the City is currently preparing an EIR, which will cover the improvements at a program level. The EIR is expected to be certified in 2007 or 2008. Many of the individual projects in the station area will need subsequent environmental clearance.

SFMTA, in partnership with BART and Caltrans, is leading conceptual engineering and service planning work in 2007 for a wide variety of improvements in the station area as proposed in the Balboa Park Station Area Plan. The conceptual engineering should be completed within two years and will result in a conceptual cost estimate, phasing and funding plan for the station area improvements. There will be a focus on designing and implementing short-term improvements while the larger, more complex long-term improvements move through the programmatic EIR process. Muni service, operations, and facilities will be improved as part of the process, especially through three focused studies:.

- Service-planning study focusing on Muni bus and rail routes serving the station, examining possible reconfigurations of those routes and operational changes to facilitate the implementation of elements of the plan ;
- Operational and functional analysis of Muni maintenance and storage activities to facilitate a decision on the future use of the Upper Yard site, as informed by analyses already programmed of the Green and Geneva facilities and in relation to the operational and capacity benefits of Metro East light rail vehicle facility; and
- Site planning studies necessary to support an RFP or RFQ soliciting a developer for the Upper Yard site, assuming a decision is reached to allow development on the Upper Yard site.

Glen Park: SFMTA is also taking the lead on a Glen Park Station Area Plan effort, building on the *Draft Glen Park Community Plan.* SFMTA seeks to identify qualified environmental consultant firms to conduct an environmental impact statement and report (EIR/EIS) and select project engineering feasibility analyses and report for the Glen Park Community Plan Area.

This Station Area Plan is a joint effort of the San Francisco Planning Department, Major Environmental Analysis unit (MEA) and SFMTA Planning Division, Long Range Planning group. The San Francisco Public Utilities Commission (PUC) and the Bay Area Rapid Transit District (BART) will also be core team members.

The major transportation infrastructure changes from the *Draft Community Plan* to be considered involve fixing the three community-identified "problem intersections;" traffic calming and congestion management in coordination with SF and consultant-prepared traffic studies; and creating better transit connections. Transportation infrastructure changes include:

- A new bus loop around the BART station and an accompanying new north entrance enhancing access to Bosworth St. for pedestrians,
- Extension of the 35-Eureka Muni line to the BART station,
- Updating parking regulations around the neighborhood center to increase the availability of short-term parking for businesses; and.
- Relaxing the residential parking requirement for new construction.

A fully connected bicycle and pedestrian network is also proposed in the *Draft Community Plan*, as is the establishment of a greenway connection between "downtown" and Glen Canyon. Also proposed is extending the Muni 35-Eureka line to the BART station and a pedestrian bridge connecting the station to the existing Muni J stop. Longer term goals include turning San Jose Avenue back into an at-grade avenue, and with the seismic upgrade schedule, removing some overpasses while introducing signalized intersections.

There are two funding sources for this Project: a one-time grant from the City's General Fund and a Federal Transit Administration (FTA) Section 5309 Bus and Bus Facilities grant.

A Request for Proposals from consultants was released in August 2007. The Glen Park Station Area Plan and EIR/EIS are expected to be completed in late 2008 or early 2009.

Eastern Neighborhoods

Significant increases in density near the eastern waterfront are being proposed or studied by the San Francisco Planning Department and the Redevelopment Agency for the area between Rincon Hill and Visitacion Valley. For the Eastern Neighborhood districts (Mission, Showplace Square/Potrero Hill, Eastern SOMA, and Central Waterfront), planning options being considered could result in up to 20,000 new residents and up to 13,000 additional jobs. The SFMTA is working closely with other agencies to study the impacts of this type of growth, which would occur on top of Mission Bay development now underway. Significant public transit and transportation impacts are expected.

Transbay Terminal

A major capital project that will affect Muni service downtown is the new Transbay Transit Terminal, which will be rebuilt on its current location at First and Mission streets. The project includes a new five-level terminal building, new viaducts leading to the Bay Bridge, extension and terminal for Caltrain commuter rail service, and bus terminal and storage facilities. The 900,000 square foot facility is expected to serve 45 million passengers annually. The adjacent Transbay Redevelopment Area will include 3,400 units of new housing, 1.2 million square feet of new office space, a hotel, and retail locations when redevelopment is complete. The project, including the Caltrain extension, is estimated to cost up to $2.2 billion at full build-out.

The new Transbay Terminal will eventually serve Caltrain, AC Transit, Golden Gate Transit, SamTrans, Greyhound, Amtrak bus service, BART, high-speed rail, and Muni bus lines. The terminal will be built in two phases, Phase 1 will accommodate all the bus operations for the agencies listed above, and should be complete by 2014. Phase 2 will accommodate Caltrain commuter trains, as well as a possible inter-City high speed rail station, and has a target date of 2018 for completion. The project received a Record of Decision from FTA in February 2005, and preliminary engineering is underway.

Environmental Justice

"Environmental justice" analyses and programs try to ensure that the costs and benefits of government facilities and services, such as public transit service, are fairly shared among different ethnic, geographic, and socio-economic groups. The entire community should have a voice in deciding how facilities and services are provided. Environmental justice concerns also play a part in Muni's service planning. Muni staff was active in MTC's Environmental Justice

Advisory Group as part of the last RTP development process, and it has subsequently been active in the Welfare to Work Advisory Group.

Because Muni's service is so comprehensive, both across the City and at all hours, the Lifeline Network study found no gaps in Muni service, except in a few instances late at night.

Muni's 108-Treasure Island route was also identified as a lifeline service. Operation of this line has been partly funded with Low-Income Flexible Transportation (LIFT) funds for the past three years. This line carries over 2,000 people per weekday, and service was expanded to Saturdays and Sundays.

Regular outreach to the public, including community meetings and signage on vehicles, is conducted in Chinese and Spanish as well as in English. As needed, Muni provides outreach and materials in other languages.

Demographics and Projections

San Francisco is a 49-square mile city that is almost fully built out. San Francisco has one of the highest population densities of any major city in the United States (second only to New York City). According to the US Census Bureau, San Francisco's population in 2006 was estimated at 744,041. This is a decrease of 4.2% from the year 2000 when the city reached an official population count of 776,733 residents, the highest population since 1950. San Francisco's daytime population, including workers and visitors, swells to an estimated at 1.1 million people.

According to the 2000 Census, half of San Francisco's population (49.7%) is white, 7.8% are black, and 30.8% are Asian. Fourteen percent of the population is Hispanic or Latino. There were 346,527 housing units in 2000 of which 329,700, or 95.1%, were occupied. The average household size was 2.3 people. In 2004, San Francisco's median household income was estimated at $51,815.

The Association of Bay Area Governments (ABAG) forecasts that San Francisco's population is expected to grow by 19.5%, to 956,800 residents in the next 35 years. This is smaller growth than the 25.8% growth rate that ABAG projects for the nine-county Bay Area region as a whole during the same period. In 2000, the city had a total of 642,500 jobs, 17.1% of the region's total. The city is projected to have 832,860 jobs in 2035, a 24.3% increase. This is less than the overall 30.4% increase in jobs forecast for the entire Bay Area.

About 4.5 million person-trips are made daily to, from, and within San Francisco. Of these, 70% are completely within San Francisco, and 25-33% are work trips. Total travel is expected to grow 12-29% over the next 25 years, according to the San Francisco Countywide Transportation Plan, prepared by the County Transportation Authority.

Figure 5-6: San Francisco Job and Population Forecasts

	2000	2005	2010	2015	2020	2025	2030	2035
Total Jobs								
San Francisco	642,500	553,090	593,370	636,840	684,310	733,020	782,560	832,860
Change from 2000		-13.9%	-8.9%	-1.0%	6.6%	13.2%	19.1%	24.3%
SF Bay Region	3,753,460	3,449,640	3,693,920	3,979,200	4,280,700	4,595,170	4,921,680	5,247,780
Change from 2000		-8.1%	-1.7%	6.1%	13.2%	19.7%	25.4%	30.4%
Population								
San Francisco	776,733	795,800	808,700	823,800	857,200	888,400	922,600	956,800
Change from 2000		2.5%	4.0%	5.8%	9.8%	13.0%	16.4%	19.5%
SF Bay Region	6,783,762	7,096,100	7,412,500	7,773,000	8,069,700	8,389,600	8,712,800	9,031,500
Change from 2000		4.6%	8.9%	13.3%	16.5%	19.9%	23.0%	25.8%

Source: ABAG Projections 2007

Short-Term Service Planning Proposals

Line 44-O'Shaughnessy

Muni is planning to shift the southeastern route terminal from the U.S. Post Office on Evans Avenue to the intersection of Evans and Third Streets adjacent to Bayview Plaza Shopping Center. This will provide another connection with the Third Street Light Rail line.

Mission Bay

In approximately 2010, Muni will begin work on trolley coach extensions to accommodate new ridership in Mission Bay as employment and residential development increase in that area. The expected changes include:

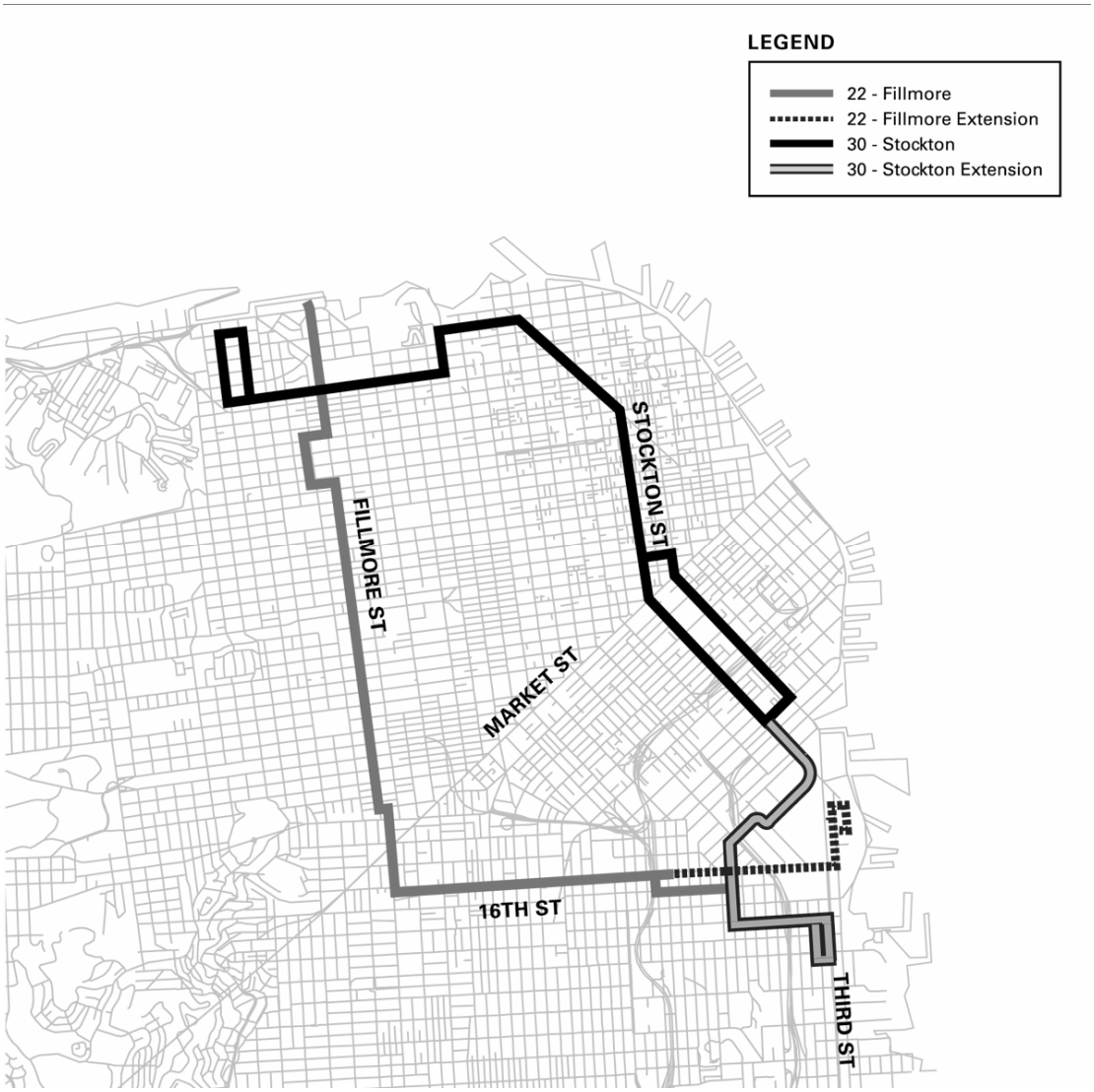
- Reroute Line 22-Fillmore onto 16th Street east of Kansas Street to a terminal on Third Street in Mission Bay. Since the 22-Fillmore currently serves the Potrero Hill and Dogpatch neighborhoods, this extension to Third Street may be served by the 33-Stanyan as an interim measure. This service change requires overhead wires to be constructed on 16th Street between Kansas and Third, and a terminal loop at Third. There are safety concerns about the Caltrain grade crossing at 16th and Seventh streets that must be resolved. A grade separation could be investigated.

  Due to delays in funding availability, the overhead wires may not be constructed in time; in that case, Muni could operate a temporary motor coach service on 16th Street. This service is a last resort, and Muni will make every effort to operate this for the shortest period possible, with clean diesel vehicles. Even with a service provided by motor coaches, there are safety concerns at the railroad crossing that must be resolved.

- Extend either the 30-Stockton or 45-Union/Stockton trolley coach line from its existing terminal at Fourth and Townsend, through Mission Bay, and over a portion of the current 22-line on Potrero Hill to the existing 22-line terminal at Third and 20th Street. Analysis of Mission Bay service demand indicates that operating one-third the current level of service on Stockton Street with 40-foot coaches would provide adequate service. This service requires

the Mission Bay project to complete construction of new streets and provide significant funding for overhead wires and additional vehicles. These service changes may require six additional standard trolley coaches. This service also requires crossing Caltrain at-grade.

Figure 5-7: Map of Mission Bay Service Changes



Other Future Service Proposals

All of these proposals would require additional operating funding, so they are possible but not scheduled. Other possible service changes that require expansion of the existing system are described in the next chapter.

Richmond District Expresses: In response to rising demand and a lengthening peak period, Muni has considered adding service on several Richmond District express bus lines. Anticipated changes would include adding trips (operating more frequently) and operating later in the evening on the 1AX, 1BX, 31AX, 31BX, 38AX and 38BX lines.

Reliability Improvements: Muni's Schedules section conducted a Schedule and Headway Adherence Study to determine if the current scheduled running times on all Muni lines are

adequate for the actual conditions encountered in everyday operation. The analysis found that an overall increase in the number of peak vehicles is required to provide the existing scheduled service levels. By creating new schedules with more realistic running times and expanding the fleet to provide the additional service, Muni could significantly improve reliability for passengers. This improvement would require additional vehicles and operating funds that are not in this SRTP's CIP or operating forecast. This proposal has been deferred for further evaluation.

Increased Metro Service to Meet Demand: It is anticipated that Muni will need to expand service on the Metro by about 2015. Although the exact extent of this increased service demand cannot yet be estimated, Muni is anticipating that additional LRVs will be required and is reflecting this expectation in the Fleet Plan, though acquisition of these vehicles is not funded. As ridership trends develop, future editions of this document will include specific service proposals, including the impact on revenue hours, revenue miles, and vehicle demand and associated capital and operating funding needs.

Transit-Oriented Development

SFMTA intends to promote transit-oriented development (TOD). TOD encompasses both development of SFMTA assets and also encouraging development patterns on non-SFMTA property that support higher ridership and efficient transit service.

Transit-Oriented Development (TOD) is a concept of much discussion across the country: For many transit agencies, TOD offers two significant benefits: a base of dedicated ridership and a source of revenue (when built on agency-owned property). TOD benefits extend to the broader community, however. Mission Bay development will exceed $4 billion. It is questionable whether this increased value and economic activity could possibly be reached without significant transit improvements recently constructed with the Third Street Light Rail Project and other improvements planned.

In the city of San Francisco, the opportunities TOD presents are altogether different. This dense, compact city was built out before the advent of the auto, and single-use sprawl is not an issue. Nor do the transit agencies own much property near their stations. San Francisco has already been characterized as "one big TOD."

TOD policies can influence development and redevelopment to make transit orientation more intuitive and immediate. TOD should have several goals:

Encourage pedestrian-friendly, transit-supportive development

The San Francisco Municipal Transportation Agency (SFMTA) is preparing a set of TOD policies and guidelines to address the exceptional circumstances in San Francisco. These are intended for land use approval agencies (the Planning Department, Redevelopment Agency) and traffic engineers to make sure that pedestrian-friendly building uses, facades and street design are priorities near transit hubs, and that developers design access paths and entryways to make the transit-to-destination connection immediate and intuitive. The guidelines include provisions to prevent obstructing physical features such as curb cuts, driveways and parking facilities from interfering with the operation of pedestrian-sensitive transit hubs.

Create vibrant station areas

With so many transit transfer and intermodal facilities on surface streets, these guidelines also direct traffic engineering and design considerations to prioritize crossing pedestrian movement, and encourage the identity of a "station" to expand beyond the actual on-street facility to include the community spaces that flank the transit stop. Helping transit customers make the best use of "captive" waiting time so the entire transit trip can be more productive and enjoyable includes expanded use of real time info, and integration of such transit-oriented conveniences in adjacent buildings to enhance choices for how waiting time and shelter can be optimized in the vicinity of the transit stop.

Strategically use SFMTA property assets

SFMTA owns property in several San Francisco neighborhoods. Many of these properties have excellent transit service, highway access, and prime locations. SFMTA has already undertaken the development of one such parcel for joint transit/commercial use – the Hotel Vitale on former bus layover property at Mission and Steuart Streets – and is exploring opportunities at several other sites. Income derived from such development can support SFMTA's operating budget through ongoing revenue streams, or provide infusions of capital for major projects. Potential development of SFMTA property must take into account the operating and maintenance needs of the agency.

Specific potential TOD projects involving SFMTA property assets are discussed in Chapter 9, after background information about the overall facilities assets and program.

THIS PAGE INTENTIONALLY LEFT BLANK