FINAL SAR 05-1

STRATEGIC ANALYSIS REPORT

on 16th Street Transportation Issues

Initiated by Commissioner Maxwell
Adopted by the Authority on December 13, 2005

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I. BACKGROUND

Summary

This SAR evaluates the 16th Street Corridor's ability to serve the increased transportation demands that are anticipated as jobs and residential units increase throughout Showplace Square, the Mission, and Mission Bay. Added housing will increase the need for 16th Street to serve local, neighborhood trips, while the development of Showplace Square and Mission Bay will generate longer distance, freight and commuter trips. One particular challenge for the 16th street corridor as it grows into the future is to serve the commute needs of San Francisco residents traveling between the 16th Street corridor neighborhoods and the rest of the City by transit rather than by auto. Achieving this goal of reduced auto mode share will require supply side transportation strategies including implementing TPS, developing the pedestrian infrastructure, and over the long term, reconnecting the street grid network and implementing a grade separation with Caltrain. On the demand side, strategies include ensuing that new development adheres to "transit first" principles, especially a market-based approach to parking management.

About SARs: Purpose of Document

This Strategic Analysis Report (SAR), initiated at the request of Commissioner Maxwell, comprehensively analyzes the transportation issues of the 16th Street corridor in light of the Planning Department's consideration of future land use changes in this area. This SAR examines current and future needs and highlights proposed or planned projects and services that respond to the needs of neighborhoods adjacent to 16th Street, as they change.

This SAR is designed to inform policy-level decision-making by the Authority Board. Technical discussion has been condensed, and only the facts essential to outline the policy-level issues are included. Additional information is available from the sources cited, or by calling Tilly Chang, Manager of Planning, at (415) 522-4832.

II. BACKGROUND

Review of Relevant Plans and Studies

This section reviews transportation studies, plans, and other materials that provide information relevant to the 16th Street Corridor study area.

1. San Francisco General Plan (1995, 2002)

16th Street is a "secondary arterial:" a street that serves as a route for intra-district traffic and as a collector for the major thoroughfares in the City[1] Within the Transit Preferential Streets network, 16th Street is classified as a "transit oriented street," with a transit center (BART) at 16th and Mission Streets. 16th Street is also classified as a "neighborhood commercial street" between Church and Harrison because of the pedestrian activity served by the street.

MUNI Studies

A number of recent MUNI studies and plans are relevant to the 16th Street corridor.

2. Short Range Transit Plan (FY2004-2034)

A number of significant future changes outlined in MUNI"s 2002 SRTP will affect 16th Street area service:

- 16th Street transit priority treatments (TPS)
- Third Street Light Rail service beginning in 2005, with stops in the new Mission Bay neighborhood and Central Waterfront area.
- 10-Townsend extension to SF General Hospital in Potrero Hill from its current terminus at 17th and Carolina. The route also serves Showplace Square.
- 22-Fillmore: To serve the growing Mission Bay development, this line will be rerouted onto 16th Street to run eastward all the way to Third Street in Mission Bay. The line will no longer directly serve Potrero Hill.
- 30-Union / 45-Union-Stockton. One of these routes will extend from the 4th & King Caltrain station south into Mission Bay and parts of Showplace Square and Potrero Hill.

3. MUNI's SOMA Service Plan

The SOMA Action Plan was a package of several service changes recently implemented in response to land use changes in the South of Market neighborhood. A few of those changes increased the level of MUNI service slightly in the 16th Street corridor study area:

- 9-San Bruno: Supplemental peak period service was added.
- 10-Townsend: This route was put in place to connect SOMA with Showplace Square, the Financial District, and regional transit along the Townsend corridor.
- 12-Folsom: This route, already serving the Mission district north and south along Folsom Street, was extended to 7 day per week service.

4. MUNI's Vision Plan

MUNI envisions a Fillmore-16th Street corridor in its X-Plan for future rapid transit. In Phase I, MUNI envisions BRT with electrification and exclusive bus lanes on 16th Street. This would require a reallocation of most of 16th Street's right of way from auto to transit.

5. BART 16th Street Station Area Plan and Comprehensive Station Plan.

The 16th street BART station at 16th and Mission Streets is a critical regional connection to the 16th street corridor and its adjacent neighborhoods. In May 2003, a redesigned Southwest Plaza entrance to the station was formally opened to the public, providing improved pedestrian amenities and station access, and a similar redesign for the Northeast entrance is planned. In these Plans, BART emphasized non-auto access improvements, including enhancing the pedestrian and bicycle routes to the station, and making “real time” information between BART and MUNI more widely avaialble.

6. San Francisco Bicycle Plan

16th Street is currently designated as a Citywide Bicycle Route between Kansas and Third Streets, with a bicycle lane in each direction. Along the western portion of the corridor, between Mission and Kansas Streets, 17th Street is a signed bike route, with no exclusive bicycle facilities.

The 16th/17th Street corridor is prioritized in DPT's current Citywide Bicycle Plan update. Preliminary engineering and conceptual planning on the optimal east-west bicycle corridor through the study area were completed as part of the Plan Update. Various possibilities included combinations of streets (from 14th to 17th Streets) and one-way couplets.

The Board also recently approved the Mission Creek Bikeway

1 Transportation Element of the General Plan

2 Mission Creek Bikeway website, http://www.missioncreek.org/updates.html, accessed online 8/26/03. Board of Supervisors Resolution 474-01, "Supporting the Mission Creek Bikeway Project" adopted June 02

and Greenbelt concept plan, which would connect Mission Bay with the 16th Street corridor.

Planning Department Land Use/Zoning Studies & Actions

Several recent Planning Department actions and studies address the land use changes along the eastern 16th Street corridor.

7. San Francisco Planning Code / Current City Ordinance for Prohibition of Live/Work Units

The Planning Department currently is revising zoning regulations for the corridor neighborhoods. In 2001, in response to a perceived rapid loss of industrial jobs, the Planning Commission passed a city ordinance that modified the Planning Code to prohibit live/work units in the Northeast Mission Industrial Zone (NEMIZ). These interim controls have since expired.

8. Community Planning in the Eastern Neighborhoods: Rezoning Options Workbook

This document outlines the Planning Department's alternatives for rezoning the neighborhoods along the 16th Street corridor. It builds upon Planning's earlier rezoning work published in Zoning Options for Industrial Land: Industrial Protection Zones for Mixed-Use Areas, Citywide Land Use Study, and Profiles of Community Planning Areas: San Francisco's Eastern Neighborhoods. The rezoning effort follows the interim zoning controls, and they aim to address industrial job and housing pressures.

The Planning Commission's preferred rezoning alternatives will greatly shape future transportation demand on the 16th streets corridor. At the same time, 16th Street's current and future transportation infrastructure could be a limiting factor for any area land use changes and growth.

9. Downtown Neighborhoods Initiative (2003)

Starting in August 2003, the Planning Department's downtown planning effort is intended to provide strategies for encouraging housing production and creating livable neighborhoods around the downtown core. 16th Street forms the southern boundary of the Downtown Neighborhoods Initiative's planning area. Showplace Square is one neighborhood among those included in the initiative, which has the potential to accommodate 1300 to 2300 new housing units. The initiative emphasizes the desirability of preserving and improving midblock alleys as residential streets. The Plan describes streets designed for downtown living, featuring smaller blocks with midblock crossings, treatments to shorten pedestrian crossing distances, minimization of one-way streets and regional traffic, and emphasis on pedestrian amenities. This plan indicates 8th Street as a major transit street SOMA.

10. Caltrain Draft Rapid Rail Study (1999)

The 1999 Rapid Rail Study identified Caltrain's at-grade 16th Street railroad crossing (near 7th / Mississippi Streets) as a candidate for grade separation. Despite a crossing volume of about 12,000 daily vehicles, 16th Street is not on Caltrain's current priority list.[3] The evaluation measure used only considers current automobile level-of-service (LOS). Key feasibility included insufficient clearance for constructing a 16th Street overpass over the tracks and below the I-280 viaduct; street access issues for adjacent properties; and drainage if 16th Street was tunneled below the tracks.

11. Mission Bay Environmental Impact Report (EIR) and agreements

The Mission Bay EIR outlines improvements that will impact 16th Street transportation patterns. The Mission Bay South Infrastructure Plan's projects in the study area are mostly capacity, traffic signal, and other traffic engineering-related enhancements meant to mitigate Mission Bay development impacts. Key projects include:

- 16th / 7th Street / Caltrain intersection/grade crossing: Railroad safety and signal upgrade.
- Extension of both 4th and Owens Streets, with new signalized intersections at 16th Street and Vermont.

A number of mitigations are now implemented. Mission Bay developers have construed the extension of 4th street north of 16th and installed new traffic signals at 16th/Owens and 16th/17th.[4]

12. Port of San Francisco Study: Maritime Cargo and Land Use Study

In this study, the Port favors freight rail access on the proposed new Illinois Street Bridge, which would eliminate the need for a complex freight rail movement over 16th Street near Third Street in Mission Bay. It would also provide a more direct freight connection to its Piers 80/94/96. Ultimately, it would benefit 16th Street operations, especially as non-freight trips generated by the new Mission Bay development increase. This is a Prop K funded project.

III. Strategic Analysis

A. Existing Conditions

The 16th Street corridor runs 2.4 miles east-west from Third Street, on the southern edge of Mission Bay, to Market Street in the Castro (See Appendix 1, 16th Street Study Area). 16th Street is oriented towards autos for much of its length, but does have some accommodations for pedestrians, bicyclists, and transit especially in the western section of the corridor. The street cross section varies in four sections between Mission and Third street (See Appendix 2, 16th Street Cross Sections).

16th Street today serves several transportation functions, including local, neighborhood circulation and inter-district commute and freight travel. Western 16th Street primarily serves this

3 1999 DPT observed daily volume.

4 Catellus Development Corporation. Mission Bay Mitigation Status Report, accessed online 9/15/03 at: http://db.rbf.com/catellus/hmeasures.asp?UserID=.

first role. The Mission district has the highest housing density in the 16th street corridor, as well as the greatest concentration of rental units, households with no access to a car, and children. Neighborhood-serving commercial and residential activities along 16th street generate high pedestrian activity and transit use, whereas eastern 16th is auto oriented and industrial. Both districts serve inter-district travel, especially to and from the BART station at Mission Street. 16th Street is the only east-west street in the vicinity that is continueous across the Caltrain tracks, I-280, and US 101.

"..16TH STREET SERVES SEVERAL TRANSPORTATION FUNCTIONS, INCLUDING LOCAL, NEIGHBORHOOD CIRCULATION, INTER-DISTRICT COMMUTE AND FREIGHT TRAVEL..."

Transit Service and Performance

16th Street is the east-west transit corridor for the north Mission District, Showplace Square, and Potrero Hill (see Appendix 3, 16th Street Corridor Transit Service). Currently, MUNI offers no service on 16th Street east of Showplace. North-south transit heading to downtown and other points is frequent in the denser western part of the corridor, but infrequent in the lower-density eastern part. Showplace Square and Potrero Hill have few routes and low frequencies to downtown.

Figure 1

16th Street Screenline Motorized Trips, Year 2000

3 Hour PM Peak Period

Cross Street	Auto	Transit	% Transit
Bryant	2,579	1,815	41%
Kansas	1,670	1,061	39%
Mississippi	1,032	-	-
Third St	806	-	-

On 16th street itself, transit trips were about 40% of all motorized PM peak period trips in 2000, as shown in Figure 1.[5] However, trips to and from the neighborhoods along the 16th street corridor have a 15% transit mode share, even during the PM peak period.

MUNI's Prop E service performance measures describe current level of service in the 16th Street neighborhoods, shown in Figure 2. Less than half the available transit capacity during the peak period is used.[6] On-time performance is poor, as 11 of 14 routes operate below MUNI on-time performance standards, with eight of the deficient routes also falling below MUNI systemwide averages. Headway adherence in the area is also substandard, as all but two routes operate below MUNI goals, with only four operating above the systemwide average.

Transit trips from 16th street to downtown average 22-29 minutes, while trips to City College average 34 minutes from the Mission and 59 minutes from Mission Bay. Trips to Visitacion Valley range from 27-34 minutes.[7] Although MUNI's near-term Mission Bay service changes will surely improve the above Mission Bay figure, improving travel times in all directions will remain an ongoing challenge.

Figure 2

Transit service along 16th Street corridor & adjacent neighborhoods

ROUTE	PM Peak Runs per Hour	Load Factor (%)	On-Time Performance (%)	headway adherence (%)
09	10	57.9	72.2	-
10	11	45.0	63.5	-
12	11	72.0	71.1	73.0
14	21	61.6	69.6	-
14L	21	43.2	65.2	88.4
15	12	55.1	66.5	-
19	6	47.4	66.5	69.0
22	10	65.9	75.1	47.0
26	4	43.8	64.3	73.5
27	5	64.7	62.9	72.3
33	10	49.0	66.9	73.2
48	9	57.0	76.4	73.3
49	21	48.7	73.1	48.2
53	2	46.7	75.3	95.1

Notes:	system average	goal
on-time performance	70.0%	74%
headway adherence	73.3%	85%
load factor	n/a	85%

Source: SF Muni, FY2002-03 3rd quarter report

Traffic Volumes

16th Street itself is the primary east-west through route for car traffic in this area. In 2000, auto trips during the pm period were about 60% of all motorized PM Peak trips on 16th Street itself. Driving is the mode of choice for the great majority of trips to and from the neighborhoods along the 16th Street corridor, both during the peak period and daily, as shown in Figure 3. Slightly

Figure 3

16th Street Corridor Motorized Trips, Year 2000

All Trips to/from 16th Street Corridor Neighborhoods

	Total Trips	Regional Trips	% Regional	Transit Trips	% Transit
3 Hour PM Peak	38,410	10,203	27%	5,912	15%
Daily Trips	175,033	44,716	26%	24,028	14%

5 SF Model. Includes the 22-Fillmore and the 33-Stanyan

6 Prop E reports .54 load factor; SF Model reports .28 - .46 load factor during pm peak.

7 SF Model

8 Source of counts: SFCTA Model, DPT, CCSF, Caltrans 1998-1999.

over one quarter of all trips to and from 16th Street neighborhoods are regional, having one trip end outside of San Francisco.

Today, the stretch of 16th Street between Bryant and Third carries well below its capacity for auto trips during the pm peak. The volumes of current traffic on 16th Street, relative to the street's capacity for auto trips (v/c ratio), is shown in Figure 4. It should be noted that these ratios reflect link volumes and capacities, and do not reflect v/c ratios at intersections, where capacity is more constrained. Future project development efforts on 16th street should develop operational models that include intersection volumes and capacities for a fuller picture of traffic operations.

The average distance and travel time of auto trips on 16th Street today are shown in Figure 5. Auto trips today are long on average - at least 9 miles and close to 20 minutes in length. Trips are longest on 16th , both in distance and time, at Mississippi - which likely reflects freeway trips using 16th to access I-280. The auto average trip at Mississippi is 14 miles long and nearly 28 minutes long.

Figure 4
Link Volume / Capacity Ratio

Cross Street	Direction	Year 2000
Bryant	West	0.59
	East	0.23
Kansas	West	0.41
	East	0.56
Mississippi	West	0.14
	East	0.16
Third St	West	0.15
	East	0.09

Truck traffic is significant all along 16th Street (see Appendix 4, 16th Street Corridor Truck Traffic). In Mission Bay, trucks make up 30% of all the vehicles in the area. Small trucks are the most common type of truck in the Mission District; trucks in the Mission district are typically coming from or going to Mission district locations and are not typically generated by Showplace Square businesses. Large trucks (i.e., "18-wheelers") are most prevalent in the Third Street/Mission Bay area , where land uses are primarily industrial. Collisions with trucks are relatively low 16th Street (see Appendix 5, 16th Street Corridor Truck Collisions) but happen most frequently in the Mission Bay area, where large trucks predominate.

Figure 5
Average Trip Lengths
Year 2000 PM Peak Period

Cross Street	Time (minutes)	Distance (miles)
Bryant	19.05	9.51
Kansas	19.81	9.96
Mississippi	27.55	14.65
Third St	22.08	10.97

Travel Markets and Origin-Destination Patterns[2]

The top five travel markets with one trip-end in the 16th Street corridor are shown in Figure 5. The relatively high transit mode share for the trip market between Downtown/SOMA and Potrero may indicate riders are taking the MUNI 22 line to BART. On the whole, however, transit is carrying only a fraction of the trips in the top travel demand markets in the 16th Street corridor. More than half of these trips involve a destination outside of San Francisco; promoting transit for these trips may be difficult because the destination end may be suburban with few alternatives to the auto. Regardless, San Francisco should serve these incoming trips by transit as well as possible by improving the connections to regional rail transit - Caltrain and BART.

Figures 6 and 7 report the origin-destination patterns of trips with one end on the 16th Street corridor. This set of figures indicates that most person-trips that start or end on this corridor are going to or coming from the northeast part of the city. However, the second most popular person-trip pair (about 30% of all person trips) is between 16th street and areas outside of San Francisco. Together 66% of all trips heading to 16th St during the PM peak are coming from outside San Francisco or from downtown.

Figure 5
Year 2000 Top Travel Markets and Transit Mode Share

Origin District	Destination District	Total # of Trips	Transit Mode Share
Showplace Square	Non SF	3512	23.5
Downtown/SOMA	Potrero	1651	27.2
Mission Bay	Non SF	1647	14.1
Potrero	Non SF	1586	12.3
Non SF	Showplace Square	1378	5.4

Person-trips leaving 16th St during the PM peak mostly head for destinations within San Francisco (almost 70%), especially the

Figure 6
2000 Proportional Origin of Trips Destined for 16th St Corridor

	PM Peak Trips		Daily Trips	
Origin of Trip	Transit trips	All trips	Transit trips	All trips
Out of SF	**33%**	**29%**	20%	**25%**
Northeast SF	**33%**	**30%**	**45%**	**33%**
Northwest SF	7%	6%	7%	6%
Southeast SF	13%	18%	14%	18%
Southwest SF	13%	12%	13%	11%

Figure 7
2000 Proportional Destination of Trips Originating on 16th St Corridor

	PM Peak Trips		Daily Trips	
Destination of Trip	Transit trips	All trips	Transit trips	Daily Trips
Out of SF	8%	21%	21%	25%
Northeast SF	**57%**	**38%**	**42%**	**34%**
Northwest SF	8%	5%	8%	6%
Southeast SF	13%	17%	15%	18%
Southwest SF	12%	11%	13%	11%

1 HCM and Pushkarev/Zupan methodologies

2 These are important service attributes for auto users as well, though the auto mode implicitly provides for a relatively safe and comfortable experience.

Marina/Western Addition (38%). Only about 30% are traveling to destinations outside the city.

Transit Origins and Destinations

Today, most transit trips that begin on the corridor start at Showplace Square and Potrero Hill. These transit riders are heading to the Mission, destinations outside San Francisco (by transferring to BART), and the Marina/Western Addition. However, the market of transit trips going from and coming to the Marina/Western Addition indicates that passengers use MUNI's 22-Fillmore line to go between the 16th St corridor and the Marina, an important travel market. This is a connection that needs to be strengthened in the future to capture more of the auto trips that currently follow this pattern.

"...TODAY, THE BIGGEST TRANSIT MARKETS DO NOT OVERLAP WITH THE BIGGEST TRIP MARKETS; TRANSIT IS NOT COMPETITIVE WITH THE AUTOMOBILE IN THESE HIGH DEMAND CORRIDORS."

Transit does well in serving some very small trip markets. Today's top transit markets in the 16th street corridor are shown in Figure 8. Unfortunately, the biggest transit markets do not overlap with the biggest trip markets: transit is not competitive with the automobile in the highest demand travel markets.

Transit does a good job serving trips that come to 16th Street during the PM peak from outside the city, and trips between 16th Street and downtown. These markets are over-represented by transit trips; that means transit is capturing those markets well.

Figure 8

2000 Number of Trips within Top Transit Markets

Origin District	Destination District	Total # of Trips	Transit Mode Share
North Beach	Potrero	536	29.3
Downtown/SOMA	Potrero	1651	27.2
Potrero	North Beach	353	26.2
North Beach	Showplace Square	352	25.5
Showplace Square	Sunset	564	24.7

The trips between 16th street and non-San Francisco destinations are represented proportionately except PM peak trips originating on 16th. This indicates that transit needs to do a better job getting 16th Street employees, who live outside SF, to take transit to work. This may be difficult for the employees who work on 16th but live outside the city at places poorly served by transit.

Automobile Origins and Destinations

On the eastern segment of 16th there currently is not much automobile traffic - between 200 vehicles per lane (at Third), and 250 vehicles per lane (at Mississippi) during the pm peak period.

Most of the car trips (45%) are going between Showplace Square and areas outside San Francisco. This is likely due to 16th Street's proximity to the I-280/Mariposa Street interchange, a source of regional traffic.

Auto trips on western 16th Street are primarily local, with most trips beginning or ending in Potrero Hill (40%) and Showplace Square (29%). Surprisingly, no significant trip market was found that has no trip end on the corridor at all (i.e., using 16th as a through route). Many of these drivers on western 16th street seem to be Showplace Square employees driving home along 16th Street during the PM peak to destinations like Sunset, Castro/Noe, and non-SF locations.

Pedestrian Conditions

16th Street corridor pedestrian conditions vary widely with the adjacent land uses. Along western 16th Street (Mission to Kansas), where pedestrian activity is high due to a significant density of land uses and activities, there exist basic pedestrian facilities: relatively wide sidewalks, countdown signals at most intersections, crosswalks and curb ramps across 16th at all intersections except north northwest corners at Capp and at Utah, and lighting. Some exceptions to this are notable. For instance, the west side of Florida south of 16th Street has perpendicular parking on the sidewalk, which itself has no curb. This effectively replaces the sidewalk with parking that abuts the building. Between Bryant and Potrero at the Potrero Shopping Center, the 10' wide sidewalks accommodate MUNI bus shelters, resulting in a very narrow sidewalk clearance at these stops, especially the southwest corner of Potrero where only 3.5' remain between the back of a shelter and the edge of the sidewalk. The block underneath the 101 freeway is only partially paved.

Along eastern 16th Street (Kansas to Third), pedestrian level of service declines. Pedestrian activity noticeably decreases, reflecting a land use transition from mixed low-density commercial to light manufacturing / industrial. Though sidewalks are wide, where they have been installed, there are several discontinuities over which vehicles often park perpendicularly. Streetscape features such as trees, and pedestrian-oriented lighting are few. Finally, traffic controls and crosswalks are virtually non-existent. After the I-280 freeway overpass near Mississippi, the lack of a paved sidewalk and considerable overgrowth on the southern side of 16th St here make walking an unpleasant challenge. Some sidewalk discontinuities are notable. New sidewalks installation is typically the responsibility of the property owner. Recently DPW confirmed with the property owner on the south side of 16th between Rhode Island and De Haro to install a new curb and gutter, sidewalk, and bike lane along the property frontage, where formerly the space was used for perpendicular parking that abutted the building. Other discontinuities include the sidewalk on the north side of 16th at Hubbell, which is very uneven and overgrown with weeds, and across from Missouri, where cars are

10 Source for occupancy rates in this paragraph: MUNI-Mariposa Parking Study (Preliminary Draft Report), Wilbur Smith Associates for SF Parking Authority, December 2001.
11 Authority interview with Barry Campbell, SF Design Center, 9/6/02.

parked on the sidewalk. On the south side of 16th from I-280 to 3rd Street the sidewalk is almost impassable at points, due to rough pavement and tall weeds.

On Folsom Street, which crosses 16th in the Mission District, mature street trees often block existing street lighting. The current lighting type is oriented for autos, not pedestrians, and sits higher above the street than would pedestrian scale lighting. Potrero Avenue lacks some pedestrian signals. On Kansas Street through Showplace Square / Potrero Hill, sidewalks are too narrow to easily accommodate both wheelchairs and trees.

Most pedestrian collisions, especially with vehicles, occur in the places with high pedestrian activity (see Appendix 5, Pedestrian Collisions along 16th Street). Pedestrian collisions were most concentrated within a quarter-mile of the 16th and Mission intersection, where pedestrian activity is generally high all day. Virtually no pedestrian collisions were reported on eastern 16th Street.

"...ALONG 16TH STREET (FROM KANSAS STREET TO THIRD AVENUE), PEDESTRIAN LEVEL OF SERVICE DECLINES NOTICEABLY."

Bicycle Conditions

Bicyclists use the entirety of 16th Street, even though western 16th has no bicycle facilities. Eastern 16th Street, which includes bi-directional bicycle lanes, actually has lower overall volumes. The higher bicycle volumes on western 16th are also reflected in recent bicycle collision data, which show most collisions occurring there (see Appendix 6, Bicycle Collisions along 16th Street). This bicycle corridor interlines with major north-south bicycle routes on Market, Valencia, Harrison, and Kansas Streets. Bicycle travel is growing and a safe east-west route is needed through the 16th Street corridor. DPT has completed preliminary engineering for potential east-west bicycle routes through the study area.

Parking Conditions

On-street parking in the 16th Street corridor study area is mostly free of charge and unregulated. The area has a few parking meters (located within two blocks of 16th and Mission Streets), and virtually no blocks have residential permit requirements. Approximately 87% of the parking spaces in the western part of the study area are free and unregulated; it is not surprising that these spaces are about 96% full during the midday.[10] Yellow curb-delivery space is probably under-supplied: only 2% of western 16th spaces have yellow curbs for deliveries, and in Showplace Square, yellow curbs were 93% occupied at midday. Western Showplace's off-street spaces, consisting mainly of business-serving private lots, were 79% occupied during an average midday. Showplace Square merchants such as the San Francisco Design Center have parking supply concerns. Although pricing of parking can increase utilization, many are reluctant to price customer parking to gain this added space turnover. There is also hesitancy to create dedicated delivery spaces. [11]

Eastern 16th, including central/eastern Showplace and northern Potrero Hill, has similar on-street parking conditions. Approximately 92% of on-street spaces are free and unregulated, 3% are yellow-curbed for deliveries, and there are no parking meters. On-street occupancy is high, particularly in central/eastern Showplace Square, with un-enforced blocking of driveways along some blocks. Showplace merchants in many cases have co-opted less defined on-street curb areas, permitting perpendicular parking against buildings with spaces marked as 'Employee/Customer Parking Only'.

"...ON-STREET PARKING IN THE 16TH STREET CORRIDOR STUDY AREA IS MOSTLY FREE OF CHARGE AND UNREGULATED.... IT IS THEREFORE NOT SURPRISING THAT OCCUPANCIES ARE HIGH AT APPROXIMATELY 96% DURING THE MIDDAY."

Finally, the red curbs at unsignalized 16th Street intersections are hazardous for all modes crossing or turning on 16th. The red curbs are too short to provide enough sight distance around parked cars to see oncoming traffic.

B. Needs Assessment

The eastern neighborhoods include several distinct areas of the city: Mission Bay, Potrero Hill, Showplace Square, and the Northeast Mission. In the last few years, land use has changed rapidly in some of the eastern neighborhoods, including the Northeast Mission Industrial Zone (NEMIZ). A major long-term transformation is underway in Mission Bay. As a result, 16th Street's role is quickly evolving, both as a component of the City transportation network as well as for the neighborhoods it serves directly.

According to the Planning Department's Rezoning Scenario "B," 4,300 new residential units and 6,150 new commercial jobs are expected in the corridor by 2025, not counting Mission Bay development (see Appendix 7 and 8, Growth in Housing and Growth in Jobs).

Implications for the Future Role of 16th Street

16th Street functions as both a neighborhood, pedestrian-scale street as well as a route for auto through-traffic. As land uses along the eastern 16th Street corridor convert to mixed residential, commercial, and light PDR uses, the conflict between local pedestrian trips and inter-district motorized trips will continue. As a result of proposed rezoning, Showplace Square may see the greatest conflict, as business-serving truck activity will likely contend with new local

serving residential, commercial, and cultural/institutional uses. Furthermore, large trucks in Mission Bay will contend with new local and inter-district demand generated by the development's full complement of residential, office, institutional/educational, and commercial / retail land uses.

As this development takes place, 16th Street's role as a transit and neighborhood-serving corridor will need to be greatly enhanced. Corridor improvements must accommodate a greater proportion of these newly generated trips by transit, bicycling, and walking rather than auto. A transit and pedestrian focus will be especially crucial in Showplace Square and Mission Bay, where significant development is anticipated.

C. Future Transportation Patterns and Performance

The San Francisco model was run to estimate travel demand and patterns today and for the year 2025 during the pm peak period. The analysis assumed that the City adopts the Planning Department's proposed Southeast Quadrant zoning scenario "B." Buildout of the Countywide Transportation Plan was also modeled to show the travel effects of the implementation of all modellable projects funded by Prop K. These projects include TPS treatment on 16th and other key congestion management strategies. TPS includes bus bulbs, boarding islands, signal prioritization, proof-of-payment, and low-floor buses to improve service reliability and increase travel times. The 10-Townsend was extended from its terminus near 16th Street to the southern end of Potrero Hill (Cesar Chavez Street). See Appendix 9 for a complete list.

Appendices 10 - 13 illustrate these findings in a set of spider diagrams. The daily and PM Peak motorized trip volumes and origin-destination patterns are shown for the Mission Bay and Showplace Square neighborhoods.

Traffic Volumes

By 2025, overall daily trips to/from the corridor will increase from 175,000 to about 303,000. The biggest effect on travel patterns in 2025 along 16th Street comes from the Mission Bay development. A significant proportion of the future travel - 48% - will be generated by Mission Bay. Auto trips on 16th near Mission Bay - at Mississippi and Third St - are currently minimal, but by 2025 will more than double, as shown in Figure 9. Current volumes of auto traffic in this area are so low, so more auto traffic can be accommodated; however, it is a reminder that all San Francisco's streets have a finite capacity to carry autos. As the neighborhoods around 16th continue to develop, they must do so in a way that allows transit trips and other alternatives to the single occupancy vehicle to be easily made.

About one quarter of future travel to and from 16th Street corridor neighborhoods will be regional tripmaking to and from areas outside of SF. The balance - the majority of travel demand on the 16th Street corridor - will come from San Franciscans. The average auto trip using 16th Street will increase in distance and time.

Figure 9

Roadway Auto Volumes on 16th Street
3-Hour PM Peak Period

Cross Street	2000	2025	% Increase	Difference
Bryant	2,579	3,059	19%	480
Kansas	1,670	2,579	54%	909
Mississippi	1,032	2,218	115%	1,186
Third St	806	2,597	222%	1,791

Transit Volumes

In the future, the 22-Fillmore will run down the entire length of 16th street into Mission Bay. The Third Street Light Rail line will have also opened. These changes have a complicated effect on future transit use along 16th. Westbound transit use along 16th will increase throughout the corridor, as shown in Figure 10. Approximately 77% of the new PM transit trips will originate from Mission Bay.

On 16th Street itself, transip will continue to comprise 30 - 40% of person trips using the street. However, for all trips coming from and going to the 16th Street corridor neighborhoods in the future, transit is still expected to carry only about 15% of all trips, even during the PM peak. The opportunity exists to better serve some specific travel markets with transit, described below, as well a regional tripmaking by connecting the 22 line service with Caltrain at either 4th and King or 22nd Street station.

Origin-Destination Analysis - Transit

Figure 11 reports future transit mode share results are mixed. The connections between Showplace Square and BART improve with TPS on 16th St, resulting in increased transit mode share for trips between Showplace Square and non-SF destinations via BART. However, transit mode shares are overall lower in the future for the top travel markets than they are today signaling the need to promote and improve transit (see Figure 12). Limiting parking at Mission

Figure 10

Transit Ridership on 16th Street
3-Hour PM Peak

Cross Street	2000	% of total	2025	% of total	% Increase
Bryant	1,815	41%	2,036	40%	12%
Kansas	1,061	39%	1,225	32%	15%
Mississippi	-	-	778	26%	-
Third Street	-	-	471	15%	-

Figure 11

16th Street Corridor Motorized Trips, Year 2025

All Trips to/from 16th Street Corridor Neighborhoods

	Total Trips	Regional Trips	% Regional	Transit Trips	% Transit
3 Hour PM Peak	66,312	17,562	26%	10,613	16%
Daily Trips	303,230	76,550	25%	43,723	14%

Bay may help with the non-SF to Mission Bay trips. On the San Francisco end of regional trips, the connections to BART and Third Street light rail must also be excellent to attract regional transit riders. Some trip pairs, such as between Mission Bay and Downtown, have a high walk/bike mode share.

Origins and Destinations - Auto

In the future, the number of auto trips on the eastern segment of 16th increases significantly from what it is today. On the eastern end, the auto trips are overwhelmingly heading to or from Mission Bay. Trips starting at Mission Bay tend to be either heading toward destinations outside of San Francisco or to the Marina/Western Addition.

Figure 12

2025 Top Travel Markets and Transit Mode Share

Origin District	Destination District	Total # of Trips	Transit Mode Share
Mission Bay	Non SF	6440	16.4
Showplace Square	Non SF	4255	31.6
Mission Bay	Downtown/SOMA	3111	17.5
Downtown/SOMA	Mission Bay	2848	13.1
Non SF	Mission Bay	2820	3.8

Figure 13

2000 Number of Trips within Top Transit Markets

Origin District	Destination District	Total # of Trips	Transit Mode Share
Showplace Square	Non SF	4255	31.6
North Beach	Potrero	503	29.1
Mission Bay	North Beach	1237	26.4
Potrero	North Beach	415	25.1
Showplace Square	North Beach	773	24.8

On western 16th, the most common auto trip origins are Mission Bay and Showplace Square. Trip destinations are much more diverse. This suggests that many of these travellers are employees heading home from Mission Bay and Showplace Square.

A key new market of future auto trips is travellers heading to the Castro/Noe from Mission Bay. They drive private vehicles because they don't have very good transit options. Auto origin and destination data from the SF Model show that people are making car trips for O/D pairs that are served by future transit. This indicates that transit is not competitive in these travel markets. Examples of these markets include:

· Trips between Showplace Square and Castro/Noe, the Sunset, and the Marina/Western Addition
· Trips coming from Potrero and going to the Marina/Western Addition
· Trips between Showplace Square and destinations outside of San Francisco.

These auto dominated trips are all opportunity markets for MUNI and regional transit providers.

Implications for 16th Street Transportation Functions

The key transrpotation challenge for this corridor as it grows into the future is to accommodate a greater proportion of future intra-district travel by transit, as well as accommodating future neighborhood scale travel on foot.

1. Neighborhood-Serving Transit Corridor

As new housing units, commercial job activity, and associated retail will add significant new local trips to the corridor, eastern 16th neighborhoods of Showplace Square, Potrero Hill, and Mission Bay will need to support a transit network. A review of the transit network and service level is needed in this area and should be a focus on MUNI's forthcoming Network Study.

To an extent, planned TPS corridor improvements and MUNI's 22-Fillmore extension into Mission Bay will address future local transit demand along 16th Street. However, they will not fully close gaps in local neighborhood transit service. Potrero Hill, in particular, will lose the 22's direct local connection to 16th Street BART. MUNI has conducted service planning and outreach to identify an acceptable compromise. Uncertainty remains over the transition service, since it may not be feasible to establish the entire new transit netwrok simultaneously , due to the Mission Bay development sequence.

Line 53, another local Hill transit route, is circuitous and infrequent. Currently, MUNI is investigating a suitable 22 replacement service, which may involve rerouting another area route. In the future, 16th Street will need to become a primary transit corridor to accommo-

date growth in Potrero Hill and adjacent neighborhoods. Better connections to Caltrain service will also be crucial as regional travel demand increases.

2. Corridor Serving Inter-District Trips by Auto and Transit

A greater proportion of the demand generated by new development should be accommodated by alternatives to the auto, especially beyond 2025 as 16th Street reaches its capacity for auto traffic. This includes reducing the time of a transit trip and improving regional transit connections.

MUNI's 45/30 extension will improve downtown transit access from Mission Bay and Potrero Hill, but these service changes will not fully address gaps in inter-district transit access, particularly via BART and Caltrain. Corridor-area connections to Caltrain will remain deficient. MUNI Line 48 in southern Potrero provides the sole connection to the 22nd Street Station, while the 10-Townsend in western Showplace is the only direct connection to the 4th and King station .

Two key considerations are important in weighing strategic transportation improvements for the 16th Street corridor. First, existing right-of-way (ROW) is set; the numerous adjacent buildings and properties prevent an outright widening of 16th street. Thus, some amount of road space will inevitably be re-allocated from autos to transit; these tradeoffs are the first issue. Second, 16th Street's at-grade Caltrain crossing will delay Mission Bay trips from the west. Increased Caltrain express service (Baby Bullet) will also contribute to future delays to autos on 16th Street delay.

The primary strategy for raising the overall level of transit service on 16th Street is to implement Transit Priority treatments along the corridor, from BART to Mission Bay. 16th Street is designated as a Transit Priority Street (TPS) eligible for Transit Priority Treatments funded by the Prop K Expenditure Plan. TPS treatments include proof of payment, real-time arrival information, and infrastructure such as bus bulb-outs. TPS is a realistic near-term improvement in transit service levels, commensurate with expected transit demand levels and within existing financial constraints.

In addition to reducing transit travel times for trips within San Francisco, TPS will reduce the transfer burden for regional transit trips that connect to BART by providing real time transit arrival infomration. Other creative ideas for reducing the transfer penalty are not yet under consideration but are worth pursuing, such as relaying real-time information about BART arrivals to MUNI operators. In addition to installing real time arrival infomration in bus shelters, major development projects at Mission Bay or large residential buildings could install real time transit information in lobbies.

As TPS treatments are implemented along 16th, auto traffic may divert to other streets in the corridor. Reconstruction of the grid network would assist in dispersing mixed traffic. Areas with discontinuous grid include the area between Harrison and Potrero Streets north of 16th Street, and discontinuities (e.g., Mariposa, 18th Street) passing under 101.

"... AS MISSION BAY AND THE EASTERN NEIGHBORHOODS GROW IN RESIDENTIAL AND EMPLOYMENT ACTIVITIES, A COMBINATION OF TRANSIT PLANNING, STREET DESIGN TREATMENTS AND DEMAND MANAGEMENT ACTIONS WILL BE NECESSARY."

As growth in auto trips occurs in the future, mixed traffic will increasingly impact transit operations, particularly on TPS corridors where transit continues to operate in mixed traffic without a dedicated facility. Several strategies to monitor transit performance and plan for future major transit investments could be undertaken. The effects of auto congestion on transit performance should be monitored thorugh the Authority's Congestion Management Program (CMP) Level of Service (LOS) monitoroing efforts, which will inculde transit speeds as well as average auito speeds in the data collection effort starting in 2006. This data will allow MTA to compare person-delays on 16th with delays other corridors, documenting increases in the need to separate transit from mixed traffic as ridership grows, and build the case for prioritizing more aggressive transit treatments on 16th relative to other corridors.

Inter-district trips may also be made by bicycle, especially in combination with BART or Caltrain. DPT's preliminary engineering work for the Bicycle Plan Update indicates that a bicycle lane in each direction could be accommodated on 17th Street, with some lane and parking space reconfiguration. Providing bicycle lanes in each direction on 17th would reduce the conflicts between bicycle and transit operations and allow for more rights-of-way to potentially dedicate to transit on 16th.

The proposed Mission Creek Bikeway could also provide a significant east-west connection from the Mission District to Mission Bay. The Mission Creek bikeway concept does face some implementation challenges, including the need to aquire property rights of way and the construction of

5 This is an alternative to approving a project with a statement of overriding considerations.
6 CA Public Resources Code, Section 21080 (c)

an additional Caltrain crossing. Despite these challenges, the Authority supports the plan concept and encourgages the city to seek opportunities to develop and implement the project in phases. The Blue-Greenway Project provides renewed opportunities to consider connections through this area.

3. Neighborhood Pedestrian Circulation Street

16th Street's neighborhood-serving pedestrian role will increase in significance, as new residentially-oriented land uses arise and corridor transit service increases. Eastern 16th Street currently has limited and deficient pedestrian accommodations, with few crosswalks and traffic controls.

New residential, retail, and employment activity will generate significant new pedestrian trips. Sidewalks, lighting, street furniture, and other pedestrian-supportive infrastructure must be addressed now to accommodate a pedestrian-oriented residential environment. These features promote the 24-hour pedestrian street activity found in mixed-use residential neighborhoods such as the Mission District. Furthermore, traffic-calming measures including street pedestrianization can enable neighborhood street activity while de-emphasizing through vehicle traffic (as well as providing valuable open space opportunities, which this corridor also lacks).

4. Local and Inter-District Truck Corridor

Truck activity on 16th Street will continue to grow, as job growth continues in the corridor area. Commercial jobs may increase up to 25% in Showplace Square and up to 19% in the Mission, which would mean more delivery activity in particular. This is despite overall a projected stabilization or decline in area PDR jobs.

The issue of increased commercial traffic will be particularly acute in Showplace Square. While parking conditions are currently constrained, merchants are reluctant to increase yellow curb space for truck loading. Furthermore, new residents through rezoning will likely compete with business customers for on-street parking without an overall parking strategy.

This latter conflict of truck operations and residential travel will be exacerbated as the number of residents in Showplace Square increases. The Mission District already experiences this conflict. Truck routing and permitted hours of operation, particularly in Showplace and Mission Bay, will need to be closely examined, as there are currently no official truck routes and virtually no vehicle restrictions within the corridor area. Truck hours of operation could potentially be restricted to coordinate (i.e., stagger) loading/unloading time periods with peaks in demand for passenger parking.

DPT currently uses truck routes for the purpose of directing trucks away from or around streets that are restricted to truck traffic. DPT may want to consider a policy of designating truck routesin the way bicycle routes are dedicated - as guides directing freight traffic to those routes where it can best be accommodated.

5. Transit Operations Funding

Many of the capital improvements needed to improve 16th Street to fit this future role are fundable through developer contributions, Prop K, and other sources of capital funding. However, support for increased transit operations to meet the increased demand for transit in this corridor are not identified. Mission Bay developers are providing various transportation mitigations including street construction and signal installation. However, developer contributions to transit are limited to providing overhead captial infratructure to support the re-routing of the 22 and the 30/45. Funding for the increased service on the 22 and the 30/45 that must be extended into Mission Bay is not provided. , is. Mission Bay development is specifically exempted from MUNI's key source of operating funds to mitigate the impacts of new development on transit, the Transit Impact Development Fee (TIDF). This situation puts the city's ability to meet the needs of 16th Street corridor growth through transit in an uncertain situation.

IV. NEXT STEPS AND RECOMMENDATIONS

The following section outlines near, medium and long-term recommendations to address the transportation needs in the 16th Street corridor. Demand side and supply side measures can be taken in these time frames to counteract the increasing auto mode share trend. Recommended trategies for achieving this goal include: 1) on the supply side, provide TPS treatments, a bicycle facility on 17th Street, and improve pedestrian conditions and neighborhood serving land uses; 2) on the demand side, ensure that new development incorporates "transit first" principles, especially aggressive parking management and other TDM measures.

Short-Term Strategies and Projects (Within 2 years)

· TPS treatments on 16th Street. 16th Street is eligible for Transit Priority treatments in the Prop K Expenciture Plan. The next update to the 5 Year Priroitization Plan for the Prop K category A1a, Rapid Bus Network including Real Time Transit Information, should reconsider the urgency of 16th Street TPS

improvements relative to other designated TPS routes.

· A review of the transit network and service levels is needed in this area, and should be a focus of MUNI's forthcoming Network Study. This undertaking is an opportunity to confirm previous service planning efforts for replacing the line 22 service to Potrero Hill and connections to Caltrain. A new route is needed to ensure an overall service improvement in Potrero Hill rather than net loss. The Authority's recently completed transit O/D study results will aid in this effort. MUNI should also participate in the Authority's upcoming Caltrain station access study to identify better connections with regional transit services.

· MUNI, DPT, and DPW should also work together to improve overall transit circulation in the Showplace Square neighborhood, particularly the central/eastern section by re-connecting east-west through streets or optimizing transit routing to reduce circuitous transit routes. Pedestrian zones would promote foot-traffic. Adding alleyways can also reduce block sizes.

· Transit operations financing strategy. Given MUNI's financial constraints, changes to routing or service levels need to be prioritized from efficiency gains or new sources of transit operations finance. Just as crucial, the Authority should work work with MUNI, the Redevelopment Agency and the Planning Department to secure funding for expansion of transit service as development occurs. The new capital and operating needs resulting from such service should be prioritized for TIDF revenues and developer contributions as well as tax increment financing proceeds. Creative solutions involving emerging businesses and major employers should be explored - the UCSF shuttle service on 16th Street, funded by the Authority through TFCA, is one such example of public/private partnerships.

· The Redevelopment Agency plans and develops projects that are funded by tax increment revenues in the Mission Bay redevelopment area. The Agency and Authority should coordinate in the development and funding of recommendations in this report, through each agency's 5-year fund programming process.

· Prioritize and implement safety improvements to eastern 16th Street neighborhood street infrastructure. Often, existing pedestrian infrastructure deficiencies are improved as a condition on the approval of new development projects, or as mitigation for the traffic impacts of new development, resulting in the piecemeal improvements of today. DPT should prioritize pedestrian safety projects in this area in the forthcoming pedestrian master plan. Some projects should go forward immediately such as a review of sight distances and red curbs.

DPW plans to resurface the western section of 16th street (from Market to Bryant) in FY 05/06. The project should be used as an opportunity to upgrade the sidewalk deficiencies in the western portion of the corridor up to Bryant. In particular, the street and sidewalk infrastructure should be brought up to standards on the portion of 16th Street through Bryant Street, by adding the missing curb ramp on Capp, making crossing distances shorter at higher use locations and closing discontinuities in the sidewalk.

· In order to close the bicycle system gap, this SAR recommends a bicycle lane in each direction on 17th Street. Available right of way on 16th Street is limited and should be prioritized for inter-district transit and pedestrian uses. 17th Street is a flat direct route 1 block to the south and it offers a comparable level of service. Evenutally, the proposed Mission Creek Bikeway could provide a significant east-west connection from the Mission District to Mission Bay. The Blue-Greenway Project provides renewed opportunities to consider connections through this area.

· TDM. The Department of the Environment's TDM program should target large employers in Showplace Square and Mission Bay to promote transit use through Commuter Benefits and Emergency Ride Home programs. This can reduce parking demand and provide a more affordable commute option for workers in the area.

· DPT should consider designating freight routes for the corridor neighborhoods to provide ready access to area businesses but avoid newly developing residential areas to the extent possible. DPT should investigate time-of-day restrictions which minimize the impacts of daily freight activities on new residences.

· DPT should evaluate existing signage for freight and other through traffic in the corridor area. Currently, the 16th Street area has minimal signage to direct freight and other traffic through the area and to key destinations, such as the Showplace business district. Through routes designated by signage will help minimize potential freight / pedestrian conflicts, as well as cut-through traffic.

· 16th Street will acquire additional traffic signals, through planned Prop K 5YPP upgrades at the intersections of 16th with Mission, South Van Ness and Potrero, and eventual TPS signalization efforts to provide transit signal priority. With each traffic signal, DPT should ensure adequate pedestrian facilities (pedestrian countdown signals, corner bulbouts and cross-walks).

Medium-Term Strategies and Projects (2-7 years)

distributing spaces. To promote affordability of housing, the Planning Department should offer or require less than a 1:1 parking ratio, or "in-lieu" fees in the place of parking provision. The Planning Department or developers could pool some revenue from parking space lease sales and subsidize transit pass programs for lower income residents. The Planning Department should seek development controls similar to the Transbay Plan that restrict parking supply and unbundle the cost of residential parking.

Land use mix is also an important demand management strategy. A mix of neighborhood services creates more opportunities to walk to neighborhood services rather than to drive. The Planning Department should sponsor strategies to promote neighborhood identity such as design competitions for streetscape plans and neighborhood logos.

· Site Review. The Planning Department should review the site planning and freight design of new development to enforce north-south street loading and unloading activity where alleyway or off-street loading is unavailable or infeasible.

· Developer Contributions. Consider programs for developer participation in improvements, such as contributions to street infrastructure and open space. A benefit assessment district could fund improvements that connect new housing with shopping and other neighborhood services. This would be a way to manage parking and traffic demand and involve residents and businesses in a shared initiative.

· Prioritization of east-west passenger traffic routes. In its Central Waterfront Neighborhood Plan, the Planning Department identified design treatments that balance pedestrian and transit access demands of residents and workers with the freight access needs of existing industrial businesses. These treatments are suitable for the Showplace Square area as parts of the neighborhood develop into mixed residential/design PDR districts. Design treatments primarily consist of continuous sidewalk, crosswalks, curb ramps, countdown traffic signals, and pedestrians-scale entrances on the east-west faces of buildings (e.g., for offices),and serve to provide ready pedestrian access to local residential, retail, employment, and transit stop destinations. In addition, bicycle routes would also be prioritized along east-west corridors. The Planning department should consider these strategies in the EIR for the Showplace neighborhood rezoning.

· Prioritization of north-south freight routes. The Central Waterfront study also identified the importance of preserving freight access to existing industrial/PDR business. Strategies that would also be applicable along 16th Street, particularly in Showplace Square, include so-called "flex zones". These are street rights-of-way which do not include sidewalks or other permanent encroachments on service freight access to industrial buildings. This promotes flexible industrial work zones that can operate without interference from other modes. Here, Planning is also encouraged to establish a framework during its neighborhood EIR process. If multimodal activity is encouraged on the east-west streets (per the above), then "flex" zones may be appropriate for the north-south streets, especially since freight accesses the highway in the north-south direction.

· As residential and employment activities grow, so will the importance of parking management strategies and regulating parking in Showplace. DPT should work with the neighborhood residents and businesses to develop a comprehensive parking management strategy. Such a strategy should balance the industrial, office, and residential parking needs in a rezoned Showplace. DPT should look at parking turnover rates and review the allocation of yellow curb (freight loading areas), parking meters, and signed parking. Other parking management strategies include non-business hour, public use of private off-street lots, as well as various time-of-day pricing schemes. Carshare and bicycle parking are also important elements to promote where thousands of residences may be built through rezoning.

· MUNI electrification projects. MUNI has identified three routes for electrification in the corridor study area, including the 9-San Bruno, the 10-Townsend, and the 19-Polk. The 9 (at an estimated capital cost of $52.5 million), the 10- ($15.8 million) and the 19 ($72 million) are included in MUNI's Short Range Transit Plan (SRTP). MUNI should seek neighborhood input on these projects including regarding coordination opportunities with other agencies to implement transit-supportive improvements.

· Street pedestrianization and traffic calming. Planning has identified strategies which promote neighborhood streets as outdoor meeting places and calm or divert through vehicle traffic. Planning, DPT, and DPW should evaluate these strategies and implement them as new residences warrant. The Prop K Expenditure Plan has set aside programmatic funds to aid in building pedestrian and bicycle-supportive infrastructure. These approaches are recommended not for 16th Street itself, but for segments of parallel streets in the corridor.

· Coordination on future TLC grants. The Authority will coordinate with sponsoring agnecies to capture MTC Transportation for Livable Communities (TLC) grants and other regional, state and discretionary funds through leverage of Prop K Category Dii: Land Use/Transportation Coordination funds. Streetscape,

pedestrian and transit projects that support higher-density, mixed-use development on 16th Street would be suitable candidates.

· Monitor transit average speeds and performance to document the impacts of mixed traffic on transit performance. The Authority will monitor average transit speeds in addition to auto speeds in future CMP LOS monitoring cycles. Moreover, the Authority's SF Model will, within a year, have the ability to estimate the impacts of increased auto traffic on transit speeds and performance. This tool will help to identify any future need for more aggresive separation of 16th street transit from mixed traffic as the area grows.

· Reduce the transit transfer penalty through increased availability of real-time transit information. As new buildings are developed, especially major institutions in Mission Bay, the city should negotiate with developers to intall real time transit information displays in building lobbies, in addition to real time information at shelters. More visible transit information will reduce the uncertainty and safety concerns associated with commuting in the 16th Street corridor by transit.

Long-Term Strategies and Projects (8-10 years)

In the long term (8-10 years), the full-build Mission Bay street network is expected, and the mixed-use development itself could be substantially complete. Some new Showplace residences and offices projected from rezoning are likely to be in place.

· Study and implementation of Caltrain grade separation. Given 16th Street's current role as the primary east-west route between Mission Bay and city districts to the west, a grade separation of the Caltrain crossing is recommended in the long term. Future major transit infrastructure and service improvements are dependent upon this eventual grade separation. MUNI, DPW, DPT, and Caltrain are the primary agencies to coordinate and lead this effort. This major capital project was analyzed but ultimately not included in the Prop K Expenditure Plan because of funding constraints. The project is included in the Caltrain Joint Power Board's (JPB) latest Capital Improvement Program at a cost of $59.5 million, though it is low on JPB's priority list. The JPB project would include expanding Caltrain to four tracks. A logical long-term solution would be to include the project as part of future high-speed rail (HSR) upgrades.

· Reconfigure the street grid connecting Mission Bay and Showplace neighborhoods. During the project development stage of Mission Bay, the issue of its street connectivity with surrounding street grid systems was not comprehensively addressed. For MUNI, this meant limited choice for routing the 22 and 45/30 lines between Mission Bay and adjoining neighborhoods. This was due to the very few east-west through-street connections to Mission Bay (which also cross Caltrain tracks), as well as the large-block street grid in central/eastern Showplace. Reconnecting the street grid is an effective way to take advantage of the grid system's ability to disperse traffic, to help reduce pressure on the corridors, such as 16th street, that are now functioning as gateways into Mission Bay.

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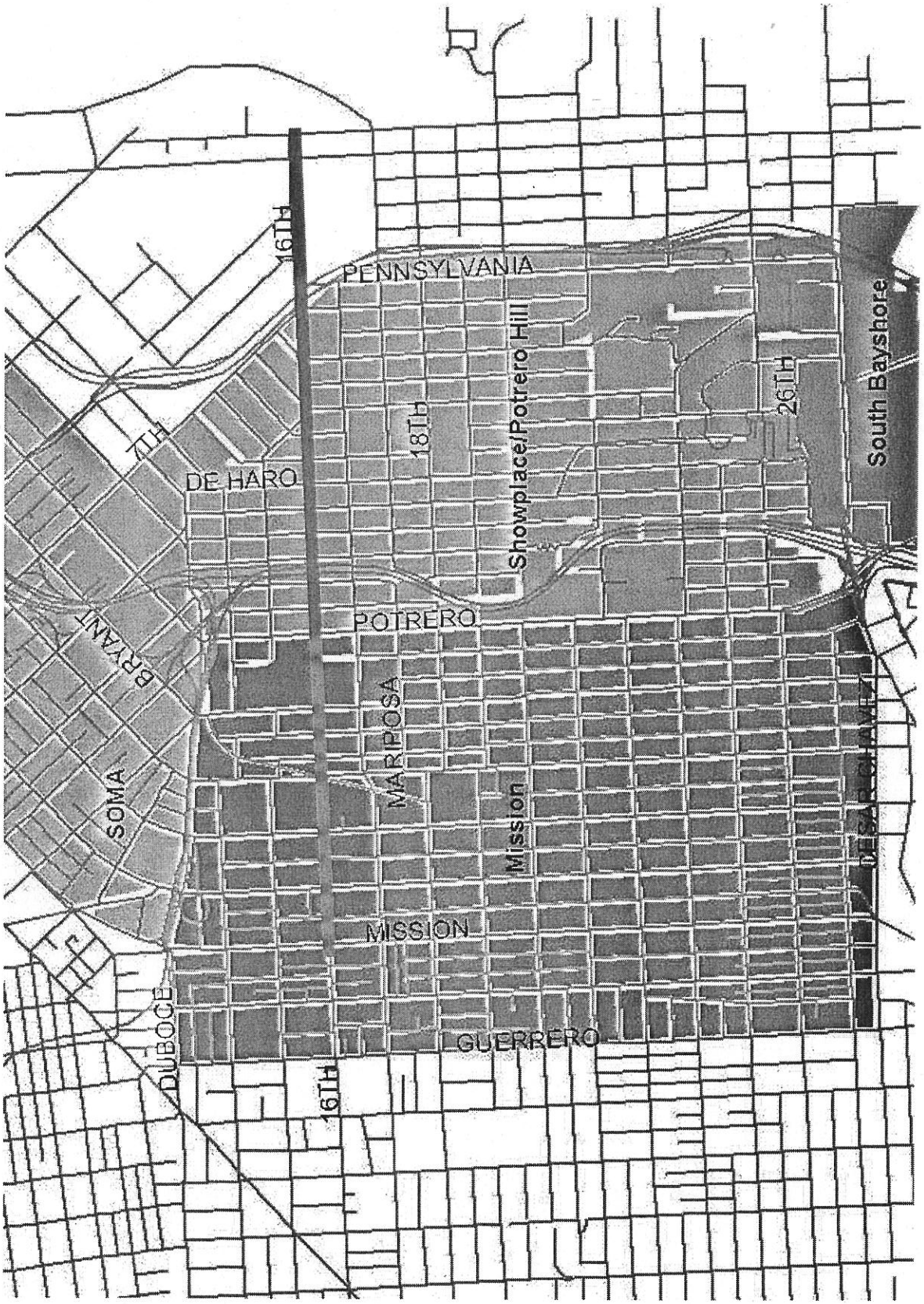
VI. AUTHORITY STAFF CREDITS

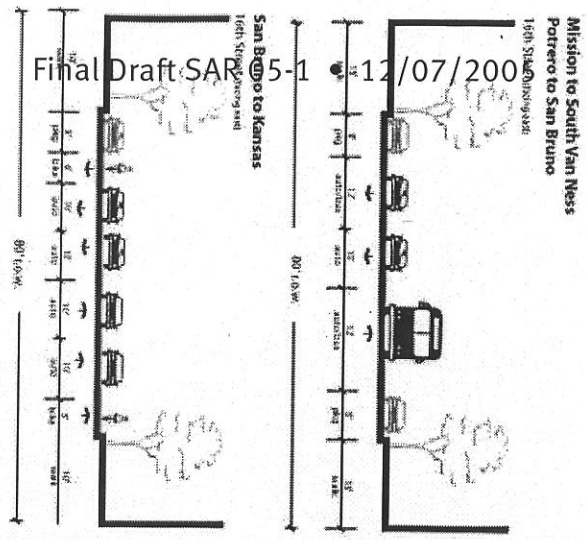
The Authority is indebted to a number of staff members for their contributions to making this SAR possible. Rachel Hiatt (Planner)led the technical analysis and writing. Andrew Kluter (Contractor) assembled the draft, and contributed data analysis, GIS mapping, and research. Billy Charlton (Principal Planner) and Ajay Martin (Planner) provided the SF Model results. Tilly Chang, Deputy Director for Planning, oversaw the study and guided the preparation of the report. George Oliver (Intern) assisted with GIS mapping and data collection. John Seagrave (Intern) also assisted with field data collection.

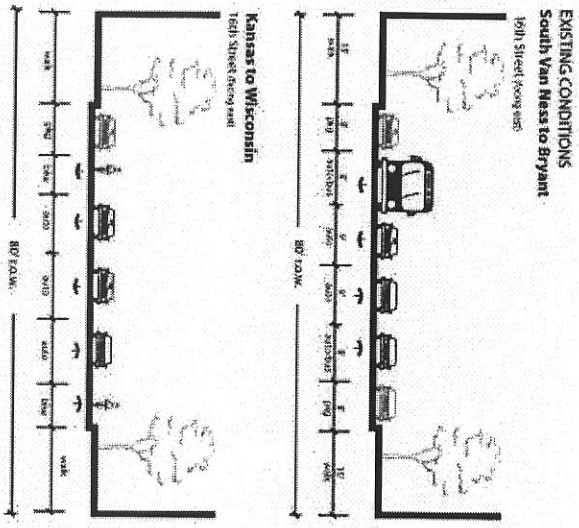
JOSÉ LUIS MOSCOVICH, EXECUTIVE DIRECTOR

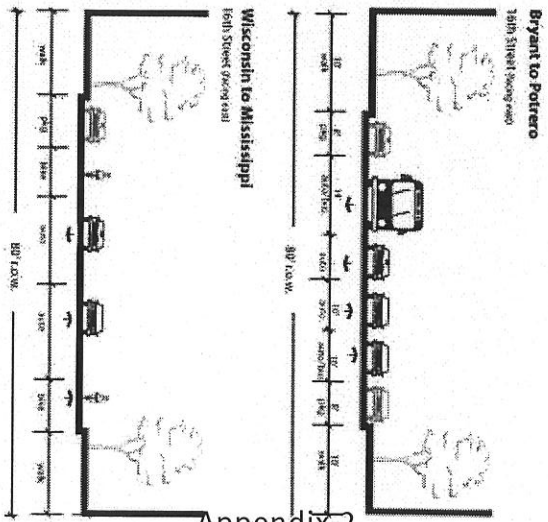
16th Street Study Area



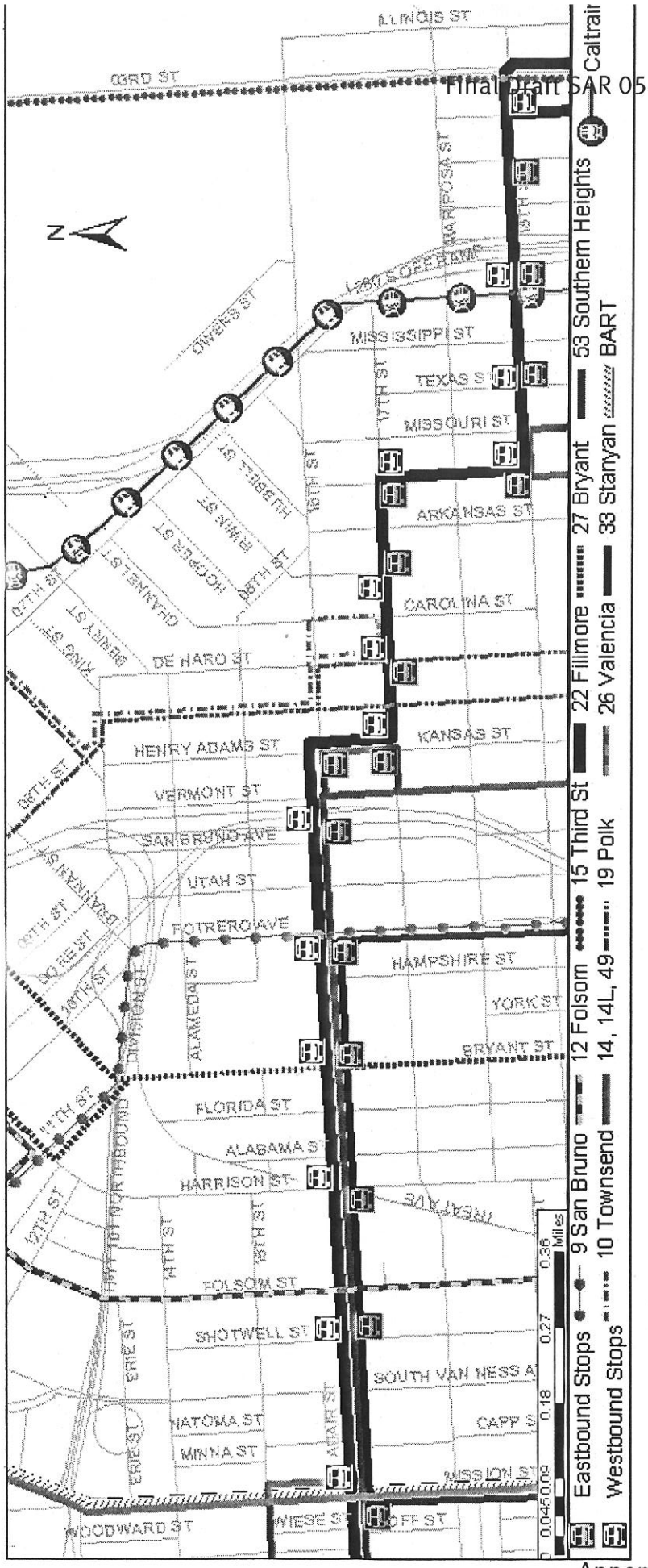
Appendix 1
16th Street Study Area







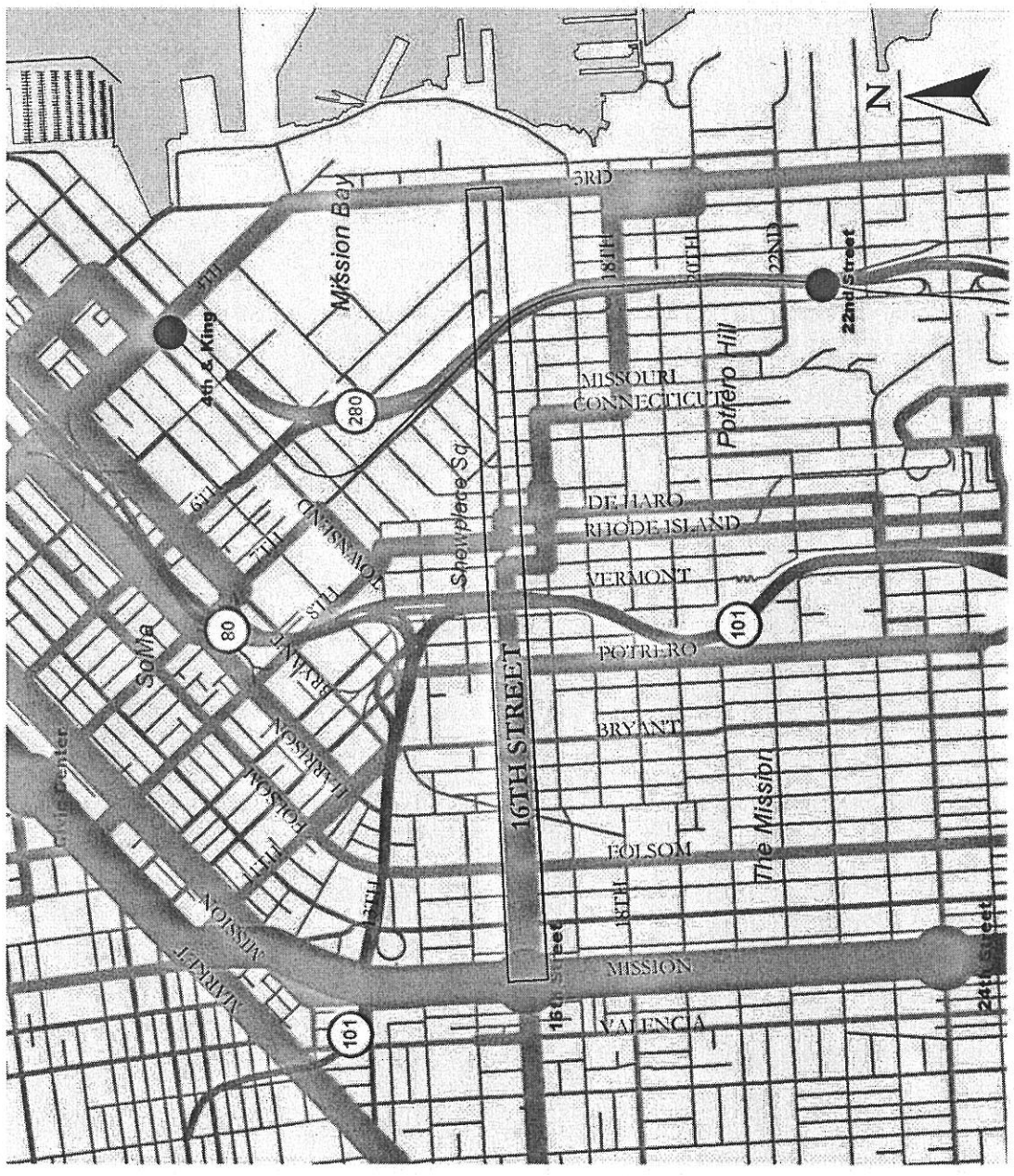
Appendix 2
16th Street Existing Cross Sections



Appendix A3

16th Street Corridor Transit Service

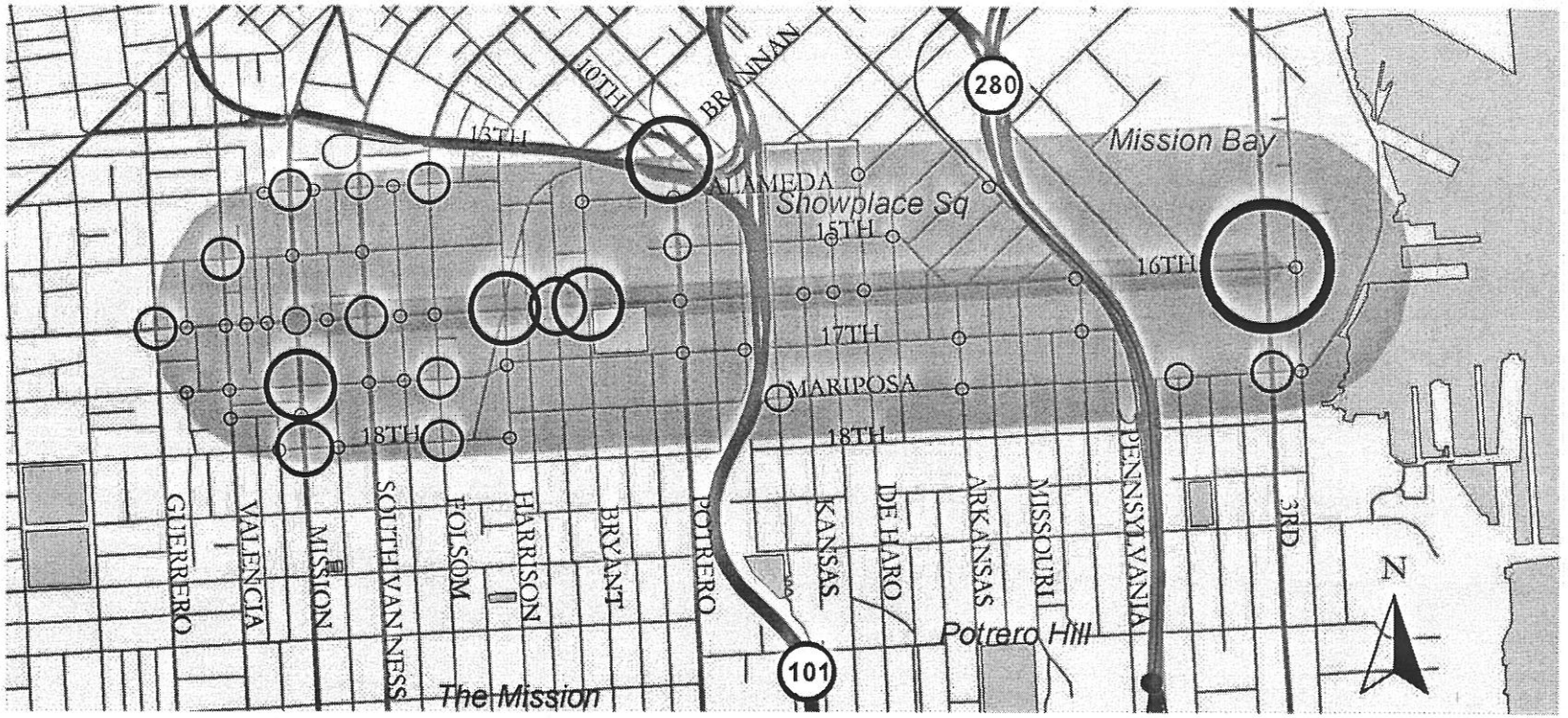
16th Street Study: Transit Frequency PM Peak (4 - 6pm)



Appendix 3
16th Street Corridor Transit Service

Appendix 4
16th Street Corridor Truck Traffic

16th Street Study: Freight Collisions



1 collision

3 collisions

9 collisions

BART

Caltrain

16th Street Study Area

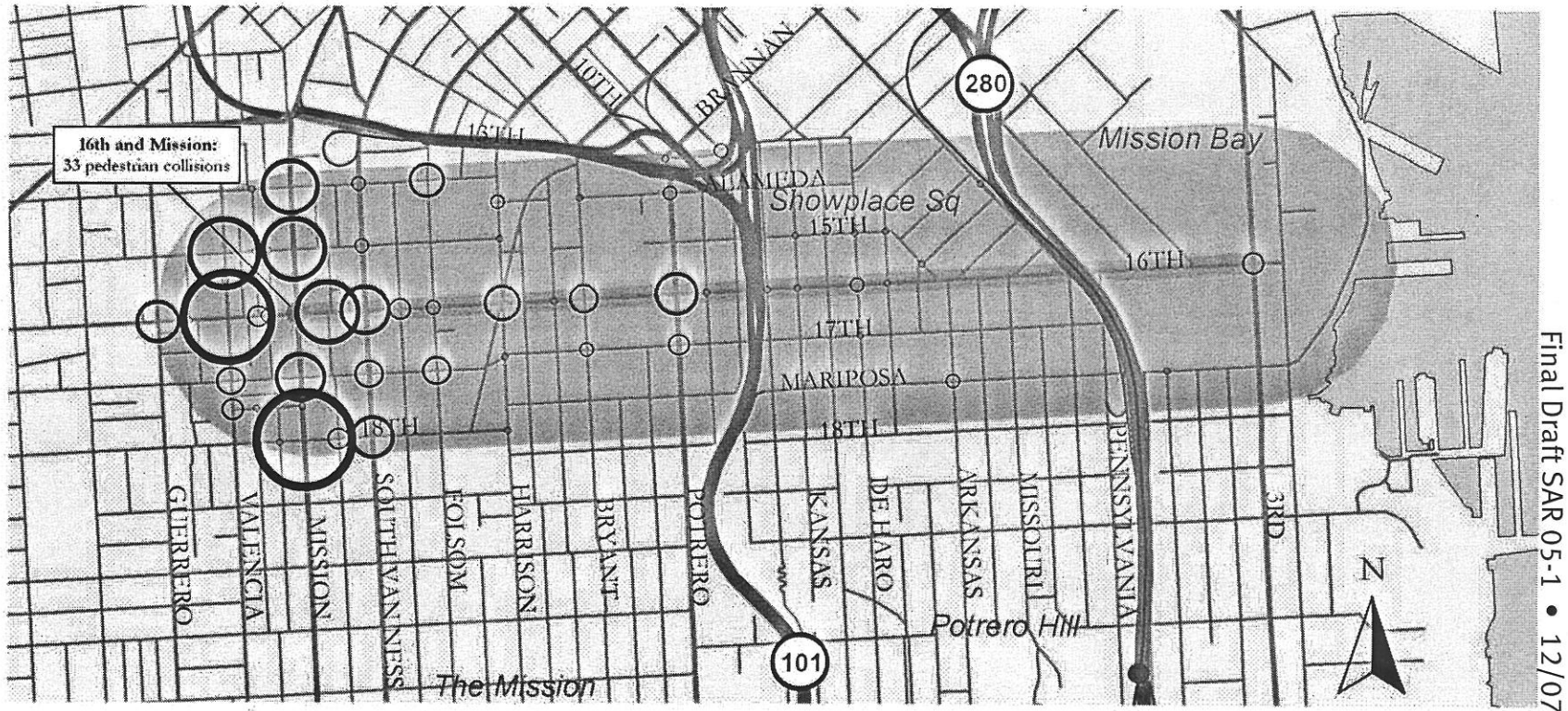
Region 1/4-mile from study area

All collisions are mapped to the intersection closest to their actual location.

Source: SWITRS 1995 ~ 2000

0 1000 2000 3000 4000 Feet

16th Street Study: Pedestrian Collisions



1 collision
4 collisions
8 collisions
14 collisions

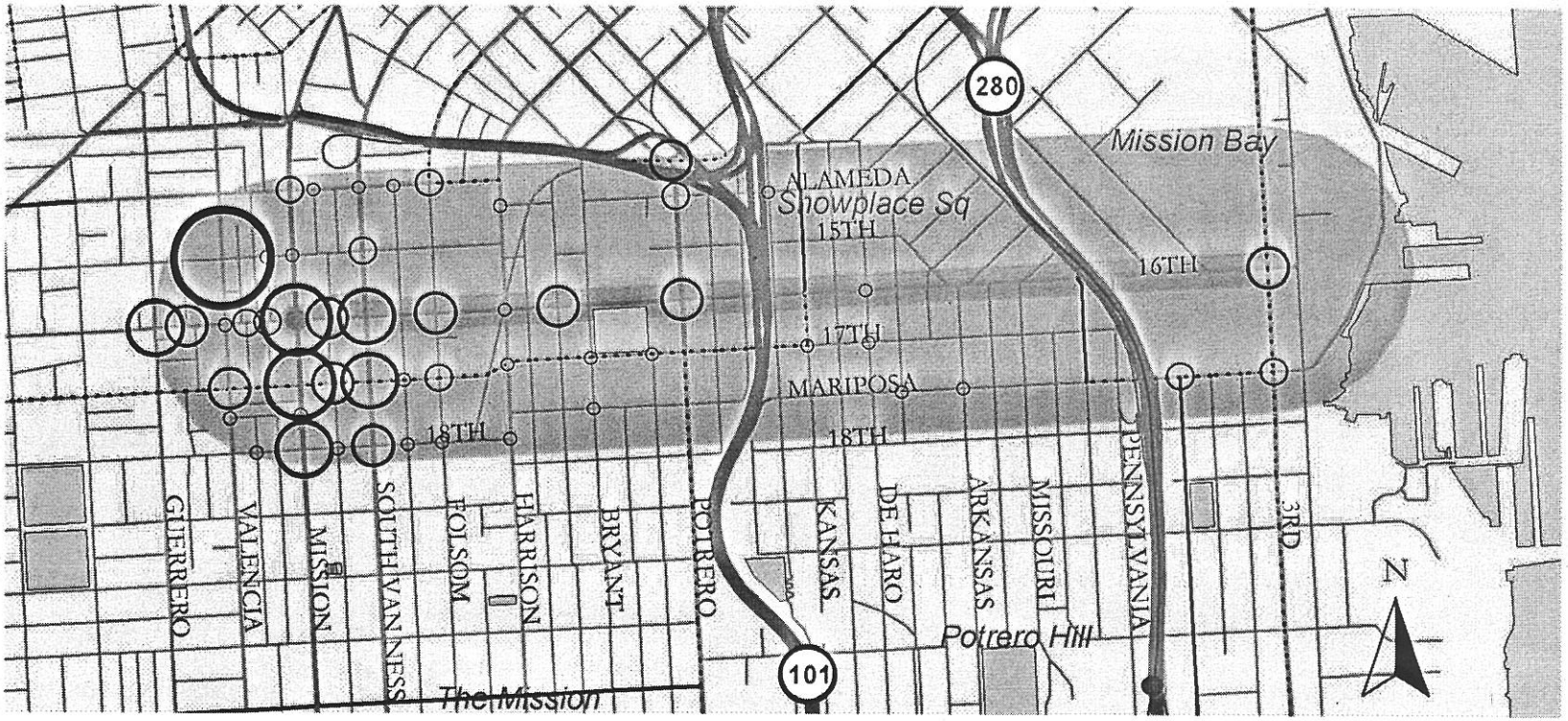
BART
Caltrain
16th Street Study Area
Region 1/4-mile from study area

All collisions are mapped to the intersection closest to their actual location.

Source: SWITRS 1995 ~ 2000

0 1000 2000 3000 4000 Feet

16th Street Study: Bicycle Collisions



1 collision

3 collisions

7 collisions

BART

Caltrain

16th Street Study Area

Region 1/4-mile from study area

Existing Bike Network

Bike Path

Bike Lane

Wide Curb Lane Bike Route

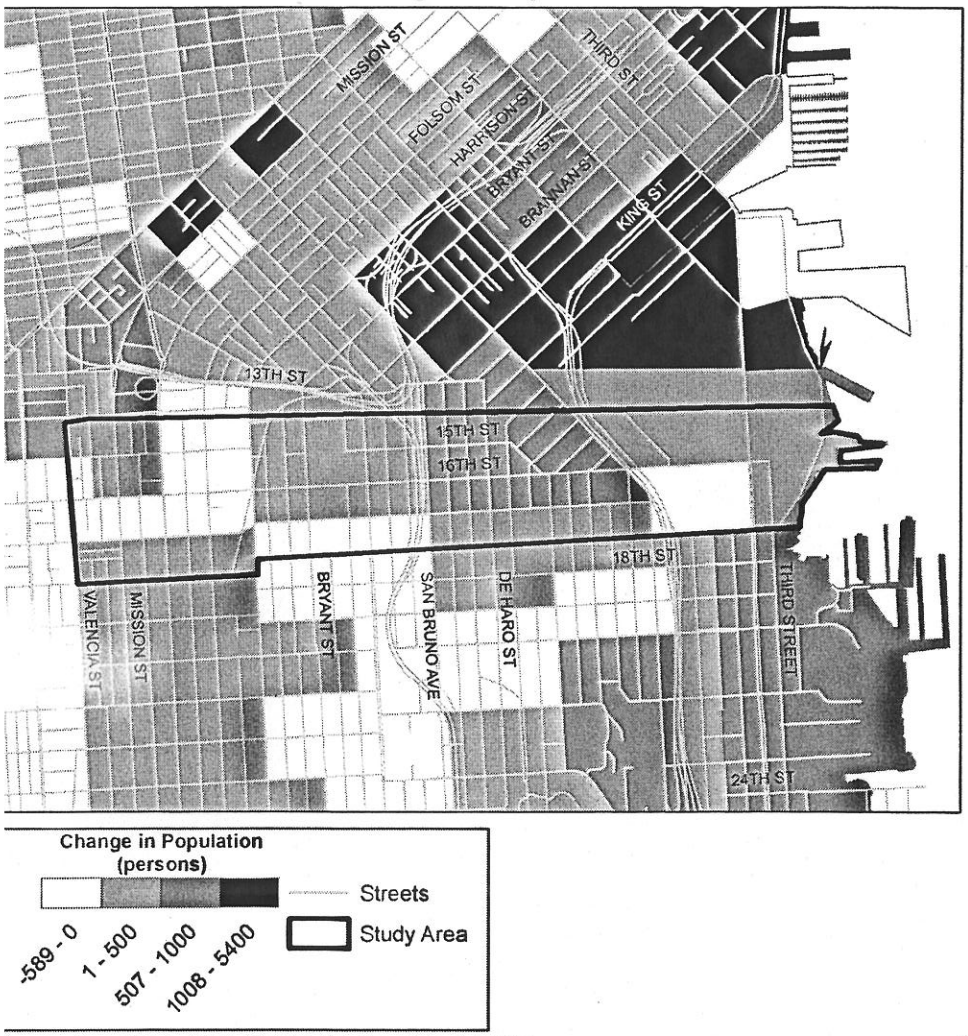
Bike Route

All collisions are mapped to the intersection closest to their actual locations.

Source: SWTRS 1995 ~ 2000

0 1000 2000 3000 Feet

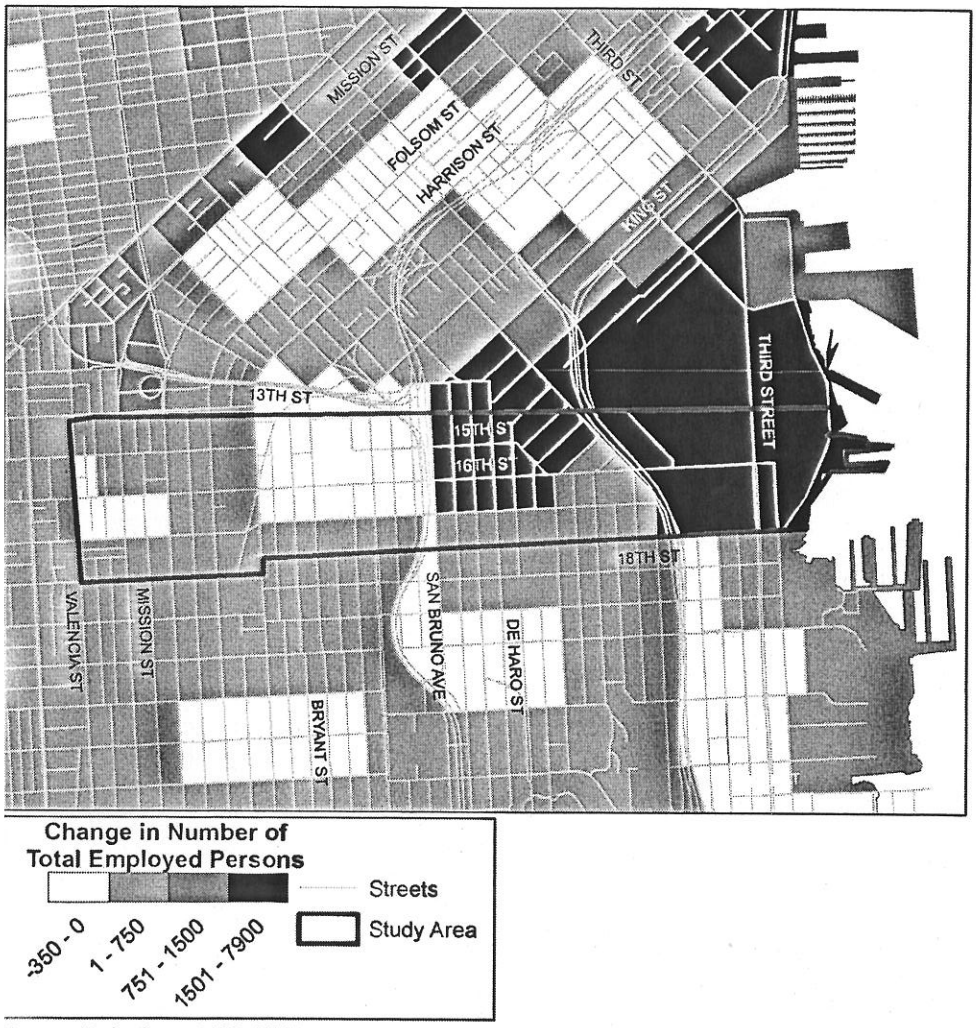
Change in Population



Source: Projections - 2002: SF Planning Department, ABAG

Appendix 8
SF Planning Department Scenario "B" Growth in Housing to 2025

Change in Number of Total Employed Persons



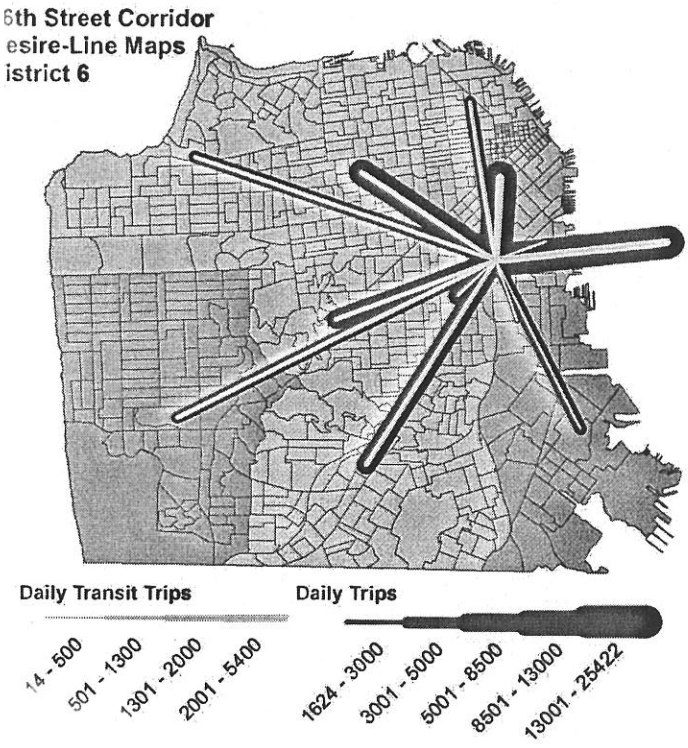
Source: Projections - 2002: SF Planning Department, ABAG

Figure 16 Transportation Improvement Assumptions

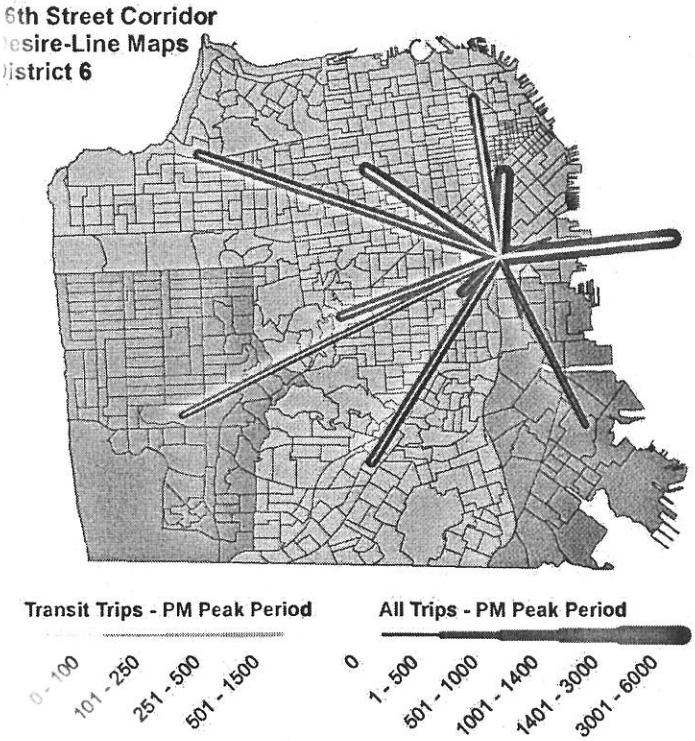
Mode/Network	*Existing Conditions (Model run 2000)*	*2025 "B +" Alternative (Land Use & Transportation)*
Transit		
BRT	(N/A)	Potrero Ave - between 15th and 25th Streets. Includes ridership from the 9 line. Van Ness/South Van Ness - from Van Ness/ Lombard to Mission. Includes exclusive transit lane in each direction, with permanent stations, and signal preemption for transit vehicles. Existing owl service is retained.
TPS	(N/A)	TPS-bus corridors along: ▪ Fillmore / 16th Street (Marina Green to Third Street) ▪ Mission (from 16th St. to Daly City BART). Would include bus bulbs, signal pre-emption, POP, low-floor buses ▪ Folsom (16th St NE to SoMa/ Embarcadero)
3rd Street Light Rail / Central Subway	(N/A)	3rd Street LRT from Sunnydale Ave/Bayshore Blvd to Clay/Stockton. Includes New Central Subway and a route from Clay/Stockton to Mission Bay.
	(N/A)	Bus Lines 9AX, 9BX, 15-Third Street removed because of 3rd Street Light Rail Line. 9X extended to Powell / Bay to replace north end of 15 line.
Bus Route Extensions	(N/A)	22-Fillmore southern end extended east from 16th and Kansas Streets along 16th Street to Mission Bay Development
	(N/A)	45 Union-Stockton extended at its southern end, from 4th / King to 3rd / 20th Streets (frequency also changed as result of Central Subway addition)
	(N/A)	10-Townsend extended from 16th Street/ Rhode Island to Connecticut / Cesar Chavez following route of 19-Polk. Travel time was extended to account for the lengthened route and was based on the speed of the 19 on that portion
Bus Route Additions and Changes	12-Folsom was modified in 2001. The route now travels on the Embarcadero	(same)
CalTrain	(N/A)	CalTrain Express service between San Francisco and San Jose including electrification. Additional speed and headway improvements as a result of Phase 2 "Baby Bullet" rapid rail plan.
	(N/A)	Relocation of Caltrain Paul Avenue station to Oakdale Avenue
BART	(N/A)	BART extension to San Francisco International Airport and Millbrae
Streets		
Central Freeway	(N/A)	Central Freeway removed north of Market Street
Illinois Street Bridge	(N/A)	Added Illinois Street Bridge over Islais Creek Channel (Port of SF has funding for project)
Mission Bay Development	(N/A)	Full-build neighborhood street network which will accommodate 30/45 MUNI extension N-S through development
Bicycles	(N/A)	Full-build of 2003 DPT Bicycle Plan Update

Figure 16 Transportation Improvement Assumptions

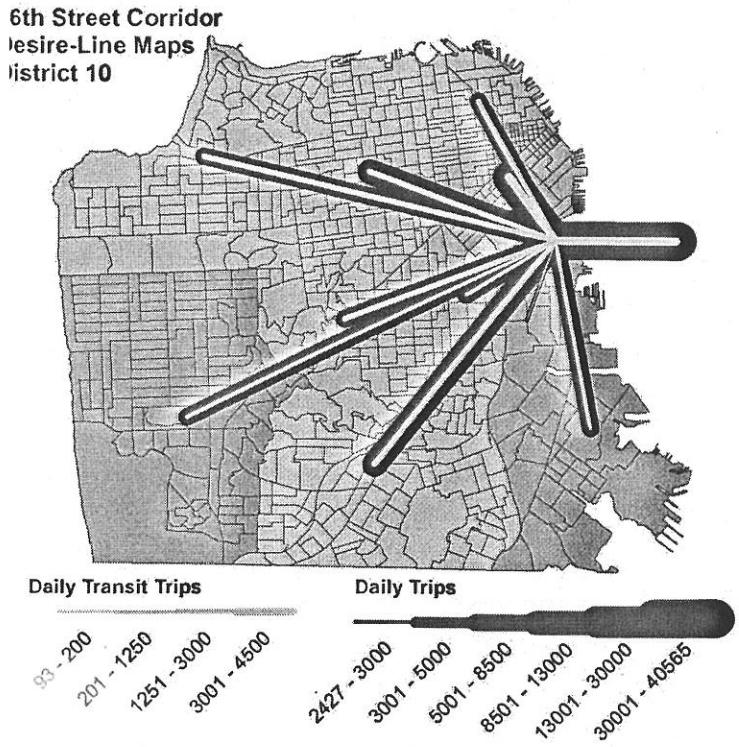
Mode/Network	*Existing Conditions (Model run 2000)*	*2025 "B +" Alternative (Land Use & Transportation)*
	(N/A)	Mission Creek Bikeway & Greenbelt **(not modelable)**
		14th/15th/16th/17th Streets E-W Corridor selected (DPT Bicycle Plan Update) **(not modelable)**
Land Use Assumptions	2002 ABAG projections	Planning Dept "B" on 2002 ABAG



Appendix 12
Future Trips to and from Showplace Square – PM Period Trips, 2025



Appendix 13
Future Trips to and from Mission Bay – Daily Trips, 2025



Appendix 14
Future Trips to and from Mission Bay – PM Period Trips, 2025

	16th Street SAR Table of Comments and Responses			
	Comment	**Source**	**TA Response**	**Revision to SAR**
1	BRT/transit lanes: Why does the SAR not recommend BRT/dedicated transit lanes on 16th street?	SF Planning Dept.	The SAR recommends TPS as a realistic near term improvement in transit service levels for the 16th Street corridor. TPS treatments are commensurate with existing transit demand levels and within existing financial constraints. San Francisco's limited BRT resources have been prioritized for other corridors in the city that need BRT service immediately.	No Change.
2	Won't increased auto use/congestion in the 16th Street corridor have a significant effect on transit operations?	SF Planning Dept.	Yes. As development occurs and congestion grows along the corridor, the SAR recommends several strategies to monitor transit performance and address the need for higher levels of priority for transit. For example, the Authority will be expanding it's CMP level of service monitoring to include transit speeds in addition to auto speeds. This data on transit and traffic speeds on a given corridor such as 16th Street will document the need for signal priority, right turn pockets for autos, and separation of transit from mixed traffic. In addition, the SAR recommends planning for future major transit capital investments by securing funding to grade separate the Caltrain crossing. Any major transit capital investment such as BRT would require a grade separation with Caltrain.	Note that the Authority's CMP work program includes an expansion of the LOS monitoring work to include monitoring of transit speeds as well as auto speeds and recommend that 16th Street be included. Modify the Caltrain grade separation recommendation to note that major transit infrastructure and service investments, such as BRT, are dependent upon this grade separation.
3	The SAR should address what steps are required to increase transit mode share in Showplace Square/Mission/Potrero.	SF Planning Dept.	The SAR identifies demand-side and supply-side measures to counteract the increasing auto mode share. Demand side measures incude ensuring that new development incorporates "transit first" principles such as limited and unbundled parking supplies and appropriate pricing; car sharing availability; and other TDM measures. Supply side measures include encouraging pedestrian activity through neighborhood serving retail land uses, improved pedestrian infrastructure, lighting, and amenities; elevating transit service levels through TPS improvements; creating a bicycle facility on 17th Street, and developing a funding strategy to preserve and expand service levels through the corridor.	Expand the text introducing the SAR recommendations to note that the overarching recommendation is to reduce auto mode share in the corridor. The strategies for achieving this goal are: 1) on the supply side, provide TPS treatments, a bicycle facility on 17th Street, and improve pedestrian conditions and neighborhood serving land uses; 2) on the demand side, ensure that new development incorporates "transit first" principles, especially aggressive parking management and other TDM measures.
4	The SAR recommends reconfiguring streets in the area to improve transit circulation, but says little about transit supply / service levels to Showplace. Should the recommendation for "transit first housing" be accompanied with increased transit service to justify limiting the parking supply?	SF Planning Dept.	Despite planned service expansions such as the opening of the 3rd Street LRT service and the re-routing of the 22 and 30/45 to improve the connections to Caltrans and Mission Bay, future load factors (a measure of demand and crowding) do not increase much over today's levels. This suggests that, strictly speaking, transit capacities are sufficient, and parking may be too readily available making it attractive to drive. However, latent demand for more frequent service or better connections probably exists in the corridor today, and continuting into the future. We agree that a review of the transit network and service levels is warranted and this should be a focus of Muni's upcoming Network and Service Planning Study. Given Muni's financial constraints, however, changes to routing or service levels would need to be prioritititized from efficiency gains as a result of restructuring/operational improvements, or new sources of transit finance.	Add to recommendations: A review of the transit network and service levels is needed in this area and should be a focus of Muni's upcoming Network Study. Given Muni's financial constraints, changes to routing or service levels would need to be prioritititized from efficiency gains or new sources of transit finance.
5	Page 4. The text states that almost 80% of area employees live in SF, so it should not be hard to serve area employees with transit, and the SAR shouldn't be too concerned with non-SF residents coming into the area for jobs, because they are a relatively small minority of employees.	SF Planning Dept.	In year 2000, about 30% of the PM peak trips originating in the 16th Street corridor head for destinations outside of SF. This does suggest that most employees working along the 16th Street corridor live in SF. This proportion is expected to stay about the same in year 2025. Based on this, the SAR and its recommendations emphasize improving transit connections within SF as well as improving the regional connections.	Revise text to correctly state that 30% of year 2000 16th Street corridor employees live outside SF.
6	Why are figure 11 and 18 different? They have the same title, but have completely different results and figures.	SF Planning Dept.	Figure 11 shows the Year 2000 Top Transit Markets, and Figure 18 shows the Year 2025 Top Transit Markets. Figure 18 was incorrectly labeled in the Draft SAR.	Correct Figure 18 title to read "Year 2025" instead of "Year 2000."
7	Mode Shares. Page 7 and Figure 17. The projected mode share with origin in Mission Bay and destination downtown is incredibly low, why?	SF Planning Dept.	In the draft SAR, Figures 10 (Year 2000 Top Travel Markets) and 17 (Year 2025 Top Travel Markets) report motorized mode shares only. When nonmotorized mode shares are included, the trips between Mission Bay and Downtown reveal a very high walk / bike mode share - nearly 25%. The ease of walking and biking between these zones contributes to the low transit mode share.	Revise Figures 10 (Year 2000 Top Travel Markest) and 17 (Year 2025 Top Travel Markets) to to note that the shares of unmotorized trips are not included.
8	Bicycle Lane. Further discussion is needed about where to locate a bicycle lane in this corridor (16th vs. 17th).	Commissioner Daly; Leah Shahum, SF Bicycle	Since the release of the draft SAR , the Authority convened a number of meetings between the MTA and the SFBC to discuss the location for bicycle facitliies in this corridor. With support from the Authority and the SFBC, the MTA submitted a Safe Routes to Transit grant application to prepare final engineering and implement a bicycle lane on 17th Street.	Revise 17th Street bicycle lane recommendation to describe the collaboration between MTA, SFCTA, and SFBC to submit a Safe Routes to Transit grant application for implementing 17th Street bicycle lanes.
9	What are Mission Bay developers contributing in development fees towards transportation improvements in the corridor?	Commissioner Daly	Mission Bay developer Catellus is funding relatively few transportation mitigations including street construction and signal installation. For transit, these mitigations are limited to providing captial infrastructure (overheads) for the re-routing of the 22 and the 30/45.	No Change.
10	Please remove references to pedestrian "hazards;" this language suggests City liability.	MTA Planning	OK	Edit text to replace references to "hazards" with reference to "deficiences."
11	Define the study areas more clearly. References to the "western" and "eastern" section of 16th are unclear.	MTA Planning	The SAR generally considers the 101 undercrossing / Mississippi as the division between "western" and "eastern" 16th Street corridor.	Revise study area map to indicate sub-sections of the corridor.

	Comment	Source	TA Response	Revision to SAR
12	Clarify the problem that the SAR is attemptoing to address.	MTA Planning	The SAR is intended to identify the transportation role of 16th Street given expected residential and job growth in the surrounding neighgbhoods over the next 25 years, and identify the transprotation needs, challenges, and potential improvements within the corridor to support future expected growth.	Revise Section 1 to more clearly state the purpose of the SAR.
13	page 8. the report makes several references to new residential and retail activity and to rezonings, but does not describe where these land use changes are expected to take place, or what scale or density of development is anticipated.	MTA Planning	The anticipated growth in jobs and housing is provided by the Planning Department's Rezoning Scenario "B." New maps are provided in the Appendix to show the change in employment and housing units per this scenario. A table is added to the text listing the number and changes of jobs and housing units in Year 2000 and Year 2025 per Rezoning Scenario "B."	New maps are provided in the Appendix to show the change in employment and housing units per this scenario. A table is added to the text listing the number and changes of jobs and housing units in Year 2000 and Year 2025 per Rezoning Scenario "B."
14	The report seems to advocate deemphasizing 16th street as a through traffic street in favor of transit and pedestrian improvements, but does not address where through traffic should be diverted to.	MTA Planning	It is true that some traffic may divert to parallel through streets, but some traffic will also likely switch to transit, bicycling and and walking trips as transit and bike routes are improved and neighborhood services fill in. As with other residential areas throughout the city, some traffic calming may also be needed. Eventually, the aim is to reduce overall auto traffic in the area. The SAR also recommends reconnecting the street grid where possible to allow traffic to more effectively utilize routes other than 16th.	Under recommendations, note that reconfiguring the street grid will allow traffic to divert off of 16th street, alleviating some conflicts between 16th Street TPS and general mixed traffic.
15	Page 2. The preliminary and conceptual engineering for the 16th/17th corridor bicycle improvements is complete. Correct the text to note that the Bicycle Plan Update study of the 16th/17th street corridor was preliminary and is now finished. The report should explain the basis for recommending bicycle lanes on 17th.	MTA Planning	We will make the text additions. 17th Street was recommended as the best location for a dedicated bicycle facility in order to reduce the conflicts between transit priority treatments and bicycle activity on 16th. Providing a dedicated bicycle lane on 17th reduces the conflicts between bicycle and transit operations and allows for more right-of-way to potentially dedicate to transit operations. 17th Street has an acceptable grade and sufficient rights of way to provide dedicated bicycle facilities.	Revise text to state that preliminary study of 16/17th street corridor bicycle improvements is complete, and that a Safe Routes to Transit grant has been submitted by MTA to complete the engineering for bicycle lanes on 17th Street and to implement the project.
16	Page 2. The Board of Supervisors approved a conceptual plan for the Mission Creek Bikeway four years ago. We do not believe the Mission Creek Bikeway is a feasible project.	MTA Planning	The Mission Creek Bikeway faces a number of challenges to implementation, in particular, the need to acquire private rights of way in some locations. Despite these challenges,the Authority supports the plan concept and encourages the MTA to continue to seek opportunities to develop and implement the project in phases. The Blue-Greenway Project provides renewed opportunities to consider connections through this area.	Revise the text to not the correct date of the Board of Supervisor's approval of the conceptual plan. Note the ROW acquisition requirements of the Plan and associated challenges. Note also opportunities related to Blue-Greenway Project.
17	Page 3. A number of Mission Bay transportation mitigations are now being implemented. Mission Bay has constructed the extension of 4th street north of 16th. New traffic signals at 16th /Owens and 16/th 17th were operational in August. Mission Bay is also required to signalize the intersection of 16th/Vermont Streets.	MTA Planning	Comment noted.	Revise text to note these improvements.
18	Page 3. Miscellaneous ROW corrections. The text should state that the property-line to property-line ROW is 80' between Castro / Mississippi; approx 50' crossing Caltrain; and 90' between Pennsylvania and Illinois streets. Between South Van Ness and Potrero, the street has two lanes in each direction. Between Kansas and Wisconsin, there are two westbound lanes and one eastbound lane. Between Wisconsin and Pennsylvania street, there is one lane in each direction.	MTA Planning	Comment noted.	Revise text with these corrections.
19	Miscellaneous descriptive corrections. Replace "auto" lanes with "mixed traffic" lanes. Change "two way bicycle lanes" to "a bicycle lane in each direction." Note that 16th Street is classified as a "secondary arterial" in the general plan, and that it is the only east-west street in the area that is continuous across the Caltrain tracks, I-280, and US 101.	MTA Planning	Comment noted.	Revise text with these corrections.
20	The SAR should identify which 16th Street intersections are signalized, which are four-way STOP sign controlled, and which are two-way STOP sign controlled.	MTA Planning	Comment noted.	New Map has been added to the appendix identifying the intersection controls along 16th street.
21	The SAR needs a map of existing transit routes. Figure 2 does not correctly identify individual routes or bus stop locations.	MTA Planning	Figure 2 is intended to illustrate the transit service frequencies in the corridor, not the individual routes or stop locations.	New Map ahs been added showing the individual routes in the corridor and key stop locations.
22	page 4: We do not agree that 16th Street is the Mission district's "downtown" street. Mission Street is the main shopping and pedestrian street in the Mission district.	MTA Planning	Comment noted. East of Mission street, 16th Street is not a primary retail street. West of Mission Street, 16th Street is a neighborhood-center shopping street.	Revise text with this correction.

	Comment	Source	TA Response	Revision to SAR
23	page 4. The mode split data and in Figure 3 is not clear. These mode split percentages should add up to 100. Is the transit ridership data reported for one hour?	MTA Planning	The transit trip data is provided for the three-hour PM Peak period. Nonmotorized mode shares are not shown in the draft SAR, Figure 3, resulting in totals less than 100% of trips.	New Table inserted into the text which lists the Year 2000 auto trip volumes, transit trip volumes, and transit mode share for daily and the three hour PM Peak period. Revise figures to clarify that peak period figures are reported for the 3-hour PM Peak period.
24	page 4. The last sentence says that auto trips were between 48% and 67% of the motorized trips on 16th street. What were the other 52 and 33%?	MTA Planning	See the new table inserted into text which lists the Year 2000 auto trip volumes, transit trip volumes, and transit mode share for daily and the 3-hour PM Peak period.	No Change.
25	page 4. Using link volumes and link capacities to calculate roadway capacity is not meaningful. V/C ratios should be calculated at intersections, where the capacity is constrained by cross traffic. The eastbound v/c ratio of 0.16 shown at Mississippi Street does not take into account that eastbound traffic has to stop at the existing STOP sign at Mississippi Street. A recent study, 1000 16th Street Transportation Study Preliminary Draft 2 Report, by WSA, from October 5 2004, shows an eastbound PM peak hour traffic volume of 450 vehicles and LOS "F" for the eastbound approach of 16th street at the intersection of 16th, Mississippi, and 7th.	MTA Planning	The SF travel demand forecasting model is a planning tool that tests the effect of changes to roadway or transit capacities and supplies at the link level (in this case for a 3-hour peak period), on travel demand. It is meant to give an indication of travel responses such as route diversions and mode changes. However, it is not an operational model, and should be used in conjunction with traffic study data and analysis, such as the 1000 16th Street study (WSA, 10/2004) where possible.	SAR will clarify that future projects proposed for 16th Street, such as a transit preferrential streets project, should be accompanied by operational studies to confirm current traffic conditions and service levels.
26	page 5. Can the SAR provide a list of the sidewalk deficiencies along the corridor? Owners are responsible for provision of sidewalks. DPT recently contracted the property owner on the south side of 16th Street between Rhode Island and De Haro streets regarding the lack of sidwalks and parking in the sidewalk area on this block. The property owner currently has a permit pending with DPW to install new curb and gutter, sidewalk, and bike lanes along the property frontage.	MTA Planning	See attached list of sidewalk deficiencies.	Note in text that property owners are typically responsible for installing new sidewalks, and note this particular expected improvement.
27	page 6. We do not agree with the categorization of Valencia Street as "auto oriented." Valencia has one mixed traffic lane and one bicycle lane in each direction.	MTA Planning	Comment noted.	Revise text with this correction.
28	page 7. does the discussion of transit volumes apply to the PM peak or daily trips? If daily, the results are confusing. They suggest that transit volume will increase in the westbound direction, but decrease in the eastbound direction.	MTA Planning	The draft SAR's discussion of Year 2025 Transit Volumes refers to the 3 hour PM peak period. A discussion of daily transit volumes may be more useful here.	Revise this section to refer to daily trip patterns. A new table is provided in the text which lists the Year 2025 auto and transit trip volumes and transit mode share for daily and the three hour PM Peak period.
29	page 7 and Figures 12 and 13. The description of and tables of traffic and transit Origins/Destinations are hard to follow. The information could be more easily conveyed using desire line maps.	MTA Planning	See new Maps in the appendix which illustrate the daily and 3-hour PM peak period origin-destination patterns using desire lines.	Insert new Maps in the appendix to illustrate the daily and 3-hour PM peak period origin-destination patterns using desire lines.
30	page 8. The purpose of signed truck routes is to direct trucks away from or around streets that are restricted to truck traffic. Since there are no streets restricted to trucks in this vicinity, there is no need for signed trouck routes. Clarify truck management recommendations. page 10. Installing guide signage to Showplace Square truck loading docks could result in other commercial areas requesting similar signs promoting their areas, resulting in sign pollution.	MTA Planning	We disagree about the purpose of truck routes. See DPW's Truck Route study which is identifying routes that trucks should take to minimize disruptions to, and conflicts with, residential neighborhoods. Like bicycle routes, truck / frieght routes and corresponding signage can direct freight to the roads best equipped to handle freight traffic. Freight signage should direct trucks from freeways to key destinations. Truck hours of operation could potentially be restricted to coordinate (i.e., stagger) loading/unloading time periods with peaks in demand for passenger parking.	No change.

	Comment	Source	TA Response	Revision to SAR
31	page 9. MUNI will not make any changes to the 22 line within 2 years, so this is not a "short term / within 2 years" issue. Replace the text in this section with a paragraph that states that residents of Poterero Hill generally accept the new service routing proposals as an improvement in service by providing new, direct, no-transfer access from the Hill to Mission Bay, Caltrain, SBC Park and downtown. Note that there does remain some uncertainty over transition service, as it may not be feasible to establish this network at a single implementation date, due to the Mission Bay development sequence. Sufficient funding for the trolley coach extentions has not been identified (Prop K funds alone are not adequate).	MTA Planning	Muni should confirm it's service planning proposal for replacing the 22-line service to Potrero Hill, in the upcoming Network Study, funded by the Controller's office, with participation by the Transportation Authority.	Incorporate partially MUNI suggested edits, with reference to upcoming Muni Network Study. Replace the text in this section to state that MUNI has conducted service planning and outreach to residents of Poterero Hill, but that the service planning proposal for replacing the 22-line service to the Hill should be confirmed and reductions in service avoided. Revise text to note that there does remain some uncertainty over what transition service will be provided, since it may not be feasible to establish the entire new transit network simultaneously, due to the Mission Bay development sequence. Also note that sufficient funding for the trolley coach extentions has not been identified and should be a focus of MUNI's upcomding network study and any funding strategy.
32	page 9. Please provide example of streets that could be "reconnected" to improve transit circulation.	MTA Planning	The SAR encourages the City to identify opportunities to reconnect the street grid in Showplace Square. A more consistent grid network would allow for smoother mixed traffic circulation in addition to potential transit circulation improvements. A more consistent grid network would relieve some of the mixed traffic demand on 16th Street by providing attractive parallell routes. Examples of disruptions and discontinuities in the grid network include the area between Harrison and Potrero Streets north of 16th Street, and street discontinuties (e.g., Mariposa, 18th) passing under 101.	No Change.