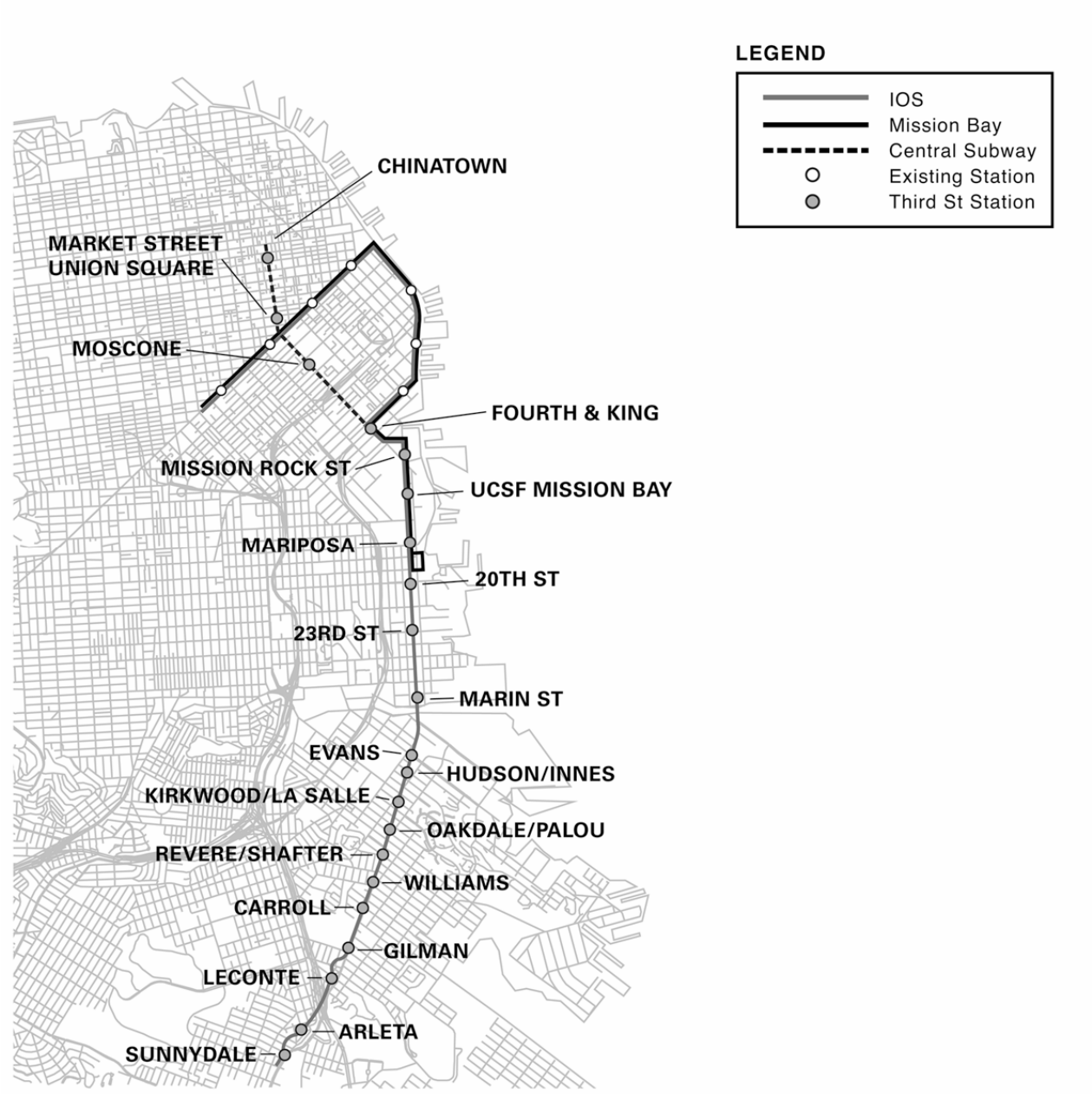
Chapter 3: Third Street Light Rail

The Third Street Light Rail Project is the most significant capital investment in generations for Muni. The 6.9-mile two-phase project, now under construction, will bring light rail service to the heavily transit-dependent Third Street corridor in eastern San Francisco as well as to the Financial District and Chinatown, the most densely developed areas of San Francisco. It will also serve a number of regional destinations, such as Union Square, Moscone Convention Center, and SBC Park. The light rail line will replace the 15-Third Street motor coach line and is being implemented in concert with a community revitalization effort supported by numerous city departments, community groups, and other organizations. Ultimately, the project will improve travel times between the southern end of the line near the Caltrain Bayshore station and Chinatown by up to 14 minutes for the 29.7 million annual trips projected on the LRT line.

Figure 4: Map of Third Street Light Rail



The Third Street Light Rail Project is San Francisco's highest priority transit project. The need for transportation improvements in the Third Street corridor was identified in the Bayshore Transit Study in 1993. In 1995 it was prioritized as the highest-ranking project in the city in the San Francisco County Transportation Authority's Four Corridors Study. This study refined the Central Subway concept and formalized the desirability of a light rail link between the Third Street LRT and the Chinatown/North Beach Corridors. The project was reviewed in a Final Environmental Impact Statement/Final Environmental Impact Report (FEIR/FEIS), which was completed in 1998. The Third Street LRT project is intended to address existing and anticipated deficiencies in the transit system serving the communities in the Southeastern part of San Francisco and Chinatown. It is also intended to serve as a key infrastructure improvement to help support revitalization of communities along the corridor and to directly serve Mission Bay, San Francisco's largest redevelopment project, which is now under construction.

The project is being built in two phases. Phase 1 is the Initial Operating Segment (IOS), which began construction in 2000 and is expected to be in service in June 2006. This first phase also includes the Metro East operating and maintenance facility. Phase 2, the Central Subway, is currently in Preliminary Engineering and is expected to be in service in 2016.

Project Objectives

The primary purpose of the Third Street Light Rail Project is to accommodate existing and forecasted transit ridership within the corridor with greater reliability, comfort, and speed, and to facilitate economic development opportunities along the corridor. More specific objectives include:

Transit Improvements: provide improved travel time, access, reliability, passenger comfort, and transit connections in the Third Street corridor. The project will improve travel time between the southern terminus and Chinatown and improve service reliability with exclusive right-of-way in the subway segment and semi-exclusive right-of-way in most of the surface segments of the alignment.

Economic Development: support economic development and revitalization in communities along the corridor. The project will support businesses in South of Market (SOMA), downtown, Union Square, and Chinatown, and economic development in Bayview Hunters Point and in the new Mission Bay development.

Traffic Improvements: reduce congestion in downtown San Francisco and the Third Street corridor.

Environmental Improvements: reduce diesel emissions with the removal of the 15-Third motor coach service.

The project will connect with intermodal facilities at a number of locations. Connections with Caltrain will be made at the Fourth & King Station and at the Bayshore Station. The EIR-approved alignment of the Third Street line will have a connection to the Montgomery Station on Market Street with access to Bay Area Rapid Transit (BART), the existing Muni Metro subway, and connections with all Muni streetcar, bus, and trolley coach lines operating along Market Street. The Fourth Street alignment, which was approved by the MTA Board of Directors on June 7, 2005, would provide a closer connection to BART and Muni Metro at the Powell Street Station. A supplemental to the EIR is being prepared to discuss the new alignment.

Project Funding

Third Street LRT Phase 1 is funded primarily through local sales tax revenues, provided by the SFCTA, as well as Federal Section 5309 Rail Modernization funds, Federal Surface Transportation Program (STP) funds, State Transportation Improvement Program (STIP) funds, and California Traffic Congestion Relief Program (TCRP) funds. Third Street LRT Phase 2 will use Federal New Starts funds, TCRP funds, STIP

funds, and local Prop K sales tax funds. The funding plan, expressed in millions of year-of-expenditure dollars, is summarized below.

Figure 5: Third Street Light Rail Funding Plan

Funding Source	Phase 1 IOS	Phase 2 CS	Total	% of Total
Federal New Starts	$0	$762.2	$762.2	38.0%
Federal Other	$53.6	$0.0	$53.6	2.6%
STIP (State STIP)	$66.4	$92.2	$158.6	7.8%
State Other	$126.0	$14.0	$140.0	7.0%
Local	$354.6	$544.1	$898.1	44.6%
Total	$600.6	$1,412.5	$2,012.5	100.0%

In $millions, year of expenditure dollars

Public Participation

The project includes an extensive public outreach program that includes a periodic project newsletter, a telephone hotline, a project web page (available at www.sfmuni.com/thirdst), and an ongoing series of community and corridor-wide meetings and workshops. To date, this has included 26 Community Advisory Group meetings, 17 Technical Advisory Group meetings, 2 corridor-wide workshops, and over 190 meetings and workshops with various community, civic and professional groups. In addition, Muni has sponsored a series of three Economic Development Forums, held in conjunction with the redevelopment planning process in Bayview, to discuss ways in which the light rail project can contribute to the revitalization of the Bayview Commercial Core.

Phase 1 - Initial Operating Segment

The IOS will extend Muni Metro light rail service south from its current terminal at Fourth and King Streets. The line will cross the Fourth Street Bridge and run on Third Street and Bayshore Boulevard, ending near the Bayshore Caltrain Station in Visitacion Valley. The 5.4 miles of new rail is being constructed primarily in the center of the street to improve safety and reliability. Eighteen stops will be provided. The Phase 1-IOS will reduce travel times from Visitacion Valley to Market Street by up to 8 minutes. Construction on Phase 1 began in May 2002 and is scheduled to be complete in early-2006, with revenue start-up in June 2006.

A total of 29 additional light rail vehicles (LRVs) will be procured to operate on the Third Street line. Fifteen LRVs were acquired for Phase 1-IOS start up. As Mission Bay is built up, 10 LRVs will be added to the fleet to help accommodate the ridership projected from this development. The cost of these 10 LRVs is included in Phase 1. The remaining 4 LRVs will be needed for the Central Subway.

Urban Design

Working with community members from several neighborhoods, Muni's team of architects and artists explored a variety of themes for the design of the corridor. The result was the idea of a "Great Street / Main Street" as the primary theme for the corridor. In this scheme Third Street takes its place as one of the City's "Great Streets" with a series of design elements that are consistent and recognizable along the corridor. Elements include:

- Unique colored paving to mark the light rail track area
- A special corridor-wide street tree (the Brisbane Box) to lend a strong "boulevard" image
- Glass and metal canopies on all station platforms
- Seating, lighting, and informational signage at all platforms
- A tall "marquee pole" to serve as a distinctive marker for the stations

At the same time, Third Street will also serve as a "Main Street" for specific communities along the corridor, with pedestrian-oriented enhancements provided to give special identity to neighborhood centers. Along Third Street in the Bayview Commercial Center, the light rail project will provide special "Main Street" pedestrian-oriented improvements, in conjunction with the City's revitalization efforts. These will include widened sidewalks with special artist-designed paving patterns, distinctive neighborhood trees, seating and pedestrian lighting. The City is seeking funding to provide these improvements in other Main Street areas in the future.

Metro East Light Rail Maintenance Facility

As a necessary part of the Third Street LRT project, Muni will construct the Metro East Light Rail Vehicle Maintenance and Operations Facility. This new facility is for the storage, maintenance, and operation of 80 Muni light rail vehicles. It is needed to support the new Third Street Light Rail line and to relieve the overcrowded conditions at Green Division, Muni's other light rail maintenance facility. The facility will be located on a 13-acre parcel bounded by 25th Street, Illinois Street, Cesar Chavez Street and Louisiana streets (part of the former Western Pacific Railroad site). It will store 80 LRVs, with the shops sized to accommodate 100 LRVs. The facility will consist of a two-story main shop and administration building, power substations, an LRV storage yard, and an on-site parking lot. The shop building will have a floor space of about 180,000 square feet. The building is designed to be within the allowable height limit of 40 feet. The on-site parking lot will accommodate about 170 vehicles.

All design work was completed in 2001. Site and soil improvements were completed August 2002. Construction for the shops and the yard will begin in summer 2005, and the facility is scheduled to begin operation in summer 2008.

Jobs Program

Muni initiated the Community Employment, Recruitment and Training (CERT) program to identify Third Street construction-related job opportunities. The program, administered by the San Francisco Private Industry Council with the assistance of local community based organizations (CBOs), helps local residents prepare and become placed in these positions. As of April 2005, 280 residents of the Potrero Hill, Bayview-Hunter's Point, and Excelsior Districts have been hired for the Third Street LRT project. Of these 280, 170 residents have been hired through the CBOs.

Project Status

Construction on Phase 1 of the light rail line began in spring 2002 and will be complete in early 2006. Muni engineers worked closely with community members to develop the best construction strategy for each neighborhood, and Muni maintains a project office in the neighborhood (at 501 Cesar Chavez) for community liaison activities as well as assistance to local and minority contractors. Construction was phased so that only one side of the street is worked on at a time, and every effort was made to maintain two lanes of traffic in each direction during peak periods and at other times. Access to all businesses and residences was maintained at all times. Revenue service is scheduled to begin in June 2006.

Phase 2 - Central Subway

Current Approved Project

Phase 2 will add 1.5 miles of light rail track north from the northern end of the Phase 1 IOS project at Fourth and King Street, to a terminal at Stockton and Clay in Chinatown. The tracks will enter the Central Subway near Bryant Street, and proceed to cross beneath Market Street, running under Stockton Street to Chinatown. The Central Subway is projected to open in 2016. The current approved alignment places the subway in SOMA under Fourth Street, with a total of three underground subway stations located at Moscone Center, Market Street/Union Square and Chinatown. Current projections show that the two-phase Third Street project will carry 92,000 daily riders by 2030, with travel times from Visitacion Valley to Chinatown reduced by up to 14 minutes, compared to today's travel times. Phase 2

includes the procurement of three additional peak LRVs, plus one maintenance spare. Muni will review the Central Subway vehicle demand during preliminary engineering to determine whether this is an appropriate number of LRVs to serve the line.

The Central Subway is a critical transportation improvement linking neighborhoods in the southeastern part of the City with the retail and employment centers in downtown and Chinatown. The project will

- Significantly reduce travel time both for the transit rider and for other vehicles using the streets, since the subway takes buses off the streets
- Reduce overcrowding on existing bus service
- Reduce pollution and gridlock with fewer diesel buses and automobiles on the streets
- Provide more reliable service
- Provide direct connections to Caltrain, BART, regional buses, and other Muni lines
- Improve access to the heart of Chinatown and strengthen community connections between Visitacion Valley and Chinatown
- Provide a direct connection to the Moscone Center, Union Square, and Chinatown
- Connect Mission Bay, the new UCSF campus, and Bay View Hunters Point with downtown San Francisco

New Starts Funding

The Third Street-Central Subway project has received $20.5M to date in highly competitive Federal New Starts funding. The project is part of the Bay Area's adopted Long-Range Regional Transportation Plan, which positions it as a top priority for Section 5309 New Starts funds. For the second year in a row, the Federal Transit Administration (FTA) has granted the Third Street-Central Subway project a "recommended" rating, based largely on the strength of corridor land uses and land use policies, and the strength of the financial plan. While not a guarantee of funding, the rating means that this second phase of the Third Street project will continue to go forward, with encouraging prospects for future federal funding. The rating is part of FTA's annual New Starts evaluation process.

Project Status

In 2003, Muni selected the Joint Venture team of Parsons Brinckerhoff /Wong Engineering to perform the Conceptual Engineering Report and Preliminary Engineering phases of the Central Subway, as well as assisting with as-needed environmental updates that may become necessary as the engineering work progresses. In order to assess the proposed Fourth Street alignment and other changes, Muni will prepare a Supplement to the EIS/EIR to determine the potential benefits and impacts. Preliminary Engineering is scheduled to be completed at the end of 2006. Construction is currently planned for 2009-2015, with opening in 2016.

Fourth Street Alignment

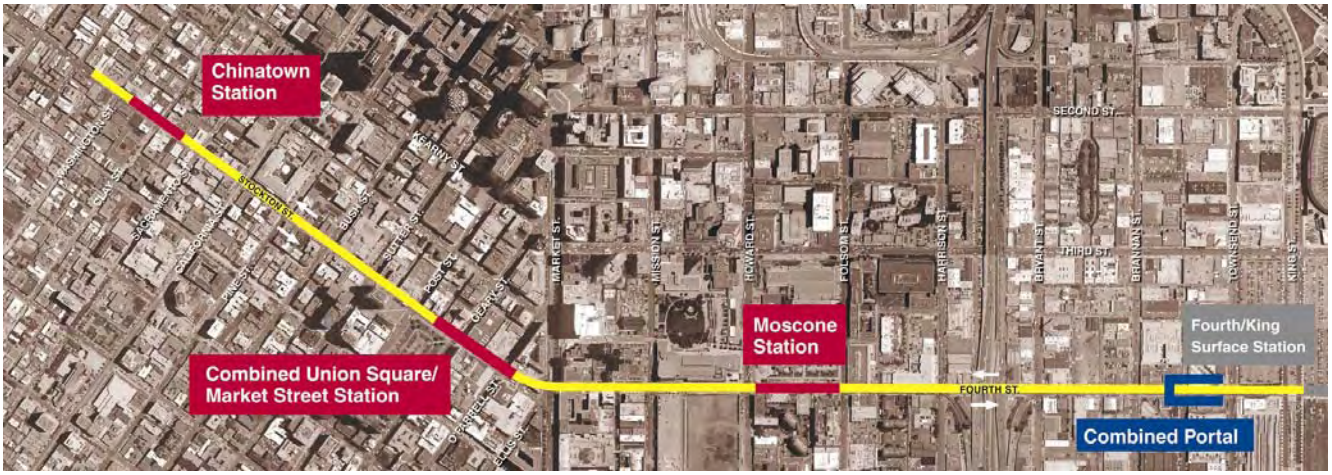
Over the past year Muni hosted six community meetings, four Community Advisory Group meetings, and numerous civic and neighborhood group presentations. The purpose of this process was to establish which options the community preferred regarding alignment, station access, portal locations, and construction methods. The input from this public process resulted in some proposed changes to the project.

An alternative alignment that would follow Fourth Street through the entire South of Market area, instead of going northbound on Third and southbound on Fourth, received strong support from the public due to reduced construction costs, easier access, and faster travel times. This alignment starts as a surface line at Fourth and King – the current terminus of the Third Street Phase 1 project now nearing completion. It would proceed north along Fourth Street to a double portal structure between Townsend and Brannan where the alignment transitions from surface to subway.

From the portal, the line would proceed north under Fourth Street to serve three subway stations: a station in the vicinity of the Moscone Center complex, a combined Union Square/Market Street station on Stockton Street between Market and Geary, and a Chinatown station on Stockton at Clay. Figure 6 shows the proposed Fourth Street alignment and stops.

On June 7, 2005, the MTA Board approved changing the Locally Preferred Alternative for the Central Subway south of Market Street to operate entirely under Fourth Street. Muni is currently preparing a Supplemental EIS/EIR to determine the impacts of this Fourth Street Alignment.

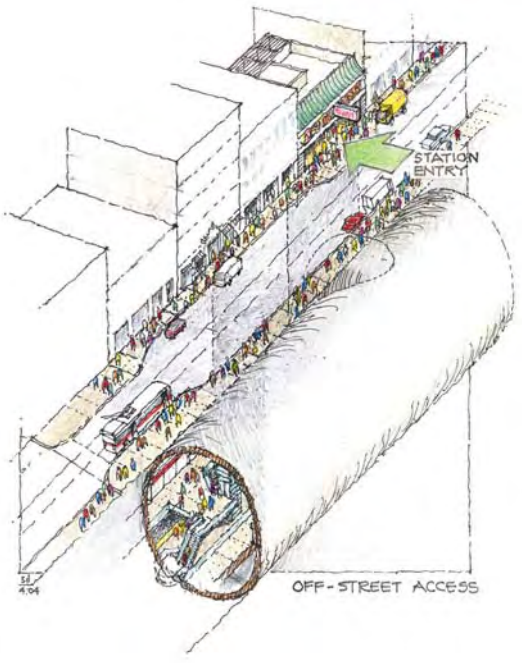
Figure 6: Proposed Fourth Street Alignment for Central Subway



Station Access

The EIS/EIR proposed locating all station entrances in the sidewalks along the alignment. The community expressed concerns that sidewalk space limitations would impact residents, businesses, and traffic. Therefore, off-street access - where station entrances would be located in other non-street public areas or on acquired private properties - was studied and overwhelmingly preferred by the public. Some in-sidewalk entrances would remain where sufficient space is available, as shown in Figure 7.

Figure 7: Proposed Moscone Center Stop Access



Fare Collection Design

The original EIS/EIR proposed a proof-of-payment (POP) fare collection system that did not require fare gates. Due to concerns about safety, security, and platform access, the project team is now looking at installing fare gates similar to those in the Market Street Subway. This change will affect station design and access and therefore needs further study.

Portal Locations

Portal locations – those sites where Muni Metro trains transition from surface to subway operation – have been discussed in several meetings. The original EIS/EIR proposed two separate single portals – one portal on Third Street and another portal on Fourth Street between Brannan and Bryant. Concerns were raised about impacts on traffic circulation, especially on Third Street. As a result, Muni identified and studied alternative locations for the portals on Third and Fourth streets. The option that was strongly favored by the public is a combined double portal located on Fourth Street between Townsend and Brannan because it eliminates traffic impacts of the project on Third Street.

Ventilation Shafts

Subway ventilation shafts are required for emergency conditions. The Supplemental to the EIS/EIR will study possible locations for the ventilation structures. For example, off-street locations need to be identified where the shafts would be constructed.

Construction Methods

The original EIS/EIR proposed using surface construction methods for most of the tunneling south of Union Square. Surface construction methods result in significant impacts to the public during construction. An alternative tunneling technology is being proposed – called deep tunneling – which allows most of the work to be done below ground with minimal disruption on the surface. Deep tunneling would pass under the BART/Muni Market Street Subway, minimizing construction impacts in the Market Street area. Easements would be required in the few cases where the tunnels pass under existing buildings. Figure 8 shows the type of tunnel boring machine needed for this kind of construction.

Figure 8: Tunnel Boring Machine

Third Street Light Rail Service Plan

T-Third line

Following the completion of construction and a six month testing and start-up period, regular light rail service on Phase 1 is scheduled to begin in June 2006. The existing K-line light rail service will be modified and extended to serve Third Street. The current operating plan is to extend K-Ingleside service from the Market Street Subway, along the Muni Metro Extension (MMX), and down the new Third Street light rail line to the terminal near the Caltrain Bayshore Station. The letter "T" will be used as the line designation for the Third Street portion of the line. To implement that change, the line designation will be modified so that the inbound LRV displays a "K" sign west of West Portal Station and then, using the ATCS system, displays the "T" sign as it runs through the subway and out Third Street to its southern terminal. The service will be provided at levels comparable to the existing K-Ingleside line with single cars. Figure 9 shows the planned headways for the Third Street line.

The J-line will be extended to 4th/King, and the N-line will temporarily turn back at Embarcadero until the N-Line is extended to the Mission Bay Loop when it opens. After the Central Subway segment of the Third Street project is built, the Third Street line will keep this "T" designation for the new line that will not be connected to the existing subway. The K-line will revert to its original route, terminating at Embarcadero Station.

Figure 9: Third Street Light Rail Planned Headways (minutes) – IOS

	Peak	Midday	Evening	Night
Weekday	8	10	12	20
Saturday	Na	12	15	20
Sunday	Na	15	20	20

Along with the addition of new light rail service in the Third Street corridor, Muni anticipates making a number of changes to bus routes to eliminate duplicate service and to replace 15-Third service that is not covered by the IOS.

15-Third and Other Bus Changes

The 15-line will be eliminated. A new 15X line will be created that uses the route of the 9X/9AX/9BX but extends the route to cover the northern and southern portions of the existing 15 line. The 15X will also mirror the hours of operation and the headways of the 15 line, operating at night and on weekends. A 15AX and 15BX will run during peak service hours, to replace 9AX and 9BX service.

The northern and southern portions of the 15-Third service would be replaced with the equivalent amount of service on other lines. The 9X (to be called 15X) will provide approximately 20 hours of service, 7 days a week. In addition, the 54-Felton will be rerouted off Third Street between Revere and Hudson via Lane, Palou, Newhall, and Hudson, to provide Bayview residents with a neighborhood circulator to the light rail line. Other routes will remain as currently configured and at existing service levels.

Central Subway

When Third Street LRT Phase 2 is completed, service on the T-line will be revised to operate from its southern terminal at the Caltrain Bayshore Station through the Central Subway to the new northern terminus in Chinatown. Service levels are planned for single cars operating at five-minute peak period and ten-minute midday frequencies, but this is subject to change depending on demand. A second independent line is anticipated to operate between Chinatown and the turnaround loop in Mission Bay at 18th, Illinois, and 19th streets. This "short-line" service will require an additional 10 light rail vehicles, increasing the LRV fleet total to 161. Service changes to Muni bus routes are also anticipated to coincide with Central Subway service start up. When the new Third Street line is created, the K-Ingleside will revert to its former terminal at the Muni Metro Turnback at Embarcadero Station.

Areas Served

The Third Street Light Rail project will serve a number of neighborhoods in the eastern portion of the City. Some of these are very densely populated, thus justifying a heavy transit investment; others are in planning and are expected to develop into more active, densely populated neighborhoods. The area served by the Central Subway taken together (CBD, Chinatown, Union Square, and South of Market within a half-mile of the alignment) contains over 44,000 residential units and over 66 million square feet of commercial space. In addition, current regulations allow potential growth of 15% – which could result in 6,500 new housing units and an additional 10 million square feet of commercial space. With the Central Subway alignment change, these job and housing numbers may be revised.

Visitacion Valley: This is an established neighborhood on the City's southern border with many low income and minority residents. Planning has been ongoing in this neighborhood for several large development sites as well as the intermodal station connecting Muni with the Caltrain commuter rail line. Implementation of the intermodal Bayshore Station (connecting with Caltrain) will occur at a later phase of the project due to development issues on surrounding land.

Bayview Hunters Point: From the beginning, light rail in the Third Street Corridor has been viewed as a key infrastructure improvement to assist in the revitalization of Bayview Hunters Point. The Bayview Hunters Point Redevelopment Area is anticipated to be adopted in Summer 2005. This Project Area is the result of a collaborative effort by the community to develop a unified and comprehensive vision that will guide the implementation of plans, programs, and projects in the Bayview Hunters Point area. The Concept Plan, adopted in 2000, envisioned that the Third Street Light Rail project would help expand retail opportunities and employment centers, and create a strong streetscape identity for Third Street. This would be accomplished by incorporating widened sidewalks, pedestrian lights, effective signage, street furniture, public art and other amenities. A related project is the Bayview Connections, which is the construction of pedestrian amenities in the neighborhood.

Central Waterfront: This area is bounded by Mission Bay on the north, Bayview Hunters Point on the south, Potrero Hill on the west, and the Bay on the east. Formerly characterized by maritime and industrial uses, the neighborhood is becoming a unique mix of heavy industrial, maritime, residential, and light industrial uses. The Planning Department, working with other City agencies and community members, has prepared a transit-oriented, neighborhood-specific plan for the Central Waterfront area as part of its Better Neighborhoods program. The plan is intended to encourage both job growth and housing development in the neighborhood. It includes elements such as parking management plans and retail development at transit stops. The plan will also encourage retail around the 20th and 23rd street stations and a neighborhood retail strip on 22nd Street.

Mission Bay: This is an approximately 300-acre site located just south of the developing South of Market area of San Francisco. The site was formerly characterized by abandoned railroad yards and other industrial uses, but a redevelopment project is transforming the area completely. Construction activity is well underway on commercial, residential, and open space projects on many of the parcels, and many new buildings have been completed. Mission Bay will include a new medical research campus, six million square feet of research and development, light industrial and office use, up to 6,000 new residential units, 800,000 square feet of retail space, and a 500-room hotel. Much of the residential development in Mission Bay North and the UCSF campus has already been built and occupied. At full build-out, according to the Mission Bay environmental documents, the development area will generate almost 70,000 daily transit trips. The light rail line will be a key piece of infrastructure necessary to support this level of mixed-use development.

South of Market: In SOMA, the Third Street Light Rail will serve SBC Park, home of the San Francisco Giants, which generates between 5,000 and 10,000 Muni trips on game days. SOMA also includes Yerba Buena Center, which includes the George Moscone Convention Center, two major hotels, and over 2,500

new housing units, of which more than 1,400 are for low to moderate-income residents. The Metreon contains 15 movie screens, restaurants, cultural facilities, and a children's center.

Transbay: The Transbay Terminal will be rebuilt as a multi-modal transit facility and will accommodate 45 million passengers annually. The surrounding redevelopment area will include approximately 3,000 residential units, a hotel, office space, and retail space. Several projects are already under construction, including high-rise offices, high-rise residences, live-work lofts, hotels, and communications facilities.

Financial District: San Francisco's Central Business District (CBD) is the densest and most transit-accessible downtown on the West Coast. In 1995 the Financial District section of downtown alone contained approximately 166,000 jobs, or about 30% of all jobs in the City.

Union Square: This is the City's primary retail district – a very dense pedestrian and transit-oriented development with retail, office, hotel, and some high-density residential uses.

Chinatown: With over 100 housing units per net acre, Chinatown is one of the most densely populated areas in a city that is the second most densely populated in the United States. It also has extremely dense concentrations of retail, as well as some office and small-scale industrial uses. Chinatown may be the most densely populated community in the country not served by rail transit.