

File No. 110091

Committee Item No. 7

Board Item No. _____

COMMITTEE/BOARD OF SUPERVISORS

AGENDA PACKET CONTENTS LIST

Committee CITY OPERATIONS AND
NEIGHBORHOOD SERVICES

Date 4/11/11

Board of Supervisors Meeting

Date _____

Cmte Board

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Completed by: Gail Johnson

Date 4/7/11

Completed by: _____

Date _____

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The complete document is in the file.

INTRODUCTION FORM

By a member of the Board of Supervisors or the Mayor

Time Stamp or
Meeting Date

I hereby submit the following item for introduction:

- _____ 1. For reference to Committee:
An ordinance, resolution, motion, or charter amendment.
- _____ 2. Request for next printed agenda without reference to Committee
- x 3. Request for Committee hearing on a subject matter.
- _____ 4. Request for letter beginning "Supervisor _____ inquires...".
- _____ 5. City Attorney request.
- _____ 6. Call file from Committee.
- _____ 7. Budget Analyst request (attach written motion).
- _____ 8. Substitute Legislation File Nos.
- _____ 9. Request for Closed Session
- _____ 10. Board to Sit as A Committee of the Whole

Please check the appropriate boxes. The proposed legislation should be forwarded to the following:

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Note: For the Imperative Agenda (a resolution not on the printed agenda), use a different form.]

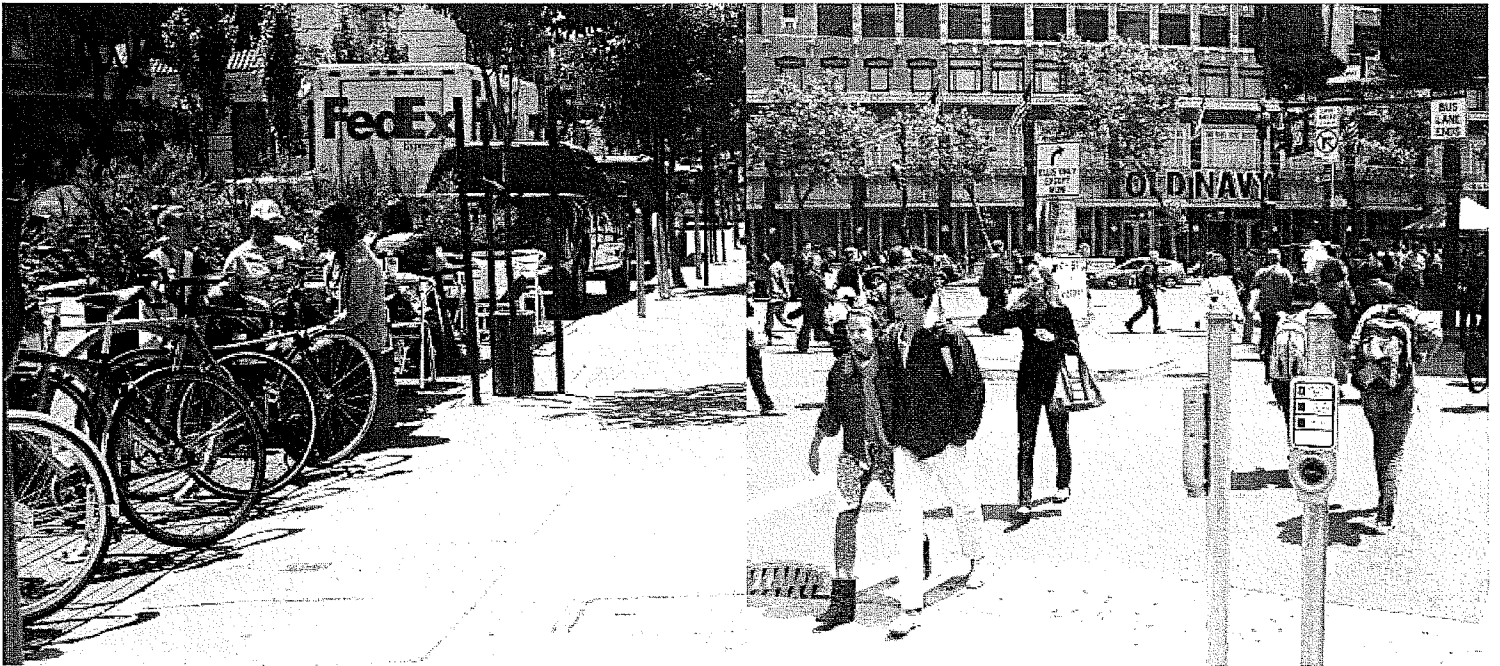
Sponsor(s): Supervisor Mar, chiu

SUBJECT: Hearing to discuss the Pedestrian Safety Advisory Committee's 2010 Report and to discuss pedestrian safety issues.

The text is listed below or attached:

Signature of Sponsoring Supervisor: _____

For Clerk's Use Only:



2010 Report to the Board of Supervisors City and County of San Francisco



presented by the
Pedestrian Safety Advisory Committee
January 2011



photo credit: Dahlanna Lopez

**Pedestrian Safety Advisory Committee
Final Draft**

2010

**Report to the
City and County of San Francisco
Board of Supervisors**

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COMMITTEE MEMBERS SEATS + SUBCOMMITTEES

Member	Seat	Subcommittees
Catherine "Katy" Liddell	1 - Pedestrian Safety Organization	Report Editing
Pi Ra	2 – Pedestrian Safety Organization	Enforcement Planning/Engineering
Richard Rothman Committee Chair	3 – Senior or Disability Organization	All
Mari Hunter	5 – Bicycle or Non-motorized Organization	Data Health/Education Report Editing
Howard Strassner	6 – Transit or Environmental Organization	Planning/Engineering
John Lowell Committee Vice-Chair	7 - Child Advocate or School Support Organization	Data Health/Education Report Editing
Dahianna Lopez Committee Secretary	8 – Public Health Organization	Data Health/Education Report Editing
Jay Lee	9 – At-large Member	Policy Enforcement
Paul Supawanich	10 – At-large Member	Planning/Engineering Report Editing
Kevin Clark	11 – District 1	Report Editing
John Ehrlich	12 – District 2	Data
Joe Nardella	13 – District 3	
David Pelfrey	14 – District 4	
James Rhoads	15 – District 5	Enforcement
Raymon Smith	16 – District 6	

**Vacant Seats: 4 & 17-23*

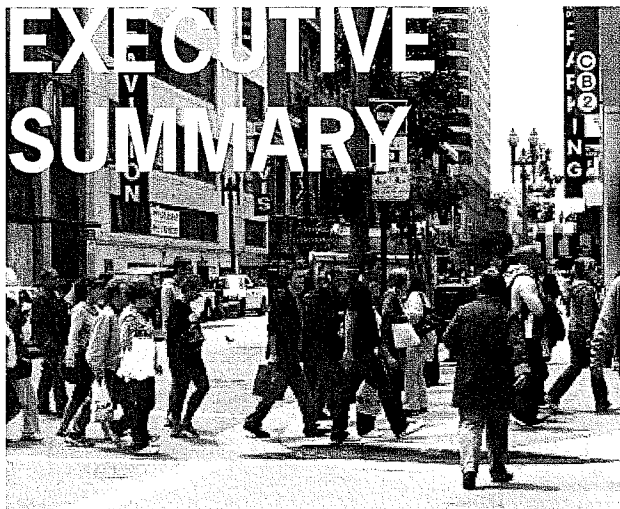
ACKNOWLEDGEMENTS

The Pedestrian Safety Advisory Committee would like to thank several individuals for sharing their time and expertise to contribute to this report.

*Sue Black, San Francisco Department of Public Works
Tilly Chang, San Francisco County Transportation Authority
Oliver Gajda, San Francisco Municipal Transportation Agency
Dan Hodapp, San Francisco Port Authority
Seon Joo Kim, San Francisco County Transportation Authority
Jesse Koehler, San Francisco County Transportation Authority
Anna LaForte, San Francisco County Transportation Authority
Karen Mauney-Brodek, San Francisco Department to Recreation and Park
Walter Park, Advocate, previously with the Mayor's Office of Disability
Elizabeth Stampe, Walk San Francisco
Ana Validzic, San Francisco Department of Public Health
Adam Varat, San Francisco Department of Planning
Megan Wier, San Francisco Department of Public Health
Dahianna Lopez, San Francisco Injury Center, UCSF*



The committee understands its role as an advisory committee composed of engaged San Francisco citizens. As such, we appreciate the efforts of the various city agencies in striving to improve pedestrian safety in our City.



The argument can be made that 100% of trips are pedestrian trips, in whole—traveling as a pedestrian the entire trip, or in part—traveling as a pedestrian to and from a car, bike or bus; full pedestrian trips account for approximately 20% of all trips taken in San Francisco (SFCTA Countywide Transportation Plan, 2004 July). With such a significant number of pedestrians, there is an increased likelihood of conflict as different travel modes intersect. Pedestrian injuries totaled 3,598 between 2005 and 2008 amounting to \$74.3 million, 76% of which was paid for with public health care funds (Dicker et al, 2009).

In an effort to reduce avoidable injuries and associated costs, the Pedestrian Safety Advisory Committee (“PSAC”) has prepared the following report to detail the current state of pedestrian safety. In doing so, this report not only offers a comprehensive source for all pedestrian safety-related information, but also provides an objective baseline from which to set goals to better evaluate how pedestrian safety policy, programs and projects are progressing. The authors of this report would like to articulate that a pedestrian is any person traveling by foot both unassisted and assisted (e.g. cane, walking stick, crutches, walker, etc) as well as by wheel chair and while walking may be referenced in the report, it should be understood that it refers to all pedestrian activity.

Since 2003, PSAC has been charged with pro-

viding expertise on issues concerning pedestrian safety, convenience, ambiance, and planning as well as advocating for pedestrian safety by engaging the public, Board of Supervisors (“BOS”) and other relevant agencies. To better engage these entities, PSAC felt it important to determine the current state of pedestrian safety so all parties had complete information and again, to establish an objective baseline from which to assess future pedestrian safety efforts.

Five (5) subcommittees were created to complete this report: policy, data, engineering/design, enforcement, and health and education. Each subcommittee contacted relevant agencies and requested written documentation on recent pedestrian-related activities or projects, conducted interviews with stakeholders and agency representatives, and reviewed publicly available documents related to pedestrian safety in San Francisco.

Policy

In reviewing San Francisco’s Better Streets Plan (“BSP”), the plan to guide the design of the City’s pedestrian environment, it was determined that while most of the critical components of a comprehensive pedestrian safety policy were accounted for, the policies related to pedestrian safety are scattered among a variety of different, often unrelated, areas. As such, the overall approach to the pedestrian environment is unclear. In response to this confusion, it is recommended to consolidate the pedestrian safety policies found in the BSP and/or draft a Pedestrian Master Plan.

The Policy Subcommittee also examined existing pedestrian safety funding sources including Proposition K which stipulates that a predetermined percentage of the approximately \$2.6 billion expected to be raised will be set aside for pedestrian safety-related projects such as traffic calming (3.9%), pedestrian circulating/safety (2.9%), and curb ramps (2.0%). In recent years the percentage of Prop K funds allocated to pedestrian safety measures have been temporarily reduced. For example, in the 2009 Prop K Strategic Plan, a programming document that sets short-term funding percentages,

the percentage for traffic calming dropped to 2.6%, pedestrian circulation/safety to 1.0%, and curb ramps to 1.0%. These allocations are based on current forecast of sales tax revenues which are anticipated to decline because of the economic downturn.

Because there are relatively few discretionary funding sources dedicated to pedestrian safety, the City would benefit from locating additional sources of funding for pedestrian projects.

Data

The use of data is crucial as it can help agencies evaluate pedestrian safety conditions in order to determine what interventions would be most beneficial to improve the safety. The Data Subcommittee has provided information on all sources of data related to pedestrians and their health and safety. With respect to pedestrian counts, the SFMTA has implemented an annual count of pedestrians at 25 locations and is also currently implementing automated pedestrian counters. Data from these counts will allow the SFMTA to create an exposure model so that future plans and interventions could be more strategically targeted. For collision and injury data, there are two major data sources, the first is the collision data recorded by the police department and the second is the injury data collected by San Francisco General Hospital (SFGH).

Collection, processing, and data access differ for both types of datasets. Consequently, it is hard to merge these datasets. In fact, a study in 2005 revealed that police data underestimated the number of injured pedestrians by 21%. Given that the police report has information about the circumstances surrounding the auto-pedestrian collision whereas the hospital record has information about the outcome and cost of the injuries, it is imperative that an agreement be established to share and merge data using personal identifiers, such as first and last names. These personal identifiers could then be removed once the datasets are merged.

Developing a more integrated dataset will not only make the raw numbers more reliable but

strengthen results the statistical models developed by the Department of Public Health, the Pedestrian Environmental Quality Index and the Healthy Development Measurement Tool, which aid in providing insight to how changes in conditions will improve pedestrian safety.

Engineering/Design

The Engineering/Design Subcommittee outlined the various City organizations involved with pedestrian safety planning including their primary role, composition and jurisdiction. Among the local agencies include: San Francisco Municipal Transportation Agency, Port of San Francisco, Office of Economic and Workforce Development, San Francisco Redevelopment Agency, San Francisco County Transportation Authority, Bay Area Rapid Transit, San Francisco Planning Department's, San Francisco Department of Public Works, Transbay Joint Powers Authority, San Francisco Public Utilities Commission, and the San Francisco Recreation and Parks Department

While it is understandable that numerous City agencies must be involved to plan, design, and build pedestrian-related projects, it is the opinion of the PSAC that pedestrian safety planning is jeopardized by the confusion with so many agencies involved as well as the complexity of concurrent projects that are underway, some of which cover the same geographic areas.

The Engineering/Design Subcommittee also examined current pedestrian-related projects in conjunction with the BSP and found that there were very few binding guidelines or performance measures associated with the pedestrian safety recommendations and suggest that the lack of coordination between planning level coordination and project level among key agencies may be partially responsible. It is also suggested that answering the following would provide clarity and pave the way for pedestrian-safety progress, 'What is the City's overarching goal and vision with regard to pedestrian safety?'

Enforcement

The Enforcement Subcommittee reviewed

San Francisco's Traffic Company whose primary mission is to reduce injuries and fatalities from traffic collisions and is charged with the enforcement of and education about traffic regulations as well as investigating accidents. The primary barrier to providing more effective enforcement appears to be a shortage of officers, funding, and equipment/technology. Additionally, the lack of coordination between the Traffic Company and other City agencies and SFPD departments also has proven to hinder the efficacy of the Traffic Company.

Yet another challenge is that California law dictates that the fines collected by San Francisco officers under the California Vehicle Code are sent to the State; the City and County of San Francisco can retain only fines collected under San Francisco's Traffic Code provisions that are not duplicative of the California Vehicle Code. While such a policy will likely have no effect on the enforcement efforts and motivations of individual officers, it may affect the City's prioritization of traffic enforcement and, as a result, pedestrian safety. The PSAC therefore recommends that the City engage in advocacy and public education efforts to remove this structural de-incentive at the state level.

Health and Education

The Health and Education Subcommittee undertook the task of reviewing agencies and projects concerned with promoting health and preventing injury and disease with respect to pedestrian activity. The public health approach to pedestrian safety can range from educating individuals about pedestrian safety to shaping policies that benefit all pedestrians to collecting and analyzing data that can inform those policies. As such, the following agencies have a hand, or foot, in educating the public and shaping these policies: San Francisco Department of Public Health - Pedestrian Safety Project, San Francisco Department of Public Health - Program on Health, Equity, and Sustainability, San Francisco Injury Center for Care and Injury Prevention Research – A Division of the University of California, San Francisco. It is critical to continue supporting these groups in order to

influence individual behavior such that pedestrian safety is encouraged not only from top-down but also bottom-up increasing the combined efforts of education, policy, and programming.

The PSAC is certain that the depth and breadth of this report is sufficient to understand the state of pedestrian safety in the City, but recognizes that some information may have inadvertently been omitted. In order to carry out our function as an advisory committee to the Board of Supervisors and as a resource to the general public, the PSAC shall serve as a central repository for all pedestrian information, data, and performance metrics, as no similar resource currently exists in San Francisco. Using these data, annual reports in the future can more comprehensively represent pedestrian safety-related plans and activities.

Next Steps & Recommendations

As the PSAC continues to pursue its goal of advancing pedestrian safety in San Francisco, several key objectives should be advanced within the upcoming years based on the following recommendations by each subcommittee. The PSAC requests that the SF Board of Supervisors endorse such recommendations.

Goals

All agencies involved in pedestrian safety should expand from a current micro-level approach to a more systematic, macro-level approach to pedestrian safety and walkability.

City agencies should reduce the dissonance or conflict between each mode (car, pedestrian, etc.). For instance, increasing vehicle speed on a road for the sake of mobility is in conflict with the fact that lower speeds reduce the risk for pedestrian injury and death.

Increased attention should be placed on evaluating local traffic volumes and traffic speeds as a means of evaluating pedestrian safety conditions.

A unified vision and a set of specific goals are currently lacking. As such, each organization involved in pedestrian safety is working independently of one another. Opportunities for collaboration shall be sought to create a beneficial synergistic effect on the state of pedestrian safety.

Objectives:

Short Term (By December 2011):

All appropriate agencies with relevance to pedestrian safety shall identify a liaison to PSAC for purposes of pedestrian project coordination and for PSAC to have a staff point of contact for general inquiries. This liaison will be a staff person who, at least quarterly or upon request, will attend PSAC meetings and provide updates from their respective departments on pedestrian safety issues.

Collision-only data gives a narrow picture and is inadequate for timely safety planning. Observational studies, to monitor rights-of-way and other traffic code violations, by and of pedestrians, bicycles, and wheelchairs, should be implemented to identify hotspots. This information needs to be available to re-configure crosswalks, signal timings, placement of traffic and bus/streetcar islands, and to SFPD for immediate enforcement. SFPD traffic citations offer a wealth of data not presently captured. SFPD's own traffic collisions report has consistently shown that pedestrian right-of-way violations and pedestrian violations are the largest contributors to auto-vs-pedestrian collisions in San Francisco. *(Enforcement)*

Pedestrian sting operations conducted by the Police Department shall be strategically positioned at the most relevant location as evidenced by collision and injury data. The San Francisco Municipal Transportation Agency (SFMTA) and San Francisco Injury Center (SFIC) shall collaborate with the police department to identify intersections with historically high numbers of collisions and injuries. *(En-*

forcement)

Long Term (By December 2015):

Increase coordination among agencies by establishing a Professional Pedestrian Safety Consulting Group, in which representatives of all agencies share information, ideas, and an open dialogue about ways to improve pedestrian safety.

Police collision data shall have the capacity to be accessed in real-time by all transportation and health agencies with prior approval. *(Data)*

Police and health data shall interface. *(Data)*

- The results of the data shall be available to the public and decisions on queries shall be open to public feedback. *(Data)*

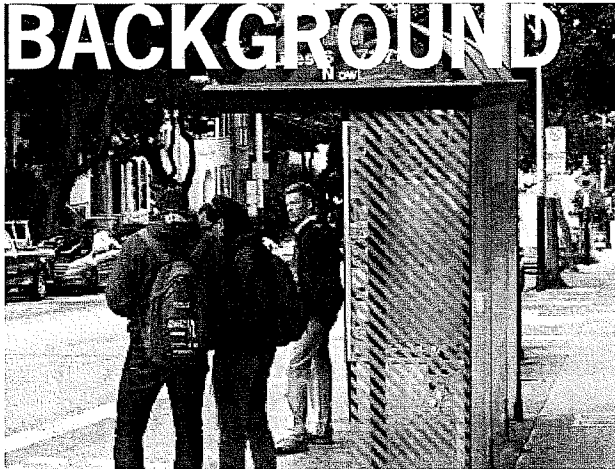
- Data definitions and the coding of injury data across agencies should be established so that statistics can be comparable. *(Data)*

Goals for pedestrian injury and fatality reductions shall be established and endorsed by the Board of Supervisors (similar to the 19/100,000 goals set forth by Healthy People 2010). *(Data)*

Fines for traffic-related offenses that endanger pedestrians should be increased to an appropriate level and a citywide effort to enforce pedestrian and road safety laws should be made. *(Enforcement)*

Pedestrian safety awareness shall be a more visible concept on all relevant city websites, such as those belonging to the police department, public health, and the San Francisco General Hospital, among others. *(Health and Education)*





Creation of the Pedestrian Safety Advisory Committee

In 2003, the San Francisco Board of Supervisors declared that it was in the public interest to officially recognize that traveling as a pedestrian is as an important component of our transportation system and as a key component to creating livable and sustainable communities. As such, they established the Pedestrian Safety Advisory Committee (PSAC) by ordinance to be composed of concerned and informed residents charged with providing expertise on issues concerning pedestrian safety, convenience, ambiance, and planning. The committee meets monthly on the second Tuesday from 5:30 PM to 7:00 PM in City Hall Room 408.

Composition of the Pedestrian Safety Advisory Committee

According to the ordinance, the PSAC shall consist of twenty-three members: two from pedestrian safety organizations, two from senior or disability organizations, one from bicycle or other non-motorized wheeled personal transport organizations, one from transit or environmental organizations, one from child advocate or school support organizations, one from a public health organization, two at-large members, and one who lives or works in each of the 11 City districts. Those in district seats shall be Supervisor-appointed. The San Francisco Board of Supervisors' Rules Committee shall appoint the remainder.

Mission & Goals of the Report

The mission of the PSAC is to advocate for

pedestrian safety by engaging in the following: 1) serving as the liaison between the public, the Board of Supervisors, and agencies working on pedestrian-related projects, 2) making recommendations to the Board of Supervisors and to other relevant agencies about projects or policies that directly or indirectly affect pedestrian safety, 3) maintaining the public's safety as the top priority, and 4) recommending ways to improve the ambient environment and convenience in order to encourage pedestrianism as a healthful transportation activity.

The goals of this report are to provide a comprehensive and *objective* baseline assessment of the state of pedestrian safety in the City and County of San Francisco and to begin to identify potential barriers preventing improvements for pedestrians. Once this baseline is established, the committee can continue to develop ideas and refine policies based on the knowledge gathered in this report.

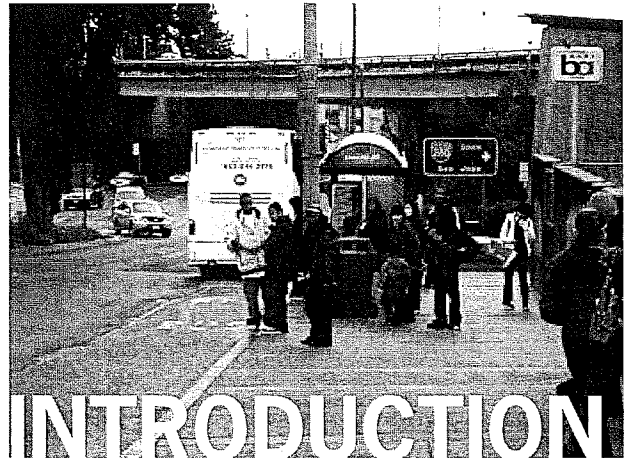
Approach, Framework, and Methodology

In 1959, C. Wright Mills coined the term "sociological imagination" to describe the idea that all social outcomes are shaped by social context, actors, and social actions (Wright-Mills, C, 1959). In 1966, Donabedian stated that quality depended on three components: structure, process, and outcome (Donabedian, A, 1966). As such, PSAC assessed the state of pedestrian safety in San Francisco using these approaches. The committee assumed that the state of pedestrian safety is the result of the interplay among policies and their enforcement, infrastructure, availability of funding, advocacy efforts, and personal choice.

In various safety-related fields, the "5 Es Framework" is used to describe the necessary components of successful injury prevention programs and activities. The 5 Es denote Education, Encouragement, Enforcement, Engineering, and Evaluation. Using an *adapted* version of the 5 Es framework, the PSAC broke into 5 subcommittees, each charged with the task of collecting information from all public and private agencies in San Francisco regarding the topic at hand. The committees

were Enforcement, Encouragement/Education/Health, Urban Planning/Engineering, Policy, and Data. In the development of this report, each subcommittee researched publicly available documents related to pedestrian safety and reviewed information that had been previously presented to PSAC (e.g. SFMTA monthly PSAC oral reports). Additionally, each subcommittee contacted relevant agencies and requested written documentation on activities or projects related to pedestrian safety in the past 3 years (2008-2010) and conducted interviews with stakeholders and agency representatives. To supplement our efforts, PSAC also sent draft copies of this report for review to the Department of Public Works, SF Municipal Transportation Agency, Recreation & Park, Department of Planning, SF Port, SF Redevelopment Agency, SF County Transportation Authority, Mayor's Office of Housing, Department of Economic and Workforce Development, and SF Walk; we are grateful to those agencies that were so generous with their time to provide such great feedback. After reviewing all of the commentary, the committee has incorporated that which it felt was most pertinent to this effort in providing a snapshot of the pedestrian realm and the agencies that support it.

The PSAC is certain that the depth and breadth of this report is sufficient to understand the state of pedestrian safety in the City, but recognizes that some information may have inadvertently been omitted. In order to carry out our function as an advisory committee to the Board of Supervisors and as a resource to the general public, the PSAC shall serve as a central repository for all pedestrian information, data, and performance metrics, as presented to PSAC by City agencies for the committee's review. Using these data, future iterations of this annual report will more comprehensively represent pedestrian safety-related plans and activities.



The authors of this report would like to articulate that a pedestrian is any person traveling by foot both unassisted and assisted (e.g. cane, walking stick, crutches, walker, etc) as well as by wheel chair and while walking may be referenced in the report, it should be understood that it refers to all pedestrian activity.

San Francisco: The “Best” Walking City in the United States?

In 2009, the American Podiatric Medical Association named San Francisco the “Best Walking City” in the United States among 25 other cities, such as Boston, New York, and Philadelphia. One of the rationales that assisted San Francisco in achieving this was as follows: “The city government devotes 12 agencies to walking issues (American Podiatric Medical Association, 2009).” Despite the accolades from this group and the fact that many agencies in the City do work on pedestrian issues, it is the PSAC’s belief that at this time agencies’ efforts could be better coordinated in order to have a more profound impact on pedestrian safety in San Francisco. As concerned citizens representing the City and the Board of Supervisors, we have had an opportunity over the past year to learn about the pedestrian safety efforts and found that although agencies work very diligently to increase safety in their respective fields, they generally tend to do so in an independent, operational manner.

As a world-class city—home to 800,000 people and filled with outstanding universities, parks, and landmarks—it is imperative that all agen-

cies in the City coordinate their efforts and increase safety for vulnerable road users through the use of scientific evidence. The Board of Supervisors' role in advancing pedestrian safety is critical. Through Board policies, San Francisco's priority on the pedestrian could and should be escalated to ensure that all City decisions are made with the pedestrian in mind, akin to the City's "Transit First" policy (City and County of San Francisco City Charter, 1996).

How Many People Travel as a Pedestrian in the City?

Estimates of the total number of pedestrians on any given day in San Francisco are scarce due to lack of available data. While we can make basic assumptions about pedestrian levels based on census data and information on mode share, finding information about pedestrian volumes on a finer scale is difficult. However, we do know anecdotally and from journey-to-work data that traveling as a pedestrian is a popular transportation mode for many people who live and work in the City. For example, in 2009, pedestrian activity constituted 10.3% of all work trips (SFMTA, 2010). In addition, a high percentage of commute trips in several neighborhoods were done on foot (e.g., 58% in the Financial District, 36% in Chinatown, and 36% in the South of Market area) (Healthy Development Measurement Tool, 2006). These figures reflect a high mode share of individuals who travel as a pedestrian to work on a daily basis. However, it should be noted that every individual who begins or ends a trip in San Francisco, regardless of mode, is a pedestrian at some point in his or her trip.

Why is Pedestrianism important?

Pedestrianism is vital to a successful and sustainable transportation plan. From a social standpoint, the ability to travel safely as a pedestrian provides an inexpensive and environmentally friendly way to access jobs, education, and other opportunities. Additionally, traveling as a pedestrian in a safe environment has been shown to promote health by reducing the risk for cardiac disease, obesity, and other chronic medical conditions related to inactivity (Peel et al, 2010). From the standpoint of city trans-

portation, pedestrianism has a very low impact on civic infrastructure and relieves other components of the transportation network (transit vehicles, roads) when they are at peak congestion. Finally, pedestrianism is a social activity which allows residents and visitors to share and explore local amenities.

Pedestrian Safety in San Francisco: Is It a Problem?

According to the San Francisco Municipal Transportation Agency, the overall number of pedestrian injuries decreased from 798 in 2007 to 734 in 2009. Pedestrian fatalities decreased from 24 in 2007 to 16 in 2009 (San Francisco Municipal Transportation Agency, 2009). This is based on police report data (i.e., drawn from the Statewide Integrated Traffic Reporting System). However, the pedestrian injury numbers captured by the San Francisco General Hospital, which conducts independent pedestrian safety research, suggests that the rate has remained stable over the past decade. The differences in rates may reflect the lack of a standard calculation method for the City's pedestrian injury rate. Although this will be discussed in more detail in the data section of the report, it is safe to state that the collective steps by all agencies to attempt to reduce the rate of pedestrian injury have only succeeded in maintaining a steady state. Therefore, system-wide interventions that profoundly impact the rate of injury are still very much needed in San Francisco. Examples of such interventions will be discussed later in the report.

Each year, approximately 700 to 800 pedestrians are involved in collisions with cars in San Francisco. This translates to 2 to 3 pedestrians per day and the age-adjusted rate of injury is 92/100,000, which is roughly 1.5 times the national average of 63/100,000 (Dicker et al, 2009) and 5 times the national goal of 20.3/100,000 set forth by Healthy People 2020, a repository of science-based objectives for public health issues to be achieved nationwide. Within San Francisco, the rate of injury varies by geographic location as well as ethnicity. For instance, the Financial District has the highest rate of vehicle-pedestrian injury collisions

per capita, followed by Chinatown, the South of Market, and Downtown/Civic Center areas (SWITRS data, reported in the Healthy Development Measurement Tool, 2010). The San Francisco Department of Public Health conducted research of transportation, land use, and sociodemographic factors that predicted those differences – and found that over 70% of the difference in injuries between areas in the City is explained by heavier local traffic volumes, more arterial streets (with faster traffic), the number of people living and working (and presumably traveling as a pedestrian) in the area, as well as other land use and socio-demographic factors – including a higher risk of injury in low-income communities. With regards to ethnicity, a study of pedestrian injuries occurring between 2005 and 2008 found that 50% and 25% were Caucasian and Asian American, respectively (Dicker et al, 2009). However, after adjusting for the population composition in the City, another study conducted from 2001 to 2003 found that African Americans and Latinos are 2.4 and 1.08 times more likely to be hit by a car than Caucasians and suggests that the difference may be due to the fact that disadvantaged neighborhoods populated by minorities are “drive-through commute zones” (Sciortino & Chiapello, 2010). Children and the elderly are yet another section of the population that are disproportionately affected by the lack of pedestrian safety measures. These rates and geographic and ethnic differences in the injury rate should be taken into account when planning and implementing area-wide safety measures by all agencies. Evidence of careful consideration of these rates should be mandatory for all agencies carrying out pedestrian safety work, including the San Francisco Municipal Transportation Agency, Department of Public Works, Planning Department, Department of Public Health, and the Police Department.

Some reports have suggested that San Francisco is a very “dangerous” place for pedestrians (Ernst & Shoup, 2009). Others have argued that compared to other cities, San Francisco is relatively safe (San Francisco Municipal Transportation Agency, 2010). Regardless of the arguments, it is unacceptable

to maintain the current rate of injury when there are evidence-based solutions that could dramatically decrease it. The effect of pedestrian injury on families and on society is extremely profound. By making evidence-based adjustments, the rate should be expected to dramatically decrease over time.

Safety Goals: An Opportunity for Setting Priorities

Although many of the City policies (described below) place an emphasis on pedestrian safety, the concept of safety remains open to interpretation and will change depending on the lens through which it is viewed, and there is little evidence to suggest that there is one agreed upon vision of pedestrian safety backed by specific goals and objectives for how to achieve that vision. Public health professionals are concerned with injury and other deleterious health effects related to the built environment. Urban planners are concerned with the efficient and safe movement of goods and people and with the aesthetic properties of the pedestrian environment. Police officers are concerned with reducing crime and enforcing the laws of our city.

Safety should be a top priority for any pedestrian plans in San Francisco. Although the public health community has established *national* goals for acceptable rates of pedestrian injury, the Board of Supervisors should require that agencies agree upon a vision for addressing pedestrian safety and to generate short- and long-term pedestrian safety goals that are specific to San Francisco. Doing so will help to measure our successes and failures as a city in addressing the injuries that continue to occur every day.

Micro versus Macro: The Excessive Use of Microscopes and the Need for Telescopes

Through interactions with various public agencies, PSAC has found that some agencies tend to focus their efforts at the intersection or individual level, rather than at the area-wide or population level. For example, many effective pedestrian safety countermeasures have been installed at specific locations, but there are

area-wide measures that could be implemented that have also been found to be highly effective in other cities and countries. For instance, reducing the speed limit in a large area to 20 miles per hour has been found to significantly decrease the rate and severity of injury (Sternbentz, 2009). Similarly, the SF Police Department runs pedestrian stings that are often implemented at intersections that police officers perceive to be dangerous. These stings are often reactive and planned without using the available data on where the highest collision rates occur. Using the data and increasing enforcement in the City as a whole and at all hours may have a more profound effect. While in recent months the Police Department has increased their resources towards protecting pedestrians, a more comprehensive and long-term approach could be investigated.

The Direct and Indirect Cost of Pedestrian Injury

Pedestrian injuries are very costly to society—whether they are economic or social costs. A recent study conducted by the San Francisco Injury Center on the direct medical cost of pedestrian injury was able to determine the quantitative impacts of pedestrian injuries on San Francisco, and the findings are staggering. The study found that 3,598 pedestrians were medically treated for their injuries over a 5-year period between 2005 and 2008. The total medical cost to treat those pedestrians was \$74.3 million, 76% of which was paid for by public funds, such as Medicare and MediCal, or by patients themselves (Dicker et al, 2009). The study also found that the per capita cost to treat the injuries was \$18.27 and that 74% of injured pedestrians were San Francisco residents. The total medical cost per year ranged between \$11 and \$17 million over those five years.

Reducing the rate of pedestrian injury in San Francisco will not only save lives, but also save taxpayer dollars. The indirect cost of injury has not been calculated although the Injury Center is planning a prospective study to look at the long-term repercussions of injury on patients' quality of life and economic status. There are also numerous other financial side effects that

could not be accounted for in this research. Other costs to society include bankruptcy, changes in family structures, and loss of work and productivity due to hardship caused by injury. The cost information available from this recent and local research can help the City make an economic case for preventing the injuries and advocating for increased investments in pedestrian safety interventions at all levels.



Pedestrian Safety Policies

The City's pedestrian safety policies, traditionally dispersed among various City plans and departments, have found more coherent expression in the City's Better Streets Plan ("BSP"), currently still in draft form but will be formally adopted by the end of this year. Of particular relevance to pedestrians are Chapter 3 (Policies) and Chapter 5 (Street Designs). The Better Streets Plan is the strongest consolidation of pedestrian policies to date for the City and County of San Francisco.

In Chapter 3 (Policies), the BSP addresses the following pedestrian safety issues (See Appendix A):

- Policy 2.3 calls for the design of sidewalks to maximize the amount of pedestrian and usable open space.*
- Policy 6.1 recommends the design of pedestrian crossings to maximize pedestrian safety and comfort.*
- Policy 6.2 advocates for the employment of traffic control devices to maximize pedestrian safety and comfort.*
- Policy 6.3 recommends that intersections be designed so that geometries and traffic operations maximize pedestrian safety and com-*

fort.

Policy 6.4 focuses on enforcement of traffic and parking violations that compromise pedestrian safety.

Policy 6.5 recommends further education and awareness activities to promote pedestrian safety.

Policy 6.6 refers to the prioritization of pedestrian safety in school zones (specifically, the provision of supplementary pedestrian safety measures in school zones, including school crossing guards and yellow high-visibility crosswalk markings, to increase awareness of pedestrians and reduce speeding.

Policy 6.7 calls for the design of streets to maximize personal security.

Policy 6.8 recommends traffic calming and speed reduction measures (including street trees, traffic circles, chicanes, and corner bulb-outs).

Policy 7.5 advocates for the creation of convenient, safe pedestrian conditions at transit waiting areas and transfer points.

In Chapter 5 (Street Designs), the BSP translates its policy recommendations into an extensive array of pedestrian safety-conscious design principles, including:

Increasing the availability and visibility of crosswalks and implementing supplementary pedestrian crossing treatments (such as pedestrian warning signs, advance stop and yield lines, special intersection paving, raised crosswalks and intersections, and pedestrian refuge islands) and pedestrian signal equipment (including pedestrian signal timing, pedestrian countdown signals, accessible pedestrian signals) and curb ramps. Emphasizing curb extensions (including extended and mid-block bulb-outs). Addressing additional traffic calming measures (such as chicanes and roundabouts).

While the BSP addresses many of the most important features of a comprehensive pedestrian safety policy, the diffuse nature of such policy recommendations, scattered as they are amongst a variety of different, often unrelated, policy areas, makes a focused discussion of the City's pedestrian safety policies unduly difficult. The logical next step in consolidating the disparate pedestrian safety policies found in

the BSP, therefore, would be to draft a Pedestrian Master Plan as found in most other major cities in the country, such as the District of Columbia, Minneapolis, and Seattle. A Pedestrian Master Plan would enable the City and pedestrian advocates to more effectively advocate for funds for pedestrian safety projects and support a more regular stream of pedestrian project development. The creation of a San Francisco Pedestrian Master Plan has been attempted and according to the SF County Transportation Authority,

In October 2005, the Authority allocated Prop K funds from the Pedestrian Circulation and Safety category to the San Francisco Municipal Transportation Agency (SFMTA) to develop the City's first PMP. The Authority also allocated and appropriated funds from other Prop K categories for additional PMP work and procurement of a technical services contract for the development of a Streetscape Master Plan (SMP) in March and October 2006, respectively. In the meantime, the Board of Supervisors passed the Better Streets Policy in February 2006, and out of this policy, under the rubric of the Directors Working Group (DWG), the need for a citywide policy and design guidelines document—to be called the Better Streets Plan (BSP)—to guide implementation of the Better Streets Policy was identified. In fall 2006, the DWG (comprised of the heads of City agencies with transportation functions) instructed the Planning Department and the SFMTA to integrate the PMP and SMP into the BSP. The Authority approved a final allocation and appropriation for the PMP with a revised scope in December 2006 with funds from multiple categories. The BSP, which will conclude its adoption phase this year, is a high-level document that sets policy and design guidelines for the pedestrian realm, but it does not include a methodology for prioritizing capital pedestrian investments.

Despite the lack of a formal prioritization plan for capital pedestrian investments, the San Francisco County Transportation Authority (SFCTA) has expressed a desire to work with City agencies, including the Municipal Transportation Agency, the Planning Department, the

Department of Public Health, the Department of Public Works, the Police Department, and citizen groups such as PSAC and WalkSF to develop mutually agreed-upon programmatic priorities for pedestrians in the City.

Existing Pedestrian Safety Funding Sources

Pedestrian safety projects in the City are funded through a variety of sources, including funds raised under Proposition K, the 2003 ballot measure to finance transportation improvements in San Francisco (See Appendix B)

Proposition K is of particular importance to pedestrian safety policies because, under the 30-Year Expenditure Plan which governs the use of the proposition revenues, a predetermined percentage of the approximately \$2.6 billion expected to be raised under Proposition K over its 30-year period is set aside for pedestrian safety-related projects. Specifically, specific percentages are set aside for traffic calming (3.9%), pedestrian circulation/safety (2.9%), and curb ramps (2.0%).

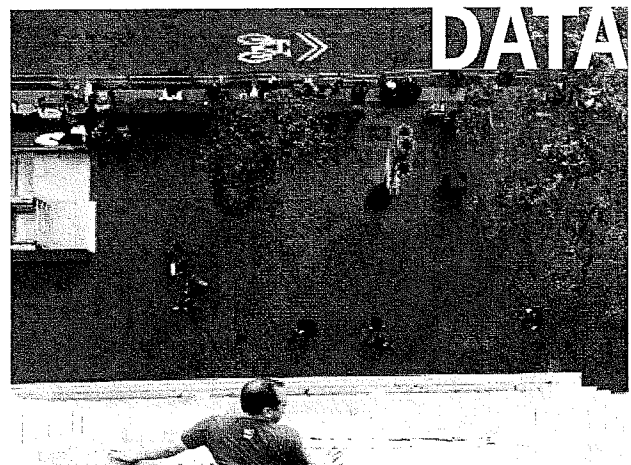
The SFCTA is responsible for disbursing Prop K funds; with respect to pedestrian safety measures, the SFCTA allocates funding to projects proposed by the San Francisco Municipal Transportation Agency (SFMTA) based on their adherence to eligibility criteria set down in the Expenditure Plan, as well as their reasonableness of scope, schedule, budget, funding plan, and cash flows.

In recent years the percentage of Prop K funds allocated to pedestrian safety measures have fallen below the percentages mandated under the Expenditure Plan. For example, in the 2009 Prop K Strategic Plan, a programming document that sets short-term funding percentages, the percentage for traffic calming has dropped to 2.6%, for pedestrian circulating/safety to 1.0%, and for curb ramps to 1.0%. While these funding levels are only temporary, the ordering of priorities reflected in the 2009 Strategic Plan is a cause for concern.

Because there are relatively few discretionary funding sources dedicated to pedestrian safety,

the City would benefit from locating additional sources of funding for pedestrian projects. The SFCTA, for example, is supporting a fall ballot measure imposing an additional annual fee of up to \$10 on motor vehicles registered within the City, a significant portion of the revenues of which could be earmarked for pedestrian safety measures.

In addition, the Federal government is initiating collaborations among various agencies such as the Department of Housing and Urban Development, the Department of Transportation, and the Environmental Protection Agency, to focus on walkability, which includes a strong pedestrian safety component. The City is well positioned to compete for funds to implement this type of initiative because of its many transportation projects in the planning and design stages—e.g., the Van Ness and Geary Bus Rapid Transit (BRT); streetscape and safety improvements on Cesar Chavez, St. Balboa St., and 19th Ave; projects from the Eastern Neighborhoods Transportation Implementation Planning Study; the Transbay Terminal Plan; and the Better Market Street Initiatives. See Appendix A for the list of policies describing City priorities and values regarding streetscape design and management as well as the accompanying design guidelines



This city is unique in that it is surrounded by three bodies of water and has a clearly delineated border with San Mateo County to the south. As such, the ability to merge the data collected in San Francisco should be more feasible than in other cities where borders are

not so clearly defined. The use of data is paramount as it can help agencies evaluate pedestrian safety conditions and interventions. What follows is a review of available data related to pedestrians and their health and safety.

Pedestrian Count Data

Collision history at the intersection level has historically been used as a proxy for identifying the “most dangerous” intersections for pedestrians in San Francisco. However, collision history alone does not take into account that pedestrian and vehicle volumes may differ by intersection, thereby leading to erroneous conclusions about the level of risk. In order to quantify pedestrian traffic, the SFMTA has implemented an annual count of pedestrians at 25 locations and is also currently implementing automated pedestrian counters (San Francisco Municipal Transportation Agency, 2010). Data from these counts will allow the SFMTA to create an exposure model so that future plans and interventions could be more strategically targeted.

Collision & Injury Data

There are two major data sources related to pedestrian collisions in San Francisco. The first is the collision data recorded by the police department and the second is the injury data collected by San Francisco General Hospital (SFGH). Each dataset depicts a different set of variables associated with the auto-pedestrian collisions. The former includes data related to the location of injury (street intersection), party at fault, and lighting and weather conditions at the time of the collision, among other variables. The latter provides data related to the outcome of pedestrian collisions, such as injury severity, admission status, number of days in an intensive care unit and on a mechanical ventilator, and death. With special permission from the Institutional Review Board at the University of California, San Francisco and using specific economic analyses, the direct cost of medical treatment for injuries associated with auto-pedestrian collisions can be—and has been—calculated.

Police Data. Collection, processing, and data access differ for both types of datasets. The police data are initially collected by a police officer who arrives at the scene of an auto-pedestrian collision. The paper report is later entered into a law enforcement dataset. Periodically, the data are sent to Sacramento to be de-identified (i.e., stripped of personal identifiers) and made available to government and research agencies online through the Statewide Integrated Traffic Reporting System (SWITRS). Approximately 8-10 months after a calendar year, the clean datasets are available for downloading. Currently, the San Francisco Municipal Transportation Agency (SFMTA) analyzes and writes an annual collision report based on SWITRS data as a part of its performance standards. Historically, it took one year to generate a pedestrian collisions report because of the time required to send data to Sacramento first to be stripped of identification tags. However, SFPD is now working to see that data is distributed to relevant City agencies first before it is sent to Sacramento. The report includes general queries for the City, such as trends in collisions by mode (e.g., vehicle, pedestrian, etc.), annual totals by age, locations with a high number of collisions, and number of Driving-Under-the-Influence (DUI) violations. Other agencies in San Francisco, such as the Department of Public Health and the San Francisco Injury Center at UCSF, use the SWITRS data for program planning or research purposes.

Hospital Data. Conventionally, any person hit by a car in San Francisco or in the northern part of San Mateo County is considered a “trauma” and brought to SFGH to be assessed and treated by a trauma team, which includes a trauma surgeon. In fact, “trauma cases” require a particular group of specialists trained in acute care to stabilize and treat the patient upon arrival to the hospital. After initial assessment, some patients are found not to be injured severely enough to warrant admission to the hospital. Approximately 25% of auto-pedestrian trauma cases are admitted and require a longer hospital stay (Dicker et al, 2009). Since 98% of auto-pedestrian injuries are brought to SFGH and a certified trauma registrar maintains a da-

taset to track the patients, the collection of the pedestrian injury data in San Francisco is well-organized and complete with regards to health information. Only the Institutional Review Board at UCSF or the Director of Trauma can grant access to the trauma registry data. Analyses of hospital data related to all types of injuries occurring in San Francisco are conducted by the San Francisco Injury Center for Research and Prevention.

Challenges in Merging Data. In 2005, researchers from the SF Department of Public Health and the San Francisco Injury Center conducted a study to examine the differences between the SWITRS and hospital data (Scortino et al, 2005). They found that police data underestimated the number of injured pedestrians by 21%. Furthermore, they used a very tedious methodology for matching the collision report to the hospital record, which involved assuming that records with identical or nearly identical date and time stamps referred to the same pedestrian. In 2009, a similar matching methodology was used in a study examining the medical cost of pedestrian injury (Dicker et al, 2009). Given that the police report has information about the circumstances surrounding the auto-pedestrian collision whereas the hospital record has information about the outcome and cost of the injuries, it is imperative that an agreement be established to share and merge data using personal identifiers, such as first and last names. These personal identifiers could then be removed once the datasets are merged. The PSAC recognizes that in order to increase pedestrian safety, the use of multivariate analyses and statistics needs to be increased.

Environmental Data & Modeling

From the “macro” or area-wide perspective, the San Francisco Department of Public Health (Program on Health, Equity, and Sustainability; SFDPH-PHES) uses statistical models to assess pedestrian conditions and inform safe, healthy pedestrian planning. One tool the program developed is the Vehicle-Pedestrian Injury Forecasting Injury Model, which can be used to predict change in the number of col-

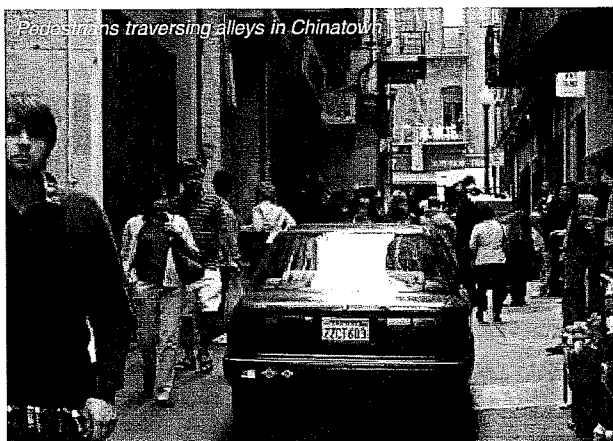
lisions resulting in pedestrian injury or death based on area-level changes in street, land use, and population characteristics due to new development or transportation system changes. Significant predictors (census-tract level variables) in the current model are: traffic volume, employee and residential populations, arterial streets (without transit), neighborhood commercial areas, proportion of residents below the poverty level and aged 65 and older, and land area. These research findings were published in the peer-reviewed journal *Accident Analysis and Prevention* in 2009 (San Francisco Department of Public Health, 2010).

SFDPH-PHES also developed the Pedestrian Environmental Quality Index (PEQI) to assess the quality of the physical pedestrian environment and inform pedestrian planning needs (San Francisco Department of Public Health, 2008). The PEQI draws on published research and work from numerous cities to assess how the physical environment impacts on whether people travel as a pedestrian in a neighborhood. The PEQI is an observational survey that quantifies street and intersection factors empirically known to affect people’s travel behaviors, and is organized into five categories: traffic, street design, land use, intersections, and safety. Within these categories are 30 indicators that reflect the quality of the built environment for pedestrians and comprise the survey used for data collection. SFDPH aggregates these indicators to create a weighted summary index, which can then be mapped and reported as an overall index or deconstructed by category or indicator. San Francisco applications of the PEQI include assessments of Treasure Island in collaboration with the San Francisco Bicycle Coalition as a part of a community-based planning effort funded by CalTrans as well as Chinatown in collaboration with the Chinatown Community Development Corporation, the Eastern Neighborhoods with data and analysis being provided in support of ENTRIPS and a Health Impact Assessment of the Still/Lyell Freeway Channel in the Excelsior District. The PEQI has been used by nine locations outside of San Francisco to inform pedestrian planning.

SFDPH-PHES also developed the Healthy Development Measurement Tool (HDMT), which is a comprehensive evaluation metric that supports the inclusion and consideration of health needs in urban land use plans and projects. The HDMT is comprised of three core components: 1) a “community health indicator system” to evaluate community health objectives and baseline neighborhood conditions, 2) a “healthy development checklist” that is used to evaluate land use plans and projects, and 3) a “menu of policy and design strategies” that can be used to make recommendations on how to improve baseline conditions and/or meet checklist targets. These components are organized by six broad elements that comprise a healthy city and twenty-seven community health objectives that, if achieved, would result in greater and more equitable health assets and resources for San Francisco residents (San Francisco Department of Public Health, 2006).

General Findings

Based on interviews with data analysts in various agencies as well as a review of publicly available documents, it is evident that 1) agencies differ substantially in their use of data and capacity to analyze data; 2) it is difficult to merge data because there are rarely formal agreements between agencies to share such data and because of the legal implications of matching data using personal identifiers; 3) an interagency agreement to standardize definitions for calculating rates has not been established and this may explain why agencies will calculate a different pedestrian injury rate when given an identical dataset.



The built environment that composes San Francisco’s pedestrian network varies considerably throughout the city limits, whether it is the dense street grid and high-rises of downtown, the narrow yet crowded sidewalks of Chinatown and North Beach, quieter neighborhoods of the Outer Richmond and Sunset, or long stretches of unimpeded paths along the Embarcadero or Great Highway. Yet, numerous pedestrians from year to year frequent these areas, among many others. As the street and subsequent pedestrian network has evolved, greater levels of thought have been placed on designing spaces that are both legible and safe for pedestrian activity. Features and improvements include: 116 accessible pedestrian signals, 840 pedestrian countdown signals, crosswalk conversions, crosswalk openings, 19 traffic calming plans, and physical improvements for schools participating in Safe Routes to School. Yet, as pedestrian collisions, injuries, and fatalities continue to proliferate, it is certain that more could be done from the perspective of designing safer facilities in our city for pedestrians.

On the whole, San Francisco provides adequate to good pedestrian facilities and a complete pedestrian network that allows locals and visitors alike to readily access many of the city’s popular destinations and amenities. Yet, room for improvement certainly does exist. Some specific corridors, neighborhoods and plan areas of the city have received funds for the purpose of building an environment that promotes pedestrianism and enhances safety. Examples include recent pedestrian street

treatments in the Tenderloin, provision of pedestrian safety refuges in the median of the Divisadero Corridor near Alamo Square and sidewalk widening along Valencia Street in the Mission. However, these improvements come as part of specific plans, unique to a district and may occur independently and in isolation from other planning, safety, and coordination efforts.

The primary purpose of this section is to outline the various City organizations that interface with pedestrian safety planning with regard to the built environment. While it is understandable that numerous City agencies must be involved to plan, design, and build pedestrian-related projects, it is the opinion of the PSAC that pedestrian safety planning in San Francisco is not only complicated due to the numerous agencies involved and engaged in planning efforts, it is also hindered due to the complexity and multiple concurrent projects that are underway, some of which cover the same geographic areas.

Local Agencies Involved in Pedestrian Planning
This section will briefly outline the various agencies that have worked in planning, designing, or constructing pedestrian-related facilities or infrastructure in San Francisco to date. It will also outline what known relationships exist between agencies in order to conduct typical day-to-day business. While many of these agencies have already been introduced through the course of the report, this section will hone in on their specific roles as they relate to pedestrian safety.

The **San Francisco Municipal Transportation Agency (SFMTA)** is composed of the San Francisco Municipal Railway, Sustainable Streets, Division of Taxis and Accessible Services. The SFMTA's Livable Streets Subdivision works most directly with pedestrian safety issues as they manage all traffic-engineering functions within the City including the placement of signs, signals, traffic striping, and curb markings. They also have a primary function in promoting the safe and efficient movement of people throughout the city. The PSAC has the most direct interaction with the SFMTA as

our group has a direct staff liaison. The SFMTA works in coordination with the San Francisco Department of Public Works (SFDPW or DPW) on numerous projects related to the road right-of-way.

The **Port of San Francisco (Port)** is a public enterprise charged with maintaining a balance of maritime, recreational, industrial, transportation, public access, and commercial activities in the portions of San Francisco under its control. The Port holds these functions for the purpose of public benefit. Under its control of the waterfront the Port plans and designs pedestrian spaces and public points of access to the water. While the Port does not have extensive influence in pedestrian planning throughout the city, it does control what land it does own, which happens to be highly trafficked by pedestrians and other non-motorized users alike.

The **Office of Economic and Workforce Development (OEWD)** is dedicated to activities and programs related to business attraction and retention, workforce development, international business, development planning, and neighborhood commercial revitalization. The OEWD works more directly with pedestrian safety in its efforts to strengthen various San Francisco neighborhoods and commercial corridors that may be reliant on pedestrian traffic to ensure economic vitality. The OEWD is mainly involved in leading particular planning projects but defers implementation to the appropriate agencies such as DPW or SFMTA.

The **San Francisco Redevelopment Agency (SFRA)** works within the city to create better urban living conditions and general environment within San Francisco. The SFRA leads and manages several large projects in the City that relate to specific planning areas for redevelopment. These plans all have a significant pedestrian component as they all require basic pedestrian necessities such as sidewalks, curb ramps, etc. Again, implementation and operations are deferred to the appropriate agencies.

The **San Francisco County Transportation Authority (SFCTA)** administers San Francis-

co's Prop K ½ cent sales tax for transportation and serves as the Congestion Management Agency (CMA) for the City and County of San Francisco, leveraging state and federal transportation dollars and guiding future investment decisions through preparation of a long-range countrywide transportation plan. The SFCTA provides oversight of Prop K-funded projects, leads various planning efforts such as neighborhood transportation plans, and manages larger capital projects, all of which impact the City's pedestrian environment. Implementation is handled by the appropriate agency

Bay Area Rapid Transit (BART) operates a multi-county regional rail system in the Bay Area. In San Francisco, BART operates and maintains eight rail stations and some adjacent facilities. These stations all have unique requirements with regard to pedestrian safety and access. BART's role in pedestrian safety comes in the planning of pedestrian access to its stations. Implementation of BART Station projects may be a combination of BART and local agencies.

The **San Francisco Planning Department's (Planning)** primary role in San Francisco is to guide future growth, improvement, and development within the city. It enforces legally binding plans and updates these plans as necessary or mandated by law. Planning can dictate pedestrian safety policies through planning code, the general plan, or other binding documents. The Planning Department is one of the lead sponsors in developing the Better Streets Plan and other public realm planning efforts such as the Mission District Streetscape Plan, Fisherman's Wharf Public Realm Plan, and others.

The **San Francisco Department of Public Works (SFDPW)** provides public service in San Francisco by building, operating, and maintaining the city's infrastructure, right-of-ways, and facilities. SFDPW leads the Great Streets Program that aims to highlight the value of landscaping, lighting, and pedestrian safety on the city's streets. SFDPW has also played a lead role in developing the Better Streets Plan.

The **Transbay Joint Powers Authority (TJPA)** is a collaboration of Bay Area government entities and transportation bodies committed to building a new Transbay Transit Center to serve San Francisco and the greater Bay Area. As the new Center is slated to serve millions of pedestrians annually, it plays a significant role in pedestrian safety planning as the project moves forward. The TJPA serves only as a planning and policy body and does not operate or implement projects.

The **San Francisco Recreation and Parks Department (Rec & Parks)** is responsible for operating and maintaining all parks, playgrounds, and open spaces in San Francisco. As these types of spaces are popular destinations among pedestrians, Rec & Parks plays an important role in coordinating pedestrian safety projects with other agencies.

The **San Francisco Public Utilities Commission (PUC)** is responsible for four distinct services: Regional Water, Local Water, Wastewater (collection, treatment and disposal), and Power. With respect to pedestrian safety, the PUC maintains and determines the intensity of illumination, number and spacing of lighting facilities and other details necessary to secure satisfactory street lighting for the City and County of San Francisco. This mandate is carried out by the SFPUC Power Enterprise's Utility Services group, formerly the Bureau of Light, Heat and Power. Utility Services has also initiated a Street Lighting Master Plan effort.

The **Mayor's Office of Disability (MOD)** ensures that every program, service, benefit, activity and facility operated or funded by the City of San Francisco is fully accessible to, and usable by, people with disabilities. MOD is responsible for overseeing the implementation and local enforcement of the City's obligations under the Americans with Disabilities Act as well as other federal, state and local access codes and disability rights laws. With respect to pedestrian safety, an example of MOD's role is MOD Council Resolution # 2001-03, that

prevented the installation of street crossings that are delineated in brick or other unit paving materials in non-historic areas because these materials have been found to be difficult to visually distinguish from the adjoining street surface by pedestrians with low vision.

As noted, this description of agencies is merely a preliminary step in outlining agencies that are currently involved with pedestrian planning in San Francisco. Yet, among the agencies listed above, only some of these are actually involved in pedestrian plan implementation. The graphic below (as provided by the Better Streets Plan) illustrates the plethora of agencies involved in redesigning and redeveloping the right-of-way.

Current List of Pedestrian Projects

Based on the agencies listed above, the PSAC has comprised a preliminary list of existing planning projects underway that have a relation to pedestrian safety. This list can be found in Appendix C. Since pedestrian safety is a broad topic and most projects have at least a nominal pedestrian component, this list is quite extensive. However, it outlines the breadth of projects that impact pedestrian safety and the

potential for pedestrian safety improvements throughout the city. Furthermore, the list itself provides a snapshot on the numerous concurrent planning efforts that may be underway, illuminating a potential lack of coordination between the agencies listed above. While this is understandable with a complex hierarchy of organizations, potential resources to fund additional safety measures may be lost.

Particularly concerning, among the numerous types of pedestrian safety improvements that may be included with these planning efforts, is that there are very few binding guidelines or performance measures associated with the pedestrian safety recommendations in these plans. While efforts to develop and implement the Better Streets Plan will improve this issue, it is still unclear at this time if it will provide any comprehensive policies on pedestrian safety and the levels of safety physical design hopes to achieve.

While this list is not exhaustive, it does provide the most recent information regarding known pedestrian-related projects. This list was created from the individual efforts from PSAC and is

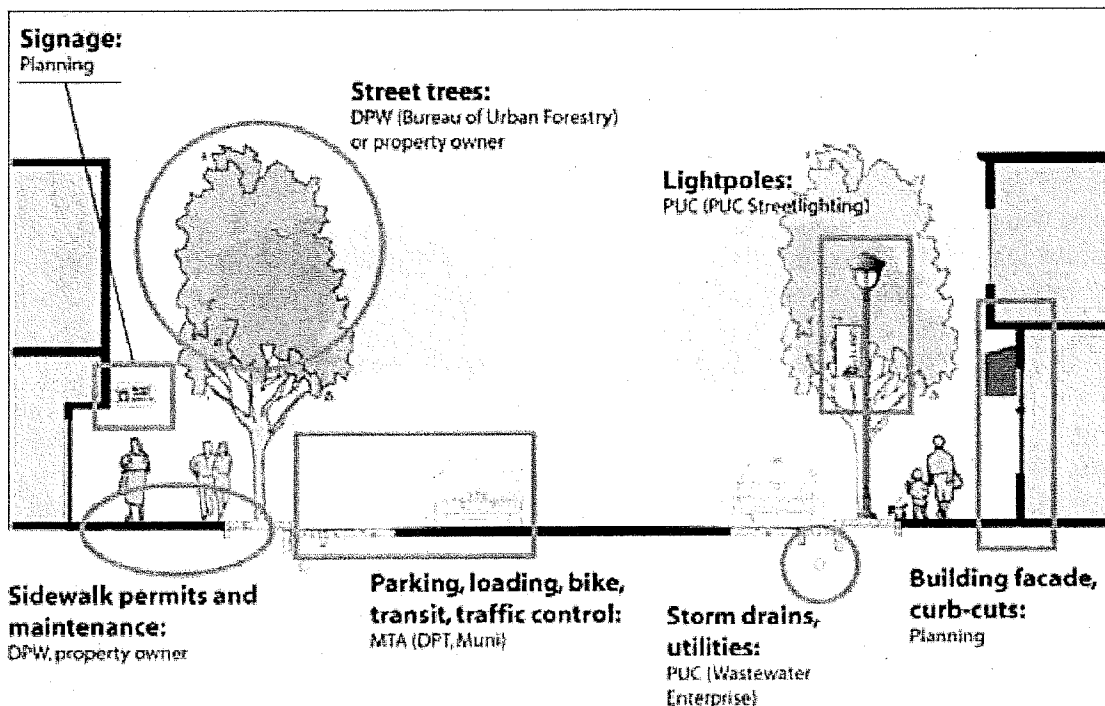


Figure A: Various entities involved in Street Right-of-Way Planning
Source: San Francisco Better Streets Plan, Final Draft, July 2010, www.sfbetterstreets.org

not held or collected from any other City agencies. Since PSAC has a unique role in trying to serve as an independent intermediary between these agencies, agency representatives should continue to present relevant information to PSAC at least quarterly so that it can fulfill its role as an advisor to the Board of Supervisors and to the public regarding pedestrian safety.

Other Observed Challenges in the Existing System

Divide between Planning and Project Level Coordination: Among other challenges in improving pedestrian safety, one key issue is the divide between planning level coordination and project level coordination among key agencies, as previously mentioned in this report. At the project level, there currently is a fair level of interagency coordination as a product of necessity. This is because at the project level, and for day-to-day business, a process and structure have been established to move projects

through the necessary process to ensure timely project delivery. An example of this structure is shown below in Figure B.

Yet, at this time, a similar structure and hierarchy does not exist for higher-level planning decisions with regard to pedestrian safety policies. The draft Better Streets Plan hopes to formalize and streamline this process to a higher degree, but there is currently no structure or process in place to advance planning level pedestrian safety issues. At a minimum, a higher-level policy or vision should be set for pedestrian safety issues. This should be done with the organizations listed above as key stakeholders in setting that vision.

Developing an Implementation Strategy

Historically, there has been no implementation strategy to prioritize pedestrian projects but the Department of Public Health just recently announced developing a system to do just that.

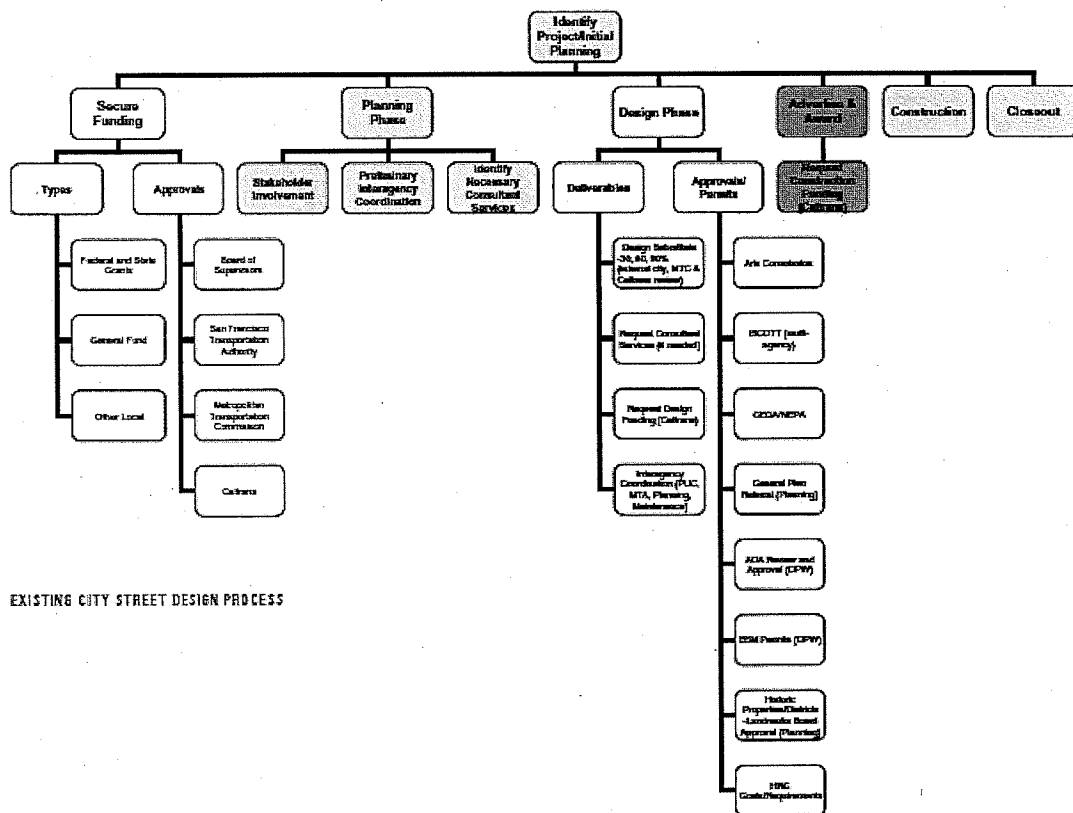


Figure B: Project Planning Organization Chart for City Street Design Process (Streetscape Projects)
Source: San Francisco Better Streets Plan, Final Draft, July 2010, www.sfbetterstreets.org

Currently in progress, *Walk First* will identify key walking corridors and establish criteria to prioritize pedestrian improvements in order to “improve pedestrian safety and walking conditions, encourage walking, and enhance pedestrian connections to key destinations” (Walk First, 2010). Another component for an implementation strategy would be evaluating existing inequalities of pedestrian amenities and incomplete networks based on location. The historic and present “squeaky wheel” approach to spur pedestrian safety improvements only after serious collisions or injuries is not a sound policy, the product of the DPH study will be of great benefit and reinforce prioritizing pedestrian activity and safety in both San Francisco’s Transit

First policy and Better Streets Plan.

Other ongoing efforts in the built environment

As previously mentioned and within other sections of the report, the Better Streets Plan is a blueprint for San Francisco’s pedestrian environment and hopes to advance agency coordination in planning for the pedestrian realm with the intention of defining City-wide priorities and delivering more quality pedestrian projects within San Francisco. The figure below helps outline the basic premise of the BSP and its specific goals as a document.

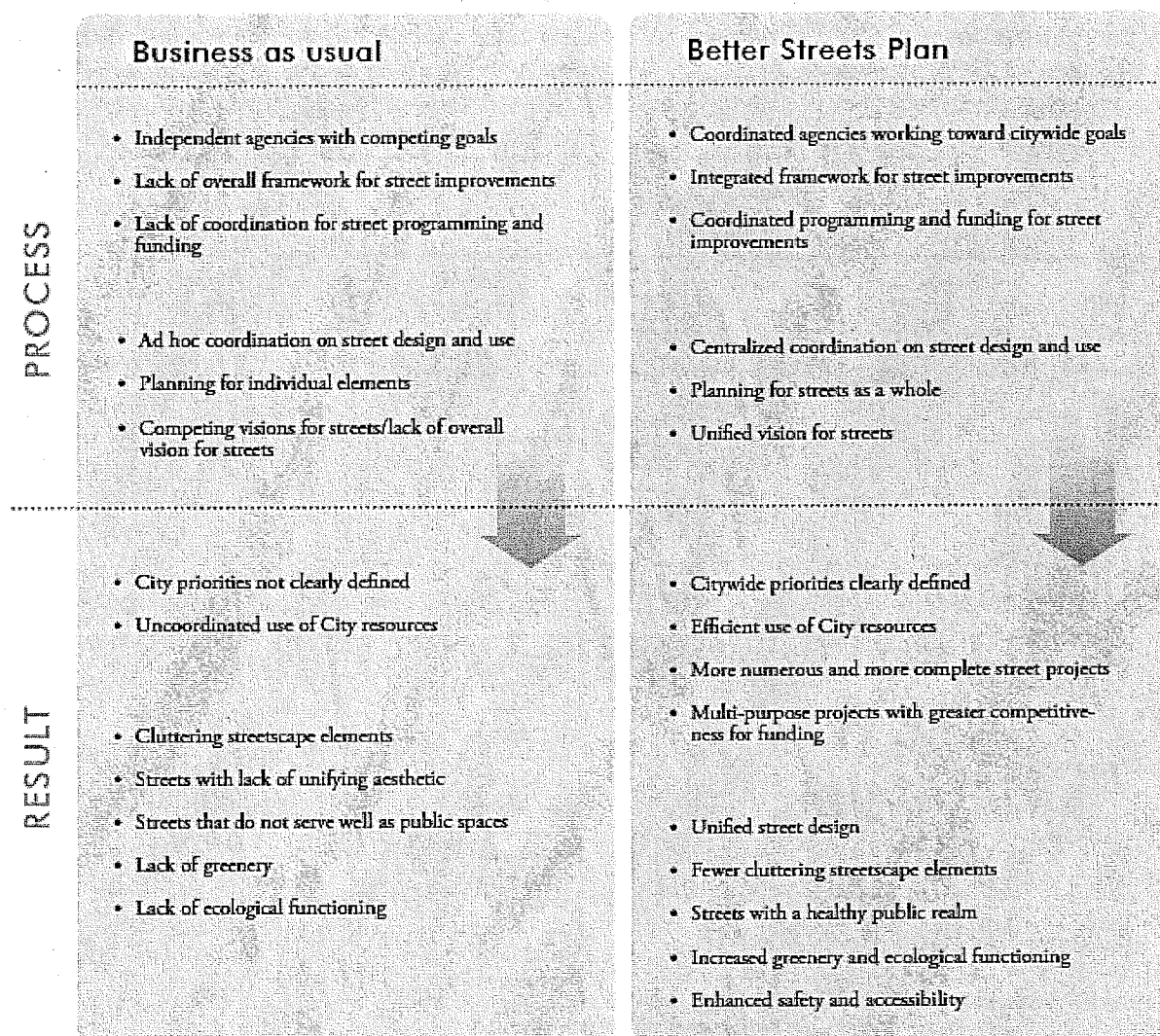


Figure C: Proposed goals of the Better Streets Plan
Source: San Francisco Better Streets Plan, Final Draft, July 2010, www.sfbetterstreets.org

A substantial and commendable effort has been placed in the Better Streets Plan to date and the PSAC should be very supportive of the final product if it is able to produce the results of its intent. However, key elements of the BSP have yet to be fully integrated into appropriate City codes. Thus, the anticipated improvements have yet to occur.

As suggested before, consolidating all pedestrian-related policy and guidelines along with the *Walk First* strategy will provide a comprehensive understanding of the overarching goal and vision with regard the pedestrian realm, providing clarity to City agencies and the public.



An integral part of any pedestrian safety plan is the enforcement of traffic regulations designed to minimize the risk of pedestrian injury, including speed limits and jaywalking regulations. In San Francisco, this enforcement function, along with accident investigations and traffic safety education, has been entrusted to the Traffic Company.

The Traffic Company is comprised of four branches: 1) Enforcement and Investigations, 2) Traffic Support, 3) the San Francisco Traffic Offender Program (STOP) and 4) Training and Maintenance. The Traffic Company's primary mission is to reduce injuries and fatalities from traffic collisions. To accomplish its mission, the Traffic Company engages in: 1) investigations of traffic collisions involving injury and death, 2) traffic enforcement of hazardous vehicle code violations in areas of high frequency crashes, 3) traffic management involved with major pa-

rades and athletic events, demonstrations and dignitary escorts, 4) enforcement of unlicensed drivers and unregistered vehicles, and 5) traffic and pedestrian safety education for community groups and schools.

The enforcement and investigation branch of the Traffic Company is composed of 37 motorcycle officers who are assigned to one of ten police district stations throughout the City. The captain of each police district station determines the timing and location of traffic enforcement stings. In addition to enforcement responsibilities the motorcycle officers frequently provide escorts for visiting dignitaries.

In preparing this report, members of the PSAC met with Captain Stephen Tacchini and Lieutenant Jim Calonico from the Traffic Company to discuss ways to improve the enforcement of pedestrian-oriented traffic regulations and the overall functioning of the Traffic Company.

Lack of Officers and Resources

The primary barrier to more effective enforcement by the Traffic Company appears to be a shortage of officers and resources. According to the Traffic Company representatives, the 37 motorcycle officers in the enforcement and investigation branch is down from about 40 officers in previous years, and about one third of these officers will be retiring soon and will probably not be replaced in any significant numbers. In addition, a significant amount of the motorcycle officers' time is spent escorting visiting dignitaries.

With regard to resources, the Traffic Company's effectiveness appears to be hampered by outdated technology. In particular, the Traffic Company lacks the technology and staff expertise to develop and maintain a computerized database of vehicle/pedestrian citations, which would aid the Traffic Company's efforts to identify high-risk intersections and times, as well as provide an invaluable complement to the pedestrian injury reports by the SFPD and SFGH.

Furthermore, the Traffic Company's enforcement operations are limited by a lack of

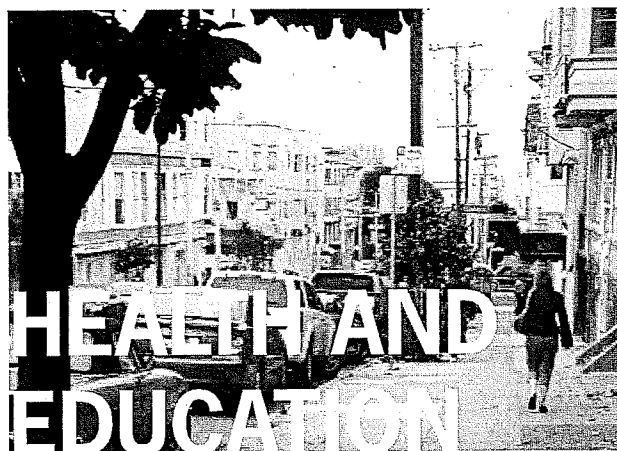
funding. For example, the SFPD recently completed a month-long Pedestrian Safety Enforcement Operation, under which Traffic Company officers conducted stings at various high-traffic locations throughout the City focusing on pedestrian right-of-way violations, red light violations, stop sign violations and speed violations. This operation was long overdue, as the SFPD's own traffic collisions report has consistently shown that pedestrian right-of-way violations and pedestrian violations are the largest contributors to auto-vs-pedestrian collisions in San Francisco. The fact that the Traffic Company had to rely on a grant from the California Office of Traffic Safety to implement this operation merely underscores the need for additional sources of funding.

Improved Coordination and Incentives

In addition to increasing the numbers of officers and resources available to the Traffic Company, improved coordination between the Traffic Company and other City agencies and SFPD departments would likely improve the Traffic Company's effectiveness. For example, currently the captain of each police district station typically determines the locations of traffic enforcement. Utilizing the pedestrian injury reports referenced above in the data section in a more systematic manner would allow the Traffic Company to target their stings more precisely and maximize their impact.

A more structural problem is how State law de-incentivizes aggressive enforcement of traffic violations on the municipal level. Under California law, the fines collected by San Francisco officers under the California Vehicle Code are sent to the State; the City and County of San Francisco can retain only fines collected under San Francisco's Traffic Code provisions that are not duplicative of the California Vehicle Code. While such a policy will likely have no effect on the enforcement efforts and motivations of individual officers, it may affect the City's prioritization of traffic enforcement and, as a result, pedestrian safety. The PSAC therefore recommends that the City engage in advocacy and public education efforts to remove this structural de-incentive at the state

level.



As mentioned above, pedestrianism carries many benefits and some risks for injury and even death. The field of public health is concerned with promoting health and preventing injury and disease and its population approach has been credited with increasing the American lifespan by 30 years over the last century (BJ Turncock, 2004). Massive interventions such as family planning, fluoridation of drinking water, seatbelt laws, vaccinations, and safer work places, among others, have been largely responsible for this increase in lifespan. The public health approach to pedestrian safety can range from educating individuals about pedestrian safety to shaping policies that benefit all pedestrians to collecting and analyzing data that can inform those policies. Public health activities centered on pedestrian safety in San Francisco are vital to the improvement of safety and should practitioners in this field should be included in all pedestrian-related projects, including those implemented by other fields such as engineering and enforcement. There are four general groups working on pedestrian safety using the public health approach. A general description of each group is provided below with detailed information about projects in the appendices.

San Francisco Department of Public Health - Pedestrian Safety Project

The Pedestrian Project is part of the Community Health Promotion and Prevention Branch of the San Francisco Department of Public Health. The Project is responsible for organiz-

ing local neighborhood and Community-based Organizations (CBOs) to work on pedestrian safety and walkability issues with advocates, community groups and agencies throughout San Francisco. The Project makes a special effort to work with groups that reach out to underserved neighborhoods and special populations at risk, especially seniors, children, and people with disabilities. In 2010, DPH funded various CBOs at \$20,000 each to work on pedestrian safety projects (see Appendix D)

Projects from this branch of the Department of Public Health are focused on providing education and encouragement to people who travel as a pedestrian in the city, especially children, through the use of posters, banners, media campaigns, and direct educational interventions.

San Francisco Department of Public Health - Program on Health, Equity, and Sustainability (SFDPH-PHES)

The SFDPH-PHES supports San Franciscans working together to advance urban health and social and environmental justice through ongoing integration of local government and community efforts and through valuing the needs, experiences, and knowledge of diverse San Francisco residents. DPH-PHES accomplished this by: initiating and facilitating dialogue and collaboration among public agencies and community organizations; expanding public understanding of the relationships between the natural, built, and social environments and human health; support local participation in public policy-making; conducting and supporting local and regional research; developing and evaluating new methods for interdisciplinary and inclusive involvement in public-policy; and documenting and communicating our strategies. In our vision of San Francisco, communities are engaged in democracy and committed to equality and diversity. DPH-PHES believe this will create and maintain sustainable and healthy places for all San Franciscans to live, work, learn, and play.

Part of the Program on Health, Equity and Sustainability, the Urban Health and Place Team

develops, applies and disseminates tools, research and expertise to assess environmental conditions and respond to urban health inequities and environmental policy gaps. The program uses these tools and their general public health expertise to work with community stakeholders and government agencies to inform project development and policymaking and to improve the consideration of health and health inequities in decision-making. A detailed description of pedestrian safety projects can be found in Appendix E.

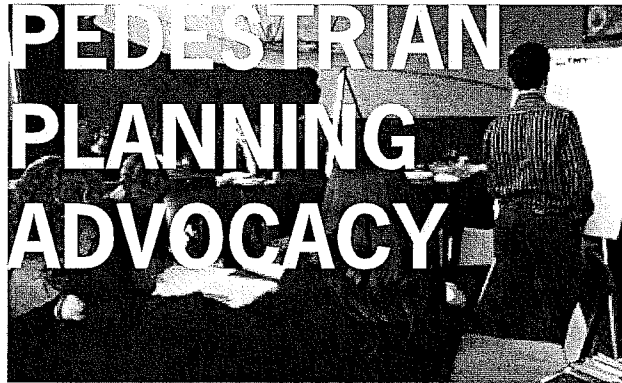
Projects from this branch are area-wide and focus on populations rather than individuals. This group collects, analyzes, and uses findings to help shape policies that affect vulnerable road users. Public health interventions at the policy level have been found to be highly effective and sustainable.

San Francisco Injury Center for Acute Care and Injury Prevention Research – A Division of the University of California, San Francisco

The San Francisco Injury Center (SFIC) is one of 13 CDC-funded centers focusing on acute care and prevention research of intentional and unintentional injuries. Trauma surgeons, health economics experts, psychologists, research nurses, and research associates compose the research team at the SFIC. Injury types of interest include interpersonal violence, falls, auto-versus-pedestrian, and bicycle-versus-pedestrian. The Center is based out of San Francisco General Hospital, which is the only trauma center for San Francisco and has direct access to all traumatic injury data. The center is composed of two branches: the Acute Care Branch and the Prevention Branch. Since approximately 65% of traumas are pedestrian or bicycle-related, many of the projects under the Prevention Branch focus on injuries to the vulnerable road user. A detailed description of projects from this center can be found in Appendix F.

Projects from this Center are outcomes-based in that they collect and analyze injury data after the pedestrian injury has occurred. The injury

data provided to the city by the SFIC, such as the cost of pedestrian injury, the cost of bicycle injury, and other general data on demographics and injury severity, can provide rich feedback to the City about that state of pedestrian injury.

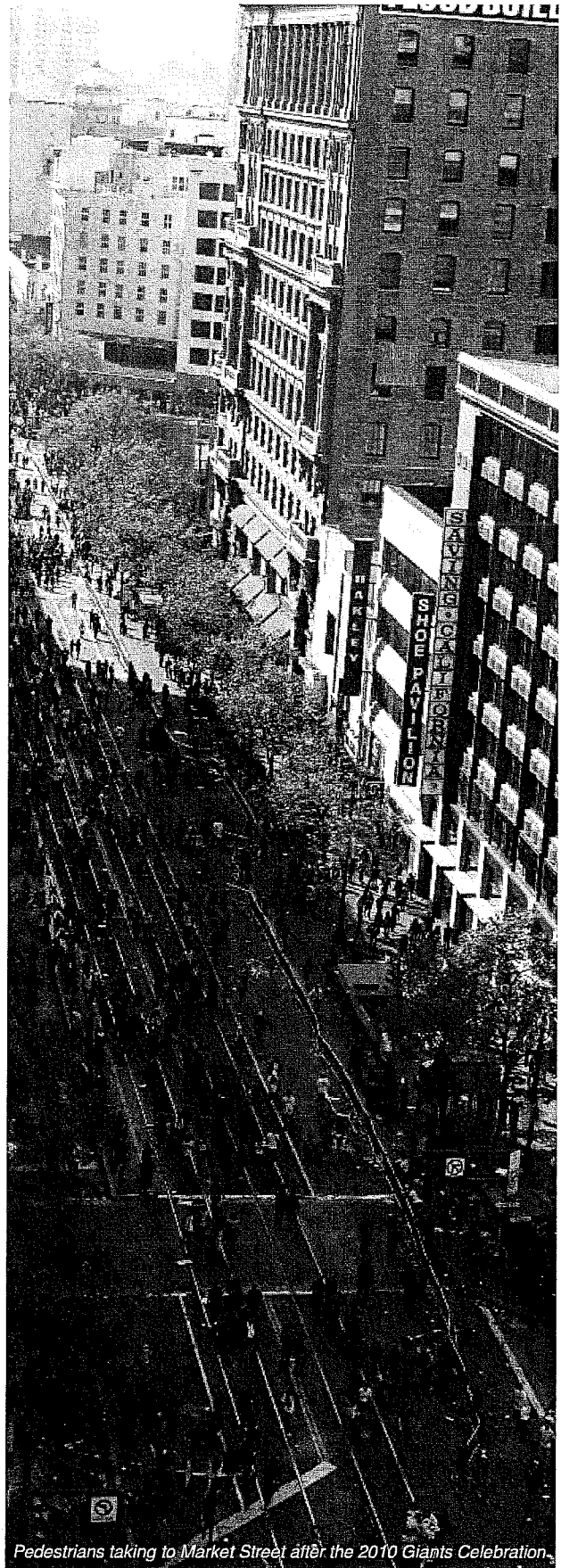


In creating and implementing any pedestrian facility or policy, it is the city agencies that generally control funding, have the technical ability to implement, and decide the ultimate schedule for pedestrian improvements. However, without community will and support, city projects and policy may certainly fail. This vital element of all city projects and policies can only be provided through the city's community organizations and leaders.

In addition to the numerous city organizations noted above, there are also citizen-led community organizations that are involved in pedestrian planning and advocacy. Some of these organizations cover pedestrian issues that impact all of San Francisco while others are focused on improving pedestrian conditions in localized areas.

Over the past 50 plus years, many community organizations have promoted pedestrian safety and worked with the city's agencies to create and implement pedestrian projects and policies that support pedestrian safety and comfort. A few of these involved organizations include the following:

In 1960, the Haight-Ashbury Neighborhood Council (HANC) was formed to stop the city-backed State Highway Department's Expansion Program, which proposed to replace the Panhandle greenbelt and a portion of Golden



Pedestrians taking to Market Street after the 2010 Giants Celebration.

Gate Park with a six-lane highway.

Fix Masonic is a community group working to create a calmer, safer and more pleasant Masonic Avenue for neighbors and commuters. The goal of this neighborhood-based group is to better the biking and pedestrian environment and improve safety along this important corridor.

San Jose Guerrero Street Coalition was formed in 1998 as a community bicycle advocate organization focused on the Valencia Bike Lane project. In 2003 the organization re-focused their energy to the traffic and neighborhood pedestrian issues of San Jose & Guerrero Street corridor between Cesar Chavez and Randall Street.

Senior Action Network (SAN) is a City wide grass-roots advocacy organization devoted to issues that affect senior and persons with disabilities communities. SAN's three senior programs include Health Care, Housing Rights, and Pedestrian Safety. Since 1992 SAN and its network of partnering organizations have been involved with many city pedestrian right-of-way campaigns including Sidewalks are for Pedestrians, Dirty Dozen (a list of the worst City intersections), and Neighborhood Pedestrian Safety campaigns for Visitacion Valley, SoMa and Bayview/Hunter's Point neighborhoods.

San Francisco Tomorrow (SFT) was founded in 1970 by neighborhood activists who joined together to fight the neighborhood zoning battles of the 1960s. A citywide urban environmental organization, SFT is dedicated to promoting environmental quality, neighborhood livability and good government in San Francisco.

Livable City was formed to promote a balanced transportation system and promote complementary land use that supports a safer, healthier and more accessible San Francisco for everyone. Its goal is to advance policies that shift travel from automobiles to more appropriate means by promoting alternatives, working with public agencies to improve the provision of

alternatives, and assisting alternative transportation advocacy groups.

Walk San Francisco (WalkSF) promotes pedestrianism as a safe and sustainable form of transportation that increases the city's livability, enhances public life, and improves public and environmental health.

Chinatown Community Development Center aims to build community and enhance the quality of life for San Francisco residents. Based in the Chinatown neighborhood, the Chinatown CDC also serves North Beach and the Tenderloin. With respect to pedestrian issues, the Chinatown CDC was the project planner for the Broadway Streetscape Improvement Plan, a community-driven project to enhance the pedestrian experience and traffic flow along Broadway between the Embarcadero and Columbus Avenue. In 1996, Chinatown CDC spearheaded a two-year comprehensive community planning process to develop the Chinatown Alleyway Master Plan, to date; eight alleyways have been renovated and in 2007, Chinatown CDC was successful in getting stakeholders and community support to have parking eliminated at both Wentworth and Beckett, an effort to enhance pedestrian safety and promote usage of the alleyways. Finally, the Chinatown CDC, in collaboration with the Community Development Block Grants and the Chinatown Transportation Research and Improvements Project, sponsored the Chinatown Transportation Initiative to update the Chinatown community's transportation needs since 1970, propose solutions to meet the needs identified; and implement the proposed improvements.





As the PSAC continues to pursue its goal of advancing pedestrian safety in San Francisco, several key objectives should be advanced within the upcoming years based on the following recommendations by each subcommittee. The PSAC requests that the SF Board of Supervisors endorse such recommendations.

Goals:

- Identify a formal method to collect information from all relevant agencies and disciplines in an effort to provide a comprehensive repository of pedestrian information. Given that multiple agencies and disciplines influence the pedestrian realm, it is crucial to have equal representation of all stakeholders such as planning, public health, transportation, advocacy, etc.
- All agencies involved in pedestrian safety should expand from a current micro-level approach to a more systematic, macro-level approach to pedestrian safety and walkability.
- City agencies should reduce the dissonance or conflict between each mode (car, pedestrian, etc.). For instance, increasing vehicle speed on a road for the sake of mobility is in conflict with the fact that lower speeds reduce the risk for pedestrian injury and death.
- Increased attention should be placed on evaluating local traffic volumes and traffic

speeds as a means of evaluating pedestrian safety conditions.

- A unified vision and a set of specific goals to inform inter-agency coordination. As such, each organization involved in pedestrian safety is working independently of one another. Opportunities for collaboration shall be sought to create a beneficial synergistic effect on the state of pedestrian safety; specifically, reducing the number and severity of pedestrian injuries.

Objectives:

Short Term (By December 2011):

- In line with Goal #1, identify a funding source to establish a pedestrian information registry for all pedestrian-related projects, studies, and activity to better understand the amalgamated effects of projects on the pedestrian realm.
- All appropriate agencies with relevance to pedestrian safety shall identify a liaison to PSAC for purposes of pedestrian project coordination and for PSAC to have a staff point of contact for general inquiries. This liaison will be a staff person who, at least quarterly or upon request, will attend PSAC meetings and provide updates from their respective departments on pedestrian safety issues.
- Collision-only data gives a narrow picture and is inadequate for timely safety planning. Observational studies, to monitor rights-of-way and other traffic code violations, by and of pedestrians, bicycles, and wheelchairs, should be implemented to identify hotspots. This information needs to be available to reconfigure crosswalks, signal timings, placement of traffic and bus/streetcar islands, and to SFPD for immediate enforcement. SFPD traffic citations offer a wealth of data not presently captured. SFPD's own traffic collisions report has consistently shown that pedestrian right-of-way violations and pe-

destrian violations are the largest contributors to auto-vs-pedestrian collisions in San Francisco. (Enforcement)

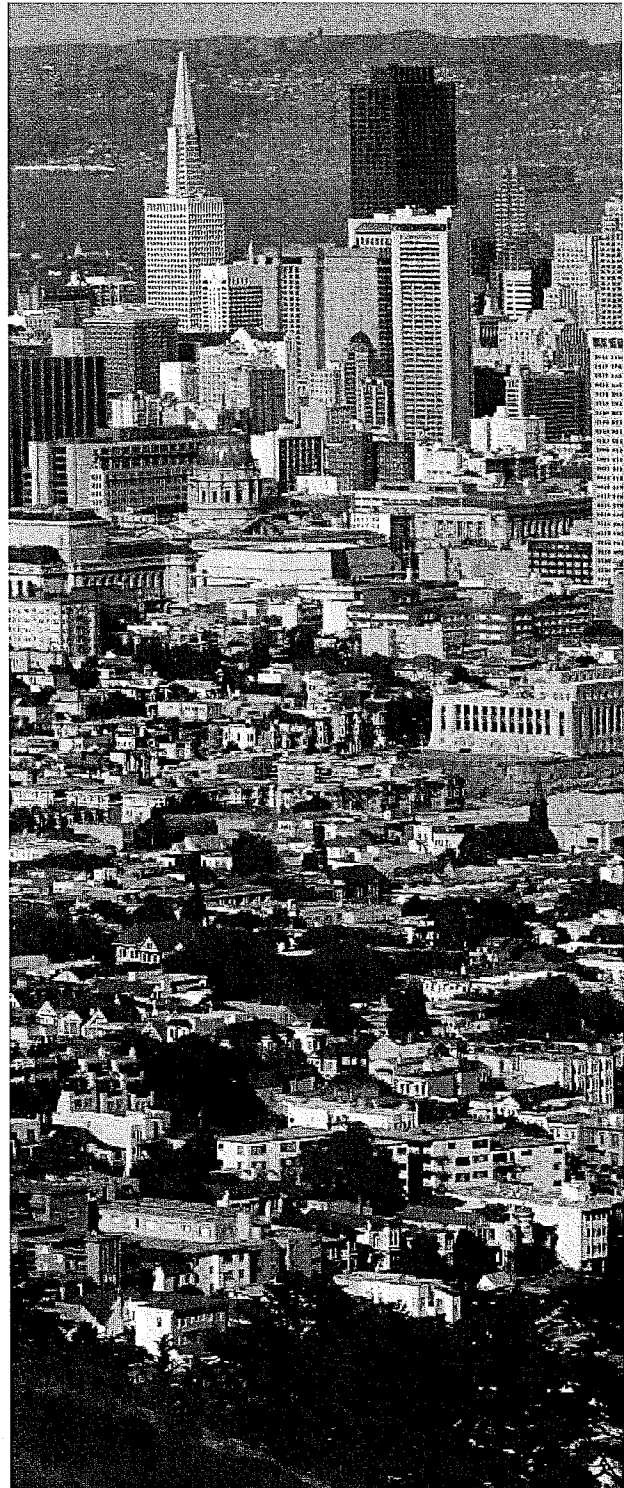
- Pedestrian sting operations conducted by the Police Department shall be strategically positioned at the most relevant location as evidenced by collision and injury data. The San Francisco Municipal Transportation Agency (SFMTA) and San Francisco Injury Center (SFIC) shall collaborate with the police department to identify intersections with historically high numbers of collisions and injuries. (Enforcement)

Long Term (By December 2015):

- Increase coordination among agencies by establishing a Professional Pedestrian Safety Consulting Group, in which representatives of all agencies share information, ideas, and an open dialogue about ways to improve pedestrian safety.
- Police collision data shall have the capacity to be accessed in real-time by all transportation and health agencies with prior approval. (Data)
- Police, health, transportation and planning data shall interface. (Data)
- - The results of the data shall be available to the public and decisions on queries shall be open to public feedback. (Data)
- Data definitions and the coding of injury data across agencies should be established so that statistics can be comparable. (Data)
- Goals for pedestrian injury and fatality reductions shall be established and endorsed by the Board of Supervisors (similar to the 19/100,000 goals set forth by Healthy People 2010). (Data)
- Fines for traffic-related offenses that endanger pedestrians should be increased to an appropriate level and a citywide effort to enforce pedestrian and road safety laws

should be made. (Enforcement)

- Pedestrian safety awareness shall be a more visible concept on all relevant city websites, such as those belonging to the police department, public health, and the San Francisco General Hospital, among others. (Health and Education).



ACRONYM REFERENCE

BART	Bay Area Rapid Transit
BRT	Bus Rapid Transit
BSP	Better Streets Plan
CBO	Community-Based Organization
CDC	Centers for Disease Control and Prevention
CMA	Congestion Management Agency
CMAQ	Congestion Mitigation & Air Quality
CPA	Chinese Progressive Association
DPH	Department of Health Professions
ENTRIPS	Eastern Neighborhoods Transportation Implementation Planning Study
FHWA	Federal Highway Administration
HANC	Haight-Ashbury Neighborhood Council
HDMT	Healthy Developmental Measurement Tool
HIA	Health Impact Assessment
MTA	Mendocino Transport Authority
MTC	Metropolitan Transportation Commission
OEWD	Office of Economic and Workforce Development
PEQI	Pedestrian Environmental Quality Index
PODER	People Organizing to Demand Environmental & Economic Rights
Port	Port of San Francisco
PSAC	Pedestrian Safety Advisory Committee
RCT	Randomized Control Trial
Rec & Parks	San Francisco Recreation and Parks Department
SAFE	Safety Awareness for Everyone
SFCTA	San Francisco County Transportation Authority
SFDPH	San Francisco Department of Public Health
SFDPH-PHES	SFDPH Program on Health, Equity, and Sustainability
SFDPW or DPW	San Francisco Department of Public Works
SFGH	San Francisco General Hospital
SFIC	San Francisco Injury Center at the University of California, San Francisco
SFMTA	San Francisco Municipal Transport Agency
SFPD	San Francisco Police Department
SFRA	San Francisco Redevelopment Agency
SFT	San Francisco Tomorrow
SFUSD	San Francisco Unified School District
SRTS	Safe Routes to School
STOP	San Francisco Traffic Offender Program
SWITRS	Statewide Integrated Traffic Reporting System
TETAP	Test and Evaluation Tasking Plan
TJPA	Transbay Joint Powers Authority
TLC	Transportation for Livable Communities
TOD	Transit- Oriented Development
TPL	Trust for Public Land
UCSF	University of California, San Francisco
WalkSF	Walk San Francisco
YMCA	Young Men's Christian Association

APPENDIX A:

Pedestrian Safety-Related Policies from the Better Streets Plan

Policy No.	Policy	Guidelines	Next Steps
2.3	DESIGN SIDEWALKS TO MAXIMIZE THE AMOUNT OF PEDESTRIAN AND USABLE OPEN SPACE	<p>Use the minimum feasible corner curb radius to provide maximum pedestrian space and visibility, shorten pedestrian crossing distances, and slow vehicle turns</p> <p>Design corner and mid-block bulb-outs and medians to the maximum width feasible to provide maximum pedestrian space and visibility and shorten pedestrian crossing distances</p> <p>Design corner and mid-block bulb-outs to return to the prevailing curb line as sharply as possible to maximize useable and landscaped space</p> <p>Use excess parking or travel lane widths to widen sidewalks</p> <p>Discourage sidewalk narrowings as part of street re-designs; weigh narrowings against the added value to transit and bicycle travel modes, and the overall effect on pedestrian space, landscaping, and ecological features</p>	<p>Facilitate and reduce costs of creating added sidewalk space in the form of sidewalk widenings or bulb-outs.</p> <p>Develop a mechanism to restrict sidewalk narrowings associated with loading and parking for private development, except as required by accessibility regulations or per exceptional circumstances.</p>
6.1	DESIGN PEDESTRIAN CROSSINGS TO MAXIMIZE PEDESTRIAN SAFETY AND COMFORT	<p>Build curb extensions at corners to shorten crossing distances, maximize visibility, calm traffic, and reduce pedestrian exposure to vehicles</p> <p>Establish program and funding mechanisms to coordinate curb extensions with curb ramp construction and re-paving projects</p> <p>Restrict parking adjacent to corners to enhance pedestrian visibility at crosswalks</p> <p>Minimize the number of lanes a pedestrian must cross wherever possible and provide safe pedestrian refuges within the roadway where pedestrians are unable to cross in one signal phase</p> <p>Provide crosswalk markings at all signalized locations, and at unsignalized locations as appropriate</p> <p>Use high-visibility crosswalks at mid-block crossings and in school zones, and consider them at crossings where conditions necessitate greater visibility</p> <p>Build raised crosswalks at alley entrances to reduce vehicle speeds, and consider their use at other locations</p>	<p>Develop a mechanism to require new development to include curb extensions or sidewalk widenings, beginning with those that involve sidewalk and curb ramp demolition and construction</p> <p>Build upon and refine guidelines for high-visibility crosswalk placement at both controlled and uncontrolled crossings</p> <p>Conduct trials of raised crosswalks on non-alley street types</p>

6.2	EMPLOY TRAFFIC CONTROL DEVICES TO MAXIMIZE PEDESTRIAN SAFETY AND COMFORT	<p>Install pedestrian countdown signals and accessible pedestrian signals at all signalized locations</p> <p>Calculate pedestrian clearance interval using a walking speed that matches that of pedestrians in San Francisco, including seniors, children, and persons with disabilities</p> <p>Favor signals on short, fixed time cycles over actuated signals; minimize the use of pedestrian push buttons</p> <p>Implement signal timing techniques that give priority to the pedestrian and reduce speeding through timing progression, including exclusive pedestrian phases and leading pedestrian intervals</p>	<p>Conduct studies to determine specific appropriate pedestrian crossing rates</p> <p>Support additional research on innovative approaches and technologies to improve pedestrian safety and mobility</p>
6.3	DESIGN INTERSECTIONS SO THAT GEOMETRIES AND TRAFFIC OPERATIONS MAXIMIZE PEDESTRIAN SAFETY AND COMFORT	<p>Use the minimum feasible corner curb radius to provide maximum pedestrian space and visibility, shorten pedestrian crossing distances, and reduce speeding</p> <p>Prohibit turns on red at intersections with a high number of pedestrian/ vehicle conflicts, or geometric or operational characteristics that might result in unexpected conflicts</p> <p>Minimize right-turn slip lanes; do not build new free right-turn slip lanes</p> <p>Do not create multiple turn lanes that compromise pedestrian safety and convenience; mitigate or eliminate existing multiple turn lanes.</p>	
6.4	ENFORCE TRAFFIC AND PARKING VIOLATIONS THAT COMPROMISE PEDESTRIAN SAFETY, COMFORT, AND ACCESSIBILITY	<p>Aggressively cite for sidewalk parking and work with residents to promote legal on-street parking</p> <p>Strictly enforce and support increased fines for right turn on red violations</p> <p>Conduct targeted enforcement of pedestrian right-of-way violations (crosswalk stings for drivers)</p> <p>Reduce speed limits as appropriate and strictly enforce existing speed limits</p>	<p>Establish a sidewalk parking task force to enforce sidewalk parking violations</p>
6.5	CONDUCT EDUCATION AND AWARENESS ACTIVITIES TO PROMOTE PEDESTRIAN SAFETY		<p>Educate motorists on right turn on red and pedestrian right-of-way regulations, and the effects of vehicle speed on the incidence and severity of pedestrian collisions</p> <p>Educate pedestrians on the meaning of pedestrian signal phases and symbols and safe crossing practices</p>

6.6	PRIORITIZE PEDESTRIAN SAFETY IN SCHOOL ZONES	Provide supplementary pedestrian safety measures in school zones, including school crossing guards and yellow high-visibility crosswalk markings, to increase awareness of pedestrians and reduce speeding	Conduct pedestrian education, encouragement, and enforcement activities with schools in coordination with pedestrian safety improvements in school zones
6.7	DESIGN STREETS TO MAXIMIZE PERSONAL SECURITY	Design streets for personal security by providing amenities that attract people, rather than taking measures that deter use of the space Provide adequate pedestrian-scale lighting that makes the pedestrian visible, avoiding elements that create dark corners with poor visibility Locate transit stops in places that are active and visible to maximize personal security of waiting transit riders	
6.8	DESIGN STREETS TO CALM TRAFFIC AND REDUCE SPEEDING	On residential and small streets, calm traffic using elements such as street trees, traffic circles, chicanes, corner bulb-outs, and other traffic calming devices	Create/update design standards for approved traffic calming measures and roadway dimensions to reduce vehicle speeds and enhance pedestrian safety
7.5	CREATE CONVENIENT, SAFE PEDESTRIAN CONDITIONS AT TRANSIT WAITING AREAS AND TRANSFER POINTS	Consider timed transfers at key transfer points on major lines with less frequent headways or in off-peak hours, and facilitate increased communication between drivers of connecting lines in order to discourage unsafe crossing by passengers hurrying to catch a connecting bus Create clear wayfinding and directionality at transit transfer points	

APPENDIX B: FUNDING SOURCES FOR PEDESTRIAN-RELATED SAFETY PROJECTS

	Issuing Agencies:	Eligible Sponsors:	Project Type:	Project Description	Estimated Avail. Funds	Max. Grant Award:	Min. Grant Award:	For More Information
Prop K	SFCTA	Sponsoring agencies listed in the Prop K Expenditure Plan	<i>Planning/Capital</i>	Projects & programs in the Prop K Expenditure Plan, e.g., transit & local streets & road rehabilitation; bus rapid transit & transit enhancements; bicycle, pedestrian, & traffic calming improvements.	See Strategic Plan	Varies	no limit	www.sfcta.org/propk
Regional Transportation for Livable Communities	MTC w/SFCTA coordination	City & county agencies	<i>Capital</i>	Capital projects have a strong tie-in to TOD housing development in Priority Development Areas. Eligible projects include transit station improvements, streetscape improvements, bike racks, street furniture, street trees, bulb outs, pedestrian paths, non-transportation infrastructure improvements, transportation demand management programs & density incentives.	\$57 million for 9-county Bay Area region, San Francisco can submit up to 4 applications (for FY 09/10 – 11/12)	\$6,000,000	none	www.sfcta.org , www.dot.ca.gov/hq/tpp/grants.html
Safe Routes to School—Local & Regional	MTC	Public agencies (local, regional, state), & non-profits, school districts, public health departments, Native American tribes (all must be or be partnered with a Federal-aid eligible recipient).	<i>Capital & Programs</i>	Program can fund capital (traffic calming measures, bike & pedestrian facilities) & programmatic (education & outreach) improvements at K-12 schools that reduce vehicle emissions for school-related trips & achieve the objectives of Safe Routes to School. Projects need to be Congestion Mitigation & Air Quality (CMAQ) eligible.	\$1,000,000 for SF and \$2,000,000 for the Bay Area competitive program (for FY 09/10 – 11/12)	\$1,000,000	none	http://www.mtc.ca.gov/planning/climate/

Safe Routes to School--State	Caltrans	City and County Agencies	<i>Capital & Programs</i>	Infrastructure improvements to improve the ability of students in K-12 grades to walk and bicycle to school. Incidental costs within 10% of the construction funds, e.g. public outreach, education, and enforcement, are allowed. Projects may include public outreach, education, sidewalk improvements, pedestrian trails, bikeways, traffic calming measures, and traffic control devices.	\$24,200,000 (for FY 10/11) for state	\$2,000,000	none	www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm
Highway Safety Improvement Program	Caltrans	City and County Agencies	<i>Capital & Programs</i>	Work on any publicly-owned roadway or bicycle/pedestrian pathway or trail that corrects or improves the safety for its users.	\$70,000,000 (for FY 10/11) for state			http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm
Office of Traffic Safety	CA Office of Traffic Safety	City and county agencies	<i>Enforcement, Education, Encouragement, Planning. Specifically excludes Capital.</i>	OTS receives funding through the National Highway Safety Act which provides for federal traffic safety funds to individual states. Identified in conjunction with the National Highway Traffic Safety Administration, OTS has several priority areas for grant funding, including: Pedestrian and Bicycle Safety.		Varies	no limit	
Transportation Enhancements	Caltrans/FHWA; programmed by SFCTA through RTIP	Public Agencies	<i>Capital & Program</i>	Projects that have direct relationship to the intermodal transportation system and are "above and beyond" a normal project. There are twelve eligible categories, three of which are directly related to pedestrians	\$2,600,000 (for FY 10/11 - 11/12) for SF			www.dot.ca.gov/hq/TransEnhAct/TransEnhAct.htm
Bay Area Climate Initiative	MTC	Public Agencies	<i>Capital & Program</i>	Consists of Innovative Grants and Safe Routes to School Creative Grants. Innovative Grants will support high-impact, innovative projects with the greatest potential to reduce greenhouse gas emissions; Safe Routes to School Creative Grants will help implement creative school-related emission reduction strategies. Have to be CMAQ-eligible	\$33 million (for FY 09/10 - 11/12) for Bay Area			www.mtc.ca.gov/planning/climate/climate_grant

Transportation Fund for Clean Air—Local & Regional	SFCTA (local), BAAQMD (Regional)	Public Agencies, non-public agencies (the latter, for certain projects only)	<i>Capital and Operating</i>	Clean air projects that reduce vehicular emissions, including bicycle facility improvements, projects that reduce motor vehicle or mobile source emissions, traffic management, ridesharing programs, telecommuting, congestion pricing, rail-bus integration, clean fuel buses, local feeder bus/shuttle service, and implementing a smoking vehicles program – more limited for regional	~\$800,000 for SF and \$10,000,000 for the Bay Area (for FY 10/11)	\$500,000 for non-public agency, none otherwise	none	Local: www.sfcta.org/tfca Regional: www.baaqmd.gov/Divisions/Strategic-Incentives/Transportation-Fund-for-Clean-Air/Regional-Fund.aspx
Congestion Management Agency Block Grant	MTC	City and County Agencies	<i>Capital</i>	Local Streets & Roads (LS&R) (for street rehabilitation and preventive maintenance), Regional Bicycle Program (RBP) (to complete the regional network of bike corridors and improve connectivity to transit and major activity centers) and county-share Transportation for Livable Communities (TLC) programs (to promote transit-oriented development in Priority Development Areas). Focus on complete streets.	\$11.8 million (for FY 10/11 – 11/12)	none	\$250,000	www.mtc.ca.gov/planning/smart_growth/
Lifeline Transportation Program	SFCTA	Transit operators	<i>Capital and Operating Projects</i>	Funds projects that improve mobility for low-income San Franciscans. Transit-related capital and operating projects are eligible for funding. Projects may include new/enhanced fixed route transit, shuttles, children's programs, vehicles, bus shelters, transit station improvements, mobility management	\$1.69 million (for FY 10/11 interim funding cycle)	none	\$400,000 suggested	www.sfcta.org/lifeline
Safe Routes to Transit	TransForm/MTC	Public agencies	<i>Capital and Planning</i>	Projects need to have a bridge nexus, i.e. reducing congestion on state toll bridges by facilitating walking/biking to regional transit services or car share. Funds projects that enhance pedestrian and bike access to transit stations.	\$4 million for 2009 for Bay Area			www.transformca.org/campaign/sr2t

Source: San Francisco County Transportation Authority

APPENDIX C: PEDESTRIAN SAFETY RELATED PROJECTS RELATED TO URBAN PLANNING AND ENGINEERING

Project Name	Date	Author	Status
19th Ave/Park Presidio Neighborhood Transportation Plan	Apr-08	SFCTA	Adopted
Balboa Park Station	Oct-07	Planning	Final
Balboa Park Station Pedestrian and Bicycle Connection Project	TBD	SFMTA	In Progress
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)		BART	
Bayview Hunters Point Redevelopment Plan	Jun-06	SFRA	
Bayview Hunters Point Pedestrian Safety Project	Apr-07	DPH	
Bayview Hunters Point Neighborhood Transportation Plan	June 2010	SFCTA	Approved
Better Neighborhoods: Balboa Park Station Area Plan	Apr-09	Planning	
Better Neighborhoods: Japantown	Jun-09	Planning	
Better Neighborhoods: Market/Octavia	May-08	Planning	
Cargo Way/Bay Trail Conceptual Design Study	May-08	Port	Final
Central Freeway/Octavia Circulation Study		SFCTA	In Progress
Columbus Ave. Neighborhood Transportation Study	Dec-08	SFCTA	In Progress
Eastern Neighborhoods Plan- Central Waterfront	Dec-02	Planning	
Eastern Neighborhoods Plan- East SoMa	Dec-07	Planning	Final
Eastern Neighborhoods Plan- Mission	Dec-07	Planning	Final
Eastern Neighborhoods Plan- Showplace Square	Dec-07	Planning	Final
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)	TBD	SFMTA	
FHWA PedSafe Phase 1 Final re	Dec-03	SFMTA	
Geary Corridor BRT Study	May-07	SFCTA	Adopted
Glen Park Community Plan	Nov-03	Planning	
Golden Gate Park pedestrian Improvements Study	Aug-05	SFMTA	
Market Street Study Action Plan	Feb-04	SFCTA	Final
Mission St. South of Chavez Neighborhood Transportation Plan	Fall 2007	SFCTA	Approved
Mission-Geneva Neighborhood Transportation Plan	Apr-07	SFCTA	Approved
Noe Valley's 24th St	2008?	Noe Valley Assoc.	Final
Pedestrian Safety Assessment	Jun-09	ITS Berkeley Tech Transfer	Final
San Jose/Guerrero "Creating Streets for People"	Feb-06	SOS	Final
SE Mission Pedestrian Safety Plan	May-05	SFMTA	
Tenderloin Pedestrian Safety Concept Plan	Jun-05	SFMTA	
Tenderloin-Little Saigon Neighborhood Transportation Plan	Feb-07	SFCTA	
TETAP 19th Ave Pedestrian and Traffic Study	Dec-03	MTA, MTC	
TETAP Signal Improvements for Pedestrian Safety	Oct-07	SFMTA	
Transbay Streetscapes and Open Space Plan	Nov-06	SFRA	Final
Western SoMa Neighborhood Transportation Plan		SFCTA	In Progress

Project Name	Bulb-outs	Ped Countdown	APS	Ped Scramble
19th Ave/Park Presidio Neighborhood Transportation Plan	x	x		
Balboa Park Station				
Balboa Park Station Pedestrian and Bicycle Connection Project				
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)				
Bayview Hunters Point Redevelopment Plan				
Bayview Hunters Point Pedestrian Safety Project		x		
Bayview Hunters Point Neighborhood Transportation Plan	x			
Better Neighborhoods: Balboa Park Station Area Plan				
Better Neighborhoods: Japantown				
Better Neighborhoods: Market/Octavia				
Cargo Way/Bay Trail Conceptual Design Study				
Central Freeway/Octavia Circulation Study				
Columbus Ave. Neighborhood Transportation Study				
Eastern Neighborhoods Plan- Central Waterfront				
Eastern Neighborhoods Plan- East SoMa				
Eastern Neighborhoods Plan- Mission				
Eastern Neighborhoods Plan- Showplace Square				
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)				
FHWA PedSafe Phase 1 Final report		x		x
Geary Corridor BRT Study				
Glen Park Community Plan				
Golden Gate Park pedestrian Improvements Study	x	x	x	
Market Street Study Action Plan				
Mission St. South of Chavez Neighborhood Transportation Plan				
Mission-Geneva Neighborhood Transportation Plan	x	x		
Noe Valley's 24th St	x			
Pedestrian Safety Assessment				
San Jose/Guerrero "Creating Streets for People"				
SE Mission Pedestrian Safety Plan	x	x		x
Tenderloin Pedestrian Safety Concept Plan	x			x
Tenderloin-Little Saigon Neighborhood Transportation Plan	x	x		
TETAP 19th Ave Pedestrian and Traffic Study	x			
TETAP Signal Improvements for Pedestrian Safety				
Transbay Streetscapes and Open Space Plan				
Western SoMa Neighborhood Transportation Plan	x			

Project Name	Curb Ramp	Repaint X-walk	New Walk	X-High Vis. Walk
19th Ave/Park Presidio Neighborhood Transportation Plan				x
Balboa Park Station				
Balboa Park Station Pedestrian and Bicycle Connection Project				
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)				
Bayview Hunters Point Redevelopment Plan				
Bayview Hunters Point Pedestrian Safety Project				
Bayview Hunters Point Neighborhood Transportation Plan	x	x		x
Better Neighborhoods: Balboa Park Station Area Plan				
Better Neighborhoods: Japantown				
Better Neighborhoods: Market/Octavia				
Cargo Way/Bay Trail Conceptual Design Study				
Central Freeway/Octavia Circulation Study		x	x	
Columbus Ave. Neighborhood Transportation Study				
Eastern Neighborhoods Plan- Central Waterfront				
Eastern Neighborhoods Plan- East SoMa				
Eastern Neighborhoods Plan- Mission				
Eastern Neighborhoods Plan- Showplace Square				
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)				
FHWA PedSafe Phase 1 Final report	x			x
Geary Corridor BRT Study				
Glen Park Community Plan				
Golden Gate Park pedestrian Improvements Study	x	x	x	x
Market Street Study Action Plan				
Mission St. South of Chavez Neighborhood Transportation Plan				
Mission-Geneva Neighborhood Transportation Plan				x
Noe Valley's 24th St	x		x	
Pedestrian Safety Assessment				
San Jose/Guerrero "Creating Streets for People"				
SE Mission Pedestrian Safety Plan	x		x	x
Tenderloin Pedestrian Safety Concept Plan				x
Tenderloin-Little Saigon Neighborhood Transportation Plan				x
TETAP 19th Ave Pedestrian and Traffic Study				
TETAP Signal Improvements for Pedestrian Safety				
Transbay Streetscapes and Open Space Plan				
Western SoMa Neighborhood Transportation Plan	x		x	x

Project Name	Advance Stop Line	Add Ped. X-ing Sign	Add Median	Widen Sidewalk
19th Ave/Park Presidio Neighborhood Transportation Plan	x		x	
Balboa Park Station				
Balboa Park Station Pedestrian and Bicycle Connection Project				
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)				
Bayview Hunters Point Redevelopment Plan				
Bayview Hunters Point Pedestrian Safety Project			x	
Bayview Hunters Point Neighborhood Transportation Plan				
Better Neighborhoods: Balboa Park Station Area Plan				
Better Neighborhoods: Japantown				
Better Neighborhoods: Market/Octavia				
Cargo Way/Bay Trail Conceptual Design Study				
Central Freeway/Octavia Circulation Study				
Columbus Ave. Neighborhood Transportation Study				
Eastern Neighborhoods Plan- Central Waterfront				
Eastern Neighborhoods Plan- East SoMa				
Eastern Neighborhoods Plan- Mission				
Eastern Neighborhoods Plan- Showplace Square				
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)				
FHWA PedSafe Phase 1 Final report	x	x	x	
Geary Corridor BRT Study				
Glen Park Community Plan				
Golden Gate Park pedestrian Improvements Study		x	x	
Market Street Study Action Plan				
Mission St. South of Chavez Neighborhood Transportation Plan				
Mission-Geneva Neighborhood Transportation Plan	x			
Noe Valley's 24th St				
Pedestrian Safety Assessment				
San Jose/Guerrero "Creating Streets for People"				
SE Mission Pedestrian Safety Plan		x		
Tenderloin Pedestrian Safety Concept Plan	x			
Tenderloin-Little Saigon Neighborhood Transportation Plan				x
TETAP 19th Ave Pedestrian and Traffic Study	x		x	
TETAP Signal Improvements for Pedestrian Safety				
Transbay Streetscapes and Open Space Plan				
Western SoMa Neighborhood Transportation Plan				x

Project Name	Traffic Calming	Bike Facility	Street Trees/Planter	Add Stop Sign
19th Ave/Park Presidio Neighborhood Transportation Plan			x	
Balboa Park Station				
Balboa Park Station Pedestrian and Bicycle Connection Project				
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)				
Bayview Hunters Point Redevelopment Plan				
Bayview Hunters Point Pedestrian Safety Project				
Bayview Hunters Point Neighborhood Transportation Plan	x		x	
Better Neighborhoods: Balboa Park Station Area Plan				
Better Neighborhoods: Japantown				
Better Neighborhoods: Market/Octavia				
Cargo Way/Bay Trail Conceptual Design Study				
Central Freeway/Octavia Circulation Study				
Columbus Ave. Neighborhood Transportation Study				
Eastern Neighborhoods Plan- Central Waterfront				
Eastern Neighborhoods Plan- East SoMa				
Eastern Neighborhoods Plan- Mission				
Eastern Neighborhoods Plan- Showplace Square				
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)				
FHWA PedSafe Phase 1 Final report		x		
Geary Corridor BRT Study				
Glen Park Community Plan				
Golden Gate Park pedestrian Improvements Study	x		x	x
Market Street Study Action Plan				
Mission St. South of Chavez Neighborhood Transportation Plan				
Mission-Geneva Neighborhood Transportation Plan	x		x	
Noe Valley's 24th St Pedestrian Safety Assessment				
San Jose/Guerrero "Creating Streets for People"				
SE Mission Pedestrian Safety Plan		x		x
Tenderloin Pedestrian Safety Concept Plan			x	
Tenderloin-Little Saigon Neighborhood Transportation Plan	x	x		
TETAP 19th Ave Pedestrian and Traffic Study				
TETAP Signal Improvements for Pedestrian Safety				

Transbay Streetscapes and Open Space Plan				
Western SoMa Neighborhood Transportation Plan	x		x	

Project Name	Angled Parking	Signal Adjustments	Parking Changes	Lighting
19th Ave/Park Presidio Neighborhood Transportation Plan				x
Balboa Park Station				
Balboa Park Station Pedestrian and Bicycle Connection Project				
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)				
Bayview Hunters Point Redevelopment Plan				
Bayview Hunters Point Pedestrian Safety Project		x	x	
Bayview Hunters Point Neighborhood Transportation Plan			x	x
Better Neighborhoods: Balboa Park Station Area Plan				
Better Neighborhoods: Japantown				
Better Neighborhoods: Market/Octavia				
Cargo Way/Bay Trail Conceptual Design Study				
Central Freeway/Octavia Circulation Study				
Columbus Ave. Neighborhood Transportation Study				
Eastern Neighborhoods Plan- Central Waterfront				
Eastern Neighborhoods Plan- East SoMa				
Eastern Neighborhoods Plan- Mission				
Eastern Neighborhoods Plan- Showplace Square				
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)				
FHWA PedSafe Phase 1 Final report		x		x
Geary Corridor BRT Study				
Glen Park Community Plan				
Golden Gate Park pedestrian Improvements Study			x	
Market Street Study Action Plan				
Mission St. South of Chavez Neighborhood Transportation Plan				
Mission-Geneva Neighborhood Transportation Plan			x	x
Noe Valley's 24th St				
Pedestrian Safety Assessment				
San Jose/Guerrero "Creating Streets for People"				
SE Mission Pedestrian Safety Plan				
Tenderloin Pedestrian Safety Concept Plan	x		x	
Tenderloin-Little Saigon Neighborhood Transportation Plan				x
TETAP 19th Ave Pedestrian and Traffic Study		x	x	

TETAP Signal Improvements for Pedestrian Safety				
Transbay Streetscapes and Open Space Plan				
Western SoMa Neighborhood Transportation Plan			x	

Project Name	Transit Change s	Way- finding	Automated Ped Detectors	In-pavement X-walk Lights
19th Ave/Park Presidio Neighborhood Transportation Plan	x			
Balboa Park Station				
Balboa Park Station Pedestrian and Bicycle Connection Project				
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)				
Bayview Hunters Point Redevelopment Plan				
Bayview Hunters Point Pedestrian Safety Project				
Bayview Hunters Point Neighborhood Transportation Plan				
Better Neighborhoods: Balboa Park Station Area Plan				
Better Neighborhoods: Japantown				
Better Neighborhoods: Market/Octavia				
Cargo Way/Bay Trail Conceptual Design Study				
Central Freeway/Octavia Circulation Study				
Columbus Ave. Neighborhood Transportation Study				
Eastern Neighborhoods Plan- Central Waterfront				
Eastern Neighborhoods Plan- East SoMa				
Eastern Neighborhoods Plan- Mission				
Eastern Neighborhoods Plan- Showplace Square				
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)				
FHWA PedSafe Phase 1 Final report			x	x
Geary Corridor BRT Study				
Glen Park Community Plan				
Golden Gate Park pedestrian Improvements Study				
Market Street Study Action Plan				
Mission St. South of Chavez Neighborhood Transportation Plan				
Mission-Geneva Neighborhood Transportation Plan	x			
Noe Valley's 24th St				
Pedestrian Safety Assessment				
San Jose/Guerrero "Creating Streets for People"				
SE Mission Pedestrian Safety Plan				
Tenderloin Pedestrian Safety Concept Plan	x			

Tenderloin-Little Saigon Neighborhood Transportation Plan	x	x		
TETAP 19th Ave Pedestrian and Traffic Study	x			
TETAP Signal Improvements for Pedestrian Safety				
Transbay Streetscapes and Open Space Plan				
Western SoMa Neighborhood Transportation Plan				

Project Name	Enforcement	Education	Estimated Total Cost
19th Ave/Park Presidio Neighborhood Transportation Plan			
Balboa Park Station			
Balboa Park Station Pedestrian and Bicycle Connection Project			
BART Station Access Plans (16th, 24th, Balboa Park, Civic Center, Embarcadero, Glen Park, Montgomery, Powell)			
Bayview Hunters Point Redevelopment Plan			
Bayview Hunters Point Pedestrian Safety Project	x		
Bayview Hunters Point Neighborhood Transportation Plan			Varies by treatment/site
Better Neighborhoods: Balboa Park Station Area Plan			
Better Neighborhoods: Japantown			
Better Neighborhoods: Market/Octavia			
Cargo Way/Bay Trail Conceptual Design Study			
Central Freeway/Octavia Circulation Study			TBD
Columbus Ave. Neighborhood Transportation Study			
Eastern Neighborhoods Plan- Central Waterfront			
Eastern Neighborhoods Plan- East SoMa			
Eastern Neighborhoods Plan- Mission			
Eastern Neighborhoods Plan- Showplace Square			
Eastern Neighborhoods Transportation Implementation Planning Study (EN TRIPS)			
FHWA PedSafe Phase 1 Final report			
Geary Corridor BRT Study			
Glen Park Community Plan			
Golden Gate Park pedestrian Improvements Study	x		
Market Street Study Action Plan			
Mission St. South of Chavez Neighborhood Transportation Plan			
Mission-Geneva Neighborhood Transportation Plan	x		
Noe Valley's 24th St Pedestrian Safety Assessment			
San Jose/Guerrero "Creating Streets for People"			
SE Mission Pedestrian Safety Plan	x	x	\$3.2 M
Tenderloin Pedestrian Safety Concept Plan	x	x	

Tenderloin-Little Saigon Neighborhood Transportation Plan			
TETAP 19th Ave Pedestrian and Traffic Study			
TETAP Signal Improvements for Pedestrian Safety			
Transbay Streetscapes and Open Space Plan			
Western SoMa Neighborhood Transportation Plan			TBD

APPENDIX D:

PEDESTRIAN SAFETY PROJECTS FUNDED OR IMPLEMENTED BY THE COMMUNITY HEALTH PROMOTION AND PREVENTION BRANCH OF THE SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH

Funds allocated to community based organizations for pedestrian safety projects (2010):

Chinatown Transportation Research and Improvement Project will complete a community plan on pedestrian safety in Chinatown to document existing dangers, identify improvements for enhancing walkability, and solicit community input on the proposed solutions.

Livable City will receive staff and organizational support for 5 *Sunday Streets* events from March through June 2010.

Quesada Gardens Initiative will carry out the *Bayview by Foot* project, an integrated pedestrian safety project that involves resident leaders and engages the broader community in the implementation of a pedestrian tour of Bayview Hunters Point.

Shape Up Walking Challenge - The Shape Up Walking Challenge is a motivational activity to encourage SF citizens and visitors to get active and moving. Individuals form teams who collectively traverse the equivalent of the 1,016 mile California coastline and beyond for 10 weeks. This program is supported by DPH and highlights the safety and general benefits of pedestrianism

Funds received by DPH to conduct pedestrian safety projects (2009-2010):

Pedestrian and Child Passenger Safety Project (CA Office of Traffic Safety grant)
SFPD and DPH implemented a joint grant called the Pedestrian and Child Passenger Safety Grant. This project focused on two of the most serious traffic safety issues. The SFPD conducts traffic enforcement of the primary collision factors related to pedestrian and child motor vehicle occupant injuries. DPH conducts educational presentations on pedestrian and child passenger safety. In addition, DPH funded 4 community organizations at \$10,000 each to work on the following:

Fix Masonic will organize residents, merchants, and other stakeholders and involve them in the public outreach component of the upcoming street redesign of Masonic Blvd.

Portola Family Connections will work with parents, youth, school staff, merchants, and seniors to educate them on pedestrian safety and identify issues in the Portola neighborhood.

San Francisco SAFE will conduct 10 educational workshops on pedestrian safety, conduct multi-ethnic media outreach on pedestrian safety issues, and partner with the SF Police Department on Public Awareness Days.

Walk San Francisco will partner with **Friends of Monterey Boulevard** to document pedestrian conditions through detailed surveys of 3 intersections of Monterey Boulevard. They will also erect *We Live Here, Please Slow Down* banners on allowed sections of Monterey Blvd.

Public Awareness Campaigns

To address the issues identified, a 2-pronged media campaign was developed. Two general messages were crafted – one towards pedestrians, one towards drivers. A separate message was developed to address sidewalk parking. Campaign images were placed on Metro Traffic radio spots and Clear Channel billboards as well as Muni shelters, buses, and interior cards. Messages included:

Targeting drivers: They are not always right, but YOU can be. Let pedestrians go first.

Targeting pedestrians: Tune into your surroundings. Drivers can't always see you or stop in time.

Targeting sidewalk parking: Disabled people, seniors, and families with young children use our sidewalks. Please keep them safe and keep your cars off the sidewalk.

Street Smarts and Sidewalk Safety (Transportation Enhancements Act grant implemented by MTA and DPH in 2008)

This project focused on two of the most serious barriers to pedestrian safety and accessibility:

- Conflicts between motorists and pedestrians crossing at intersections
 - Sidewalk obstructions, especially sidewalk parking and bicycles/skateboards and the like
- The project aimed to educate motorists, pedestrians, bicyclists, skateboarders, and others about proper behavior and the law.

As part of this grant, DPH managed a public awareness campaign as well as awarded 5 mini-grants to community organizations to work on pedestrian safety in intersections or sidewalk obstructions. Pedestrian safety awards were given to:

- Lighthouse for Blind and Visually Impaired to focus on sidewalk obstructions (\$27,000)
- Chinatown Community Development Center (\$9,000)
- Chinatown Transportation Research and Improvement Project (\$9,000)
- Central City SRO Collaborative (\$9,000)
- Senior Action Network (\$9,000)

Safe Routes to School San Francisco (non-infrastructure program)

San Francisco launched a 2 year Safe Routes to School program in September 2009, funded by a \$500,000 federal grant, to promote safe and active pedestrianism and bicycling for families. The Safe Routes to School Program is led by the SF Department of Public Health and supported by the Presidio YMCA, SF Bicycle Coalition, SF Unified School District, SF Police Department, and the SF Municipal Transportation Agency.

Safe Routes to School Program Goals:

- To increase bicycle, pedestrian, and traffic safety around schools
- To decrease traffic congestion around school
- To reduce childhood obesity by increasing number of children traveling as pedestrians and biking to school
- To improve air quality, community safety and security, and community involvement around school

Safe Routes to School goals are achieved through the 5 E's Education

- Educate 2nd grade classes on pedestrian safety
- Educate 4th grade classes on bicycle safety
- Distribute traffic safety packets to drivers near schools
- Distribute pedestrian & bike maps for students specific to schools

Encouragement:

- Organize the Shape Up San Francisco Walking Challenge (March through May 2010)
- Organize International Walk to School Day events (October 7, 2009)
- Organize San Francisco Bike to School Day (April 15, 2010)
- Excelsior Safe Routes to School street banners

As part of the Excelsior Safe Routes to School grant managed by MTA, DPH updated their *We Live Here, Please Slow Down* streets banners in summer 2009 and hung them throughout the Excelsior neighborhood. These banners are hung repeatedly throughout the neighborhood to serve as an educational reminder to drivers to slow down because there are schoolchildren in the area.

Engineering:

- Conduct pedestrian and bike audits at schools
- Develop grant applications for infrastructure improvements

Enforcement:

- Enforce traffic laws around schools
- Utilize speed radar signs near schools

Evaluation:

- Collect and analyze how schoolchildren get to and from school
- Collect and analyze surveys from parents on knowledge and attitudes towards pedestrianism and biking

For evaluation, DPH utilized the Student Travel Tally and Parent Survey forms developed by the National Center for Safe Routes to School. This standardized form is utilized by the National Center for SRTS to report to Congress. This format also allows SRTS-SF to receive immediate analysis through their Data Center website once data is inputted.

DPH gathered baseline data of all 5 schools in September 2009. Data from all 5 schools have been inputted into the National Center for SRTS Data Center website. Post-project data of the first year will be collected in May 2010 and analyzed in summer 2010.

Participating Schools in 2009-10:

- Bryant (Mission District)
- George Washington Carver (Bayview)
- Longfellow (Excelsior)
- Sunnyside (Sunnyside)
- Sunset (Outer Sunset).

Since 68% of the students at these schools live within one mile of their school, an additional 10 schools will be added in 2010-2011.

In August 2009, SRTS-SF Coalition developed selection criteria to determine which SFUSD elementary schools will be invited to become SRTS schools. Criteria included:

- Majority of students living within 1 mile of school
- Installation of bike rack at school
- Participation in previous SRTS-SF related activities such as Walk to School Day, Bike to School Day, Green Teams, etc.

Furthermore, schools were segregated by supervisorial district. The top 1 or 2 elementary schools in each supervisorial district were invited to participate in order to ensure geographic distribution of SRTS resources.

APPENDIX E:

PEDESTRIAN SAFETY PROJECTS IMPLEMENTED BY THE PROGRAM ON HEALTH, EQUITY, AND SUSTAINABILITY AT THE SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH

Projects that address pedestrian safety and environmental conditions:

Road Pricing Health Impact Assessment (HIA)

(http://www.sfpbes.org/HIA_Road_Pricing.htm)

With funding from the Robert Wood Johnson Active Living Research program to conduct an HIA of proposed road pricing policy in San Francisco, California. HIA can help make health benefits and costs more transparent to stakeholders and decision makers, allowing them to be included in policy calculus and for mitigation of adverse impacts. The HIA will use the Pedestrian Injury Forecasting Model and the PEQI (described above) to study impacts on future pedestrian conditions and active transportation in addition to a number of other transportation-related health impacts. We will also assess economic impacts of morbidity and mortality related to collisions in consultation with the SF Injury Center.

Treasure Island Community Transportation Plan

(http://www.sfpbes.org/comm_ti_bicycle_ped.htm)

Supported by funding from Caltrans, SFDPH-PHES and the San Francisco Bicycle Coalition created a plan that outlines numerous recommendations for transportation infrastructure and policies for the development of San Francisco's newest neighborhood. The plan was informed by extensive outreach efforts over the past two years, including community workshops, bike tours, and interviews with stakeholders, public health evidence, best practices in design for the pedestrian and bicycling environs and San Francisco's own innovative health and urban planning assessment tools. The Treasure Island Community Transportation Plan will help ensure an active and healthy community and equitable access for residents, commuters and visitors on and to Treasure Island.

Community-based Participatory Research in the Excelsior

(http://www.sfpbes.org/HIA_PODER.htm)

To better understand the health impacts of local traffic and the transportation system in the Excelsior, SFDPH-PHES collaborated with PODER (People Organizing to Demand Environmental & Economic Rights) and researchers at UC Berkeley School of Public Health to develop a community-based, retrospective health impact assessment of air pollution, noise exposures, and pedestrian hazards. The project involved partnerships with community residents, PODER youth and adult leaders, the Chinese Progressive Association (CPA), and participation from undergraduate students in a UC Berkeley Environmental Justice Class. Key needs identified for the project were to develop community knowledge regarding the environmental health challenges faced by the neighborhood as well as potential community vulnerabilities (e.g., age, poverty,

language barriers, health care access), and to involve community members in identifying practical solutions that could lead to community change to address those issues. Pedestrian safety conditions and other transportation impacts were assessed via: door-to-door community surveys, traffic counts, community photography, oral histories, outdoor air quality and noise modeling and exposure assessment, pedestrian environmental quality evaluation with the PEQI, historical document review, and publicly available data from numerous sources including traffic-related injury data. Community action in response to the findings of the assessment led to a Board of Supervisors Resolution (#081397) and the inter-agency Health Protective Truck Route Planning Working Group (referenced below). A summary of the project was published in the *American Journal of Public Health* in 2009. Recent outcomes of that process have included updating and disseminating the City's advisory truck route map and revisions to the SF MTA's Traffic Calming criteria to add "points" to applications in areas with more pedestrian collisions as well as cut-through truck traffic.

Supporting Local Park Renovation with the Trust for Public Land (<http://www.sfphe.org/Parks.htm>)

Recognizing the role that urban parks can have in offering opportunities for physical activity as well as other health benefits, SFDPH-PHES is partnering with the Trust for Public Land (TPL) and the RAND Corporation to study the health impact of the park renovations, with an emphasis on park equipment and cues to increase physical activity. The Robert Wood Johnson, Active Living Research program, funded this three-year study, entitled "Park Renovation Impact on Physical Activity Among Youth." As a collaborative partner, SFDPH is providing and interpreting local neighborhood environmental conditions data to inform park design. The project utilizes SFDPH's health impact assessment tools such as the HDMT and the Pedestrian Environmental Quality Index, and SFDPH staff is supporting local data collection, analyses, and community outreach for the park redesign.

Technical Review and Comment of Planning Documents and Environmental Impact Reports

SFDPH-PHES engages in technical review of various City planning and environmental review documents, providing comment and suggested revisions to address potential environmental health impacts including on pedestrian hazards and to support health benefits such as walkability. Documents recently reviewed and commented on include: the Better Streets Plan, the Eastern Neighborhoods Area Plans Environmental Impact Reports, and the Glen Park Community Plan Transportation Study. In part in response to SFDPH-PHES comments, there is a new Better Streets Plan Health Element (Element 5, Promotes Human Health) which references SFDPH-PHES tools described above. Some of this technical review and comment also occurs through formal advisory group participation.

APPENDIX F: PEDESTRIAN SAFETY RESEARCH AND POLICY PROJECTS IMPLEMENTED BY THE SAN FRANCISCO INJURY CENTER FOR ACUTE CARE AND PREVENTION RESEARCH

Cost of Pedestrian Injury Study

This study was conducted in 2009 to describe the direct medical cost of treating pedestrian injuries occurring in San Francisco between 2005 and 2008. One unique feature of the study was the reporting of cost rather than charge data. Cost data refers to the amount actually paid for medical care.

Per the center's website (<http://sfic.surgery.ucsf.edu/research/cost-of-pedestrian-injury.aspx>):

Demographics:

Out of 3,598 pedestrians included in the study, 931 (26%) were admitted to the trauma center with the remaining being treated and discharged from the emergency department. Age ranged from 0 to 94 years. Children between the ages of 0 and 19 accounted for 14%, while adults (20 to 64 years) and elderly patients (over 65 years) accounted for 72% and 13%, respectively. Over 50% of the sample consisted of Caucasians and Asians (33% and 25%, respectively). Ninety-eight percent lived in California at the time of the injury, while 74% lived in of San Francisco. Only 0.6% of all pedestrians in the sample were visiting San Francisco from a foreign country at the time of injury. Homeless people accounted for 7% of the sample.

Cost:

After adjusting for economic inflation, the total charges for the 3,598 pedestrians in the study over the 5-year period amounted to \$171 million (expressed in 2008 dollars). Total cost, or the actual amount paid for medical care, was \$74.3 million. Total cost increased by year, from \$11.2 million in 2004 to \$17.7 million in 2007, and then decreased to \$15.7 million in 2008. The cost to treat pediatric patients for all years was \$6.4 million, while the cost for adults and older adults was \$52.7 million and \$14.3 million, respectively. Only 24% (\$17.6 million) of the total cost was charged to private insurance and the rest was charged to public funds such as MediCal (28%), Medicare (17%), and to patients themselves (16%). The minimum amount billed directly to patients (uninsured) was \$5,143 and the maximum was \$505,952. Although admitted patients accounted for only 25% of all auto-versus-pedestrian collisions, the cost of their medical care accounted for 82% of the total. The mean cost per pedestrian per year ranged from \$47,303 to \$77, 679 for admitted patients and \$3,798 to \$6,405 for non-admitted patients. The maximum cost for a single admitted patient was \$1.9 million.

Indirect Cost of Pedestrian Injury Study

This study is currently in the planning stage and will assess the indirect costs of injury related to auto-versus-pedestrian collisions by prospectively assessing costs of long-term care, legal services, bankruptcies, and changes in quality of life. Using economic estimates, the long-term cost of pedestrian injury will be calculated.

Health Impact Assessment of Proposed Road Pricing in San Francisco

In conjunction with the San Francisco Department of Public Health's Program on Health, Equity, and Sustainability, the SFIC is providing consulting expertise on injury. See "Road Pricing Health Impact Assessment" description in Appendix E.

Virtual Reality/Video Game Education Program for School-Aged Children

Street Smarts is a collaborative project between the San Francisco Injury Center at UCSF/SFGH and the Trauma Prevention Program at Children's Hospital Los Angeles. The overall goal of the project is to design, implement, evaluate, and disseminate a pedestrian safety education program for school-aged children using *Ace's Adventure*, a state-of-the-art interactive video game, and *Safety Street*, a life-size street through which children can travel as pedestrians. Unlike any other educational interventions in the country, *Streets Smarts* allows children to learn 7 safety lessons using a "hands on" approach in which they can safely explore the environment using the video game and then test out their skills on a set. To date, this intense level of interaction has not been documented in the literature. In addition, the design of the evaluation component is a randomized-controlled trial (RCT), which employs the highest level of scientific inquiry. If the evaluation shows that the game effectively influences children to demonstrate safe behaviors on the Street, the game has the potential to be disseminated throughout the nation as the first cost-effective and standardized pedestrian safety education program for children.

The Game is in its final stages of the design process and has already been piloted in Los Angeles. It is easily portable and can be installed on any PC. The *Safety Street* is fully built and portable.

To learn more about LA Street Smarts, please visit the following link:
<http://www.youtube.com/watch?v=XPf2ixpX5Vw>

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