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**San Francisco Department of Public Health:  
*Sustainable Communities Health Assessment***

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**Date:** July 23, 2012

**Project:** **Jewish Home of San Francisco**  
*Preliminary project plans include the addition of 23,000 gross square feet of retail space along Mission Street and 338 senior residences.<sup>1</sup>*

**Requestor:** **Andrea Contreras**  
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**Objectives:**

- Characterize existing conditions specifically as they relate to pedestrian safety
- Make design recommendations based on the existing conditions assessment

**Scope:**

- Assessed existing conditions utilizing SFPD GIS-based health and sustainability tools:
  - Generated corridor characteristics on transit, transportation, neighborhood demographics, and pedestrian injury factors, utilizing the Pedestrian Geodatabase
  - Audited streets adjacent and proximate to the project using the Pedestrian Environmental Quality Index (PEQI), then mapped and analyzed the data
- Reviewed other analyses related or proximate to the site generated by various city processes in recent years
- Made site-specific recommendations informed by the above data and analyses and empirical evidence regarding effective measures to protect pedestrian safety and promote safe walking, particularly among seniors



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<sup>1</sup> Available at <http://www.sfplanning.org/ftp/files/notice/2011.1323U.pdf>



## Existing Conditions

### *Project*

Preliminary project plans for the Jewish Home of San Francisco include the addition of 23,000 gross square feet of retail space along Mission Street and 338 senior residences.<sup>7</sup> These changes will attract more transit riders and pedestrians to sidewalks and street crossings along Mission Street and Silver Avenue. Given the nature of the project, it is likely that a significant proportion of the existing and future pedestrian population are and will be seniors, who may have mobility impairments or other disabilities that make street crossings difficult and more time consuming, and who are particularly vulnerable to serious and fatal injury in traffic collisions. Based on analyses conducted by SFDPH, the pedestrian death rate for seniors in San Francisco is four times that of adults, and eleven times that of children and youth.

### *Analyses: SFDPH GIS-Based Health and Sustainability Tools*

SFDPH has two principle GIS-based tools for examining existing pedestrian conditions that are utilized in the following analyses: the pedestrian safety geodatabase, which can be used to generate corridor characteristics for a ¼ mile buffer around a street corridor and for summarizing available information on pedestrian injuries resulting from motor vehicle collisions in a particular area, and the Pedestrian Environmental Quality Index (PEQI), which is an audit-based tool for gathering information on built environment conditions and comparing streets and intersections in a project area based on direct observation. Corridor and collision profiles based on the most recent available data are included in *Appendix A*. An explanation of the PEQI is included in *Appendix B*.

### *Transportation and Transit Characteristics*

The Jewish Home is located in a lower density residential area of the Excelsior/Outer Mission neighborhood of southeastern San Francisco. With the current configuration, the main entrance is from Silver Street to the North, with egress east onto Mission Street. The site is also bordered by Lisbon Street to the west and Avalon Street to the South. The site is surrounded on all sides by a low wall and foliage that separates it from the street. The only pedestrian entrance is located on Silver Avenue, separated from the main drive by bollards and a fence (Figure 1).

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<sup>7</sup> Available at <http://www.sfplanning.org/ftp/files/notice/2011.1323U.pdf>



Figure 1. Entrance to Jewish Home of San Francisco on Silver Avenue and exit on Mission Street. Source: Google StreetView



Figure 2. Intersection of Mission Street and Silver Avenue near entrance to Jewish Home. Source: Google StreetView

Six Muni lines have stops along Mission Street near Mission Street and Silver Avenue (52, 49, 14, 14L, 14X, SM) running an estimated 75 buses per day along Mission Street between Silver and Leo Street. An additional Muni line (49) runs down Silver Avenue, with transit stops 175 feet from the main entrance to the Jewish Home, shown in Figure 2. Estimated traffic volume along this corridor is 10,500 vehicles per day, while estimated transit ridership is 33,693 passengers per day and an estimated pedestrian volume of 7,500 trips per day. See the *Transportation and Transit Characteristics of the Corridor Profile* for Mission Street between Silver Avenue and Leo Street in *Appendix A* for more detail regarding these statistics.

## Neighborhood Demographics

Table 1. Population and Pedestrian Activity Proxies (Including Vulnerable Populations, avg within a 1/4 mile of 302 Silver Avenue)	Neighborhood		San Francisco		Source (Year)
	Number	Percent	Number	Percent	
Alcohol Outlets	5	-	5	-	CDABC (2009)
Disabled People	1,320	23.2%	660	14.3%	Census (2000)
Employees	400	-	3,300	-	LEHD (2009)
Household Income (avg)	\$93,300	-	\$119,600	-	Census (2008)
Non-English Speakers	1,370	24.0%	520	11.3%	Census (2000)
People of Color	-	81.4%	-	56.6%	Census (2010)
Public Health Centers	2	-	1	-	OSHPD (2009)
Residential Population	5,700	100.0%	4,600	100.0%	Census (2010)
Schools	4	-	2	-	SFDTIS (2010)
Seniors	980	17.2%	650	14.1%	Census (2010)
Senior Centers	3	-	3	-	SFDPH (2011)
Single Resident Occupancy Housing Locations	0	-	1	-	SFDPH (2011)
Universities	0	-	5	-	SFP (2011)
Violent Crimes	237	-	190	-	SFPD (2007)
Youth	1,010	17.7%	590	12.8%	Census (2010)

Table 1 lists population characteristics for residents living within 1/4 mile of the project site compared with normalized statistics for the entire city. In addition to a higher residential senior population, the neighborhood is comprised of higher proportions of disabled people, non-English speakers, people of color, and youth than the city as a whole. Approximately 55% of the nearby land use is zoned residential, with 10% neighborhood commercial and 3% zoned for public use (see *Appendix A*).

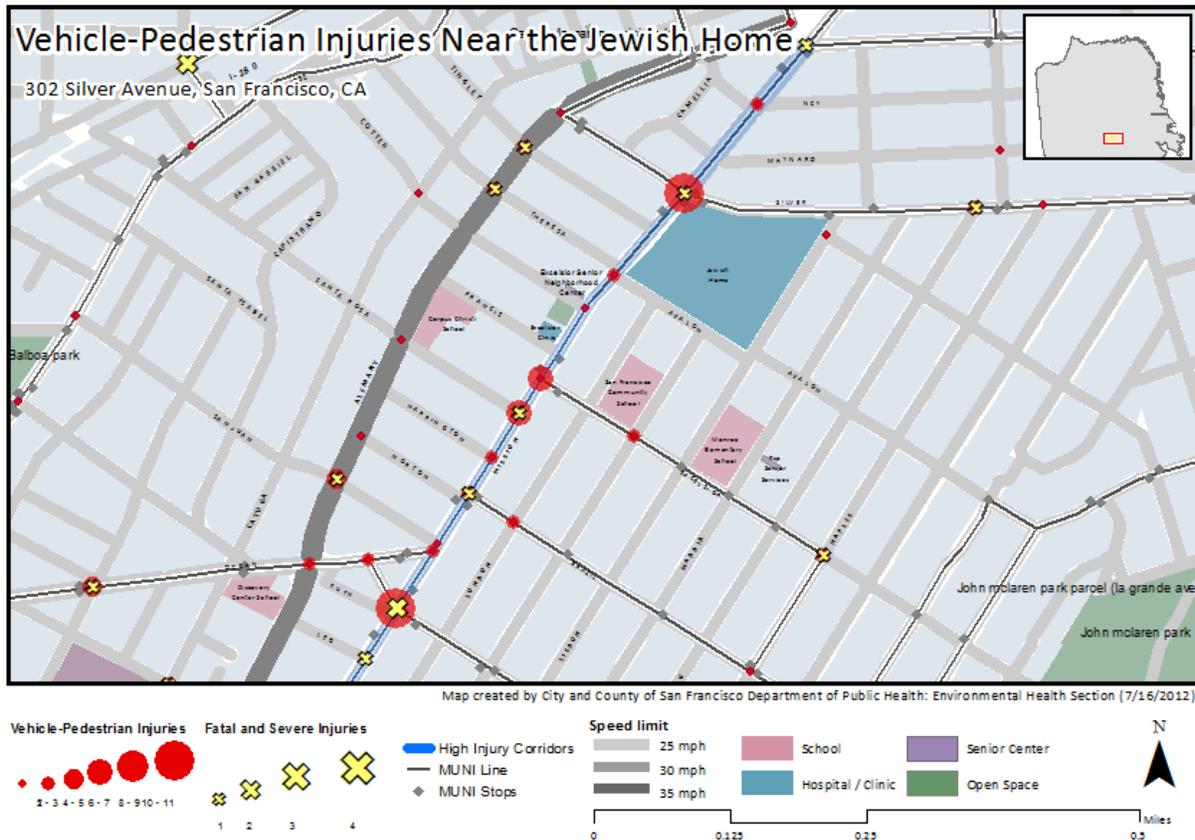
A map of pedestrian injury incidence show in Figure 3 below also shows the location of nearby schools (San Francisco Community School, Corpus Christi School, and Monroe Elementary School), nearby senior centers (Excelsior Senior Neighborhood Center, RSP Senior Services) and public health centers (Excelsior Clinic, Jewish Home), as well as nearby transit stops and parks.

### *Pedestrian Collision/Injury Profile*

Mission Street between Silver Avenue and Leo Street is one of San Francisco's high-injury corridors for pedestrians, as identified by the San Francisco Department of Public Health (SFDPH) in analyses for the Citywide Pedestrian Safety Task Force.<sup>8</sup> These corridors account for approximately 5% of the City's street length, but over 50% of total as well as severe and fatal pedestrian injuries in San Francisco. Community concerns about pedestrian safety along this corridor and recommended improvements are documented in the *Mission – Geneva Community Transportation Plan*, prepared by the San Francisco

<sup>8</sup> Methodology for identifying high injury corridors in San Francisco is described at <http://www.sfphes.org/component/jdownloads/finish/8/117>

County Transportation Authority in 2007.<sup>9</sup> The intersection of Mission Street, Ocean Avenue, and Persia Avenue 1/3 mile from the project site also has the third highest pedestrian injuries per estimated pedestrian crossing rate of any intersection in the city.<sup>13</sup> Community feedback collected by the SFCTA suggests that residents generally do not perceive the area as comfortable or safe for pedestrians.<sup>14</sup> The neighborhood is characterized by wide streets and limited pedestrian amenities or engineering features to make pedestrians more visible or crossings safer.



**Figure 3. Area map including vehicle-pedestrian injuries (SWITRS 2006-2010).**

Figure 3 maps vehicle-pedestrian injuries near the Jewish Home. According to the Statewide Integrated Traffic Records System (SWITRS, see *Appendix A*), there were 37 reported pedestrian injuries along Mission Street between Silver and Leo between 2006 and 2010, 4 of which were severe. 24% of those injured were over the age of 65, compared to 14% of pedestrians injured citywide. 73% of those injured were crossing the street in a crosswalk at an intersection. In 46% of collisions, drivers were turning left - compared to 25% of vehicle-pedestrian injury collisions citywide.

<sup>9</sup> Available at <http://www.mtc.ca.gov/planning/cbtp/Mission-Geneva.pdf>

<sup>13</sup> A case study of the Persia Triangle is included in the *Walk First Final Report*, [http://www.sf-planning.org/ftp/files/Citywide/WalkFirst/WalkFirst\\_Final\\_Document\\_102711.pdf](http://www.sf-planning.org/ftp/files/Citywide/WalkFirst/WalkFirst_Final_Document_102711.pdf)

<sup>14</sup> *Mission-Geneva Neighborhood Transportation Plan*, <http://www.mtc.ca.gov/planning/cbtp/Mission-Geneva.pdf>

The highest number of injuries per intersection along this corridor (n=11) occurred at Mission Street and Silver Avenue. In 7 of the 11 injuries, the driver was making a left hand turn, 6 out of 7 times from Mission Street onto Silver Avenue, and 5 out of 7 times from the southbound lanes of Mission Street onto Silver Avenue near the entrance to the Jewish Home.

### *Pedestrian Infrastructure and Environment*

Sidewalks along Mission Street are wide (12 feet or greater), and on other area streets are of sufficient width and reasonably good condition. There are street lights along Mission Street, however, street light configurations are not optimized to illuminate pedestrians in the crosswalk at some intersections, and there is no pedestrian scale lighting to illuminate sidewalks along any area sidewalks.

Many residential streets dead end or are offset at Mission Street and other arterials in the area, forming T intersections. There are limited or no crossing aids at most of these T intersections, which effectively increases the block size for pedestrians and may encourage unsafe crossing behavior. Parked cars near the intersection make pedestrians difficult to see as they approach the crosswalks, as shown in Figure 4. In many places, where present, crosswalk markings are worn. There are few pedestrian amenities such as public seating, plantings, or street trees.



**Figure 4. Offset intersection at Avalon Avenue and Lisbon: view of curb blocked by parked cars. Source: Google StreetView**

Recent efforts have been made to install curb ramps and pedestrian countdown signals along Mission Street, however many intersections on nearby streets, including those with marked crosswalks, lack curb ramps, for example at Lisbon and Peru, shown in Figure 5. Existing measures to improve pedestrian safety are high visibility crosswalks at Avalon Avenue and Lisbon Street, a speed bump along Lisbon Street, and "Speed Limit 25 mph" painted on the roadway on Silver Avenue.



Figure 5. Lisbon Street and Peru Street: absence of a curb ramp at a marked crosswalk. Source: Google StreetView

Figure 6 maps the scores for the streets surrounding the Jewish Home according to the Pedestrian Environmental Quality Index (PEQI), developed by SFDPH to assess built environment conditions and inform pedestrian planning projects (see also *Appendix B*).

### Pedestrian Environmental Quality Index (PEQI)



Figure 6. Streets and intersections surrounding the Jewish Home scored using the Pedestrian Environmental Quality Index. See *Appendix B* for more information.

Streets near the project area scored in the “basic” to “reasonable” range, symbolized as yellow and green on the map, largely as a result of the wide, relatively unimpeded sidewalks. However, much could be done to make the streetscape more supportive of walking, particularly for seniors, by installing streetscape elements such as public seating, shade trees, and landscaping.

Many intersections scored in the “poor” or “unsuitable” range because they lack basic infrastructure such as curb ramps, lighting, or crosswalks. The roadways are wide, and there are no bulb outs, red visibility curbs, or other engineering treatments to make pedestrians more visible to motor vehicle drivers. All intersections surveyed for the PEQI provided sufficient time for a pedestrian to cross the street at a rate of 3 feet per second.<sup>15</sup>

## Recommendations

The PEQI, corridor, and pedestrian injury analyses suggest a number of areas for improvement of pedestrian infrastructure on streets adjacent to the Jewish Home. Particular concerns about pedestrian safety and comfort generally and specifically on Mission Street between Silver Avenue and Rolph Street are corroborated by a number of other reports, and the resulting recommendations have been incorporated here as well.

Area-wide recommendations for improving pedestrian safety and comfort include:

- A road diet along Mission Street, possibly including a center median (Figure 7).<sup>16</sup>
- Unifying streetscape elements such as community/public art on signal controller cabinets and walls, street tree plantings, and landscaping.<sup>17</sup>
- Public seating approximately every 200 feet for senior and disabled pedestrians, particularly near the Jewish Home.
- Pedestrian scale lighting around the perimeter of the Jewish Home.

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<sup>15</sup> See the Manual on Uniform Traffic Control Devices for Streets and Highways, <http://mutcd.fhwa.dot.gov/>

<sup>16</sup> This recommendation comes from the SFCTA Mission-Geneva Transportation Plan, <http://www.mtc.ca.gov/planning/cbtp/Mission-Geneva.pdf>

<sup>17</sup> Ibid

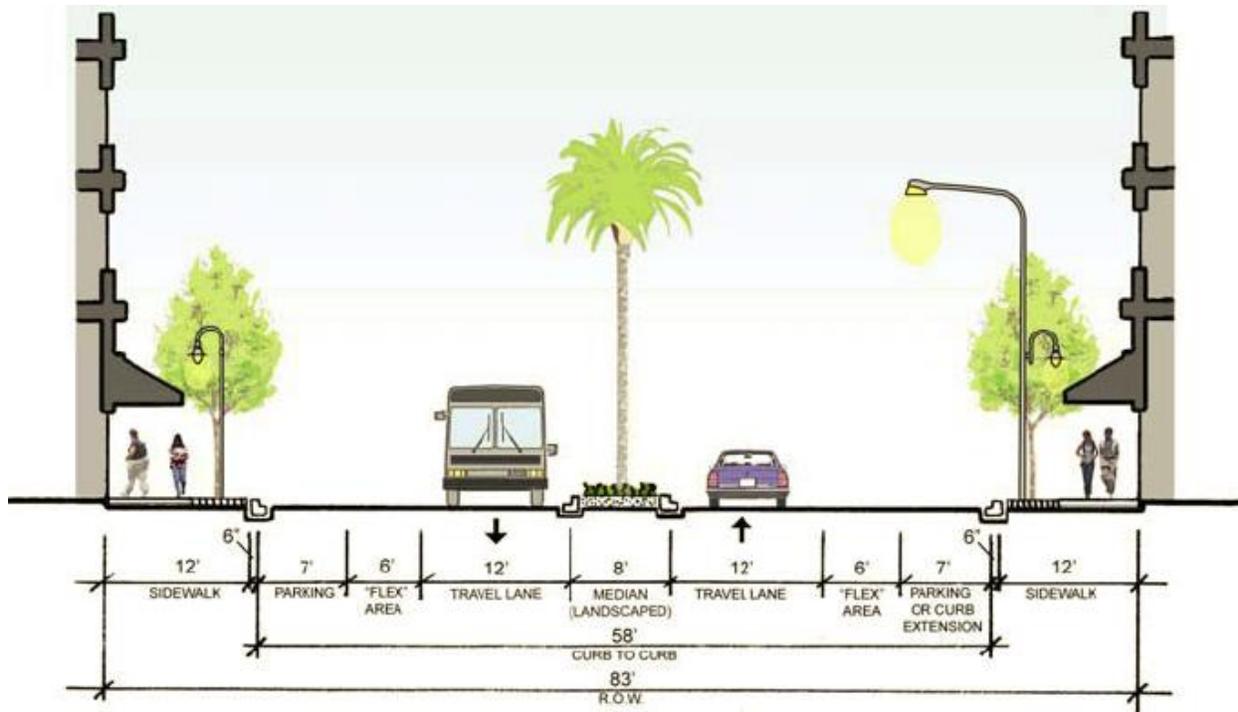


Figure 7. Cross-section view of the recommendation for Mission Street between Silver Avenue and Rolph Street (SFCTA 2007)

What follows next are suggested recommendations and specific improvements for streets and intersections adjacent to the Jewish Home of San Francisco, although areas beyond the parcel boundaries may also be impacted by the project.

Recommendations for street corridor and intersection improvements are provided from a hierarchy of sources that have recently investigated measures to improve pedestrian safety. The *Better Streets Plan*, which defines policies for streetscape projects, provides specific guidance for the standard improvements and case-by case additions to be implemented according to street type.<sup>18</sup> That Plan classifies most of the streets immediately surrounding the Jewish Home as Neighborhood Residential streets, with the exception of Mission Street, which is a Commercial Thoroughway.<sup>19</sup>

Other sources of recommendations include the *Mission – Geneva Community Transportation Plan*, prepared by the SFCTA,<sup>20</sup> the Pedestrian Safety Task Force Data Subcommittee Recommendations for High-Injury Corridors (including Mission between Silver and Leo),<sup>21</sup> recommendations specific to Mission between Leo Street and Silver Avenue from the Walk First Final Report,<sup>22</sup> and the New York City Department of Transportation Safe Streets for Seniors campaign.<sup>23</sup> Appendix D provides a comprehensive list of improvement measures, existing conditions in the study area, and an explanation of how each measure relates to pedestrian safety.

<sup>18</sup> Better Streets Plan available at <http://www.sf-planning.org/ftp/BetterStreets/index.htm>

<sup>19</sup> Street classification available at <http://www.sfbetterstreets.org/design-guidelines/street-types/>

<sup>20</sup> Available at <http://www.mtc.ca.gov/planning/cbtp/Mission-Geneva.pdf>

<sup>21</sup> See *Appendix C*

<sup>22</sup> Available at [http://www.sf-planning.org/ftp/files/Citywide/WalkFirst/WalkFirst\\_Final\\_Document\\_102711.pdf](http://www.sf-planning.org/ftp/files/Citywide/WalkFirst/WalkFirst_Final_Document_102711.pdf)

<sup>23</sup> More information available at <http://www.nyc.gov/html/dot/html/sidewalks/safeseniors.shtml>

## MISSION STREET

### Recommendations for the Mission Street Corridor:

1. Decrease vehicle speed.
2. Make pedestrians more visible to drivers.
3. Create a streetscape that supports walking.

#### Specific improvements:

- Rumble strips, speed radar signs
- Median
- Traffic lane narrowing / remove traffic lanes
- Public seating and other street furnishings
- Street trees, landscaping, planters
- Public art

### Recommendations for intersections along Mission Street:

- Eliminate left-turn collisions.
- Increase pedestrian visibility/vehicle yielding during vehicle turning movement and near Muni stops.
- Ensure that senior pedestrians can safely and comfortably cross the street.

#### Mission Street / Silver Avenue – specific improvements:

- Accessible pedestrian signals
- Advanced stop lines
- Bus bulb outs
- Flashing beacon
- High visibility crosswalks
- Leading pedestrian interval
- Left turn pockets, protected turn phases
- Lighting for eastern crosswalk on Silver Avenue
- Pedestrian refuge island or nose cone

#### Mission Street / Tingley St – specific improvements:

- Accessible pedestrian signals
- Parking restrictions near intersection
- Left turn pockets
- Lighting
- If midblock crossing is feasible:
  - High visibility crosswalks across Mission Street
  - Bulb outs
  - Flashing beacon
  - Advanced stop / limit lines

#### Mission Street / Avalon Avenue / Theresa Street – specific improvements:

- Parking restrictions near the intersection
- Accessible pedestrian signals
- Advanced stop/limit lines
- Bulb outs
- Leading pedestrian interval
- Lighting for crosswalks on Avalon Avenue / Theresa Street
- Median island, nose cone, or pedestrian refuge island



MISSION STREET



MISSION AND SILVER



MISSION AND TINGLEY



MISSION AND AVALON / THERESA

## SILVER AVENUE

### Recommendations for Silver Avenue Corridor:

1. Improve pedestrian access to the Jewish Home.
2. Decrease vehicle speed.
3. Create a streetscape that supports walking.

### Specific improvements:

- Rumble strips
- Speed radar signs
- Traffic lane narrowing or striping
- Chicane
- Public seating and other street furnishings
- Landscaping, planters

### Recommendations for Intersections along Silver Avenue:

1. Make pedestrians more visible to drivers.
2. Ensure that senior pedestrians can safely and comfortably cross the street.

### Silver Avenue / Lisbon Street / Peru Avenue – specific improvements:

3. Parking restrictions near intersections
4. Bulb outs
5. Crosswalk markings
6. Curb ramps
7. Lighting
8. Traffic calming circle or traffic mini circle



SILVER AVENUE



SILVER AVE / LISBON STREET / PERU STREET

## LISBON STREET & AVALON AVENUE

### Recommendations for Lisbon Street and Avalon Avenue Corridors:

1. Calm Traffic
2. Create a streetscape that supports walking.

### Specific improvements:

- Traffic lane narrowing or striping
- Public seating and other street furnishings
- Street trees, landscaping, planters

### Recommendations for Intersections along Lisbon Street and Avalon Avenue:

1. Ensure pedestrians are visible to drivers.
2. Ensure that senior pedestrians can safely and comfortably cross the street.

### Lisbon Street / Avalon Avenue – specific improvements:

- Parking restrictions near intersections

### Avalon Avenue / Paris Street and Avalon Avenue / London Street – specific improvements:

- Parking restrictions near intersections
- Bulb outs on Avalon where intersecting streets T
- Crosswalk markings
- Curb ramps
- Lighting
- Public seating and other street furnishings



LISBON STREET



LISBON STREET / AVALON AVENUE



AVALON AVENUE / PARIS STREET

- Street trees, landscaping, planters

SFDPH additionally recommends obtaining the following additional sources of information to inform the transportation study:

- Analysis of pedestrian flow patterns including from bus stops along Mission Street, Silver Street, Alemany Boulevard and Excelsior Avenue during different times of day, which could help prioritize infrastructure improvements.
- A speed study to assess the extent to which vehicle speed limits are exceeded in the project area (85<sup>th</sup> percentile speed on Mission Street was not available from the SFMTA).
- Feedback from community and Jewish Home residents about perceived hazards and preferred countermeasures and improvements.
- Recommendations from SFMTA on how to improve pedestrian safety mindful of potential impacts on transit effectiveness.

SFDPH understands that the project is still in a preliminary phase, and the number of residential units, retail square footage, and parking spaces may change along with other details of the project. It is recommended that the configuration of internal roads, driveways, loading zones, entrances, exits and walkways also be reviewed when available to ensure they take pedestrian safety and comfort into account.

We look forward to helping to ensure the project promotes safe walking for seniors and all pedestrians. Please contact Megan Wier ([Megan.Wier@SFDPH.org](mailto:Megan.Wier@SFDPH.org)) with questions or any additional requests for data or analysis.

## Appendix A: Corridor and Collision Profiles for Mission Street between Silver Avenue and Leo Street

Corridor Profile	Mission St		High-Injury Corridors		San Francisco		Source (Year)
	Number	Percent	Number	Percent	Number	Percent	
<i>Transportation, Land Use, and Population Factors</i>							
<b>Transportation and Transit Characteristics</b>							
Length (miles)	0.5	-	58	-	1,117	-	SFDPW (2010)
Segments (total)	15	-	1,119	-	15,444	-	SFDPW (2010)
Bike Lane (count of segments)	0	0.0%	243	21.7%	2,171	14.1%	SFMTA (2010)
Block Length (feet, avg)	180	-	370	-	410	-	SFDPW (2011)
Bus Traffic Volume (estimated daily, avg)	75	-	49	-	11	-	SFCTA (2005)
Freeway Ramps (count of segments)	0	0.0%	0	0.0%	141	0.9%	SFMTA (2010)
Lanes (avg)	2	-	2	-	1	-	SFCTA (2005)
Legs (avg)	3	-	4	-	3	-	SFDPW (2010)
Legs (max)	4	-	6	-	7	-	SFDPW (2010)
Muni Lines (avg)	5	-	4	-	1	-	SFMTA (2010)
Muni Lines (min)	4	-	0	-	0	-	SFMTA (2010)
Muni Lines (max)	6	-	26	-	26	-	SFMTA (2010)
Muni Stops	7	-	700	-	4,100	-	SFMTA (2010)
One-Way Street (count of segments)	0	0.0%	306	27.3%	1,673	10.8%	SFCTA (2005)
Pedestrian Volume (estimated daily, avg)	7,500	-	14,900	-	3,500	-	SFMTA (2011)
Regional Transit Stops (count of segments, 1/4 mile)	0	0.0%	278	24.8%	1,215	7.9%	SFMTA (2010)
Slope (avg, degrees)	2	-	3	-	6	-	SFDPH (2007)
Speed Limit (max)	25	-	35	-	45	-	SFMTA (2010)
Street Width (ft, avg)	31	-	40	-	38	-	SFDPH (2004)
Traffic Calming Features (count)	0	-	5	-	463	-	SFDPW (2011)
Traffic Volume (estimated daily, avg)	10,500	-	19,000	-	6,600	-	SFCTA (2005)
Transit Ridership (estimated daily, avg 1/8 mile)	33,693	-	35,568	-	12,472	-	SFMTA (2011)
Truck Route	14	93.3%	886	79.2%	3,396	22.0%	SFMTA (2009)
Vehicle Speed (mph, avg) <sup>1</sup>	n/a	-	29	-	28	-	SFMTA (2011)
<b>Street Characteristics Standardized (per 1/4 Mile)</b>							
Parking Spots: Off-Street	139	-	453	-	106	-	SFMTA (2011)
Parking Spots: On-Street	64	-	46	-	26	-	SFMTA (2011)
Parking Spots: Metered	81	-	43	-	7	-	SFMTA (2001)
Muni Stops	3	-	3	-	1	-	SFMTA (2010)
Street Lights (SFPUC)	76	-	62	-	19	-	SFMTA (2011)
Trees	2	-	22	-	20	-	SAIC (2007)
<b>Intersection Characteristics (Count)</b>							
Accessible Pedestrian Signal	1	6.3%	56	7.0%	124	1.3%	SFMTA (2011)
High Visibility Crosswalk	2	12.5%	115	14.4%	1024	11.0%	SFMTA (2011)

Intersections (total)	16	100.0%	801	100.0%	9340	100.0%	SFMTA (2011)
Left Turn Restriction	1	6.3%	303	37.8%	761	8.1%	SFMTA (2011)
Pedestrian Countdown Signal	6	37.5%	379	47.3%	965	10.3%	SFMTA (2011)
Signalized	7	43.8%	433	54.1%	1151	12.3%	SFMTA (2011)
Stop Sign	7	43.8%	201	25.1%	3696	39.6%	SFMTA (2011)
<b>Zoning Along the Corridor (1/4 mile buffer, proportion)</b>							
Commercial	-	0.0%	-	11.7%	-	3.2%	SFP (2011)
Industrial	-	0.0%	-	1.8%	-	3.8%	SFP (2011)
Mixed Use	-	0.0%	-	0.9%	-	1.0%	SFP (2011)
Neighborhood Commercial	-	9.7%	-	8.6%	-	4.2%	SFP (2011)
Public Use	-	2.5%	-	7.1%	-	16.0%	SFP (2011)
Residential	-	54.7%	-	19.0%	-	32.2%	SFP (2011)
Residential Mixed-Use	-	0.9%	-	17.0%	-	7.4%	SFP (2011)
Redevelopment	-	0.0%	-	0.1%	-	1.3%	SFP (2011)
Total <sup>2</sup>	-	67.9%	-	66.1%	-	69.1%	SFP (2011)
<b>Population and Pedestrian Activity Proxies (Including Vulnerable Populations, avg within a 1/4 mile buffer)</b>							
Alcohol Outlets	5	-	13	-	5	-	CDABC (2009)
Disabled People	1,370	23.2%	1,870	25.6%	660	14.3%	Census (2000)
Employees	300	-	9,800	-	3,300	-	LEHD (2009)
Household Income (avg)	\$86,100	-	\$88,400	-	\$119,600	-	Census (2008)
Non-English Speakers	1,170	19.8%	1,400	19.2%	520	11.3%	Census (2000)
People of Color	-	84.5%	-	60.0%	-	56.6%	Census (2010)
Public Health Centers	3	-	3	-	1	-	OSHPD (2009)
Residential Population	5,900	100.0%	7,300	100.0%	4,600	100.0%	Census (2010)
Schools	4	-	2	-	2	-	SFDTIS (2010)
Seniors	790	13.4%	1,070	14.7%	650	14.1%	Census (2010)
Senior Centers	3	-	8	-	3	-	SFDPH (2011)
Single Resident Occupancy Housing Locations	0	-	9	-	1	-	SFDPH (2011)
Universities	0	-	0	-	5	-	SFP (2011)
Violent Crimes	269	-	678	-	190	-	SFPD (2007)
Youth	1,090	18.5%	680	9.3%	590	12.8%	Census (2010)
<b>Population and Pedestrian Activity Proxies (cont.) (Including Vulnerable Populations, avg within a 1/8 mile buffer)</b>							
Disabled People	274	20.0%	416	22.7%	187	17.4%	Census (2000)
Household Income (avg)	\$83,745	-	\$87,322	-	\$120,775	-	Census (2008)
Non-English Speakers	247	18.0%	298	16.3%	137	12.7%	Census (2000)
People of Color	-	66.0%	-	53.2%	-	49.8%	Census (2010)
Seniors	175	12.8%	266	14.5%	151	14.1%	Census (2010)
Youth	255	18.6%	169	9.3%	138	12.8%	Census (2010)

*Mission Street Between Silver Avenue and Leo Street Pedestrian Injury Data (SWITRS 2006 - 2010)*

<b>Pedestrian Injury by Severity</b>							
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
Fatal	0	0.0%	45	2.3%	95	2.5%	SWITRS (2006-2010)
Injury (Severe)	4	10.8%	206	10.7%	372	9.6%	SWITRS (2006-2010)
Injury (Other Visible)	4	10.8%	565	29.4%	1204	31.2%	SWITRS (2006-2010)
Injury (Complaint of Pain)	29	78.4%	1104	57.5%	2192	56.7%	SWITRS (2006-2010)
Pedestrian Injuries and Fatalities, Per Mile	71	-	33	-	3	-	SWITRS (2006-2010)
Severe and Fatal Injuries, % of Total	10.8%	-	13.1%	-	12.1%	-	SWITRS (2006-2010)
Severity Weighted Injuries, Per Mile <sup>3</sup>	87	-	42	-	4	-	SWITRS (2006-2010)
<b>Pedestrian Severe and Fatal Injuries, by age</b>							
Less than 13	0	0.0%	8	3.2%	20	4.3%	SWITRS (2006-2010)
13 - 20	0	0.0%	22	8.8%	42	9.0%	SWITRS (2006-2010)
21 - 44	1	33.3%	79	31.5%	151	32.3%	SWITRS (2006-2010)
45 - 64	2	66.7%	76	30.3%	131	28.1%	SWITRS (2006-2010)
65+	0	0.0%	48	19.1%	92	19.7%	SWITRS (2006-2010)
Unknown	0	0.0%	18	7.2%	31	6.6%	SWITRS (2006-2010)
Total	3	100.0%	251	100.0%	467	100.0%	SWITRS (2006-2010)
<b>Pedestrian Age</b>							
Less than 13	1	2.7%	52	2.7%	180	4.7%	SWITRS (2006-2010)
13 - 20	3	8.1%	147	7.7%	343	8.9%	SWITRS (2006-2010)
21 - 44	13	35.1%	760	39.6%	1499	38.8%	SWITRS (2006-2010)
45 - 64	9	24.3%	645	33.6%	1198	31.0%	SWITRS (2006-2010)
65+	9	24.3%	259	13.5%	539	14.0%	SWITRS (2006-2010)
Unknown	2	5.4%	57	3.0%	104	2.7%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Race</b>							
Asian	6	16.2%	429	22.3%	934	24.2%	SWITRS (2006-2010)
Black	5	13.5%	303	15.8%	549	14.2%	SWITRS (2006-2010)
Hispanic	13	35.1%	231	12.0%	506	13.1%	SWITRS (2006-2010)
Other	2	5.4%	147	7.7%	245	6.3%	SWITRS (2006-2010)
White	8	21.6%	736	38.3%	1472	38.1%	SWITRS (2006-2010)
Not Stated	3	8.1%	74	3.9%	157	4.1%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Sex</b>							
Female	19	51.4%	825	43.0%	1739	45.0%	SWITRS (2006-2010)
Male	17	45.9%	954	49.7%	1827	47.3%	SWITRS (2006-2010)
Not Stated	1	2.7%	141	7.3%	297	7.7%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)

<b>Pedestrian Sobriety</b>							
Had Not Been Drinking	30	81.1%	1339	69.7%	2834	73.4%	SWITRS (2006-2010)
Had Been Drinking, Under Influence	2	5.4%	82	4.3%	125	3.2%	SWITRS (2006-2010)
Had Been Drinking, Not Under Influence	1	2.7%	29	1.5%	42	1.1%	SWITRS (2006-2010)
Had Been Drinking, Impairment Unknown	0	0.0%	79	4.1%	115	3.0%	SWITRS (2006-2010)
Impairment Unknown	0	0.0%	175	9.1%	279	7.2%	SWITRS (2006-2010)
Not Applicable	1	2.7%	78	4.1%	188	4.9%	SWITRS (2006-2010)
Not Stated	3	8.1%	138	7.2%	280	7.2%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Drug Physical</b>							
Under Drug Influence	0	0.0%	7	0.4%	15	0.4%	SWITRS (2006-2010)
Impairment - Physical	0	0.0%	5	0.3%	11	0.3%	SWITRS (2006-2010)
Impairment Unknown	0	0.0%	175	9.1%	279	7.2%	SWITRS (2006-2010)
Not Applicable	1	2.7%	78	4.1%	188	4.9%	SWITRS (2006-2010)
Sleepy/Fatigued	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Not Stated	36	97.3%	1655	86.2%	3369	87.2%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Cell Phone Use</b>							
Cell Phone in Use	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Cell Phone Not in Use	0	0.0%	1	0.1%	3	0.1%	SWITRS (2006-2010)
No Cell Phone/Unknown	0	0.0%	4	0.2%	6	0.2%	SWITRS (2006-2010)
Not Stated	17	45.9%	808	42.1%	1543	39.9%	SWITRS (2006-2010)
Cell Phone Handheld in Use	0	0.0%	25	1.3%	47	1.2%	SWITRS (2006-2010)
Cell Phone Hands Free in Use	0	0.0%	2	0.1%	2	0.1%	SWITRS (2006-2010)
Cell Phone Not in Use	20	54.1%	1080	56.3%	2262	58.6%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Movement Preceding Collision</b>							
Stopped	0	0.0%	48	2.5%	124	3.2%	SWITRS (2006-2010)
Proceeding Straight	14	37.8%	905	47.1%	1779	46.1%	SWITRS (2006-2010)
Ran Off Road	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Making Right Turn	0	0.0%	5	0.3%	10	0.3%	SWITRS (2006-2010)
Making Left Turn	0	0.0%	2	0.1%	3	0.1%	SWITRS (2006-2010)
Making U-Turn	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Backing	0	0.0%	9	0.5%	12	0.3%	SWITRS (2006-2010)
Slowing/Stopping	0	0.0%	1	0.1%	1	0.0%	SWITRS (2006-2010)
Passing Other Vehicle	0	0.0%	0	0.0%	3	0.1%	SWITRS (2006-2010)
Changing Lanes	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Parking Maneuver	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Entering Traffic	0	0.0%	86	4.5%	152	3.9%	SWITRS (2006-2010)
Other Unsafe Turning	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)

Crossed Into Opposing Lane	0	0.0%	4	0.2%	5	0.1%	SWITRS (2006-2010)
Parked	2	5.4%	5	0.3%	9	0.2%	SWITRS (2006-2010)
Merging	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Traveling Wrong Way	0	0.0%	2	0.1%	2	0.1%	SWITRS (2006-2010)
Other	9	24.3%	348	18.1%	722	18.7%	SWITRS (2006-2010)
Not Stated	12	32.4%	505	26.3%	1039	26.9%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Action</b>							
Crossing in Crosswalk at Intersection	27	73.0%	1149	59.8%	2275	58.9%	SWITRS (2006-2010)
Crossing in Crosswalk Not at Intersection	0	0.0%	17	0.9%	57	1.5%	SWITRS (2006-2010)
Crossing Not in Crosswalk	3	8.1%	451	23.5%	828	21.4%	SWITRS (2006-2010)
In Road, Including Shoulder	3	8.1%	175	9.1%	440	11.4%	SWITRS (2006-2010)
Not in Road	4	10.8%	93	4.8%	201	5.2%	SWITRS (2006-2010)
Approaching/Leaving School Bus	0	0.0%	1	0.1%	2	0.1%	SWITRS (2006-2010)
Not Stated	0	0.0%	34	1.8%	60	1.6%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)
<b>Pedestrian Other Associated Factor</b>							
Violation	1	2.7%	121	6.3%	217	5.6%	SWITRS (2006-2010)
Vision Obscurements	0	0.0%	13	0.7%	26	0.7%	SWITRS (2006-2010)
Inattention	2	5.4%	86	4.5%	149	3.9%	SWITRS (2006-2010)
Stop and Go Traffic	0	0.0%	5	0.3%	6	0.2%	SWITRS (2006-2010)
Entering/Leaving Ramp	0	0.0%	1	0.1%	2	0.1%	SWITRS (2006-2010)
Previous Collision	0	0.0%	1	0.1%	3	0.1%	SWITRS (2006-2010)
Unfamiliar With Road	0	0.0%	0	0.0%	3	0.1%	SWITRS (2006-2010)
Defective Vehicle Equipment	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Uninvolved Vehicle	0	0.0%	2	0.1%	2	0.1%	SWITRS (2006-2010)
Other	1	2.7%	25	1.3%	48	1.2%	SWITRS (2006-2010)
None Apparent	25	67.6%	1236	64.4%	2562	66.3%	SWITRS (2006-2010)
Runaway Vehicle	0	0.0%	2	0.1%	8	0.2%	SWITRS (2006-2010)
Not Stated	8	21.6%	428	22.3%	837	21.7%	SWITRS (2006-2010)
Total	37	100.0%	1920	100.0%	3863	100.0%	SWITRS (2006-2010)

*Collision Conditions (SWITRS 2006 - 2010)*

<b>Location Type <sup>4</sup></b>							
Mid-Block	7	20.0%	566	30.7%	1124	30.4%	SWITRS (2006-2010)
Intersection	28	80.0%	1275	69.3%	2578	69.6%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Time of Day</b>							
6:01 am to 10:00 am	5	14.3%	265	14.4%	636	17.2%	SWITRS (2006-2010)
10:01 am to 2:00 pm	12	34.3%	392	21.3%	735	19.9%	SWITRS (2006-2010)

2:01 pm to 6:00 pm	10	28.6%	465	25.3%	969	26.2%	SWITRS (2006-2010)
6:01 pm to 10:00 pm	6	17.1%	371	20.2%	795	21.5%	SWITRS (2006-2010)
10:01 pm to 2:00 am	1	2.9%	244	13.3%	408	11.0%	SWITRS (2006-2010)
2:01 am to 6:00 am	1	2.9%	104	5.6%	159	4.3%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Lighting</b>							
Daylight	27	77.1%	1097	59.6%	2287	61.8%	SWITRS (2006-2010)
Dusk - Dawn	1	2.9%	68	3.7%	137	3.7%	SWITRS (2006-2010)
Dark - Street Lights	7	20.0%	656	35.6%	1223	33.0%	SWITRS (2006-2010)
Dark - No Street Lights	0	0.0%	9	0.5%	29	0.8%	SWITRS (2006-2010)
Dark - Street Lights Not Functioning	0	0.0%	2	0.1%	7	0.2%	SWITRS (2006-2010)
Not Stated	0	0.0%	9	0.5%	19	0.5%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Day of Week</b>							
Monday	5	14.3%	244	13.3%	514	13.9%	SWITRS (2006-2010)
Tuesday	7	20.0%	278	15.1%	569	15.4%	SWITRS (2006-2010)
Wednesday	3	8.6%	278	15.1%	572	15.5%	SWITRS (2006-2010)
Thursday	4	11.4%	267	14.5%	554	15.0%	SWITRS (2006-2010)
Friday	8	22.9%	309	16.8%	634	17.1%	SWITRS (2006-2010)
Saturday	6	17.1%	261	14.2%	466	12.6%	SWITRS (2006-2010)
Sunday	2	5.7%	204	11.1%	393	10.6%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Month</b>							
January	6	17.1%	161	8.7%	341	9.2%	SWITRS (2006-2010)
February	3	8.6%	170	9.2%	347	9.4%	SWITRS (2006-2010)
March	4	11.4%	155	8.4%	330	8.9%	SWITRS (2006-2010)
April	3	8.6%	141	7.7%	270	7.3%	SWITRS (2006-2010)
May	3	8.6%	145	7.9%	268	7.2%	SWITRS (2006-2010)
June	3	8.6%	119	6.5%	246	6.6%	SWITRS (2006-2010)
July	2	5.7%	153	8.3%	268	7.2%	SWITRS (2006-2010)
August	2	5.7%	144	7.8%	290	7.8%	SWITRS (2006-2010)
September	1	2.9%	163	8.9%	322	8.7%	SWITRS (2006-2010)
October	3	8.6%	134	7.3%	302	8.2%	SWITRS (2006-2010)
November	3	8.6%	171	9.3%	333	9.0%	SWITRS (2006-2010)
December	2	5.7%	185	10.0%	385	10.4%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Year</b>							
2006	10	28.6%	367	19.9%	715	19.3%	SWITRS (2006-2010)
2007	9	25.7%	427	23.2%	773	20.9%	SWITRS (2006-2010)
2008	6	17.1%	372	20.2%	773	20.9%	SWITRS (2006-2010)

2009	7	20.0%	321	17.4%	680	18.4%	SWITRS (2006-2010)
2010	3	8.6%	354	19.2%	761	20.6%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Weather</b>							
Clear	29	82.9%	1397	75.9%	2808	75.9%	SWITRS (2006-2010)
Cloudy	4	11.4%	229	12.4%	450	12.2%	SWITRS (2006-2010)
Raining	2	5.7%	199	10.8%	389	10.5%	SWITRS (2006-2010)
Snowing	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Fog	0	0.0%	6	0.3%	18	0.5%	SWITRS (2006-2010)
Other	0	0.0%	5	0.3%	17	0.5%	SWITRS (2006-2010)
Wind	0	0.0%	1	0.1%	1	0.0%	SWITRS (2006-2010)
Not Stated	0	0.0%	4	0.2%	19	0.5%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)

*Collision Factors (Police Report, SWITRS 2006 - 2010)*

<b>Control Device</b>							
Functioning	29	82.9%	1418	77.0%	2546	68.8%	SWITRS (2006-2010)
Not Functioning	1	2.9%	2	0.1%	8	0.2%	SWITRS (2006-2010)
Obscured	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
None	5	14.3%	404	21.9%	1109	30.0%	SWITRS (2006-2010)
Not Stated	0	0.0%	17	0.9%	38	1.0%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Primary Collision Factor Violation Category</b>							
Driving or Bicycling Under the Influence of Alcohol or Drug	0	0.0%	17	0.9%	31	0.8%	SWITRS (2006-2010)
Impeding Traffic	0	0.0%	1	0.1%	1	0.0%	SWITRS (2006-2010)
Unsafe Speed	3	8.6%	90	4.9%	187	5.1%	SWITRS (2006-2010)
Following Too Closely	0	0.0%	1	0.1%	3	0.1%	SWITRS (2006-2010)
Wrong Side of Road	0	0.0%	1	0.1%	2	0.1%	SWITRS (2006-2010)
Improper Passing	1	2.9%	29	1.6%	67	1.8%	SWITRS (2006-2010)
Unsafe Lane Change	1	2.9%	10	0.5%	17	0.5%	SWITRS (2006-2010)
Improper Turning	0	0.0%	26	1.4%	47	1.3%	SWITRS (2006-2010)
Automobile Right of Way	0	0.0%	15	0.8%	31	0.8%	SWITRS (2006-2010)
Pedestrian Right of Way	16	45.7%	719	39.1%	1534	41.4%	SWITRS (2006-2010)
Pedestrian Violation	5	14.3%	612	33.2%	1124	30.4%	SWITRS (2006-2010)
Traffic Signals and Signs	2	5.7%	78	4.2%	148	4.0%	SWITRS (2006-2010)
Hazardous Parking	0	0.0%	0	0.0%	5	0.1%	SWITRS (2006-2010)
Lights	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Brakes	0	0.0%	0	0.0%	2	0.1%	SWITRS (2006-2010)
Other Equipment	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Other Hazardous Violation	1	2.9%	35	1.9%	57	1.5%	SWITRS (2006-2010)

Other Than Driver (or Pedestrian)	1	2.9%	11	0.6%	28	0.8%	SWITRS (2006-2010)
Unsafe Starting or Backing	1	2.9%	82	4.5%	186	5.0%	SWITRS (2006-2010)
Other Improper Driving	0	0.0%	6	0.3%	10	0.3%	SWITRS (2006-2010)
Pedestrian or "Other" Under the Influence of Alcohol or Drug	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Fell Asleep	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Unknown	1	2.9%	44	2.4%	80	2.2%	SWITRS (2006-2010)
Not Stated	3	8.6%	64	3.5%	141	3.8%	SWITRS (2006-2010)
<b>Total</b>	<b>35</b>	<b>100.0%</b>	<b>1841</b>	<b>100.0%</b>	<b>3702</b>	<b>100.0%</b>	<b>SWITRS (2006-2010)</b>

**CHP Vehicle Type at Fault**

Passenger Car, Station Wagon, or Jeep	10	28.6%	487	26.5%	1062	28.7%	SWITRS (2006-2010)
Motorcycle	1	2.9%	8	0.4%	19	0.5%	SWITRS (2006-2010)
Bicycle	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
Sport Utility Vehicle	1	2.9%	67	3.6%	150	4.1%	SWITRS (2006-2010)
Minivan	0	0.0%	24	1.3%	58	1.6%	SWITRS (2006-2010)
Paratransit Bus	1	2.9%	4	0.2%	6	0.2%	SWITRS (2006-2010)
Tour Bus	0	0.0%	4	0.2%	6	0.2%	SWITRS (2006-2010)
Other Commercial Bus	0	0.0%	21	1.1%	38	1.0%	SWITRS (2006-2010)
Non-Commercial Bus	0	0.0%	5	0.3%	7	0.2%	SWITRS (2006-2010)
School bus Without Pupil Passengers	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
School bus Public	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
School bus Contractual	0	0.0%	3	0.2%	3	0.1%	SWITRS (2006-2010)
Public Transit Authority	0	0.0%	1	0.1%	6	0.2%	SWITRS (2006-2010)
Pickup or Panel Truck	0	0.0%	57	3.1%	131	3.5%	SWITRS (2006-2010)
Pickup Truck With Camper	0	0.0%	2	0.1%	5	0.1%	SWITRS (2006-2010)
Truck Tractor	0	0.0%	0	0.0%	3	0.1%	SWITRS (2006-2010)
Two-Axle Truck	0	0.0%	1	0.1%	4	0.1%	SWITRS (2006-2010)
Three-Axle Truck	0	0.0%	1	0.1%	2	0.1%	SWITRS (2006-2010)
Fire Truck (not rescue)	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Highway Construction Equipment	0	0.0%	0	0.0%	0	0.0%	SWITRS (2006-2010)
CHP, Police, or Sheriff Car (emergency service or not)	0	0.0%	2	0.1%	5	0.1%	SWITRS (2006-2010)
Two-Axle Tow Truck	0	0.0%	1	0.1%	1	0.0%	SWITRS (2006-2010)
Pedestrian (includes motorized wheelchair)	4	11.4%	600	32.6%	1099	29.7%	SWITRS (2006-2010)
Two-Axle Truck - Hazardous Waste	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Miscellaneous Motorized Vehicle (Golf Cart)	0	0.0%	0	0.0%	1	0.0%	SWITRS (2006-2010)
Not Stated or Unknown (Hit and Run)	1	2.9%	12	0.7%	20	0.5%	SWITRS (2006-2010)
Not Stated or blank	17	48.6%	541	29.4%	1074	29.0%	SWITRS (2006-2010)
<b>Total</b>	<b>35</b>	<b>100.0%</b>	<b>1841</b>	<b>100.0%</b>	<b>3702</b>	<b>100.0%</b>	<b>SWITRS (2006-2010)</b>

**Driver Movement Preceding Collision**

Stopped	0	0.0%	29	1.6%	83	2.2%	SWITRS (2006-2010)
Proceeding Straight	9	25.7%	628	34.1%	1371	37.0%	SWITRS (2006-2010)
Ran Off Road	0	0.0%	3	0.2%	7	0.2%	SWITRS (2006-2010)
Making Right Turn	2	5.7%	180	9.8%	317	8.6%	SWITRS (2006-2010)
Making Left Turn	16	45.7%	494	26.8%	907	24.5%	SWITRS (2006-2010)
Making U-Turn	0	0.0%	1	0.1%	8	0.2%	SWITRS (2006-2010)
Backing	0	0.0%	71	3.9%	175	4.7%	SWITRS (2006-2010)
Slowing/Stopping	1	2.9%	16	0.9%	22	0.6%	SWITRS (2006-2010)
Passing Other Vehicle	1	2.9%	2	0.1%	13	0.4%	SWITRS (2006-2010)
Changing Lanes	0	0.0%	7	0.4%	14	0.4%	SWITRS (2006-2010)
Parking Maneuver	1	2.9%	8	0.4%	19	0.5%	SWITRS (2006-2010)
Entering Traffic	0	0.0%	84	4.6%	149	4.0%	SWITRS (2006-2010)
Other Unsafe Turning	0	0.0%	3	0.2%	8	0.2%	SWITRS (2006-2010)
Crossed Into Opposing Lane	0	0.0%	4	0.2%	5	0.1%	SWITRS (2006-2010)
Parked	0	0.0%	7	0.4%	14	0.4%	SWITRS (2006-2010)
Merging	0	0.0%	1	0.1%	3	0.1%	SWITRS (2006-2010)
Traveling Wrong Way	0	0.0%	5	0.3%	7	0.2%	SWITRS (2006-2010)
Other	1	2.9%	149	8.1%	287	7.8%	SWITRS (2006-2010)
Not Stated	4	11.4%	149	8.1%	293	7.9%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Hit and Run</b>							
Felony	3	8.6%	256	13.9%	471	12.7%	SWITRS (2006-2010)
Misdemeanor	0	0.0%	21	1.1%	40	1.1%	SWITRS (2006-2010)
Not Hit and Run	32	91.4%	1564	85.0%	3191	86.2%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Collision Involved Motorcycle</b>							
Yes	1	2.9%	35	1.9%	53	1.4%	SWITRS (2006-2010)
No	34	97.1%	1806	98.1%	3649	98.6%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)
<b>Collision Involved a Party Drinking</b>							
Yes	5	14.3%	217	11.8%	348	9.4%	SWITRS (2006-2010)
No	30	85.7%	1624	88.2%	3354	90.6%	SWITRS (2006-2010)
Total	35	100.0%	1841	100.0%	3702	100.0%	SWITRS (2006-2010)

### Footnotes

1. Vehicle speed based on small sample of street segments (n=606 of 15,444, total)
2. Excludes proportion of area that are streets and sidewalks
3. Severe and Fatal Injuries are multiplied by three for a higher severity weight
4. Injuries that occurred more than 20 feet away from an intersection are considered mid-block (SFMTA)

### Acronyms

CDABC	California Department of Alcoholic Beverage Control
CHP	California Highway Patrol
LEHD	Longitudinal Employer and Household Dynamics Program (Census)
OSHPD	Office of Statewide Health Planning and Development
SAIC	Science Applications International Corporation
SFCTA	San Francisco County Transportation Authority
SFDPH	San Francisco Department of Public Health
SFDPW	San Francisco Department of Public Works
SFDTIS	San Francisco Department of Telecommunications and Information Services
SFMTA	San Francisco Municipal Transportation Agency
SFP	San Francisco Planning Department
SFPD	San Francisco Police Department
SFPUC	San Francisco Public Utilities Commission
SWITRS	Statewide Integrated Traffic Records System

# Appendix B: Pedestrian Environmental Quality Index

## Introduction

The San Francisco Department of Public Health developed the Pedestrian Environmental Quality Index (PEQI) as a tool to prioritize improvements in pedestrian infrastructure during the planning process. The PEQI draws on published research and work from numerous cities to assess how the physical environment impacts whether people walk 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 31 indicators that reflect the quality of the built environment for pedestrians and comprise the survey used for data collection. SFDPH has aggregated these indicators to create a weighted summary index, which can be reported as an overall index. Table 1 indicates how the indicators fit into broader domains of pedestrian comfort and security.

Table 1: PEQI 2.0 Indicators by Domain				
Intersection Safety	Traffic	Street Design	Land Use	Perceived Safety
<ul style="list-style-type: none"> <li>▪ Crosswalks</li> <li>▪ High visibility crosswalk</li> <li>▪ Intersection lighting</li> <li>▪ Traffic control</li> <li>▪ Pedestrian signal</li> <li>▪ Countdown signal</li> <li>▪ Wait time</li> <li>▪ Crossing speed</li> <li>▪ Pedestrian refuge island</li> <li>▪ Curb ramps</li> <li>▪ Intersection traffic calming features</li> <li>▪ Pedestrian engineering countermeasures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number of vehicle lanes</li> <li>▪ Posted speed limit</li> <li>▪ Traffic volume</li> <li>▪ Street traffic calming features</li> </ul>	<ul style="list-style-type: none"> <li>▪ Width of sidewalk</li> <li>▪ Width of throughway</li> <li>▪ Large sidewalk obstructions</li> <li>▪ Sidewalk impediments</li> <li>▪ Trees</li> <li>▪ Driveway cuts</li> <li>▪ Presence of a buffer</li> <li>▪ Planters/gardens</li> <li>▪ Public seating</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public art/historic sites</li> <li>▪ Retail use and public places</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pedestrian scale lighting</li> <li>▪ Illegal graffiti</li> <li>▪ Litter</li> <li>▪ Empty spaces</li> </ul>

## Background and Development

In San Francisco and in many cities nationwide, there is a dearth of data on the existence and quality of street and sidewalk infrastructure for pedestrians. SFDPH developed the PEQI as a practical method to evaluate existing barriers to walking and prioritize future investments for increasing pedestrian activity and safety in land use and urban planning processes. PEQI version 2.0 is currently undergoing beta testing and is available for evaluation and download at [www.sfphe.org](http://www.sfphe.org).

## **Collaborations/Constituencies Involved**

SFDPH consulted national experts including city planners, independent planning consultants, and pedestrian advocates to develop the indicator weights and scores for each indicator category, based on survey responses. The PEQI has been utilized by numerous agencies and community groups in San Francisco and adapted for use in other cities nationwide.

### Agencies/Organizations Using Tool:

**Locales/Agencies:** San Francisco Department of Public Health (SFDPH), CA; The Denver Housing Authority, CO; City of East Palo Alto, CA; Wasco County Planning and Development, OR; City of Richmond, CA; Palms, CA; Carson and Boyle Heights, CA **Community Partners:** PODER (People Organizing to Demand Environmental & Economic Rights), Trust for Public Land, Chinatown Community Development Center, San Francisco Bicycle Coalition: **Consulting Groups:** Human Impact Partners, Mithun, RAND Corporation: **Academic Institutions:** UC Berkeley, School of Public Health, UCLA, Center for Occupational and Environmental Health

### Applications, processes, or projects that have used this tool:

- Pittsburg Railroad Ave. Specific Plan Health Impact Assessment. June 2008
- Treasure Island Community Transportation Plan (SFDPH and San Francisco Bicycle Coalition 2009).
- Pathways to Community Health: Evaluating the Healthfulness of Affordable Housing. Opportunity Sites along the San Pablo Avenue Corridor Using Health Impact Assessment. August 2009
- Use of the Healthy Development Measurement Tool (HDMT) in Denver Cross-Sector Partnerships for Development and Public Health South Lincoln Homes, Denver CO. December 2009.
- Pedestrian Environmental Quality and Safety in the Eastern Neighborhoods: Analysis and Recommendations (SFDPH 2010).
- Walkability and Pedestrian Safety in Boyle Heights (UCLA 2010)
- Park Renovation Impact on Physical Activity among Youth (Trust for Public Land, RAND Corporation and SFDPH 2011).
- Pedestrian Safety Needs Assessment of San Francisco's Chinatown (Chinatown Community Development Center 2011)
- Health Impact Assessment of Road Pricing Policies in San Francisco (SFDPH 2011)
- Green Connections, to improve access to urban green spaces in San Francisco (SFDPH, SF Planning 2012)

As SFDPH continues to work on walking and pedestrian safety conditions in San Francisco, we have been improving and evaluating opportunities to use the PEQI as a tool to prioritize pedestrian realm improvements in plans and projects. SFDPH hopes to further engage planners, City agencies and community organizations to use the PEQI for transportation planning and as an evaluation tool on future development and transportation projects.

## **Relevance to Health and Health Equity**

Environments that support walking, both as an alternative to driving and as a leisure activity, have multiple potentially positive health impacts. Environments that encourage walking while discouraging driving reduce traffic-related noise and air pollution – associated with cardiovascular and respiratory diseases, premature death, and lung function changes especially in children and people with lung diseases such as asthma. Quality, safe pedestrian environments also support a decreased risk of motor vehicle collisions and an increase in physical activity and social cohesion with benefits including the prevention of obesity, diabetes, and heart disease as well as stress reduction and mental health improvements that promote individual and community health. Given these implications, San Francisco residents should have equal access to quality, safe pedestrian environments throughout the city.

## **Applications and Policy Targets**

Data can be collected by using an audit form designed for use by a trained layperson based on visual assessments of intersections and streets. Once collected, the data is entered into a customized database and automatically scored. A PEQI score, reflecting the quality of the pedestrian environment on a 0 to 100 scale, is created for each street segment and intersection in a defined area. An accompanying manual describes how each indicator should be evaluated, including tips for resolving ambiguous situations, and describes how to enter the data into the database and how to map the data using ESRI ArcGIS software.

The PEQI survey is designed to be simple to use in the field, requiring a trained observer to visually assess street segment and intersection features (Table 1) and check the corresponding box on the survey form. Once collected, data is entered into a user-friendly Microsoft Access database that automatically scores the data. A PEQI score, reflecting the quality of the physical pedestrian environment, is created for each street segment and intersection in a defined area. An example of the mapped PEQI street segment scores is included below. SFDPH is developing a field manual with instructions on how to conduct the survey, use the PEQI Microsoft Access database, and geocode and display PEQI results. To learn more about the PEQI, visit [www.sfphes.org](http://www.sfphes.org) to read the manual and download the audit form and data entry database.

## **Contact**

If you have any questions on using the PEQI, contact Lindsey Realmuto, MPH, Health Program Planner.

## Appendix C:

### Citywide Pedestrian Safety Task Force Data Subcommittee<sup>i</sup> Recommendations for Nine High-Injury Corridors: *Informed by High-Injury Corridor Case Studies and Comprehensive Analysis – January 2012*

The following table of recommendations is organized by five categories – recommendations for: 1) Engineering: Shorter-term Measures; 2) Engineering: Longer-term Measures; 3) Enforcement; 4) Data; and 5) Education/Outreach.

Please note that this is not an exhaustive list of potential improvements. The Data Subcommittee recommendations are interventions for consideration intended to address pedestrian safety issues common across the corridors, including the need to:

- Add corridor traffic calming strategies to reduce speeds
- Facilitate safe crossing for seniors and people with disabilities
- Increase pedestrian visibility/vehicle yielding during vehicle turn movements
- Decrease long crossing distances
- Improve pedestrian scale aesthetics, comfort and visibility

Further, the Data Subcommittee developed the following list of recommendations in the second half of 2011 during the same period that the SFMTA was developing its new Pedestrian Safety Toolkit with “state of the practice” engineering countermeasures – including those that could be applied on high-traffic arterial corridors. It is likely that a number of those additional measures would be appropriate to consider along the corridors as well.

Recommendations	Geary	Market	Mission	San Bruno	Silver	Sixth	Stockton	Van Ness	(S.) Van Ness
<b>Engineering: Shorter-term measures (require less intensive study, lower costs)</b>									
Crosswalks, High Visibility (add/improve)	•	•	•	•	•	•	•	•	•
Crosswalk Scramble: Increase Visibility							•		
Lane Narrowing (lower cost if coordinated with repaving)	•	•		•	•	•	•	•	•
Leading Pedestrian Intervals	•	•	•	•	•		•	•	•
Limit Lines/Advanced Stop Lines (increase/add where feasible)	•	•	•	•	•	•	•	•	•
Parking Restrictions Near	•		•	•	•		•	•	•

Intersections									
Rumble Strips	•	•	•	•	•	•	•	•	•
Signal Timing for Pedestrian Crossing (Increase)		•			•	•		•	•
Way finding for private vehicles (add/improve)		•				•	•		
<b>Engineering: Longer-term measures (require more intensive study, higher costs)</b>									
Bulbouts	•	•	•	•	•	•	•	•	•
Curb Ramps (add/improve)	•	•	•	•	•	•	•	•	•
Flashing Beacons						•			
Lane Reduction		•				•			
Lighting at intersections and at pedestrian scale (improve)	•	•	•		•	•	•	•	•
Pedestrian Refuges in Crosswalks (add/improve: Raised Medians or Curb Extensions)	•	•	•	•	•	•	•	•	•
Pedestrian Scrambles		•					•	•	•
Private Vehicle Restrictions		•					•		
Protected Turn Phases	•	•	•	•	•		•	•	•
Public Seating (add/improve)						•			
Reduce speeds and traffic volumes near boarding islands		•							
Synchronize Pedestrian Signal Timing to Reduce Wait Times		•			•	•		•	•
Traffic Signal Size Increase		•							
Transit boarding island redesign and relocation brainstorm		•							
Turn Restrictions	•	•	•	•	•		•		•
Widen Sidewalks			•			•	•		
<b>Enforcement</b>									

Automated Speed Enforcement	•	•	•	•	•	•	•	•	•
Enforcement Targeting Red Light Running		•				•			
Enforcement Targeting Right-of-Way	•	•	•	•	•	•	•	•	•
Enforcement Targeting Vehicle Speed	•	•	•	•	•	•	•	•	•
Speed Radar Signs	•	•	•	•	•	•	•	•	•
Data									
Comprehensive ongoing surveillance	•	•	•	•	•	•	•	•	•
Conduct evaluation of corridor improvements	•	•	•	•	•	•	•	•	•
Education/Outreach									
Pedestrian Safety media targeting out-of-town drivers		•				•	•	•	•
Pedestrian Safety campaign coordinated with local schools			•	•	•		•		
Pedestrian Safety campaigns serving residents, seniors, health centers, and non-English speaking people	•	•	•	•	•	•	•	•	•

<sup>i</sup> The Data Subcommittee, chaired by the San Francisco Department of Public Health (SFPDH), was a subcommittee of the Citywide Pedestrian Safety Task Force and met seven times during the course of 2011. Participants and the agencies or community organizations they represented were as follows:

- John Anton, San Francisco Police Department
- Sarah Bergquist, San Francisco Department of Public Health
- Rajiv Bhatia, San Francisco Department of Public Health
- Howard Bloomberg, Walk SF
- Stephanie Cowles, San Francisco Department of Public Health
- Neil Hrushowy, San Francisco Planning Department
- Jesse Koehler, San Francisco County Transportation Agency

- 
- Dahianna Lopez, San Francisco Injury Center
  - John Alex Lowell, Pedestrian Safety Advisory Committee
  - Frank Markowitz, San Francisco Municipal Transportation Agency
  - Susan Mizner, San Francisco Mayor's Office on Disability
  - Luis Montoya, San Francisco Municipal Transportation Agency
  - Patti O'Connor, San Francisco General Hospital Trauma Center
  - Antonio Piccagli, San Francisco Municipal Transportation Agency
  - Bob Planthold, Senior Action Network/California WALKS
  - Bridget Smith, San Francisco Municipal Transportation Agency
  - Laura Stonehill, San Francisco Municipal Transportation Agency
  - Ana Validzic, San Francisco Department of Public Health
  - Megan Wier, San Francisco Department of Public Health, ***Subcommittee Chair***
  - Andy Zanoloff, San Francisco Fire Department – Emergency Medical Services

For additional information regarding Data Subcommittee activities and products please contact Megan Wier at [megan.wier@sfdph.org](mailto:megan.wier@sfdph.org).

## Appendix D: Pedestrian Safety Recommendations

Pedestrian Safety Factors	Existing Conditions	Relationship to Pedestrian Safety	Source of Recommendation
<i>(See acronym chart at the end of the table)</i>			
<b>Traffic</b>			
<b>Traffic volume</b>	Moderate traffic volumes.	Lower traffic volumes are associated with lower risk of pedestrian injury.	na
<b>Vehicle speed (85th percentile)</b>	<i>Unknown – not assessed</i>	Vehicle speed is a principal factor determining both the frequency and lethality of motor vehicle collisions.	na
<b>Street Design</b>			
<b>Chicane</b>	None	Midblock bulb-outs or plantings can create an artificial “weave” in an otherwise straight, wide street in order to slow traffic.	
<b>Median</b>	None	Medians with tree plantings in them have been shown to calm traffic on high volume roadways. At intersections the median can be extended across crosswalks to provide pedestrian refuge islands.	SFCTA
<b>Parking buffer</b>	Exists along most street segments.	The lateral separation between pedestrians and motor vehicles which supports pedestrian safety and increases pedestrian comfort.	
<b>Parking restrictions near intersections</b>	None	Parking restrictions near intersections can increase pedestrian visibility by drivers and improve safety.	PSTF

<b>Road diet / remove travel lanes</b>	None	Road diets convert undivided four lane roadways into three lanes, one travel lane in each direction and one center left-turn lane. Road diets calm traffic and provide space for other amenities such as pedestrian refuge islands and bike lanes.	SFCTA
<b>Rumble strips</b>	None	Rumble strips recommended for piloting traffic calming measures on streets with heavy traffic, particularly in areas with fast-moving vehicle approaches (e.g., near freeway on and off ramps).	PSTF
<b>Speed Radar Signs</b>	None	Speed radar signs have proven effective in reducing speeds and increasing compliance with speed limits.	PSTF
<b>Traffic lane narrowing</b>	Mixed flow traffic lanes of 10' - 11.5'	Narrower traffic lanes may slow vehicle traffic and reduces the crossing distance for pedestrians.	PSTF, NYCDOT
<b>Intersection Safety Conditions</b>			
<b>Accessible Pedestrian Signals</b>	None	Accessible pedestrian signals are a pedestrian pushbutton that communicates when to cross the street in a nonvisual manner, such as audible tones, speech messages, and vibrating surfaces; they are particularly helpful for blind pedestrians and can help all pedestrians know when to cross.	
<b>Advanced Stop Lines/Limit lines</b>	Excelsior and Mission only	Advanced stop lines or limit lines provide pedestrians with a buffer from idling vehicles waiting for the light to change and help prevent drivers from encroaching in the crosswalk.	SFCTA, PSTF, NYCDOT
<b>Bulb outs</b>	None	Bulb outs reduce crossing distances, help slower moving pedestrians finish crossing,	BSP, SFCTA, WF, PSTF, NYCDOT

		increase pedestrian visibility, provide additional space for pedestrians and curb ramps, and calm traffic by visually and physically narrowing the roadway.	
<b>Crossing distance</b>	60 feet across Mission Street, ~ 30 feet across residential streets.	Reduced crossing distances benefit pedestrian safety by reducing exposure to vehicle traffic.	PSTF, NYCDOT
<b>Crossing time</b>	Largely in compliance with City and National standards	Shorter signal crosswalk times can be a movement barrier for pedestrians, and cause hazardous conditions if pedestrians are still crossing when the signals changes.	PSTF
<b>Crosswalks</b>	Present at signalized intersections, but in many cases faded and worn. High visibility crosswalks only at Lisbon Street and Avalon Ave.	Crosswalks - especially those with high visibility - indicate pedestrian right of way on the roadway and alert vehicles to the potential presence of pedestrians.	BSP, SFCTA, WF, PSTF, NYCDOT
<b>Curb ramps</b>	Present at signalized intersections, one or more missing at most others.	Curb ramps increase access and safety for pedestrians with disabilities as well as pedestrians pushing children in strollers.	PSTF, NYCDOT
<b>Flashing Beacons</b>	None	Alerts drivers to slow down and look for pedestrians at crosswalks. The most common type is activated by pedestrians wanting to cross using a push button at uncontrolled intersections; however they can also be installed at intersection approach alerting drivers they should proceed with caution.	WF

<b>Leading Pedestrian Intervals</b>	None	Leading pedestrian intervals release pedestrians three to five seconds before any conflicting autos receive the green. They reduce conflicts with turning vehicles by allowing pedestrians to establish their right-of-way, and appear to reduce the incidence of pedestrians yielding to turning vehicles - making it easier for pedestrians to cross the street.	PTSF, WF, NYCDOT
<b>Left turn pockets</b>	None	Left turning movements present a particular safety hazard to pedestrians; removing opportunities for left turns reduces pedestrian conflicts.	PSTF
<b>Lighting, intersection and pedestrian scale</b>	Street and pedestrian scale lighting is currently lacking.	Lighting increases pedestrian visibility to vehicles and can also impact perceived comfort; lighting is a particularly important issue given the higher proportion of collisions occurring at night along the corridor.	BSP, SFCTA, PTSF, WF
<b>Pedestrian refuge islands, including Nose Cones</b>	None	Pedestrian refuge islands provide a refuge for pedestrians who were not able to cross the street in one signal cycle; nose cones provide a physical barrier between pedestrians and traffic.	PSTF, NYCDOT
<b>Pedestrian countdown signals at signalized intersections</b>	Signalized intersections have countdown signals.	An SFMTA study found countdown timers, which inform the pedestrian of how much time they have left to cross the street before the light turns red, were associated with an approximately 20% decrease in pedestrian injury collisions at signalized intersections.	PSTF, WF

**Traffic calming circle / traffic mini circle**

None

Traffic calming circles and mini-circle impede direct lines of sight, inducing drivers to slow down, and reduce the number of conflict points in intersections. Traffic calming circles are often large concrete circles with plantings in them, while mini circles are simpler and smaller.

**Sidewalk Conditions**

<b>Public seating</b>	Minimal public seating on the corridor	The presence of public seating can support walking, particularly for seniors and people with disabilities.	BSP
<b>Sidewalk Width</b>	Wide – 12 feet or more in many places.	Sidewalk width is a primary factor in determining the level of safety and comfort for pedestrians.	BSP
<b>Trees/Planters</b>	Sporadic/few	Trees and planters improve the pedestrian experience, can be a buffer between pedestrians and traffic, and can calm traffic.	SFCTA, BSP

**Acronym Chart**

BSP – *Better Streets Plan*, <http://www.sf-planning.org/ftp/BetterStreets/index.htm>

NYCDOT – *Safe Streets for Seniors Campaign*, <http://www.nyc.gov/html/dot/html/sidewalks/safeseniors.shtml>

PSTF – *Pedestrian Safety Task Force Data Subcommittee Recommendations for High-Injury Corridors, Appendix A.*

SFCTA - *Mission-Geneva Neighborhood Transportation Plan*, <http://www.mtc.ca.gov/planning/cbtp/Mission-Geneva.pdf>

WF – *Walk First Final Report*, [http://www.sf-planning.org/ftp/files/Citywide/WalkFirst/WalkFirst\\_Final\\_Document\\_102711.pdf](http://www.sf-planning.org/ftp/files/Citywide/WalkFirst/WalkFirst_Final_Document_102711.pdf)