

UPPER MARKET STREET SAFETY PROJECT: Approach to Project

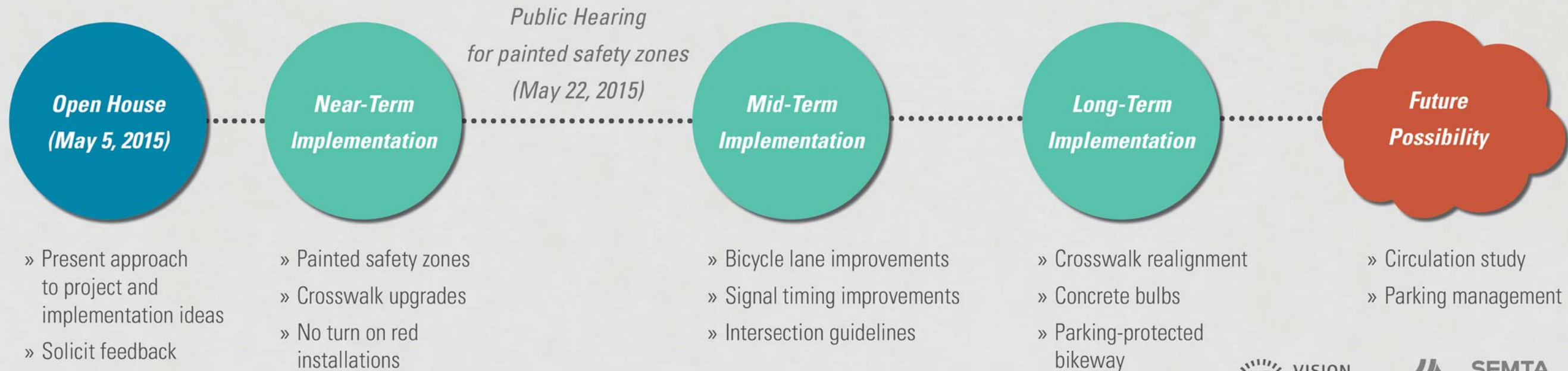
Project Goal

The goal of the Upper Market Safety Project is to increase safety and comfort of Upper Market Street for everyone, including people on foot, on bike, in a vehicle, and on public transit. We plan to achieve this goal by:

- » Reducing the potential for conflict
- » Designing the corridor to be more intuitive and consistent
- » Addressing primary collision patterns
- » Focusing on safety
- » Implementing relatively quickly
- » Moving towards longer-term solutions

Implementation

We're planning on a phased approach so that we can start to implement safety measures over time, from low-hanging fruit involving just paint to construction projects.



Key Considerations

Community Vision, Recommendations, and Development Guidelines

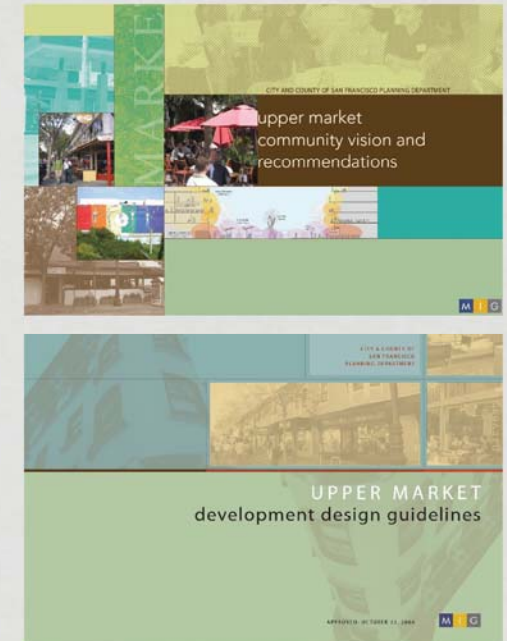
This project should reflect the values of the surrounding community. We've heard that the corridor feels very uncomfortable, attested by the many phone calls and emails we receive about this corridor and the desire for the SFMTA to address these issues.

Vision Zero San Francisco

The City and County of San Francisco adopted Vision Zero San Francisco as a policy in 2014, committing an effort to prioritize street safety and eliminate traffic deaths in San Francisco by 2024. The Upper Market Street Safety Project is working towards this overarching citywide initiative.

Data and Actual Collision Patterns

By closely examining actual collision patterns and other key information, we can form engineering and policy solutions that are applicable to the project area.



UPPER MARKET STREET SAFETY PROJECT: Vision Zero

What is Vision Zero?

The City and County of San Francisco adopted Vision Zero San Francisco as a policy in 2014, committing an effort to **prioritize street safety and eliminate traffic deaths in San Francisco by 2024**. The Upper Market Street Safety Project is working towards this overarching citywide initiative.

Core Principles

Achieving zero fatalities is a shared responsibility among everyone. Below are the five core principles that will guide us as we work together:

1. Traffic deaths are preventable and unacceptable.
2. Safety is our highest priority.
3. Human error is inevitable and unpredictable. We should design the transportation system to anticipate error so the consequence is not severe injury or death.
4. Safe human behaviors, education about enforcement of safety rules, and vehicle technologies are essential contributors to a safe system.
5. People are inherently vulnerable and speed is a fundamental predictor of crash survival. The transportation system should be designed for speeds that protect life.

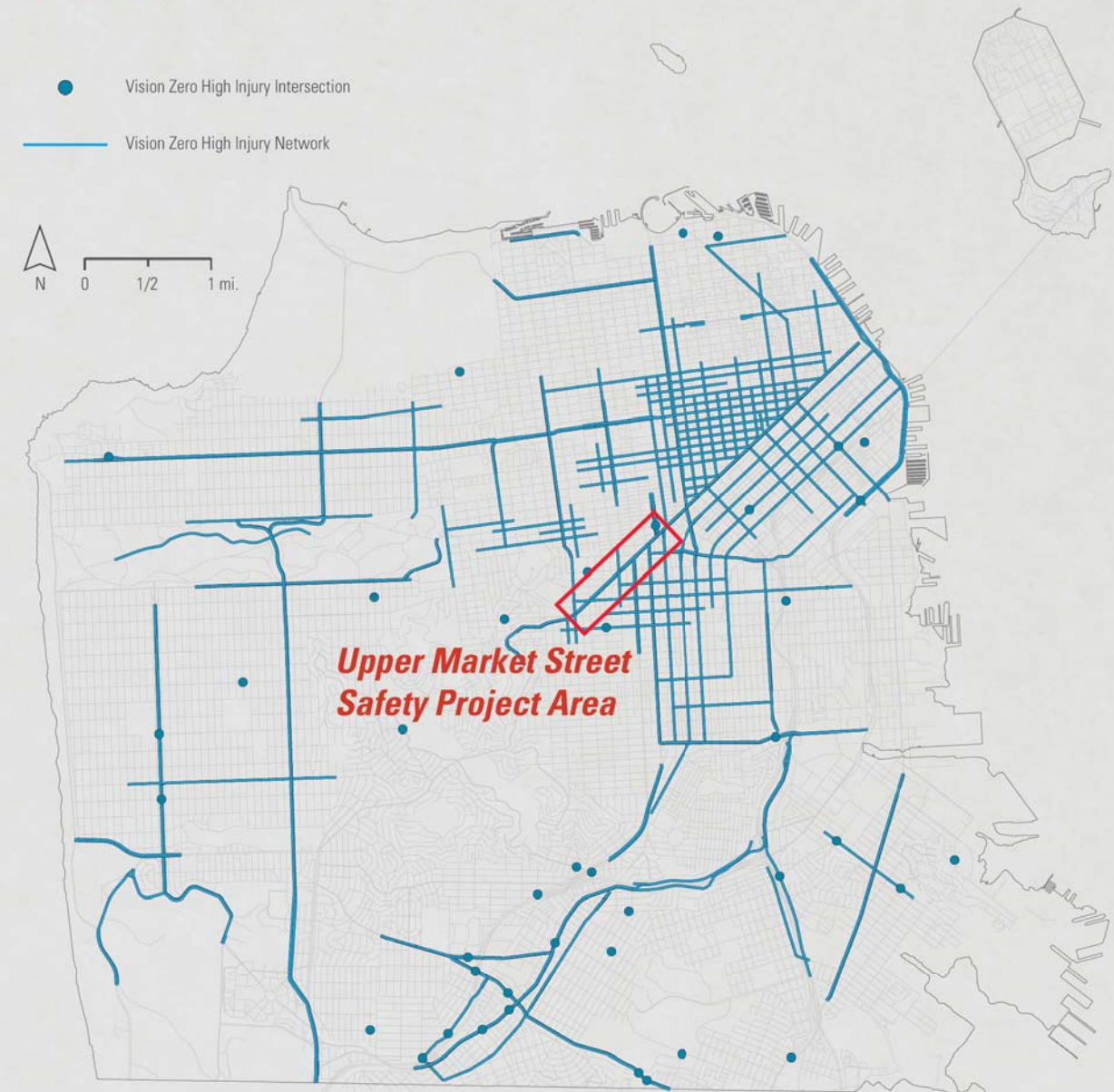
Two-Year Action Strategy

The Vision Zero Two-Year Action Strategy outlines specific projects and policy changes the City plans to pursue in the next two years, which fall in the following categories:



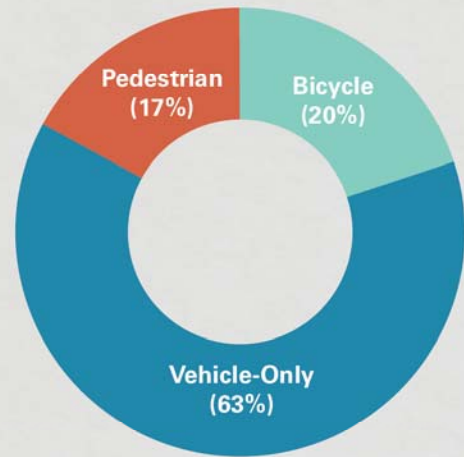
Vision Zero High Injury Network

More than 70 percent of severe and fatal traffic injuries occur on just 12 percent of San Francisco streets. The Vision Zero High Injury Network is comprised of 125 miles of roadway.



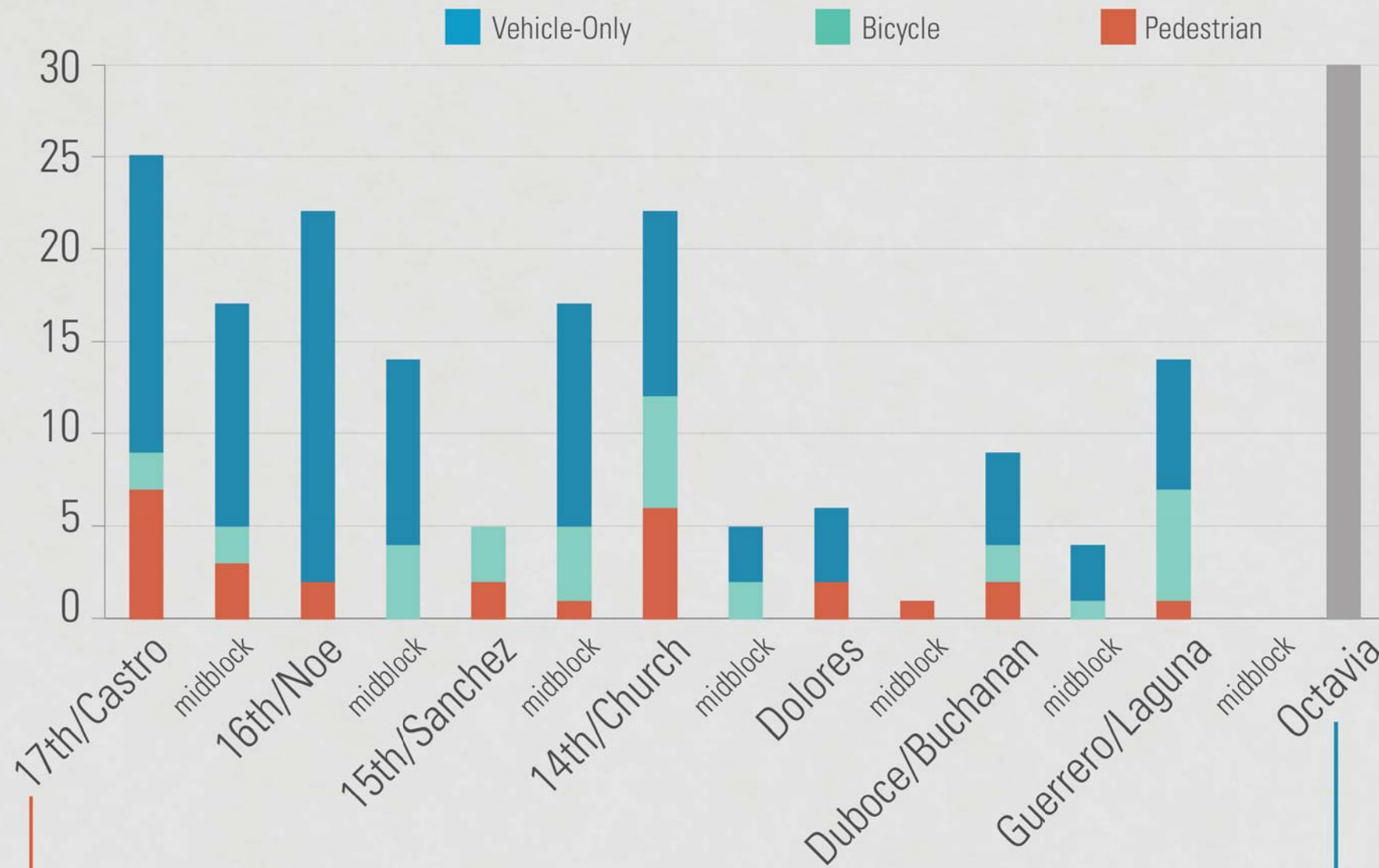
For more information, please visit: www.visionzerosf.com

UPPER MARKET STREET SAFETY PROJECT: Collision History



Collisions By Mode

161 collisions were reported along Market St from Castro up to Octavia between 2007 and 2012, resulting in 165 injured persons and one pedestrian fatality. The breakdown of these collisions by mode is shown at left, while the breakdown by mode and location is illustrated below.



17th/Castro collision history does not reflect recent improvements

Collisions at Market/Octavia are being addressed in the Octavia Boulevard Enhancement Project

41%

of all bicycle collisions in the corridor occurred midblock. Of these, every one was attributable to drivers violating the bicycle right-of-way (e.g., vehicle in bike lane or "dooring" the person bicycling).

98%

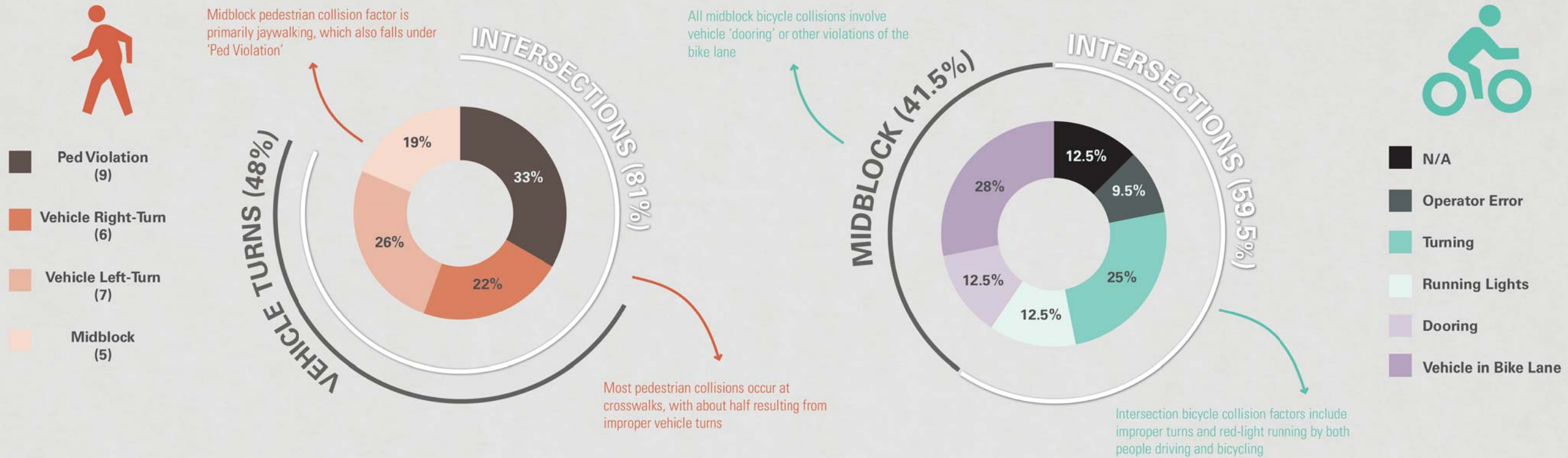
of pedestrian and bicycle collisions (all but one) resulted in injury or death. By comparison, about one-third of vehicle collisions resulted in property damage only.

46%

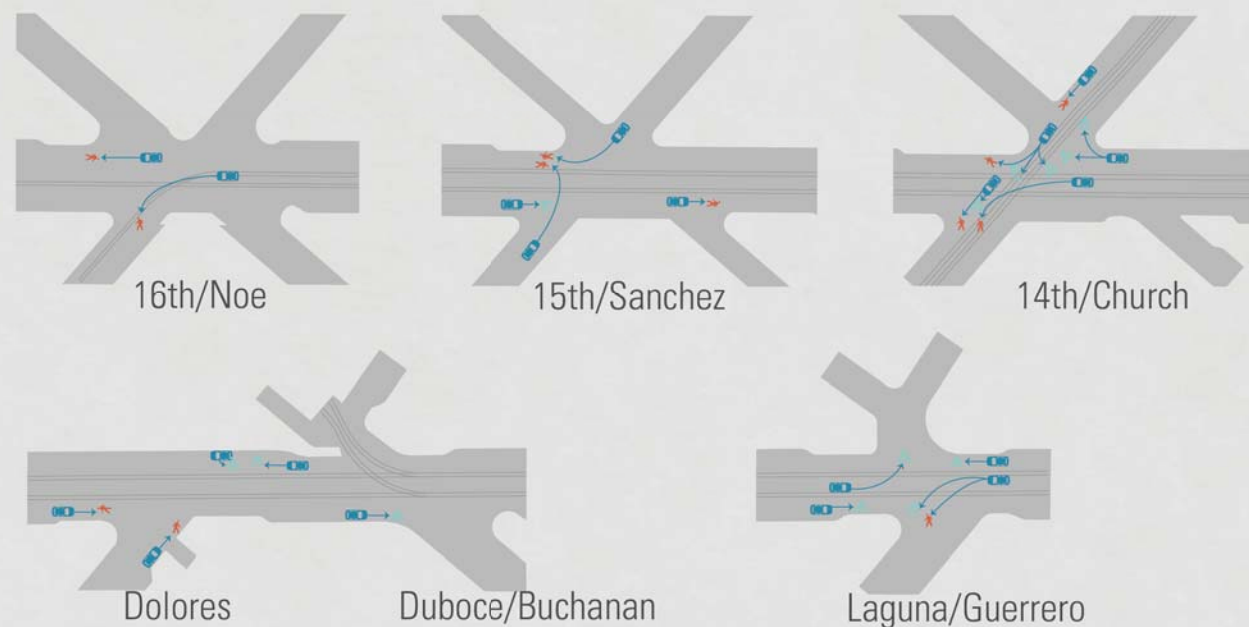
of non-DUI collisions cited primary factors related to turning movement, dooring, and general confusion with signals and lane-positioning.

UPPER MARKET STREET SAFETY PROJECT: Collision History

Primary collision factors are summarized below for all pedestrian and bicycle crashes with an available police report.



Intersection collision profiles are shown below for all pedestrian and bicycle crashes with an available police report.



General Takeaways

Safety improvements should primarily focus on the following:

- » Increase separation, physical and visual, between pedestrians, bicyclists and drivers
- » Reduce potential conflict points, especially with attention to turning movement
- » Provide clear instruction along the corridor for travel with consistent allowed and prohibited movements

UPPER MARKET STREET SAFETY PROJECT: Project Area



Legend

- Painted Safety Zone*
- Crosswalk Upgrade
- Bikeway Enhancement
- Protected Bikeway
- No Right Turn on Red
- Signal Timing Improvement
- Crosswalk Realignment

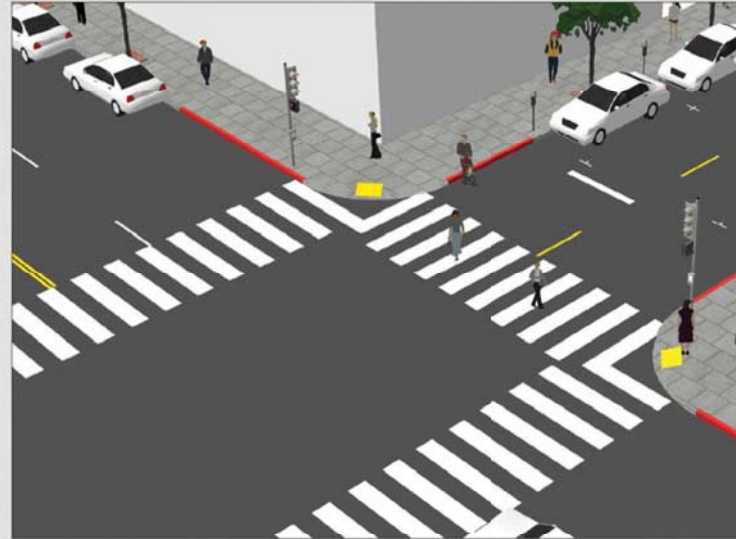
*painted safety zones may be converted to concrete bulbouts



UPPER MARKET STREET SAFETY PROJECT: Near-Term Improvements

Crosswalk Upgrades

Existing marked crosswalks will be replaced with high-visibility crosswalks, the current citywide standard. New advanced limit lines will maintain a safe distance between drivers queuing at the red light and pedestrians crossing the road. Together, these new treatments increase drivers' awareness of pedestrians crossing the street.



Planned Locations:

- Market St / Guerrero St
- Market St / 14th St / Church St
- Market St / 15th St / Sanchez St
- Market St / 16th St / Noe St

No Turns on Red

Public Hearing 5/22/15

Traffic movements at large and complex intersections, such as the ones on Market Street, can be complicated. Limiting right turns during a red light simplifies movements at intersections and encourages motorists to keep clear of crosswalk space.

Planned Locations:

- Market St / Octavia Blvd
- Market St / Guerrero St
- Market St / Duboce Ave
- Market St / 14th St / Church St
- Market St / 15th St / Sanchez St
- Market St / 16th St / Noe St
- Market St / 17th St / Castro St

Painted Safety Zones

Public Hearing 5/22/15

A pedestrian safety zone is a painted buffered curb-side space between the sidewalk and moving vehicles. Their footprint resembles a bulb out, helping to emphasize that the space should not be treated as part of the roadway. As a low-cost, easily-implemented treatment, painted safety zones enhance pedestrian safety by:

- » Improving line of sight between pedestrians and motorists
- » Providing motorists with visual cues that encourage careful maneuvering near pedestrians

Painted safety zones do not extend the sidewalk, as pedestrians still wait to start their crossing at the existing curb line. However, their future conversion to concrete bulbouts will provide all the benefits of a wider sidewalk.



Design Features:

- » Parking prohibited adjacent to crosswalks
- » Colored pavement and safe-hit posts
- » Guideline to encourage wider, slower turns

Planned Locations:

- Market St / Guerrero St
- Market St / Duboce Ave
- Market St / 14th St / Church St
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UPPER MARKET STREET SAFETY PROJECT: Mid-Term Improvements

Lane Improvements

Planned Locations: Entire length of project between Castro and Octavia



Intersection Guidelines

Guidelines proceeding through an intersection help guide motorists through and to the other side of the intersection. Consistent roadway guidance indicate where drivers and cyclists should be. Especially for large and complex intersections, such as the ones on Market Street, guidelines keep road users on a more predictive path of travel.



Bicycle Boxes

Bicycle boxes improve visibility of bicyclists to motorists waiting behind, provide a "head start" as lights turn green, reduce turning conflicts with other traffic, moves motorists and bicyclists at similar speed, and reduce bicyclist and motorist encroachment into pedestrian crosswalks.



Transition Areas

Transition areas approaching intersections have some of the most potential for improvement. In addition to dashed green pavement and bike boxes, treatments like two-stage left-turn boxes, through bike lanes, and daylighting, can increase visibility while also providing comfort through clearer direction for bicyclists and motorists.



Painted Buffers

Bicycle lanes paired with a painted buffer offer benefits for both safety and comfort. They provide greater separation between bicyclists and motor vehicle traffic, more room for bicyclists to pass other bicyclists without maneuvering into traffic, as well as space for bicyclists to ride outside of the door zone when next to parking lanes.



Green Pavement

Green lanes increase separation between bicyclists and motorists by providing clear visual designation of space. They emphasize proper lane positioning and discourage motorist encroachment. The use of colored pavement is consistent with traditional traffic striping where solid markings indicate areas where lane changes are prohibited and dashed areas advise caution where travel modes can mingle.

Signal Timing Improvements

Planned Locations: Entire length of project between Castro and Octavia



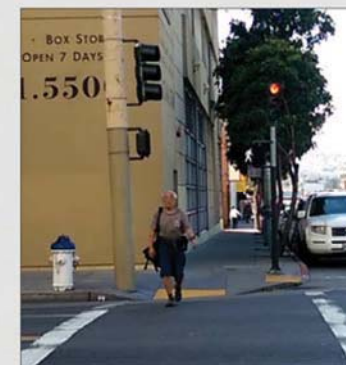
Increase Walk & Green Time

Traffic modeling will identify which intersections experience the greatest amount of congestion, and at those locations, walk & green times allotted to each direction of traffic will increase to provide extra time for pedestrians to cross the roadway and to reduce wait time for queuing drivers.



Increase Red Clearance Interval

Increasing the amount of time between signal phases helps ensure that vehicles entering an intersection during a yellow change interval clears the intersection before conflicting traffic movement begins.

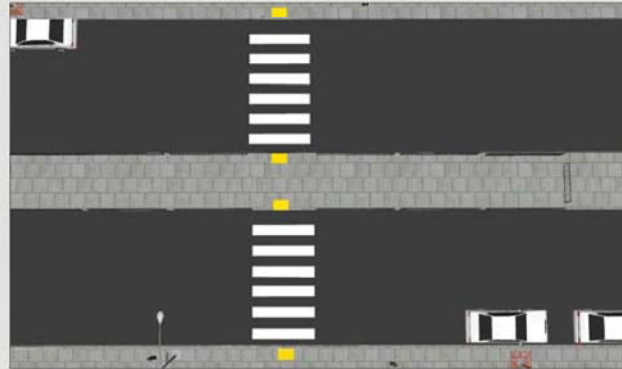
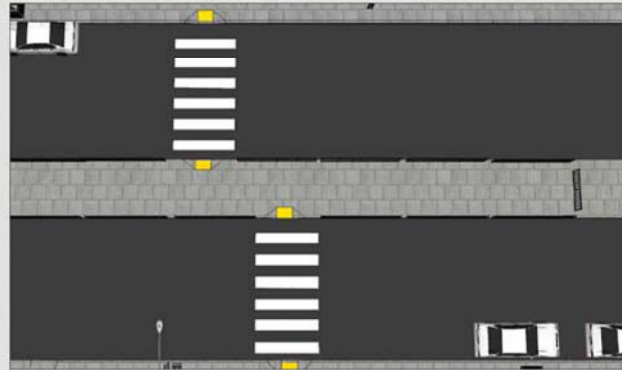


Leading Pedestrian Intervals

Leading pedestrian intervals provide pedestrians a few seconds head start on crossing a signalized intersection before vehicles start moving in the same direction of travel. This helps reinforce pedestrian right-of-way and enhances visibility of pedestrians for turning vehicles.

UPPER MARKET STREET SAFETY PROJECT: Long-Term Improvements

Crosswalk Realignment



Proposed Location:

Market St / Dolores St

Benefits:

- » Reduces time for pedestrians in the roadway due to shorter crossing distance
- » Provides a more direct crossing, which is especially beneficial for people with disabilities

Concrete Bulbouts



Proposed Locations:

Market St / Guerrero St
Market St / 14th St / Church St
Market St / 15th St / Sanchez St
Market St / 16th St / Noe St

Benefits:

- » Reduces time for pedestrians in the roadway due to shorter crossing distance
- » Provides motorists and pedestrians better visibility of each other
- » Encourages motorists to make turns at a slower speed

Parking-Protected Bikeway



Proposed Location:

Market St westbound from Octavia Blvd to Duboce Ave

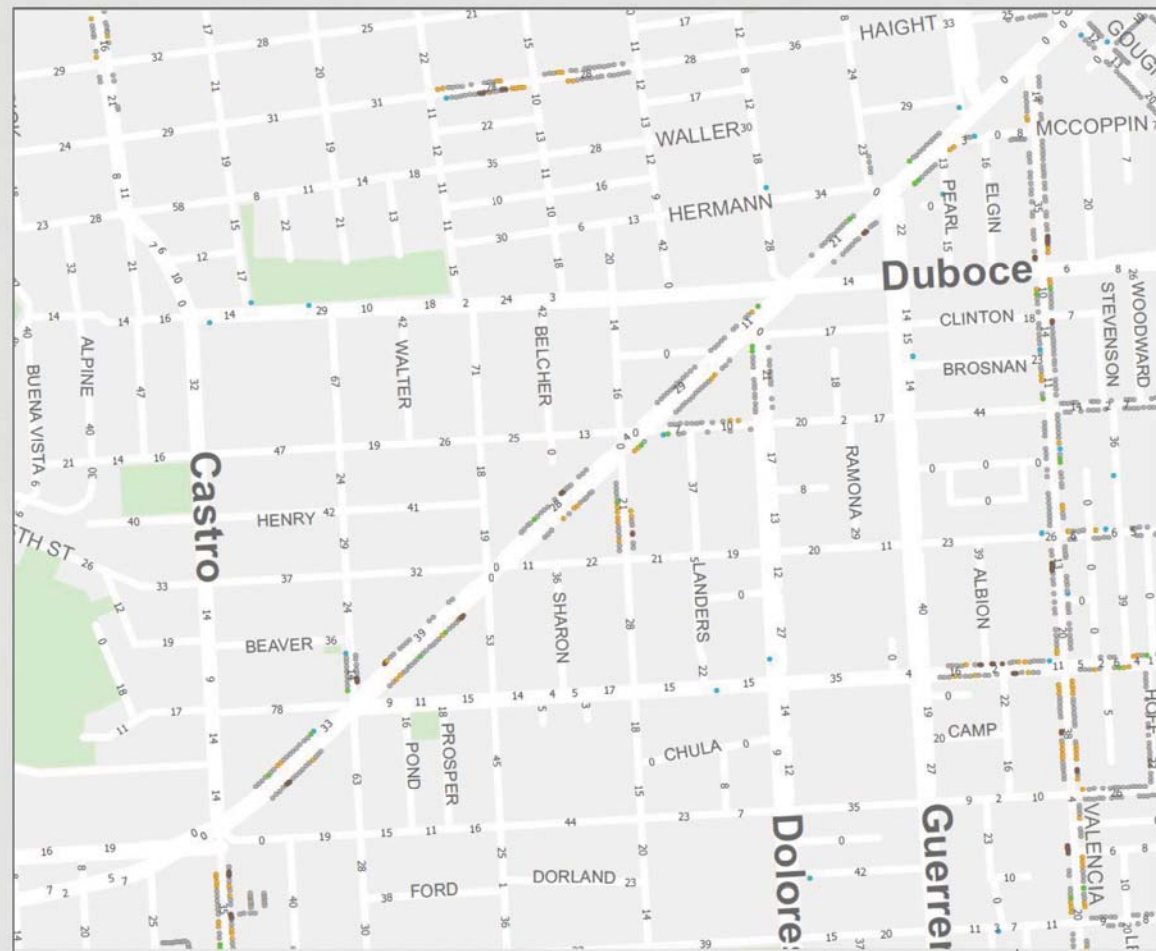
Benefits:

- » Adds a physical barrier between people on bikes and in cars
- » Simplifies use of the roadway by separating biking space from space for driving and parking maneuvers
- » Reduces risk of collisions and injuries for everyone using the road

UPPER MARKET STREET SAFETY PROJECT: Parking Solutions

Parking At A Glance

Parking is an important reality for residents, visitors, and businesses alike. While some of the safety improvements may relocate or remove parking, the project also creates the opportunity for the community to introduce more strategic parking solutions that manage overall capacity more efficiently.



On-Street	UNMETERED	METERED
	<ul style="list-style-type: none"> Number of spaces* Disabled parking space 	<ul style="list-style-type: none"> General parking meter Commercial loading meter Short term meter Motorcycle meter
	<p>Within 2 blocks of the project area...</p> <p>~ 1,300 on-street spaces ~ 25% metered</p>	

*On-street supply counts are for each street centerline segment. The value is based on a 12-foot parking space with some exceptions. Count includes metered spaces. Not all supply count labels render on this map; see the complete data and data guide for more information.

Data source: <http://sfpark.org/resources/metered-parking-areas-data>. On-street parking census data was compiled from 2009 - 2014. Streetscape and parking supply has changed during this time. The data was most recently published online in April 2014.

Parking Management Toolbox

Parking is a central part of our mission to move San Francisco safely and sustainably. Parking management involves planning and harmonizing parking with other needs and uses of the street. Below are strategies the SFMTA uses to manage parking.

Time Limits

Limiting length of stay for all drivers

Posted time limits (without parking meters or RPP) may be used where parking demand does not necessitate metering, or where street conditions make installing meters impractical. Works best for areas with relatively low parking demand.

Residential Permit Parking (RPP)

Protecting residential parking options

San Francisco began the residential parking permit (RPP) program in 1976 as a way to discourage commuters and visitors from parking on residential blocks during the workday. RPP works best for low-density residential blocks with nearby commute destinations.

Dynamic Pricing and Smart Meters

Creating availability on dense neighborhoods

Neighborhoods with high parking demand need active parking management to ensure a baseline level of parking availability, especially in commercial or mixed-use areas. Parking meters improve access, promote commercial activity, discourage long-term car storage, and reduce unnecessary congestion in the busiest parts of the city.

Colored Curbs

Special-purpose parking needs can be addressed with color curb treatments: Passenger loading zones are served by white curb, commercial loading zones are defined by yellow curb, accessible parking and loading is designated with blue curb, short-term (15-30 minute) parking is designated with green curb, red curb means "keep out" (bus stops and other restricted curb).

Other Regulations

The SFMTA uses other parking management tools for spot treatments as appropriate, addressing weight, size, type of use, time of day, and other aspects of parking and right-of-way management. Citywide rules address long-term parking (over 72 hours), sloped streets (> 3% grade) and other concerns.



UPPER MARKET STREET SAFETY PROJECT: Future Possibility

A possible future planning phase can identify opportunities for making changes to Upper Market Street intersections in attempts to further safety and enhance the public realm. An exploration of potential turn restrictions for vehicles onto and off of Market Street could further improve the safety of the intersections while opening up opportunities for expanded public gathering spaces.

Considerations for this effort would require discussions with the community about neighborhood circulation as well as desired enhancements to the area's public realm.



Placemaking Opportunities

Bulbout Enhancements

Although not part of the current project, the long-term conversion of temporary bulbouts into permanent bulbouts can create additional sidewalk space for pedestrian amenities and greening. Most of these ideas are featured in the Upper Market Community Vision and Recommendations plan. The following are some examples:



Green Infrastructure

In addition to managing stormwater, green infrastructure (ecological features that retain and treat stormwater) can provide traffic calming, increase wildlife habitat, and beautify the streetscape.



Seating

Bulbouts provide potential locations for public seating, including planters that double as seating. Due to additional sidewalk width, they may also allow expansion of sidewalk cafes along adjacent storefronts.



Special Paving and Artwork

New bulbouts offer the opportunity for the City to work with the community to add special paving and/or artwork to the sidewalk.

Intersection Treatments

In addition to calming traffic and enhancing pedestrian safety, the treatments described below may provide placemaking opportunities for upper Market Street's intersections. The ideas are purely conceptual. Further study will be needed to determine whether any are feasible near or at the Upper Market Street intersections.



Landscaped Center Medians

Landscaped medians can help provide safe refuges within long pedestrian crossings, create opportunities for greening, and other public realm amenities.



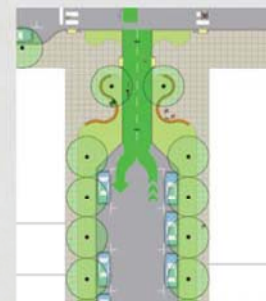
Partial Diverters

A partial diverter can reduce traffic volumes by restricting auto access in some directions, while creating additional public spaces and opportunities for greening.



Diagonal Diverters

Diagonal diverters are landscaped areas that bisect an intersection diagonally. They prevent non-emergency vehicles from traveling through a given intersection by forcing vehicles at the intersection to turn.



Block-end Plazas

Block-end plazas are areas of a street that have been closed off to non-emergency vehicles and converted to community gathering spaces.



Special Paving in the Roadway

Special paving can be used to demarcate flexible spaces used for parking and traffic circulation most days, but which can be converted into a plazas during temporary gatherings, such as farmers markets or block parties.