



FINAL SAR 08/09-1

STRATEGIC ANALYSIS REPORT

Transportation Options for a Better Market Street

Initiated by Commissioner Daly
July 28, 2009

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I. SUMMARY

This SAR investigates strategic options for improving transportation conditions on Market Street, with a focus on potential effects of automobile restrictions. Automobile restrictions appear effective at supporting a comprehensive strategy to realize the potential of Market Street as a “great street” and to promote wider economic goals. A central tenet of the transportation approach discussed in this SAR is to develop Market Street as a “shared space” where all travelers are more aware and respectful of one another—with a prioritization of transit and non-motorized modes. Coordinated infrastructure investment is important to deliver an identity for Market Street that supports the “great street” vision. A partnership model for carrying out a multi-agency effort to deliver this vision is recommended. The planned resurfacing of Market Street in 2013 is a major opportunity to transform the street; however, a phased approach beginning in the next 3-6 months is recommended to demonstrate, evaluate, and expand measures that can be replicated once refined.

A. ABOUT SARs: PURPOSE OF THE DOCUMENT

Strategic Analysis Reports (SARs) are prepared periodically by Authority staff to analyze complex topics and to assist the Authority Board in developing policy regarding specific transportation issues that do not appear to be adequately addressed by existing regulations or policy. This SAR, initiated at the request of Commissioner Daly, analyzes the topic of auto restrictions on Market Street. The SAR describes current conditions on Market Street and the context within which auto restrictions could be implemented. It also analyzes opportunities to address transportation and other related issues in the short, medium, and long-term planning, design, and implementation of improvements to Market Street. The main purpose of this SAR is not to adjudicate the issue of whether auto restrictions are advisable, but rather to propose an appropriate framework for how to comprehensively study such a proposal as part of the larger picture of how to clarify the role of Market Street in the city's transportation system, and support broader efforts to revitalize the corridor. Additional information is available from the sources cited, or by contacting the Authority.

B. HISTORY/CONTEXT OF MARKET STREET

Historically, Market Street has been the most important development and economic activity axis in downtown San Francisco. It has also played a central role in the city's transportation system. It once functioned as a vital transit link to the region through the Ferry Terminal, and has facilitated transit service from the time of horse-drawn streetcars, to the era of multiple private electric streetcar companies operating on the surface, to the opening of the BART/MUNI tunnel in the early 1970s. Until the 1960s, Market Street was a crowded and vibrant place shared by throngs of pedestrians, cars, and transit vehicles. Fundamental changes in the economy, the advent of highways in the 1950s and 1960s, strong suburbanization trends, and the expansion of downtown to the South of Market area had significant impacts on Market Street. Commercial activity declined, particularly in the Mid-Market section, despite the major rehabilitation and beautification effort that followed the construction of BART.

The revitalization of the Market Street corridor has been a city goal for decades and agencies and stakeholders have assumed that transportation improvements would play a major role in realizing the vision. Having been a great street, Market Street has the scale, the social and historical significance, the architectural profile, the infrastructure, and hence the potential, to be great once again. The opening of the F-Market historic streetcar line is just one example of a successful transportation investment that aided in revitalization efforts.

C. THE ISSUE

The idea of auto restrictions on Market Street has been con-

sidered for many years—over a decade, in fact—as a way to improve conditions for other modes of transportation vying for space, to manage auto demand, and to promote economic development, neighborhood vitality and place-making goals. Some have argued that making more room for pedestrians, cyclists and transit users from Van Ness Avenue to Justin Herman Plaza would result in more robust commercial activity and would further revitalize street life in this part of the corridor. However, there have also been arguments that cars are an essential component of achieving these same goals, whether for access and visibility for businesses, or to maintain a basic level of use of the street. Either way, it should be clear that proposals to restrict auto access on Market Street can have effects beyond transportation performance, and should be just one component of a comprehensive set of solutions for improving the functioning of Market Street.

Proposals to restrict auto access should be just one component of a comprehensive set of solutions.

D. REVIEW OF OTHER STUDIES AND RELATED EFFORTS

The relationship between transportation improvements and a vision of economic development on Market Street is documented in previous studies. This section describes the various studies and plans that address ways to improve transportation conditions on Market Street, including potential auto restrictions.

The *1997 SAR on Restricting Private Vehicle Traffic on Market Street* provides a context and roadmap for decisions regarding potential auto restrictions on the downtown portion of Market Street. The document proposes four potential alternatives for Market Street based on the goals of improved transit reliability and travel time, increased safety for bicyclists and pedestrians, and creating an attractive and vibrant street. The analysis highlights many of the transportation concerns noted above, including broader impacts and benefits to development. The study does not recommend a preferred scenario, instead calling for an origin and destination study and further investigation into the causes of transit delay.¹ The SAR also discusses improvements to system performance that would not involve vehicle restrictions, but would help achieve the goals of Market Street.

The *2004 Market Street Study and Action Plan*² was led by the Authority, partially in response to the next steps called for in the 1997 SAR, with the direct involvement of more than 15 agencies and stakeholder groups. The Study contains detailed data on transportation conditions and performance on Market Street, many of which persist today. The study culminated in the Market Street Action Plan, which describes a series of complementary, low cost improvements that could be implemented in one to five years.³ Recommendations for auto restrictions were qualified by the need to first implement and evaluate other short-term measures, as well

¹ The Department of Parking and Traffic (now part of SFMTA) studied the possibility of a transit mall in 1990 and concluded that a transit mall would not be advisable due to the degree of traffic enforcement needed.

² Available at the Authority's website, <http://www.sfcta.org/market>.

³ The action plan addresses transportation issues and opportunities exclusively, and does not make recommendations pertaining to economic development or social issues.

as by the need for further evaluation of the proposed projects. Due to delays to a subset of short-term projects, five years after adoption of the Action Plan (see Institutional Analysis section below), automobile restrictions have not yet been implemented.

Transit Effectiveness Project (TEP). The San Francisco Municipal Transportation Agency's (MTA) Transit Effectiveness Project (TEP) is the first comprehensive review of Muni service structure in over 25 years and recommends ways to improve efficiency and reliability of the transit system. Market Street was designated one of four prototype transit priority streets in San Francisco, and planners have begun to examine measures such as consolidating stops (and stop spacing in general), widening boarding platforms, and upgrading signal infrastructure. MTA is also anticipating an all-door-boarding/proof-of-payment pilot program, as recommended by the Market Street Action plan. Planners estimate it may take one to two years to determine final designs for improvements to transit operations and enhancements for other modes given the relationship of Market to the broader network.

Bicycle Plan. The San Francisco Bicycle Plan Update was adopted in 2005 but implementation of the Plan was halted by a court order, in connection with a legal challenge to the adequacy of the Plan's environmental review. It includes some minor bicycle improvements for Market Street, but these are focused outside the SAR study area, from Valencia Street to Castro Street.

Development Studies and Area Plans. The Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS) is a coordinated multi-agency partnership between the MTA, the San Francisco Planning Department and the Authority. The study will propose improvements to the transportation network in several eastern San Francisco neighborhoods: South of Market (SoMa), the Mission, Showplace Square and Potrero Hill and the Central Waterfront. Together with western SoMa, the Transbay Transit Center District, Rincon Hill and Mission Bay, these areas are expected to produce tens of thousands of new housing units and other development over the next 20 years, and each have their own development or area plan. These neighborhoods also contain key local and regional transit service, including Muni bus and light rail, BART, Caltrain and future High-Speed Rail. The combined development potential and rich transit access present a tremendous opportunity to create integrated, mixed use, transit-oriented neighborhoods. Though none of these plans directly include Market Street, recommendations are interrelated and will affect the success of both development and transportation network improvements.

Public Works Projects. The Department of Public Works is slated to begin a repaving effort in July 2013 scoped for the length of the study area (Steuart Street to Van Ness Avenue) at a cost of more than \$18 million.⁴ This presents a substantial opportunity, not only to upgrade public services, but to develop and deliver a new, cohesive vision for the corridor. San Francisco regulations

place a moratorium on projects that disrupt the surface of the street within five years of a repaving. A number of other City projects have already been slated for coordination with resurfacing, including various transit service improvements by the MTA, and water and sewer upgrades by the Public Utility Commission (PUC) and the San Francisco Fire Department, bringing the combined estimated project costs to over \$100 million.⁵ One of these projects, signal infrastructure upgrades, is projected to cost more than \$18 million⁶ and should be coordinated with any plans for auto restrictions, since signal and sign upgrades for each auto restriction could cost \$300,000 to \$500,000 per intersection.⁷ Other transportation improvements on Market Street should be planned, designed, and funded by the start of resurfacing, in order to maximize benefits and minimize disruptions.

The Department of Public Works repaving effort in July 2013 presents a substantial opportunity to develop and deliver a new, cohesive vision for the corridor.

E. EXAMPLES OF AUTO-RESTRICTED STREETS

Several cities have instituted traffic calming and vehicle restrictions on major streets in order to create more inviting pedestrian environments and spur retail and general economic activity.⁸ A full review of a number of these streets can be found on the Authority's website.⁹ The Gas Lamp district in San Diego and Castro Street in Mountain View offer examples of successfully traffic-calmed "main streets." Still others can be characterized as transit or pedestrian malls which have received mixed reviews. Seattle's Third Avenue has been able to achieve significant transportation improvements by limiting peak-hour traffic to transit vehicles. Though many merchants were concerned before auto restrictions were implemented in Seattle, reports have indicated that businesses have not been hindered by such restrictions. Successful retail and pedestrian spaces such as the Portland Mall in Portland; 16th Street Mall in Denver; Nicollet Mall in Minneapolis; and Broadway in New York City all reflect strong retail demand and complementary streetscape investments. In contrast, the transportation and economic development failures of the State Street Mall in Chicago, K Street in Sacramento, and C Street in San Diego demonstrate the risks of restricting autos without high quality urban designs and land uses, well-maintained streetscape enhancements, and cultural programming and activities to ensure success.

While results have been mixed, the large number of available case studies is an indication of growing interest in auto restrictions as part of "place-making," to create inviting, walkable public spaces. Plaza space and pedestrian amenities on Broadway between 35th and 42nd Streets are among a number of pilot programs in New York through which the City has been able to in-

⁴ Source: DPW

⁵ Source: DPW

⁶ Source: SFMTA (SFGo)

⁷ Source: MTA traffic operations group

⁸ None exhibits the high volumes of all three modes of walking, transit use and cycling of Market, however.

⁹ <http://www.sfcta.org/market>.

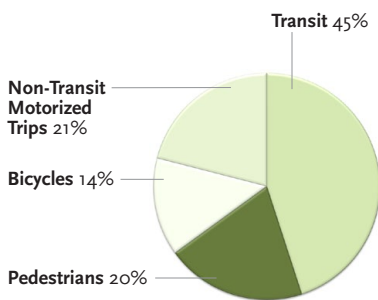
crementally test the benefits and impacts of restricting car use and enhancing space for other modes. San Francisco's Mayor's Office of Greening has been working with community groups and other City agencies on test treatments that create or pilot public plazas. The first of these "Pavements to Parks" projects was opened on 17th Street at the corner of Market and Castro in May 2009, closing the block to cars. This trial will be evaluated, and there are plans to extend the trial to other sites in hopes of informing development of more permanent solutions.

II. STRATEGIC ANALYSIS

A. EXISTING CONDITIONS ON MARKET STREET

This study examines Market Street from Van Ness Avenue to Steuart Street. When analyzing transportation and other conditions, the corridor can be broken up into three sections (see Appendix A): Van Ness Avenue to Fifth Street (Mid-Market), Fifth Street to Third Street (Powell), and Third Street to Steuart Street

Figure 1. Person-Trips on Market Street at Hayes/Larkin/Ninth, by Mode (PM Peak Hour)



(Financial District). Each of these segments has slightly different travel, land use, social, and economic development patterns.

Market Street is the interface of two grid patterns, its diagonal orientation sometimes creating awkward intersections and varying block lengths on the north side. Market

Street is 120 feet wide building front to building front for the length of the corridor, but curb-to-curb widths range between 68 feet west of Eighth Street and 50–54 feet east of Eighth Street. Sidewalks range from 26 feet west of Eighth Street to 35 feet east of Eighth Street, though wide subway entrances can leave as little as 8 feet of remaining sidewalk space. There are two vehicle lanes in each direction for the length of the corridor, with eastbound transit/taxi only lanes from 12th Street to Fifth Street and westbound transit/taxi-only lanes from Eighth Street to 12th Street. Class II bicycle facilities (dedicated lanes) extend as far east as Eighth Street, with Class III (shared lanes) from Eighth to Steuart Streets.

Transportation: An extensive Existing Conditions Report was prepared as part of the 2004 Market Street Study, and recent data show that many of those conditions persist today (see Appendix B). The corridor continues to have the highest transit ridership, the highest pedestrian volumes, and the highest cycling volumes

in the city. Private automobile use appears to have declined by as much as 38% since 1990 at certain locations along Market Street,¹⁰ and since 2004 the number of cyclists has increased significantly in the corridor, with counts showing an increase of as much as 41% from 2006 in the weekday PM peak at Fifth Street.¹¹ Commercial vehicles on Market Street can represent more than 40% of all motorized traffic, particularly during the midday.¹²

In most locations, cars are not the primary mode of transportation along Market Street, accounting for as little as 13% of person-trips and as much as 21% (see Figure 1 for proportion of PM peak person-trips at Hayes/Larkin/Ninth¹³). There are less than one-tenth as many transit vehicles as non-transit motorized vehicles on Market Street during the peak hour, and yet transit vehicles carry more than twice as many people (2,200) as automobiles, taxis and commercial vehicles.¹⁴ In the Powell Street area, there are more than 2.5 times as many pedestrian trips (2,700) as private vehicle trips in the PM peak. Anecdotally, automobile volumes and congestion in this area are thought to be higher during weekends and holidays due to the high number of tourist and recreational land uses.

Safety: The 2004 Market Street Study showed that between 1997 and 2000, Market Street intersections at Fifth, Sixth and Seventh Streets ranked among the top four intersections citywide in terms of the number of pedestrians, bicycle, and motor vehicle collisions. From June 30, 2003 to July 1, 2008, there were 468 collisions in the study area. During this period, a majority of crashes involved a pedestrian or cyclist: 34% of all crashes on the corridor involved pedestrians, including 4 fatal collisions, and 19% involved cyclists.

Despite perceptions otherwise, at Fourth and Sixth Streets (both in the top five in the city for number of collisions from 2003-2008), only 16% of collisions with pedestrians involved Muni vehicles.¹⁵

Land Use: Market Street is typified by mixed use buildings, with retail on the ground floor and offices above them in the Mid-Market and Financial District, except at Powell Street where tourist-oriented uses are prevalent. Lower vacancy rates and higher density in the Financial District transition to high vacancy rates and mid-rise buildings in the Mid-Market Area. Height restrictions range from 90 to 120 feet, rising to 200 to 400 feet between Polk and Van Ness. Interviews with some business groups revealed concerns that, rather than transportation, the major development barrier for this area is zoning, claiming that current regulations may not allow the scale of development that would attract investment; other stakeholders add concerns of spillover impacts of the concentration of social service organizations in the area.

In most locations, cars are not the primary mode of transportation along Market Street, accounting for as little as 13% of person-trips.

¹⁰ Source: MTA traffic counts and analysis

¹¹ Source: MTA San Francisco State of Cycling Report 2008

¹² Source: MTA traffic counts and analysis

¹³ Source: MTA traffic and pedestrian counts, 2006-2008.

¹⁴ Source: MTA Automatic Passenger Count Data, 2007

¹⁵ Source: SWITRS/MTA Pedestrian Program query

Notwithstanding, there is a substantial redevelopment project currently underway, consisting of three adjacent buildings on the south side of Market Street, between Fifth and Sixth Streets.

Public Realm: The Mayor’s Office of Greening has helped coordinate initiatives to improve the pedestrian experience and create more “eyes on the street”, in some cases partnering with some of the Community Benefit Districts and Business Improvement Districts to support or sustain programs. There has also been heavy emphasis on filling in gaps in maintenance that, combined with loitering (and accompanying concerns), have created a sparse, uninviting streetscape at times, with limited seating and un-improved plazas along the corridor.

B. VISION/GOALS FOR MARKET STREET

For anything other than incremental changes within the existing right-of-way, shaping and implementing a new vision for Market Street would constitute a veritable “mega-project,” with many challenges, from goal-setting and urban design to funding and construction management, involving multiple local and regional agencies. The resurfacing project planned for 2013 presents a major opportunity to re-think and re-build Market Street.¹⁶ However, four years is not a long lead-time given the potential complexity and cost of significantly altering Market Street’s current look and functionality. The following section considers the needs on Market Street relative to the general goals of improving transportation conditions that support strengthening the economic activity prospects and sense of place along the corridor while reinforcing Transit First goals. The section concludes with a review of institutional models for carrying out any potential re-design.

C. ISSUES AND OPPORTUNITIES FOR AUTOMOBILE RESTRICTIONS

A central focus of this report is to describe the extent to which automobile traffic affects Transit First, multi-modal operations. The SAR also seeks to identify useful measures to further improve transportation conditions, including the right approach for developing transit, walking, and cycling. For example should each mode have its own dedicated right of way or should the street be designed as shared right-of-way, where all users have a heightened awareness of each other and behave accordingly? An examination of the issues and opportunities along Market Street creates a framework for consideration of these questions.

1. Transportation Effects

With no curbside or garage parking on Market Street, few private vehicles are truly destined there, even if their occupants are. Yet peak period non-transit motorized travel on Market Street can reach more than 1000 vehicles per hour at certain locations in the four vehicle lanes. These vehicles are a mix of taxis, commercial vehicles motorcycles, and private autos, including regional and local drivers as well as tourists. The relatively low number of

private autos nonetheless causes delays, safety conflicts, and other problems for travelers using Transit First modes on Market Street.

Transit: Since many transit vehicles operate on the surface of Market Street before continuing throughout the transit network, delays on the corridor can affect the entire system. An exploratory transit speed-delay study was undertaken to reexamine some of the findings of the 2004 Market Street Study. Auto-related delays to transit occur in three main forms along Market Street:

- Cars traveling in the left lane (even where such lanes are dedicated to transit) can prevent transit vehicles from reaching boarding islands to load and unload passengers. At some intersections, this can cause up to 40% of delay, even if autos may only account for a small portion of the total transit delay along the corridor.
- Right turning cars, slowed down by high volumes of pedestrians crossing the side streets, can delay the buses traveling behind them, causing up to 35% of peak period delay in certain blocks, particularly in the eastbound direction.
- Buses traveling in the curb lane often move to the center lane at intersections in order to go around right-turning vehicles (see previous bullet). This behavior, seen in more than 50%

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of the curb lane buses at some intersections, can cause delays for center-lane transit vehicles trying to reach the center boarding islands.

“Before boarding” and “right turn” delays appear to be most severe in the eastbound direction below Fifth Street, especially near First Street, and can happen at different times throughout the day. These blocks are all east of

the existing transit/taxi only lanes, supporting the need to extend transit lanes east of Fifth Street (which must be accompanied by enforcement) and the need to improve right turn operations.

Pedestrians: Conflicts between automobiles and pedestrians are much more frequent than between pedestrians and transit vehicles. This is due in part to the greater volumes of private vehicles than transit vehicles on the street. Given the relatively safe speeds at which automobiles are supposed to operate along Market Street (10 mph if a bus or streetcar is in the safety zone), every effort should be made to ensure that there are reduced collisions and few to no fatalities.

Cycling: There are inherent conflicts between cyclists and autos in the shared vehicle lane east of Eighth Street, particularly in the zone between transit boarding islands and the curb. Though signals are set to a progression of 11 mph, cars speed by cyclists mid-block only to be overtaken at the next red light by the same cyclists weaving to the front of the queue. Cyclists and transit do

¹⁶ There are numerous planning studies and efforts in the vicinity of Market Street including: Upper Market/Castro CBD plans, Market-Octavia and Civic Center Sustainable District plans, various plaza re-design studies (Halladie, UN, Fox), W. SOMA neighborhood plan, Tenderloin-Little Saigon plan, various BART station access plans, Transbay Center District Plan, Geary and Van Ness BRT, etc. One of the opportunities of this comprehensive approach to re-envisioning Market Street is to take into account and build upon previous efforts.

not experience this conflict to the same extent, in part because curb lane buses often move to the center lane when the safety zone is crowded with vehicles and in part due to the lower volumes of transit vehicles running in the curb lane.

Taxis: There have been reports of erratic taxi driver behavior on Market Street, weaving from the transit/taxi-only lane and back into mixed flow traffic in order to bypass congested bottlenecks. Since auto restrictions would not apply to taxis, the restrictions would likely reduce this behavior and improve performance of taxis. There are currently no taxi stands on Market Street along the corridor (with the exception of hotels), and there have been some reports of difficulties hailing taxis in the study area. Restrictions would not address taxi availability but could be coupled with measures to enhance use.

Potential Solutions and Impacts of Automobile Restrictions: Suggested treatments to improve travel conditions described above include high-visibility treatments such as stamped concrete or streetprint to indicate shared zones; curb bulbs to shorten crossing distances and slow or discourage right turning vehicles. In addition, roadway markings to channelize bicycle and car queues at intersections, speed tables between intersections, bicycle boxes at intersections, and fully separated bicycle lanes through the use of plastic bollards along the footprint of the bicycle lane west of Eighth Street would help reduce bicycle conflicts. If it changes the curb line, a striped bicycle facility would significantly increase the cost of the project but may be considered in concert with relocating boarding islands away from current transit station portals.

Implementing automobile restrictions on Market Street could affect the circulation patterns of both the North of Market and South of Market areas. Fortunately, the relatively low number of automobiles currently traveling on Market Street means that even if a high proportion of automobiles were diverted through restrictions, the impact of diversions is not likely to be severe on surrounding streets. SF-CHAMP, the Authority's travel demand forecasting model, estimates that many of the automobiles diverted from Market Street as a result of mandatory rights would primarily use Howard and Folsom as alternatives. However, since the streets have significantly more capacity and volume than Market Street, the diversions would cause a small percentage increase in the volumes on those roads—less than 6% on any SOMA street over its current volumes.¹⁷ Analysis revealed that a minority of automobiles would divert to Mission Street, perhaps due to the left turn restrictions onto and off of Mission already in place.¹⁸

Findings from the 2004 Market Street Study show that many of the automobiles on Market Street are only on Market a short distance as a means to cross it or because they may have been temporarily diverted to Market Street while looking for parking on parallel streets. Thus, circulation enhancements for cars crossing

Market could be used to mitigate restrictions on Market. An example of this would be to restrict southbound lefts onto Market Street at Battery Street, and reorganize the lanes there to increase throughput of Bush/Battery traffic in the PM peak. Other useful measures may include:

- Real-time parking information and guidance systems on surrounding streets (this is part of MTA's SFpark pilot project)
- Re-thinking and re-design of wayfinding/signage (for all modes) on Market Street
- Education campaign about Market Street's role as a "Transit First," local circulation street rather than major auto arterial, including changing designations for online and physical mapping services

Finally, while automobile restrictions would be helpful in reducing conflicts, they must be combined with traffic calming, enforcement and transit and/or bicycle priority measures to ensure that the remaining cars do not use the increased capacity to drive at greater speeds through the mid-block. One cost-effective method would be pursuit of state legislation expanding the use of on-board cameras to cite cars traveling in the transit-only lane, but could also be accomplished using traffic control officers to periodically manage traffic at key locations.¹⁹

Any consideration of automobile restrictions or re-design of Market Street needs to ensure that proper mitigation measures create a net economic benefit for the areas along Market Street.

2. Economic Development Effects

Unlike in the case of transportation effects, the automobile does not seem to be a primary factor affecting economic conditions in the corridor. Although automobiles passing by are considered by some to help lend a sense of security to the street, merchants and other stakeholders acknowledge that increasing foot-traffic and transit service levels would be a superior way to increase "eyes on the street." Improved retail and pedestrian experiences through the closure of auto traffic on Broadway in New York, Nicollet Mall in Minneapolis, and 16th Street Mall in Denver, indicate that well planned automobile restrictions can enhance economic vitality. In San Francisco, place-making and development improvements have been combined at the Cable Car turnaround near Hallidie Plaza and are now being tested at the 17th Street pilot plaza.

Any consideration of automobile restrictions or re-design of

¹⁷ Any impact to a transit-oriented street like Mission Street would be of concern; widening bus lanes using some right of way from parking lanes would mitigate this impact and should be considered to support Market measures.

¹⁸ Source: CHAMP model and Origin/Destination Matrix developed for auto circulation study as part of 2004 Market Street Study

¹⁹ A dedicated parking control beat was established on Market Street as recommended by the Market Street Action Plan but it is not fully staffed. PCOs are reassigned whenever there is an event in the city, and reports indicate that there is rarely a traffic control officer on Market Street during weekday peak periods or events. Recent negotiations over the management of SF Police Department traffic details can help with this situation; however, budget shortfalls in the current economic climate may impede success of such activities. Self-enforcing technology or design can alleviate some constraints, as it should help to reduce staffing pressures.

Market Street needs to address potential negative impacts and ensure that proper mitigation measures create a net economic benefit for the areas along Market Street. A number of merchants along Market Street feel that out of town visitors driving along Market Street are a source of business for their operations, and that driving is the primary access mode for their customers.²⁰ This is a common belief among San Francisco merchants, but several Authority studies show that the perception does not match observations.²¹ Still, it is important to maintain access for commercial loading and unloading, and to mitigate any potential construction impacts of the long term, more extensive options.

3. *Neighborhood Health and Quality-of-Life Effects*

Auto restrictions alone will not address social issues such as the lack of neighborhood cohesion or the effects of concentrated social services if the restrictions are not coupled with community visioning and capacity building along with an assessment of the City's delivery of social services and its engagement with social issues such as homelessness and crime. Many of the business associations and merchant groups feel that these complementary improvements are the true key to revitalizing Market Street. However, a reduction in automobiles and associated improvement in transit, walking and cycling facilities would be associated with reductions in noise impacts and improvements in air quality, leading to better health outcomes for residents and employees in the area.²²

4. *Institutional Arrangements and Coordination Opportunities*

As in most cities, responsibility for various aspects of San Francisco's street network is fragmented, primarily among: the Planning Department (General Plan development, urban design and regulation), SFMTA (transit operations and traffic management, multimodal planning, project development, and implementation), DPW (resurfacing, curbsworks, streetscape and other public civil works, plus maintenance), PUC (sewer, water, lighting and other utilities), and the Authority (long-range planning, funding, and multi-agency/jurisdiction coordination).

Consolidation of Muni and Department of Parking and Traffic into the SFMTA through passage of Proposition E in 2000, (taxi services were consolidated into SFMTA in 2007 through Proposition A) presented significant opportunities for the integration and coordination of the design and operation of municipal transportation. This is important, as any consideration of changes to Market Street would necessarily require cross-functional coordination of many SFMTA units, such as transit service planning and operations, traffic operations, traffic calming, bicycle and pedestrian planning, capital project development and finance. However, past attempts to revitalize Market Street have revealed the complexity and challenges of making improvements on the corridor as well as the need to involve multiple agencies and stakeholders.

Implementation of 2004 Market Street Action Plan

The 2004 Market Street Action plan contained 20 action items and 26 specific projects for implementation in the near- to mid-term. Upon adoption of the plan, the recommended projects enjoyed an unusually high degree of consensus among agencies and stakeholders, as well as a strong commitment of funding from the Authority through the Proposition K program. Five years after adoption, of the 26 specific projects, 7 are completed, 6 are underway, 1 is planned, and plans for the remaining 12 are still to be determined. Many of the completed projects were "low-hanging fruit" that could be more easily implemented in order to build trust with the community and stakeholders while planning for longer term improvements on Market Street. Thus, their impact has been smaller in nature and, in some cases, less visible. Because of the slow pace of implementation and perceived "watering down" of the one significant project that has advanced to date (see "Calm the Safety Zone" below), the public perception of implementation of the Action Plan ranges from low awareness to outright dissatisfaction.²³ Appendix D details each project in the Action Plan and its current status, including a comparison between the project as planned and the project as implemented.

The implementation track record of the Market Street Action Plan projects stems from the following institutional issues:

- Insufficient management focus on timely implementation of the Action Plan, including narrow allocation of staff resources to undertake project design and delivery
- Missed opportunities to develop and promote related projects in a program that can benefit from technical coordination, combined funding, and a higher degree of public acknowledgement and support once implemented
- Lack of consultation with an inter-agency body to provide continuing technical support and coordination in the implementation of improvements

In addition, the inadequate involvement of stakeholders in developing scope, schedule, funding and specific design changes as they occurred heightened skepticism about the ability of lead agencies to deliver improvement in this challenging, high-profile corridor.

The project that perhaps most starkly illustrates the difficulty with implementation of the Action Plan is the Calm-the-Safety-Zone project—arguably the signature project of the Market Street Study. The original intent of the project was to apply traffic calming solutions with select pilot measures (e.g. high-visibility colored pavement, bicycle boxes) to create a safer shared space at pinch points near the transit boarding islands. An attempt to seek regulatory approval for yellow colored pavement was rejected by CTCDC,²⁴ who cited concerns about liability risks associated with introducing a color that may confuse travelers. With hopes of delivering improvements, the scope of the project was subsequently

²⁰ Source: Business survey conducted along Market Street, 5/13/09–5/15/09.

²¹ See Authority's Mobility Access and Pricing Study, On-Street Parking Management Study which found much higher rates of access by transit and walking than merchants perceived.

²² Source: Interview with San Francisco Department of Public Health staff

²³ Interviews with San Francisco Bicycle Coalition, Livable City, Great Streets, Market Street Association, North of Market Tenderloin CBD, and Lower Polk Neighbors

²⁴ California Traffic Control Devices Committee, which oversees regulatory approval for changes to traffic control device specifications.

changed but the resulting project introduced non-related elements (accessible pedestrian countdown signals) and controversial new treatments (chain and bollard). Without stakeholder consensus for these changes, funding for the new scope was rejected by the Authority Board, resulting in further delays to the project.

MTA staff and mid-level management are committed to addressing these issues in implementing the Calm-the-Safety-Zone project.²⁵ There is a strong desire, within and outside MTA, for the agency to take a leadership role in any Market Street re-design, especially given ongoing related efforts to carry out the TEP, EN TRIPS and the San Francisco Bicycle Plan.

Other Risks and Challenges

The lack of capacity for any single agency to lead implementation of a re-designed Market Street is the primary, but not the only, institutional risk to consider. In researching institutional models for project planning, design and delivery, city leaders should be mindful of:

- The tendency of core projects to attract ancillary projects or requirements without bringing adequate additional funding to the core project, also known as the “Christmas tree” or “Velcro horse” effect
- The need for strong project management in the technical arena as well as a strong capacity for public involvement;
- The limited number of agency staff experienced in implementing “mega projects” in San Francisco

The SAR team reviewed institutional models used for other major San Francisco projects, and identified the following recommendations for maximizing project management capacity and minimizing institutional risks:

- A partnership model to distribute responsibilities between overall policy coordination, funding and public involvement on the one hand, and project design and delivery on the other. Three successful examples include:
 - » The Embarcadero (CAO²⁶ as policy/funding coordinator with DPW as technical partner);
 - » F-Line Market Street (CAO/DPW as lead with Muni as technical partner); and
 - » Central Freeway/Octavia project (Authority as policy/funding coordinator with DPW as technical partner).
- Ideally, the leadership model (and staffing) is in place from beginning to end of the project;
- The technical lead is able to bring and keep all parties at the table to resolve issues systematically; and
- A visioning and goal-setting process kicks-off the effort, which can be led by an agency though urban street design may warrant an outside expert ideally with a strong reputation and instant credibility to be perceived as an honest broker.

D. STRATEGIC OPTIONS

This section will outline strategic options for implementing automobile restrictions in an immediate short time frame (6 months), a short time frame (9–18 months), a medium time frame (before 2013), and long term (beyond 2013). Potential solutions are outlined in maps in Appendix C, and Appendix E shows order of magnitude costs of various solutions. The solutions on the map show intersection-specific as well as programmatic recommendations. Sidewalk and intersection improvements should be examined at every intersection, giving each a context-specific solution. The sites represented in the maps and described below provide examples of considerations that can address issues found at various intersections. This SAR does not determine which solutions should be implemented, if any, nor does it encompass the full range of solutions. Rather, it presents roadmaps for decision processes and order of magnitude costs for potential improvements.

1. Immediate Short-term Trial Auto Restrictions Only (3–6 months)

The best candidate for this timeframe is making right turns mandatory for eastbound traveling automobiles at Eighth Street. This would address transit delay and conflicts with bicyclists and pedestrians, and create a scenario in which auto restrictions can be evaluated. A pilot might only occur during peak periods, and would apply to commercial vehicles during times of day with higher traffic volumes.

Agencies involved: If Proposition K funds were to be used, MTA would need to prioritize Market Street in at least one of the expenditure program (EP) line items in the Five Year Prioritization Program (5YPP) update, to be approved by the Authority Board in September, 2009. Concurrent with the 5YPP update approval process, MTA would work with DPW and other agencies to prepare detailed designs for implementation, including review by the Transportation Advisory Staff Committee (TASC) and other approval processes as warranted. Relevant agencies would also need to engage the public and stakeholders. To improve effectiveness, SFPD should dedicate a traffic detail at this location at least the first 21 days of the restriction, and then perhaps intermittently thereafter. Enforcement costs may be a significant obstacle for implementation given the current budget shortfall, so self-enforcing technologies—such as traffic cameras or bus-mounted cameras (which likely requires legislation and monitoring)—or design treatments should be explored as part of the trial. Since the turn restriction would be a temporary pilot, this schedule does not include environmental review.

Total Cost: \$100,000, including evaluation

Schedule: Within 3–6 months

Pros: This project would test the effectiveness of upstream automobile restrictions on downstream performance; it would be relatively quick, affordable, simple to implement, and reversible.

Cons: Reduces automobile volumes but does not aid other modes by addressing speeds or behaviors. It might not be imme-

²⁶ City Administrator's Officer

²⁵ 5/15/09 meeting with S. Chen-Harding and T. Papandreou; April 2009 Meeting with J. Kirschbaum, B. Tanner.

diately clear to the public what the purpose of the restriction is. Education would need to accompany implementation, especially to merchants or land owners who may oppose restrictions without supplemental benefits.

2. Immediate Short-term Trial Automobile Restrictions with Complementary Measures (9–18 months)

This scenario would involve a similar turn restriction at Eighth Street, but would also include other complementary measures that could be implemented in a similar timeframe in order to address some of the other issues in Mid-Market. These other measures could include the following transportation improvements:

- Left turn restriction pilot, from Hyde onto Market, to create shared space between 7th and 8th Streets without private autos. Improvements could include the extension of the Class II bicycle facility for another block or could serve as the location for a bicycle station.
- Calm the Safety Zone pilot treatments, possibly including an advanced stop bar, high-visibility pavement treatments, repainted or larger bicycle “sharrows,” and signage.
- Temporary pedestrian bulb-out across at Eighth Street to shorten crossing time.
- Using the pavement to parks methodology, test the feasibility of improvements on the block between Seventh and Eighth Streets through a pilot. After design, outreach, and funding, pilot projects can occur in as little as 72 hours.²⁷
- Signage on major regional routes leading to tourist districts with “real-time” information directing autos to the nearest garages with spaces available.

Important complementary programming and incentives to activate the newly created space should be explored during the pilot, and could be made permanent or expanded for longer periods once the effectiveness of temporary treatments is refined. Agency and stakeholder meetings should be held by an interagency taskforce as a way to review the effectiveness of temporary elements, to discuss features in the long-term package, and to enhance the broader appeal to businesses and stakeholders. Examples include measures current programs operated or envisioned by the Mayor’s Office of Greening and the SF Arts Commission, including: encouraging vendors to locate in Mid-Market area, using incentives or requiring vendors in other areas to locate in Mid-Market for a certain period in exchange for rights to operate in more lucrative areas; noon-time concerts; and “ambassadors” to escort patrons to/from symphony events after hours. Food vendors could be drawn from local eateries and featured

Agency and stakeholder meetings should be held by an interagency taskforce to review efficacy of temporary elements and to enhance broader appeal to businesses and stakeholders.

on a rotating basis, providing a link to nearby restaurants. Bus-mounted cameras for video enforcement of moving violations in transit/taxi-only lanes might also be explored, if only as a pilot in the Market Street corridor. Additional police enforcement of the second turn restriction may also be necessary. Maintenance districts could be formed and the City could consider bonding to fund streetscape improvements. Ideally, these districts would be corridor-wide, but if business interest groups desire varied levels of involvement, maintenance and improvements could be broken up into segments.

Agencies involved: In addition to the agencies involved in option 1, DPW would need to design and implement streetscape infrastructure improvements. A technical advisory committee (TAC) with a clear lead agency should be created to oversee and coordinate design and delivery of the projects. The significant number of programmatic initiatives involved implies dedicated staff in either OEWD or Mayors Office of Greening. The Authority would be involved as a funding coordination partner and link to regional agencies. The lead agency should hold regular stakeholder workshops for the TAC.

Total Cost: \$600,000–\$750,000 (Includes all items above except Calm the Safety Zone which is already funded.)

Schedule: 9–18 months

Pros: This project would be more comprehensive—including a test of upstream auto restrictions together with traffic calming measures and a strong push to improve the Mid-Market area.

Cons: More expensive and complex project to manage. Funding challenges.

3a/b. Mid-term Implementation of Automobile Restrictions, Together with a Broader Package of Improvements

This scenario is aimed at implementing programmatic and site-specific improvements in time for the 2013 repaving (Option 3a). Depending on the effectiveness of the 2013 projects, another phase of projects involving more complex designs (and higher costs) could follow in 2018 (Option 3b). While it is recommended that all scope decisions would be made through a process described below, some potential ideas for improvements are described below (see diagrams in Appendix C and matrix of improvements in Appendix E).

These improvements are intended to greatly enhance transportation system performance, but may need a longer lead time for development—whether due to planning and engineering constraints, funding constraints, or the need to build stakeholder consensus. Principal among them are three concepts: the possibility of envisioning a broader auto and transit circulation pattern along Market Street and/or between Market and Mission Streets; extending transit lanes as far as practical, at least to Fourth Street; and consolidating stop spacing, which would allow a reduction in boarding islands. All of these concepts should be accompanied by complementary measures to manage additional traffic and mitigate impacts on Mission Street and potentially other SOMA streets. They should be further complemented by streetscape enhancements such as: unified plantings and seating; improved light-

²⁷ Source: 17th Street Plaza creation

ing, possibly by replacing the Path of Gold lights to the extent permitted within the constraints of their historical status; continued replacement of the heavy wall with railings at Muni/BART portals; and additional circulation changes or auto restrictions to improve north-south movement crossing Market Street.

Evaluation of these improvements would inform the need to implement even more significant traffic-calming treatments and enhancements that could involve widening the right-of-way at mid-block locations, including mid-block boarding islands,²⁸ allowing for sidewalk cutbacks/street widening not available where the Muni/BART portals currently exist. This will allow for wider ADA-compliant boarding islands without the need to remove BART/Muni portals. The project would also reduce pinch points, and potentially allow for a Class II bicycle facility east of Eighth

An agreed-upon institutional model would need to be established, including an inter-agency task force with a clear project manager leading the coordination effort.

Street. Raised crosswalks for access to the mid-block boarding islands can also serve as speed tables for the outside mixed flow travel lanes, similar to the Upper Market Community Plan boarding island designs.²⁹

Total Cost: \$150 Million (\$100 Million for 3a, \$50 Million for 3b)

Schedule: 2013 (3a: without sidewalk cutback, reconstruction of BART portal walls; 3b: by 2018/19

(perhaps in coordination with Central Subway project); Utility work should only proceed if justified need can be demonstrated.

Pros: More pro-active transportation management would benefit Transit First modes

Cons: Traffic impacts would be greater and would need to be monitored; risk of greater bicycle/pedestrian and auto/pedestrian safety conflicts with the introduction of mid-block transit boarding islands; demand management decisions (e.g. those regarding congestion pricing) should be made in this timeframe. Construction impacts would be greater if curb-line were involved (also expensive complexity associated with curbs would be involved, including granite curbs and utility relocations—e.g. hydrants, water and sewer); PG&E/conduits, and possible sub-sidewalk base-ments.

The Scenario 3 program would involve a much more significant planning, outreach, and design process. An agreed-upon institutional model would need to be established, including an inter-agency task force with a clear project manager leading the coordination effort, with a policy-level leader above him or her. One of the first goals of the task force should be to get a better understanding of the regional circulation patterns and the impacts of auto restrictions on adjacent streets and neighborhoods. This will be examined in the Authority's Countywide Transportation Plan (CWTP), to be updated in 2010/11. As more streets near this corridor continue to pursue traffic calming (e.g., potential conversion of Folsom to 2-way operation), the CWTP will also consider

policy tools, including congestion pricing, to manage circulation.

There needs to be a visioning and planning stage that includes a Citizens Advisory Committee or Blue Ribbon Advisory Committee to oversee the process. In addition, there would need to be significant outreach to the general public for the duration of this process—from visioning and planning to environmental clearance and implementation. Still, it is important that the head of the task force remain in place throughout the process, with all agencies reporting to him or her. Evaluation of Option 2 and Option 3a would be continuous and important decisions would need to be made in the 2010 and 2015 timeframe.

Funding. In order to accomplish the 2013 resurfacing/reconstruction project and the more ambitious 2018 improvements the City may need to sell bonds or use proceeds from other bonds in order to pay for some project elements. While many of these projects will be competitive for grants, significant prioritization of City resources will be required (at a minimum for local match).

In order to stay true to a long term vision for Market Street, there will need to be a phased approach to capitalize on key opportunities, with a focus on the long term vision and implementation of the short and mid-term projects. Due to the unique challenges and opportunities, the city might consider relaxing the 5-year moratorium if necessary, in order to pursue implementation on a more flexible and accelerated timeline. Alternatively, if delays to resurfacing occur due to extended project development schedules, the city could create a reserve fund for spot repairs or patching projects to maintain a safe travel route for all users.

III. NEXT STEPS/RECOMMENDATIONS

1. A three-phase approach should be followed, starting with Option 2, and moving to option 3a and 3b in the 2013 and 2018 timeframes.
2. Creation of a multi-agency task force and agreement about leadership roles should be a first priority of the Directors Working Group on Transportation for summer 2009.
3. Dedicated staff persons from each organization should be identified and committed to the project through 2010/11.
4. A funding plan for Option 2 list of projects should be created to establish an upper-bound of activities that can be included in the project scope.
5. As part of the 2009 Prop K 5-Year Prioritization Programs (5YPPs) update underway at the time of writing, the Authority will include a placeholder with sufficient funding in Fiscal Year 2009/10 to support implementation of Option 2 should the implementing agencies be unable to secure alternate funding.
6. A vision-setting process should be initiated to guide the transition plan/criteria for moving from Option 2 to Option 3.
7. Regular stakeholder workshops should be held by the lead agency for the Option 2 effort.

²⁸ Since current boarding islands are only six feet wide, any improvements to the boarding islands requires that they be upgraded to meet American with Disabilities Act standards. These standards dictate eight feet of usable space as a minimum width. Since there is already less than minimal width at most boarding islands adjacent to Muni/BART portals, moving or removing at least some of the boarding islands is likely.

²⁹ <http://www.sfgov.org/site/uploadedfiles/planning/Citywide/FINALVisionandRecommendations.pdf> (see page 68)

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CITY DEPARTMENT STAFF CONSULTED

Astrid Haryati (Mayor's Office)

Lisa Pagan (OEWD)

Adam Varat and Joshua Switzky (Planning)

Megan Wier (SFDPH)

Fernando Cisneros, Peg Divine, Ramon Kong, Kris Opbroek, and John Thomas (SFDPW)

Suzanne Chen-Harding, Jack Fleck, Oliver Gadja, Julie Kirschbaum, Javad Mirabdol, Luis Montoya, Cristina Olea, Timothy Papandreou, Jerry Robbins, Britt Tanner, Bryant Woo, and Tony Young (SFMTA)

Robert Kawano (SFPUC)

STAKEHOLDERS CONSULTED

Carolyn Diamond (Market Street Association)

Elaine Zamora (North of Market Tenderloin CBD)

Carolynn Abst (Lower Polk Neighbors)

Ken Cleaveland (Building Owners and Managers Association)

Kit Hodge (Great Streets)

Tom Radulavich (Livable City)

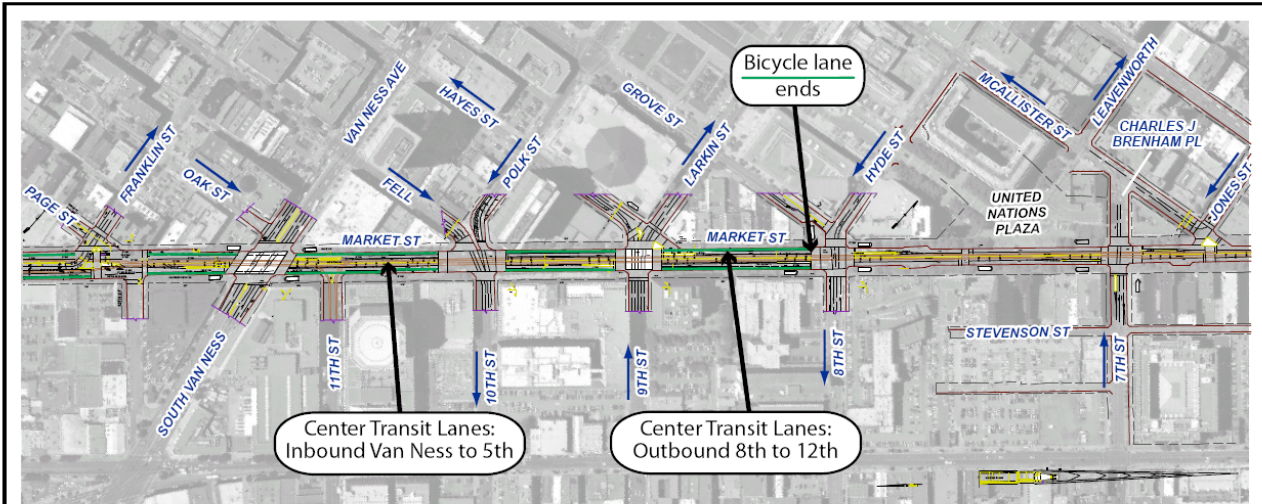
Leah Shahum (San Francisco Bicycle Coalition)

V. ACKNOWLEDGEMENTS

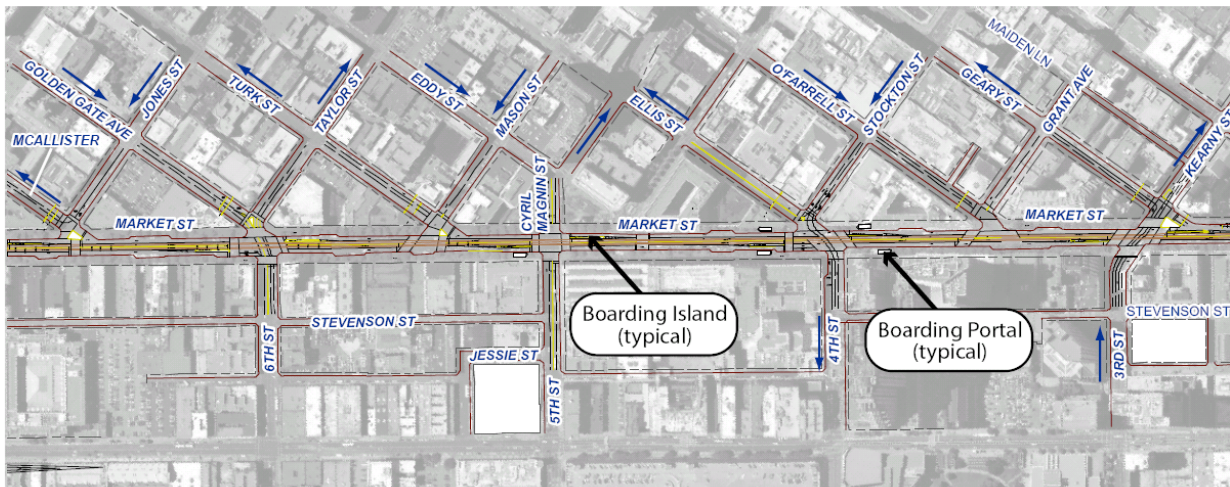
The Authority is indebted to a number of individuals who helped with make this SAR possible. Tilly Chang (Deputy Director for Planning) oversaw the study and guided the preparation of the report. Michael Schwartz (Transportation Planner) assisted with project management and led the field work, research, and writing of the report. Elizabeth Bent (Principal Transportation Planner) provided major editing support for the report. David Parisi (Principal Planner, Parisi Associates), Jeff Tumlin (Principal Planner, Nelson\Nygaard), and Steve Boland (Planner, Nelson\Nygaard) served as consultants on the study. Elizabeth Sall (Senior Transportation Planner) led SF CHAMP modeling. Paul Supawanich (Intern) co-led the speed-delay study with assistance from Jay Gordon (Intern). Ben Stupka (Senior Transportation Planner), Maria Lombardo (Chief Deputy Director for Policy and Programming) and Luis Zurinaga (Consultant) provided updates on the 2004 Market Street Study and extensive institutional knowledge of Market Street projects. Ralph Silberman (San Francisco Bicycle Coalition) administered the business survey and Lucas Woodward (Intern) analyzed results from the survey.

JOSÉ LUIS MOSCOVICH, EXECUTIVE DIRECTOR

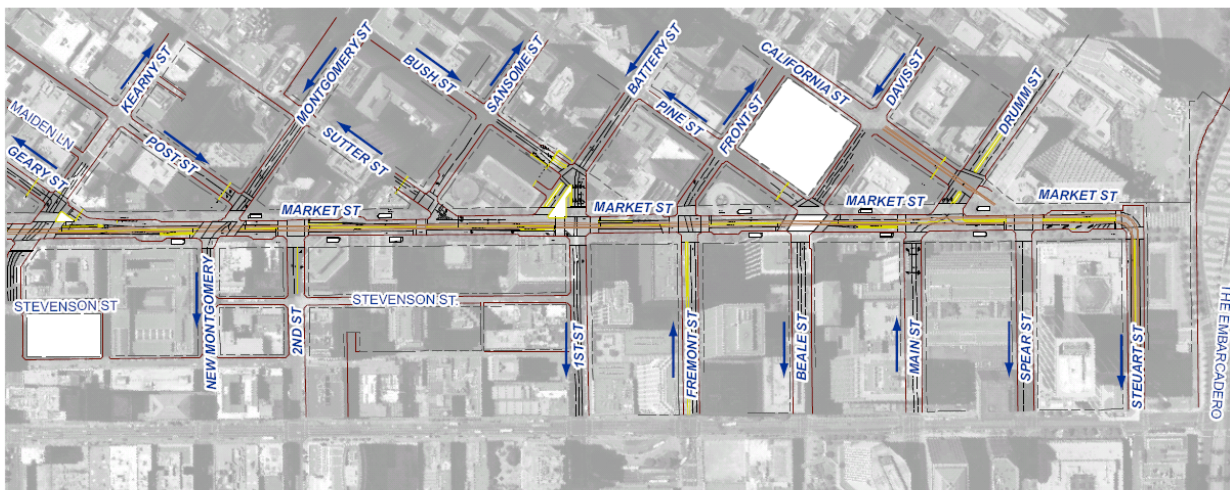
APPENDIX A. EXISTING CONDITIONS/STUDY AREA MARKET STREET EXISTING CONDITIONS, VAN NESS AVENUE TO THE EMBARCADERO



Franklin St to Jones St



Jones St to Kearny St



Kearny St To The Embarcadero

APPENDIX B. VEHICLE VOLUMES BY MODE (WEEKDAY PM PEAK HOUR)

NOTE: SIDE STREET PRIVATE VEHICLE VOLUMES INCLUDE TRANSIT VEHICLES

| MARKET STREET @ VAN NESS AVENUE | | | | |
|---------------------------------|------------------|-----------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 426 | 41 | 234 | |
| Westbound | 576 | 38 | 573 | |
| TOTAL, Market | 1002 | 79 | 807 | |
| Side Street | | | | |
| Southbound 1 | 1574 | | 425 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 2348 | | 538 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 3922 | | 963 | |
| TOTAL, All Directions | 5003 | | 1770 | |

| MARKET STREET @ ELEVENTH STREET | | | | |
|---------------------------------|------------------|-----------|-------------|------------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | | 38 | | |
| Westbound | | 41 | | |
| TOTAL, Market | | 79 | | 726 |
| Side Street | | | | |
| Southbound 1, Fell | | | | |
| Southbound 2, Polk | | | | |
| Northbound 1 | | | | |
| Northbound 2 | | | | |
| TOTAL, Side Streets | | | | |
| TOTAL, All Directions | | | | |

| MARKET STREET @ HAYES/LARKIN/NINTH | | | | |
|------------------------------------|------------------|-----------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 384 | 38 | 610 | |
| Westbound | 520 | 50 | 400 | |
| TOTAL, Market | 904 | 88 | 1010 | |
| Side Street | | | | |
| Southbound 1, Hayes | 1768 | | 1097 | |
| Southbound 2, Larkin | 1803 | | 0 | |
| Northbound 1 | 0 | | 156 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 3571 | | 1253 | |
| TOTAL, All Directions | 4563 | | 2263 | |

| MARKET STREET @ GROVE/HYDE/EIGHTH | | | | |
|-----------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 581 | 47 | 850 | |
| Westbound | 517 | 59 | 551 | |
| TOTAL, Market | 1098 | 106 | 1401 | |
| Side Street | | | | |
| Southbound 1, Grove | 133 | | 807 | |
| Southbound 2, Hyde | 3179 | | 0 | |
| Northbound 1 | 0 | | 1653 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 3312 | | 2460 | |
| TOTAL, All Directions | 4516 | | 3861 | |

| MARKET STREET @ SEVENTH STREET | | | | |
|--------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 307 | 59 | 574 | |
| Westbound | 427 | 47 | 362 | |
| TOTAL, Market | 734 | 106 | 936 | |
| Side Street | | | | |
| Southbound 1 | 0 | | 771 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 1712 | | 780 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 1712 | | 1551 | |
| TOTAL, All Directions | 2552 | | 2487 | |

| MARKET STREET @ GOLDEN GATE/TAYLOR/SIXTH | | | | |
|--|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 401 | 59 | 249 | |
| Westbound | 393 | 59 | 216 | |
| TOTAL, Market | 794 | 118 | 465 | |
| Side Street | | | | |
| Southbound 1, Golden Gate | 1243 | | 650 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1, Sixth | 1339 | | 617 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 2582 | | 1267 | |
| TOTAL, All Directions | 3494 | | 1732 | |

APPENDIX B (CONTINUED). VEHICLE VOLUMES BY MODE (WEEKDAY PM PEAK HOUR)

NOTE: SIDE STREET AUTO VOLUMES INCLUDE TRANSIT VEHICLES

| MARKET STREET @ CYRIL MAGNIN/FIFTH | | | | |
|------------------------------------|------------------|------------|-------------|------------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 576 | 75 | 474 | |
| Westbound | 399 | 65 | 560 | |
| TOTAL, Market | 975 | 140 | 1034 | 615 |
| Side Street | | | | |
| Southbound 1 | 609 | | 1116 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 763 | | 996 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 1372 | | 2112 | |
| TOTAL, All Directions | 2487 | | 3146 | |

| MARKET STREET MID-BLOCK @ POWELL STREET | | | | |
|---|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 523 | 65 | 1370 | |
| Westbound | 436 | 65 | 1372 | |
| TOTAL, Market | 959 | 130 | 2742 | |
| Side Street | | | | |
| Southbound 1 | 0 | | 538 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 0 | | 501 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 0 | | 1039 | |
| TOTAL, All Directions | 1089 | | 3781 | |

| MARKET STREET @ ELLIS/STOCKTON/FOURTH | | | | |
|---------------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 473 | 65 | 1016 | |
| Westbound | 314 | 65 | 1064 | |
| TOTAL, Market | 787 | 130 | 2080 | |
| Side Street | | | | |
| Southbound 1, Ellis | 249 | | 1185 | |
| Southbound 2, Stockton | 1429 | | 0 | |
| Northbound 1 | 0 | | 2215 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 1678 | | 3400 | |
| TOTAL, All Directions | 2595 | | 5480 | |

| MARKET STREET @ O'FARRELL/GRANT | | | | |
|---------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 85 | 65 | 1067 | |
| Westbound | 265 | 77 | 483 | |
| TOTAL, Market | 350 | 142 | 1550 | |
| Side Street | | | | |
| Southbound 1 | 533 | | 0 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 0 | | 2358 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 533 | | 2358 | |
| TOTAL, All Directions | 1025 | | 3908 | |

| MARKET STREET @ KEARNEY/GEARY/THIRD | | | | |
|-------------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 371 | 65 | 1126 | |
| Westbound | 347 | 77 | 813 | |
| TOTAL, Market | 718 | 142 | 1939 | |
| Side Street | | | | |
| Southbound 1 | 0 | | 2487 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 2282 | | 1354 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 2282 | | 3841 | |
| TOTAL, All Directions | 3142 | | 5780 | |

| MARKET STREET @ MONTGOMERY/NEW MONTGOMERY | | | | |
|---|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 462 | 77 | 776 | |
| Westbound | 159 | 83 | 682 | |
| TOTAL, Market | 621 | 160 | 1458 | |
| Side Street | | | | |
| Southbound 1 | 1063 | | 1174 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 0 | | 1354 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 1063 | | 2528 | |
| TOTAL, All Directions | 1844 | | 3986 | |

APPENDIX B (CONTINUED). VEHICLE VOLUMES BY MODE (WEEKDAY PM PEAK HOUR)

NOTE: SIDE STREET AUTO VOLUMES INCLUDE TRANSIT VEHICLES

| MARKET STREET @ 2ND STREET | | | | |
|------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 583 | 77 | 527 | |
| Westbound | 171 | 83 | 573 | |
| TOTAL, Market | 754 | 160 | 1100 | |
| Side Street | | | | |
| Southbound 1 | 0 | | 984 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 186 | | 0 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 186 | | 984 | |
| TOTAL, All Directions | 1100 | | 2084 | |

| MARKET STREET @ BUSH/BATTERY/FIRST | | | | |
|------------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 464 | 83 | 530 | |
| Westbound | 323 | 53 | 678 | |
| TOTAL, Market | 787 | 136 | 1208 | |
| Side Street | | | | |
| Southbound 1, Bush | 1256 | | 842 | |
| Southbound 2, Battery | 176 | | 0 | |
| Northbound 1 | 0 | | 793 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 1432 | | 1635 | |
| TOTAL, All Directions | 2355 | | 2843 | |

| MARKET STREET @ PINE/DAVIS/BEALE | | | | |
|----------------------------------|------------------|------------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 575 | 53 | 579 | |
| Westbound | 295 | 53 | 686 | |
| Total - Market | 870 | 106 | 1265 | |
| Side Street | | | | |
| Southbound 1 | 1041 | | 1874 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 0 | | 643 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 1041 | | 2517 | |
| TOTAL, All Directions | 2017 | | 3782 | |

| MARKET STREET @ SPEAR STREET | | | | |
|------------------------------|------------------|-----------|-------------|----------|
| Market | PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES |
| Eastbound | 661 | 41 | 785 | |
| Westbound | 77 | 13 | 527 | |
| TOTAL, Market | 738 | 54 | 1312 | |
| Side Street | | | | |
| Southbound 1 | 0 | | 1260 | |
| Southbound 2 | 0 | | 0 | |
| Northbound 1 | 0 | | 0 | |
| Northbound 2 | 0 | | 0 | |
| TOTAL, Side Streets | 0 | | 1260 | |
| TOTAL, All Directions | 792 | | 2572 | |

APPENDIX B (CONTINUED). PERSON-TRIPS BY MODE (WEEKDAY PM PEAK HOUR)

| EAST-WEST PERSON-TRIPS MARKET STREET @ HAYES/LARKIN/NINTH | | | | |
|--|------------------------|--------------------|-------------------------|---------------|
| PRIVATE VEHICLES (1) | TRANSIT (2) | PEDESTRIANS | BICYCLES (3) | TOTAL |
| 1085 | 2247 | 1010 | 726 | 5067 |
| 21.4% | 44.3% | 19.9% | 14.3% | 100.0% |

NOTES:

- (1) Includes autos, commercial vehicles and taxis.
Assumes 1.2 occupants per vehicle.
- (2) Source: MTA
- (3) Count from Eleventh Street

| EAST-WEST PERSON-TRIPS MARKET STREET @ GOLDEN GATE/TAYLOR/SIXTH | | | | |
|--|----------------|--------------------|-------------------------|---------------|
| PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES (4) | TOTAL |
| 953 | 2636 | 465 | 615 | 4810 |
| 20.4% | 56.5% | 10.0% | 13.2% | 100.0% |

NOTES:

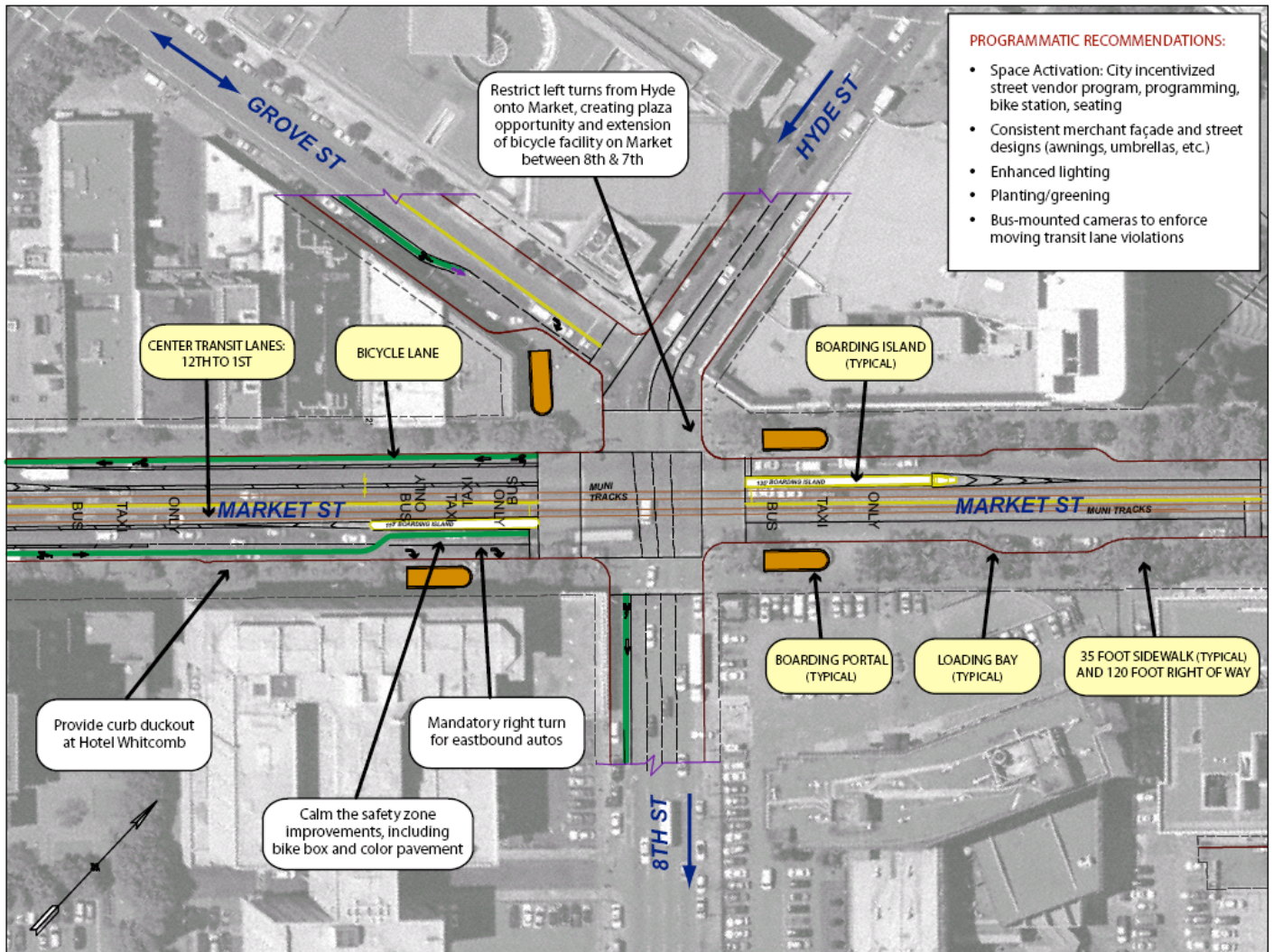
- (4) Count from Fifth Street

| EAST-WEST PERSON-TRIPS MARKET STREET @ KEARNEY/GEARY/THIRD | | | | |
|---|----------------|--------------------|-------------------------|---------------|
| PRIVATE VEHICLES | TRANSIT | PEDESTRIANS | BICYCLES (4) | TOTAL |
| 862 | 3057 | 1939 | 615 | 6643 |
| 13.3% | 47.2% | 30.0% | 9.5% | 100.0% |

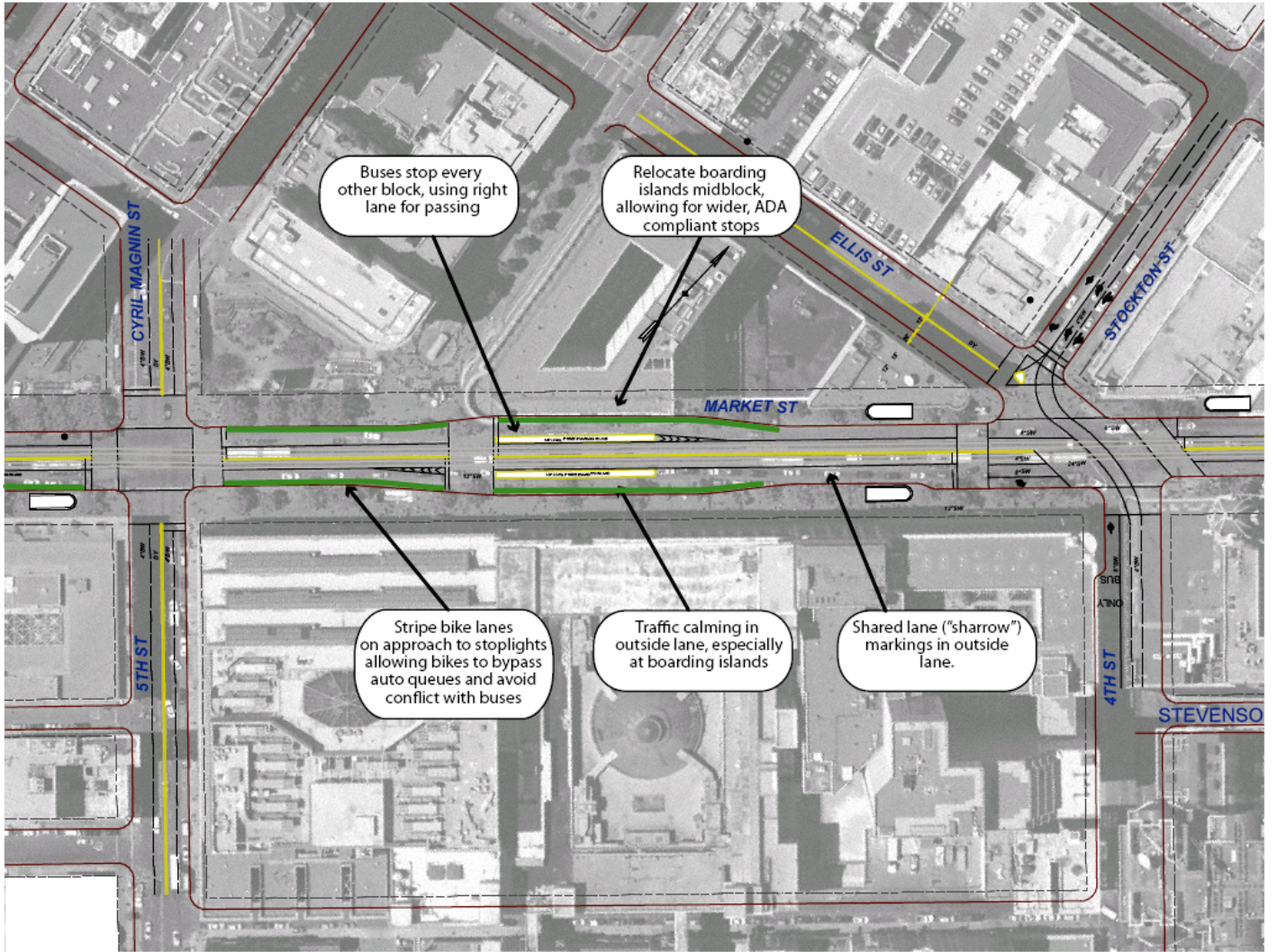
NOTES:

- (4) Count from Fifth Street

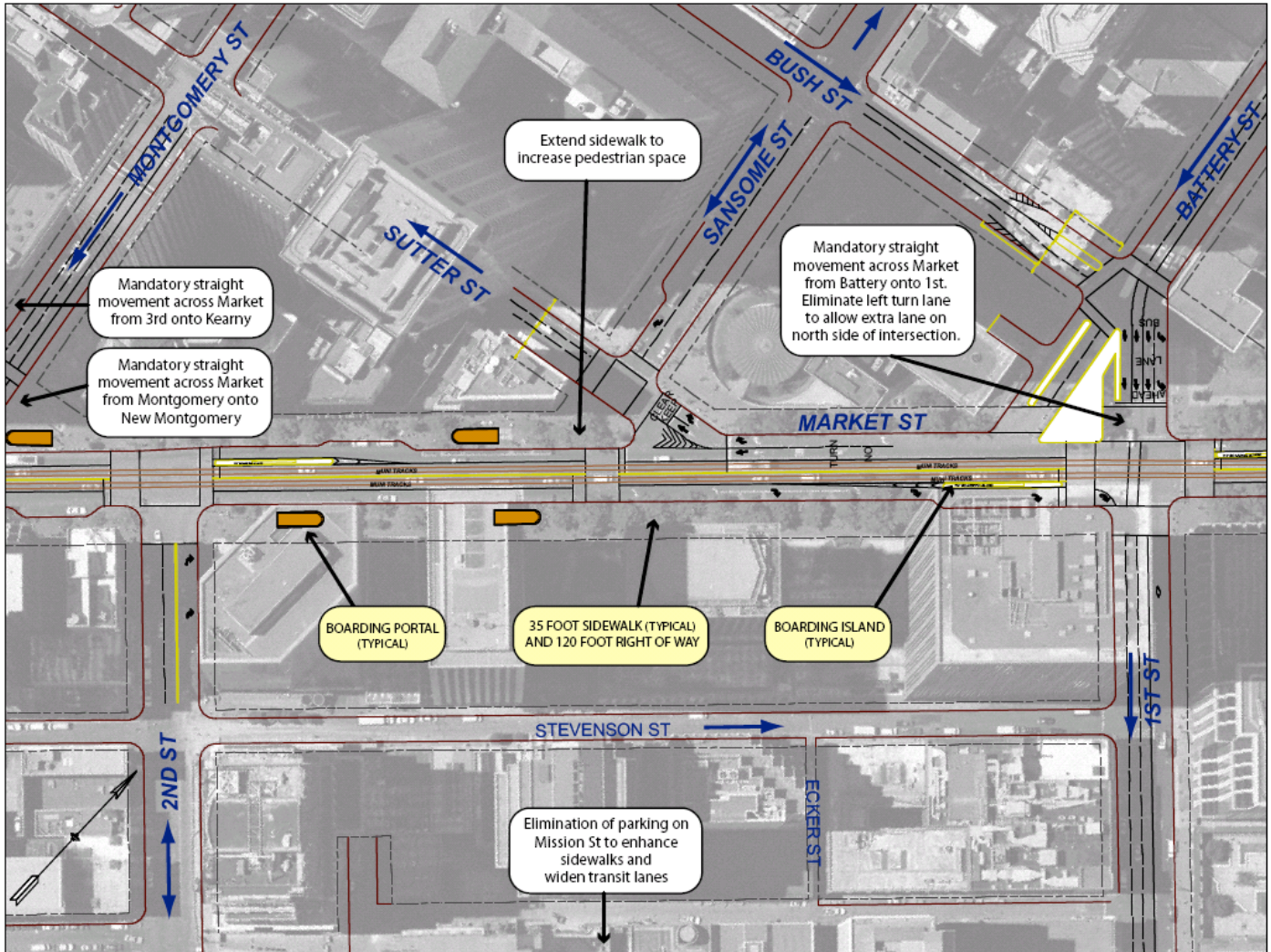
APPENDIX C. POTENTIAL SOLUTIONS FOR VARIOUS SCENARIOS
MARKET STREET | 8TH STREET INTERSECTION



APPENDIX C (CONTINUED). POTENTIAL SOLUTIONS FOR VARIOUS SCENARIOS
MARKET STREET | MIDBLOCK, ADA-COMPLIANT BOARDING ISLAND CONCEPT, 4TH STREET TO 5TH STREET



APPENDIX C (CONTINUED). POTENTIAL SOLUTIONS FOR VARIOUS SCENARIOS MARKET STREET | 1ST STREET TO 2ND STREET



APPENDIX D. MARKET STREET ACTION PLAN (2004) STATUS

| PROJ. NO. | PROJECT NAME | STATUS | PROJECT DETAILS IN ACTION PLAN | ACTUAL PROJECT |
|---|--|---------------------------|---|---|
| EARLY ACTION: Implementation within 1 Year (by February 2005) | | | | |
| 1.1 | Relocate traffic signals to nearside of intersection | TBD | This project would relocate traffic signals at given intersections (e.g. Fourth Street, Sixth Street) from the far side of the intersection to the near side. This would alert motorists to stop sooner and reduce their encroachment into the crosswalk. | Not Complete |
| 1.2 | Restripe Crosswalks | Done (with Modifications) | This project would restripe and re-color (red) worn out crosswalks. This would increase the visibility of crosswalks for pedestrians, bicyclists, motorist and transit operators. | MTA restriped 17 crosswalks in the Spring of 2006. Locations: Spear, Drumm, Main, Bush/Battery/First, 2nd, Post/Montgomery/New Montgomery, Geary/Kearny/Third, O'Farrell/Grant, Powell, Fifth/Cyril Magnin, McAllister/Jones, 7th, UN Plaza, Grove/Hyde/Eighth, Fell/Polk/Tenth, Rose/Brady, Valencia. MTA also restriped worn crosswalks between Octavia Blvd. and Steuart Street in February/March 2008. This also included restriping the double yellow centerline, bike lane lines, bus zones, and 4" solid white clearance line. The re-coloring of crosswalks was not done. |
| 1.3 | Stripe advance limit lines at selected locations | Done | This project would stripe new advance limit lines at given intersections. This would alert motorists and transit operators to stop approximately 5 feet before a crosswalk and reduce auto and transit encroachment into the crosswalk. | MTA striped advance limit lines at the following locations in the Spring of 2006. Locations: Bush/Battery/First, 2nd, Post/Montgomery/New Montgomery, Geary/Kearny/Third, Ellis/Stockton/Fourth, Fifth/Cyril Magnin, Golden Gate/Taylor/Sixth. |
| 1.4 | Install pedestrian countdown timers | Done | This project would install pedestrian countdown signals at given intersections along Market Street. This would help pedestrians make more informed decisions about when to cross to the other side of the roadway. This project was considered underway by the time of the adoption of the Action Plan. | MTA installed pedestrian countdown signals at every intersection along Market Street from Justin Herman Plaza to Octavia Boulevard. |
| 1.5 | Install pedestrian-scale street signs | Done | This project would install pedestrian-scale signage similar to the type used in other parts of the city. This will help to provide way finding for pedestrians. This project would Project was considered underway by the time of the adoption of the Action Plan. | MTA installed street signs at the pedestrian-level at every intersection along Market Street from Justin Herman Plaza to Octavia Boulevard. |

APPENDIX D (CONTINUED). MARKET STREET ACTION PLAN (2004) STATUS

| PROJ. NO. | PROJECT NAME | STATUS | PROJECT DETAILS IN ACTION PLAN | ACTUAL PROJECT |
|-----------|---|--|--|---|
| 2 | Create a new Market Street PCO beat | Done | This project would create a Market Street-specific parking control beat. This would increase the ability to enforce regulations against illegal parking. | MTA has created a Market Street specific PCO beat. The PCO beat is currently understaffed and is the first to be reassigned to special events. |
| 3 | Develop and implement a new transit lane symbol and related signage | Done | This project would remove the diamond logo from existing transit lanes and associated signs. This would reduce the confusion between the diamond logo used for transit lanes and the same logo used for HOV lanes and thereby further delineate the transit-only lane from the auto-travel lane. | MTA removed all 27 diamond logo pavement markings and all 23 diamond logo signs and replaced them with 27 bus-only logo pavement markings and 23 new signs on Market Street from Fifth Street to 12th Street. The pavement markings were replaced with a "Bus/Taxi Lane" marking, and the signs were replaced with a "Transit Lane" sign on boarding islands. |
| 4 | Install bicycle lanes between Octavia and Eighth | Done (additional improvements on hold pending the removal of the Bike Plan injunction) | This project would install bicycle lanes. | MTA installed the bicycle lanes. There still needs to be some adjustment to parking and possibly the installation of a bike signal at Market and Gough/Haight. The remainder of this project is delayed by the Bike Plan injunction. |

SHORT-TERM: Implementation within 1 to 2 Years (by February 2006)

| | | | | |
|---|--|----------|---|---|
| 5 | Implement Proof-of-Payment | Underway | This project would allow for more expedite boarding of transit vehicles. This project would include signage at transit stops, on-board transit vehicles, inspectors, and an education campaign. It is already underway on light rail vehicles and is adopted as an MTA policy. | MTA will be undertaking a pilot of the POP program on surface transit in 2009. The first pilot will take place on the 30-Stockton Line. |
| 6 | Change Market Street signal timing to improve transit performance | Underway | This project would model and reprogram all 33 signalized intersections on Market Street between Octavia Boulevard and Justin Herman Plaza to maximize the amount of green light time available to Market Street buses and streetcars. | MTA has completed an existing conditions report. The modeling of all 33 signalized intersections was done in Synchro and VISSIM. The models are currently being calibrated and optimized. The traffic signal modification phase should begin by the Summer of 2009. An after study will take place to record the results. |
| 7 | Improve way finding, directional, and advisory signage for motorists | Underway | The first phase of this project (funded by Prop K) would study and inventory existing automobile signage on Market Street (Steuart Street to Octavia Boulevard) and develop a signage program that will outline sign removals, locations, and legends for new signs. The second phase (currently unfunded) would include the fabrication and installation of the signage. | The first phase of this project, Market Street Way finding for Motorists Study, is complete. MTA is developing an implementation strategy for the study findings. |

APPENDIX D (CONTINUED): MARKET STREET ACTION PLAN (2004) STATUS

| PROJ. NO. | PROJECT NAME | STATUS | PROJECT DETAILS IN ACTION PLAN | ACTUAL PROJECT |
|-----------|--|--|--|--|
| 8 | Install new gore signage | Underway (part of Calm the Safety Zone) | This project would improve the signage on the 21 gore areas along Market Street. This focuses on signage that directs autos to the curbside lanes and directs them to proceed through the safety zone at 10 MPH. This is being addressed through the Calm the Safety Zone Project (Project #9). | This project has been delayed by MTA's rescoping of the associated Calm the Safety Zone project (discussed below). |
| 9 | Calm the pedestrian 'safety zone' (the area between the sidewalk and transit boarding islands along Market Street) | Underway (with scope modification) | This project would install treatments to alert motorists to the increased pedestrian and bicycle traffic in the safety zone. The original project scope included making improvements to 19 safety zones along Market Street from the Embarcadero MUNI Station to the Civic Center MUNI Station. The first phase of the project was to include improvements to safety zones at Fourth, Fifth, Sixth, and Seventh streets (8 safety zones in all) and a before/after study to determine if the improvements were effective. The second phase of the project was take the lessons learned from the before/after studies and apply them to the remaining 11 safety zones, as well as making any changes to the first 8. This was then supposed to be followed by a follow up study to assess the utility of the calming the safety zone in decreasing pedestrian collisions and transit lane violations. Some of the suggested design changes included: high-visibility colored pavement in the safety zone, an edge stripe, advanced bicycle boxes at intersections that follow safety zones, and the installation of signage and reflective warning devices. | MTA decided to rescope this project to eliminate the high-visibility colored pavement, the edge stripe, and the demarcation of bicycle boxes from the scope of this project. According to MTA, the high-visibility colored pavement was removed because the California Traffic Control Devices Commission rejected the use of the color yellow. The other elements were removed for safety reasons and the Bike Plan injunction. The rescope project included the procurement and installation of 16 Accessible Pedestrian Signals along Market Street. 13 of those signals have already been installed. MTA has attempted to rescope the remainder of the project to install more traditional traffic calming measures (e.g. chain and bollards, edge striping, advance stop bars), but the Authority Board, at its March 2009 meeting, rejected the rescoping and would like the MTA to reexamine the use of high-visibility colored pavement in the Safety Zone. The MTA will continue to work on this project, and it plans to come back to the Authority Board with a revised proposal by the Fall of 2009. |
| 10 | Install improved bicycle facility between Eighth Street and Justin Herman Plaza | Done (additional improvements on hold pending the removal of the Bike Plan injunction) | This project would install bicycle treatments in an area that is currently too narrow for bicycle lanes. These treatments would include: sharrows, bicycle boxes and bicycle signals. | MTA installed sharrows. The bicycle boxes were originally part of the Calm the Safety Zone project (details above). The remainder of this project is delayed by the Bike Plan injunction. |

APPENDIX D (CONTINUED): MARKET STREET ACTION PLAN (2004) STATUS

| PROJ. NO. | PROJECT NAME | STATUS | PROJECT DETAILS IN ACTION PLAN | ACTUAL PROJECT |
|-----------|--|----------|--|---|
| 11.1 | Allow PCO enforcement of transit lane | TBD | This would allow Parking Control Officers to enforce transit lane violations, which is a moving violation only enforceable by SFPD. This would require a legislative change by the city and may be more appealing to SFPD with cost sharing. | Not completed. This would require a legislative change by the city. |
| 11.2 | Improve transit lane demarcation or designation | TBD | This project would test the effectiveness of using colored pavement, striping, or other methods to clearly mark the center travel lanes as 'transit-only' lanes. | Not completed. |
| 11.3 | Employ video enforcement of transit lane | Underway | This project would use video to enforce the 'transit-only' lane. | In February 2008, the MTA launched the transit Lane Enforcement Pilot project. This program, authorized by Vehicle Code Section 40240, allows the placement of forward-facing cameras on Muni vehicles to detect violations of parking restrictions in transit-only lanes, and issue parking citations based on video evidence. The forward facing cameras aim to allow Muni vehicles to move more quickly and efficiently through the city. During the initial three-month phase of the pilot, the camera-equipped vehicles will only travel on Mission Street between Main Street and Eleventh Street, and on Geary Street between Market Street and Gough Street during the posted enforcement hours. MTA has moved into a second phase of the project. The Authority is awaiting information on project evaluation. |
| 12 | Require eastbound autos to turn right at Eighth Street during peak periods | TBD | This project would reduce auto volumes on Market Street by forcing eastbound vehicles to turn on Eight Street. | Not completed. Implementation will depend upon an analysis of the benefits of the Early Action measures, as well as further evaluation of the proposed project. |

APPENDIX D (CONTINUED): MARKET STREET ACTION PLAN (2004) STATUS

| PROJ. NO. | PROJECT NAME | STATUS | PROJECT DETAILS IN ACTION PLAN | ACTUAL PROJECT |
|---|---|---------|--|---|
| MID-TERM: Implementation within 2 to 5 Years (by February 2009) | | | | |
| 13 | Extend transit lanes easterly as appropriate | TBD | This project would extend the transit lane from where it currently ends (Fifth Street, inbound and Eighth Street, outbound) to the east. | Not completed. Implementation will depend upon an analysis of the benefits of the Early Action measures, as well as further evaluation of the proposed project. |
| 14.1 | Prohibit southbound autos from turning right at Montgomery Street during peak periods | TBD | This project would reduce auto volumes on Market Street by restricting right-hand turns from Montgomery Street to Market Street. | Not completed. Implementation will depend upon an analysis of the benefits of the Early Action measures, as well as further evaluation of the proposed project. |
| 14.2 | Require eastbound autos to turn right at Fourth Street during peak periods | TBD | This project would reduce auto volumes on Market Street by forcing eastbound vehicles to turn on Fourth Street. | Not completed. Implementation will depend upon an analysis of the benefits of the Early Action measures, as well as further evaluation of the proposed project. |
| 15 | Repave Market Street | Planned | This project would repave Market Street with extra care given to pavement quality at the curb and around storm grates. | DPW has scheduled resurfacing for July 2013. |
| MID-TERM: Implementation within 2 to 5 Years (by February 2009) | | | | |
| 16 | Deploy low floor buses | TBD | This project would speed the loading and unloading of passengers and reduce transit delays. This would require a new fleet of buses. | Not completed. |
| 17 | Examine center-lane transit operation | TBD | This project would study moving all transit into center-lane operation. | Not completed. |
| 18 | Establish paratransit drop-off points near BART/MUNI portals | TBD | This project would establish paratransit drop-off points near BART/MUNI stations with curb cuts and small loading zones. | Not completed. |
| 19 | Designate more taxi stands/loading zones | TBD | This project would better accommodate taxis, and it would ease double-parking and access to transit. | Not completed. |
| 20 | Install bicycle lanes between Eighth Street and Justin Herman Plaza | TBD | This project would install bicycle lanes on this stretch of Market would require the sidewalk to be narrowed by 5 feet or more on either side. | Not completed. |

APPENDIX E: COSTS FOR IMPROVEMENTS/ENHANCEMENTS RELATED TO AUTO RESTRICTIONS

| IMPROVEMENT /ENHANCEMENT | DESCRIPTION | UNIT COST | ORDER OF MAGNITUDE COST | SOURCE | POTENTIAL FUNDING SOURCES * | SCENARIO | | | | |
|---|---|--|---|----------------------|--|----------|----|----|----|----|
| | | | | | | 1 | 2A | 2B | 3A | 3B |
| Public Outreach | CACs, stakeholder involvement, etc. | N/A | 10% of total cost of project | Authority Estimate | N/A | • | • | • | • | • |
| Traffic Control Officer (8 person-hours per day, 21 straight days, then 4 person hours per day, 5 days per week after that up to 6 months of pilot) | Police officer dedicated to Market Street beat 2 hours per day, 5 days per week | \$76-\$100/ hour | \$30,000-\$40,000 for first 6 months. | MTA (DPT) | Prop K (as part of capital improvement) | • | • | • | • | • |
| Signs | Signs depicting restricted or mandatory turning movements, including do-not-enters and message boards | \$500/sign \$1,000/ message board | \$3000 (4 signs at intersection) | MTA (DPT) | MTA, Prop K (EP 31/33) | • | • | • | • | • |
| Before and after study for pilot auto restrictions | Traffic counts and modeling analysis to determine impacts of pilot restrictions | \$25,000 (one intersection) | \$25,000 | MTA (DPT)/ Authority | MTA, Prop K (Part of capital funding from EP) | • | • | • | • | • |
| Additional signage/ signal changes to make mandatory right and restricted left permanent at Market/8th/Hyde | Blank out signs, changes to signals | \$150,000 (1 blank out sign, changes to signals) | \$150,000 (Signal/ signage at other intersections would be included in SFgo signal upgrade) | MTA (DPT) | MTA, Prop K (EP 31/33) | • | | | | |
| Pedestrian Curb Bulbs | Curb bulbs to accompany auto restrictions | \$200,000 ³¹ (one bulb) | \$1 Million (5 bulbs) | DPW | MTA, TDA, Prop K (EP 40) | | | | | • |
| Calm the Safety Zone Treatments (Pilot) | Select treatments along Market Street, including before and after study. Locations and scope of project TBD | ~\$40,000 per intersection | \$400,000 remaining (full set of trial improvements) | Authority/ MTA | Funded – additional funds through Prop K, Safe Routes to Transit (Cycle 1) | • | | | | |

³¹ DPW estimates \$100,000 for a standard curb bulb. Due to the granite and brick sidewalk treatment on Market Street, DPW estimates that costs would be at least twice as high.

APPENDIX E (CONTINUED): COSTS FOR IMPROVEMENTS/ENHANCEMENTS RELATED TO AUTO RESTRICTIONS

| IMPROVEMENT /ENHANCEMENT | DESCRIPTION | UNIT COST | ORDER OF MAGNITUDE COST | SOURCE | POTENTIAL FUNDING SOURCES * | SCENARIO | | | | |
|---|--|---|--|--|--|----------|----|----|----|----|
| | | | | | | 1 | 2A | 2B | 3A | 3B |
| Calm the Safety Zone Treatments (All Intersections) | Implementation of successful projects at all boarding islands, including making pilots permanent | TBD | \$5 Million | Authority Estimate | MTA, TLC, TDA, Safe Routes to Transit (Cycle 3), Prop K | | | | | • |
| Plaza Creation (Pilot) | Greening, striping, and seating to sufficiently activate public space. | \$100,000 | \$100,000 | 17th Street/ Castro Plaza Creation ³² | Various City Departments, Prop K (EP 40), TLC | | | | | • |
| Incentive programs for street and food vendors | City ownership/ operation of food carts. Subsidies for relocation of street vendors. | \$500/day | \$100,000/year (200 days) | Authority Estimate ³³ | Private funding through CBDs/ microenterprise groups (can apply for CDBG and ARRA funds to support small businesses) | | | | | • |
| Bus-mounted cameras | Mounting operator-activated cameras on the majority of vehicles on Market Street, including maintenance and analysis of film footage for enforcement | \$10,000/ vehicle (capital) + \$120,000 annual staffing for 8 cameras | \$250,000 (10 buses for pilot) | MTA | MTA, FTA, Prop K (EP16/17) | | | | | • |
| Elimination of old boarding islands | Dismantling old boarding islands in consolidation/ moving effort ³⁴ | \$40,000- \$80,000 per boarding island | \$800,000- 1.6 Million (20 boarding islands) | DPW | MTA, FTA, Prop K (EP1/16), GO Bond | | | | | • |
| Creation of new boarding islands | Building new boarding islands or upgrading consolidated islands to meet length and ADA standards | \$150,000- \$250,000 per boarding island | \$1.8 Million- \$3 Million (12 boarding islands) | MTA (TEP) | MTA, FTA, Prop K (EP1/16), GO Bond | | | | | • |

³² 17th Street Plaza creation cost approximately \$30,000. The plaza on Market would be 3 to 4 times as long.

³³ Based on conversations with various stakeholders, including People in Places, Mayor's Office of Greening, etc.

³⁴ DPW estimates of \$50-\$100 per square foot. Prototypical boarding island assumed to be 6.5'x120'

APPENDIX E (CONTINUED): COSTS FOR IMPROVEMENTS/ENHANCEMENTS RELATED TO AUTO RESTRICTIONS

| IMPROVEMENT /ENHANCEMENT | DESCRIPTION | UNIT COST | ORDER OF MAGNITUDE COST | SOURCE | POTENTIAL FUNDING SOURCES * | SCENARIO | | | | |
|---------------------------------------|--|--|---|----------------------------------|--|----------|----|----|----|----|
| | | | | | | 1 | 2A | 2B | 3A | 3B |
| Mid Block Crossings with Speed Tables | Raised speed tables from sidewalk to boarding island, including pavement treatment for 12 boarding islands. | \$100,000 per island | \$1 Million | DPW | MTA, FTA, TLC, Prop K (EP 38/40), GO Bond | | | | | |
| Replacement of all traffic signals | Sfgo signal poles, controllers, cabinets, conduits, and master cable | Van Ness to Steuart Street (20 intersections plus blocks in between) | \$19 Million | SFMTA (DPT, SFgo) | MTA, Prop K (EP 32/33) | | | | | |
| Repaving Street Work | Includes, contaminated soil work, roadway work, traffic routing work, 20% contingency, project management, planning/ design, construction support, construction management, and final traffic striping | Van Ness Avenue to Steuart Street | \$18 Million | DPW | Gas Tax, COP, Prop 42, Prop 1B, STP (LSRP), Prop K (EP 34) | | | | | |
| Enhanced street lighting | Supplemental lighting for historic "Path of Gold" poles. | \$2,750 (example: 2 Snowflake lights + wiring on each pole) | \$500,000 (~165 poles) Significantly more if utilities need upgrading | Market Street Association/ SFPUC | CBDs, OEWD, SFPUC | | | | | |

* The following acronyms were used in this column: MTA – Municipal Transportation Agency Revenues (Local), STP – Surface Transportation Program (Federal), FTA – Federal Transit Administration (Federal, Sections 5307 and 5309), TDA – Transportation Development Act (State), TLC – Transportation for Livable Communities (Federal), CMAQ – Congestion Mitigation and Air Quality (Federal), Gas Tax – State Gas Tax Subventions (Local), COP – Certificates of Participation (Local), Prop 42 – Sales Tax on Gasoline (State), Prop 1B – Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act (State), TEA – Transportation Enhancements (Federal), GO – General Obligation Bond for transit improvements which will be voted on in fall 2009.