The Better Market Street Project

Final Report

Acknowledgements

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Final Report

1. Purpose of this Report

Built in the late 1800s, Market Street was designed to be San Francisco's grand boulevard. Its diagonal design made it a unique and central city connector for moving people and goods. Today, more than a quarter of a million people travel along Market Street to and from their destinations. While still San Francisco's iconic street, the 1970s design for Market Street has become dated and no longer meets the placemaking or transportation needs of the City.

The planned re-paving of Market Street from Van Ness Avenue to Steuart Street in 2016 presents a special opportunity to envision a new Market Street that responds to its evolving civic, transportation and economic role in the City. The Better Market Street project engages both City agencies and a broad spectrum of the community to reach a better understanding of what improvements contribute to the success of the street.

The Better Market Street project is expected to result in a major revitalization effort based on a number of placemaking and sustainable transportation investments. These will support increased promenading opportunities and an enlivened sidewalk life; safer pedestrian crossing; reliable, fast and comfortable transit service; and a safe, comfortable and appealing bicycle facility along its entire length. Finally, the economic and community development efforts along the corridor would be further strengthened by the public realm and transportation improvements.

Constraints within the Market Street right of way to create a world class boulevard for all users and feedback from public workshops guided the Better Market Street project toward a district approach, considering the corridors of Market Street and Mission Street as a couplet. The Better Market Street project requirement of two lanes of traffic in both directions to improve transit performance and allow for operational flexibility in the context of fixed infrastructure such as BART portals and existing and predicted high-traffic pedestrian locations revealed constraints on design for a continuous separated bikeway for the length of Market Street. The Better Market Street project approaches Mission Street as a potential partner corridor for transportation and public life, allowing the Better Market Street project to consider three viable options that provide flexibility for the future and a range of costs.

The purpose of this report is to review the Better Market Street project's purpose and need; its goals, ambitions and design drivers; and the range of corridor-wide transportation elements suggested during the preliminary evaluation phase. This report documents the evaluation of the various transportation elements, and presents a set of options to potentially carry forward into detailed environmental review.

This report was prepared by the Better Market Street project team, which includes the Department of Public Works, the Planning Department, the San Francisco Municipal Transportation Agency, the Public Utilities Commission, the Office of Economic and Workforce Development, and the San Francisco County Transportation Authority. The project's transportation consulting team is led by Parisi Transportation

Consulting with support from Nelson/Nygaard, Fehr & Peers, Gehl Architects, Perkins + Will, CMG Landscape Architects, and Circlepoint.

Figure 1. Bird's-eye photo of Market Street

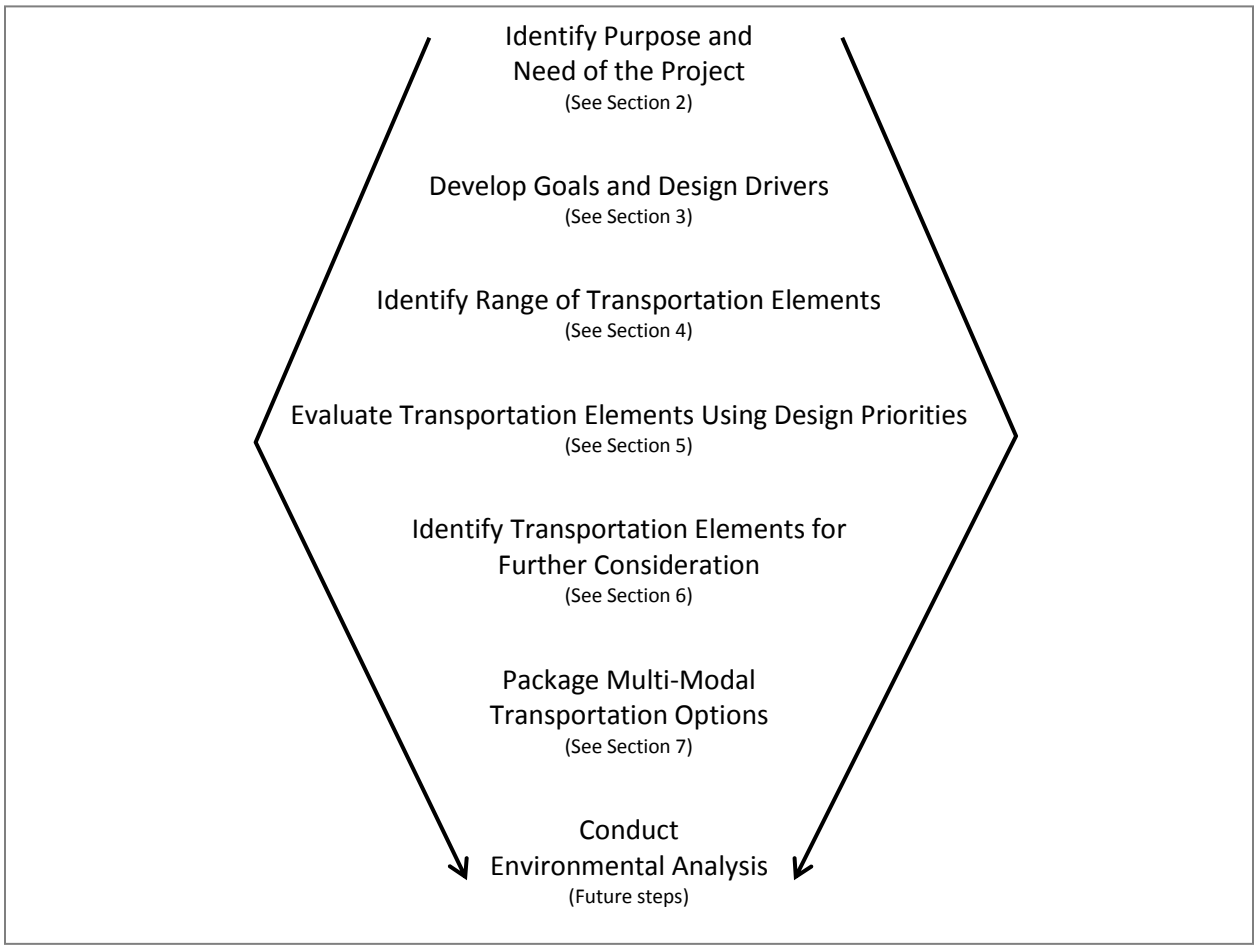


Figure 2. The project process diagram

2. Project Purpose and Need

The project's purpose is to:

- Improve mobility for pedestrians and people on bicycles and transit vehicles while also accommodating taxis, trucks and private vehicle circulation;
- Reduce conflicts and friction among street users to improve safety for all travel modes and to reduce transit vehicle delays;
- Enhance access to Market Street destinations with improved pedestrian routes, clear wayfinding, and loading areas;
- Provide public realm experiences that offer inviting settings and are comfortable and safe day and night; and
- Spotlight Market Street's identity by highlighting its distinctive features, unique districts, and impressive views.

The need for the project is indicated by the following:

- Market Street connects two different street grid systems, resulting in unfavorable intersection configurations that affect all travel modes;
- Pedestrian accessibility and mobility provisions are generally unfavorable; transit stop provisions are constrained and unwelcoming;
- Bicyclists are not afforded a continuous bicycle facility along Market Street; bicyclist volumes are increasing significantly;
- Transit vehicle travel speeds are slow and transit service is unreliable; transit demand along Market Street is expected to grow substantially;
- Taxi zones and areas for vehicle loading are limited along Market Street;
- Collisions of various combinations of pedestrians, bicyclists, transit vehicles and private vehicles are common; one-half of all collisions involve a pedestrian or bicyclist;
- Market Street does not offer a sense of place in many sections; the street is void of uses, designs and programs of activity that encourage people to extend their use of the street and to feel secure;
- The street's distinctive features, districts and views are not strong destination points; Market Street's civic purpose is underused; and
- Wayfinding along and across Market Street is confusing for all travel modes

Figure 3. Market Street existing conditions

3. Goals and Design Drivers

The goal of the Better Market Street project is to revitalize Market Street from Octavia Boulevard to The Embarcadero and reestablish the street as the premier cultural, civic, transportation and economic center of San Francisco and the Bay Area. The design aims to achieve simplicity of place and movement through three levels of detail and specific actions pertaining to placemaking and transportation:

- Placemaking:
  - Create one strong identity
  - Introduce a Streetlife Zone
  - Introduce a public space hierarchy
  - Further develop the public space network
  - Revitalize the major public spaces
  - Enhance district characters
- Transportation:
  - Improve transit efficiency
  - Enhance the continuous bicycle facility
  - Reconfigure awkward intersections
  - Reduce conflicts between all users moving along and crossing the street

Figure 4. One Street, six districts, three major public spaces

Public space, modes of travel, civic identity, safety and pedestrian experience require coordinated action. Consequently, the most promising practices from elsewhere in San Francisco, the Bay Area, and the world have been considered for what might be unique solutions for Market Street. The project's five key 'design drivers', corresponding with each of the purpose areas shown on page 3 and guiding alternatives development and screening are as follows:

- Improve mobility
    - Improve transit speed, reliability and system capacity
    - Improve safety and comfort of bicycling facility to encourage use by people eight years old to 80
    - Improve pedestrian mobility and safety
    - Introduce clear and simple wayfinding and simplicity of place and movement
- Enhance public realm experience
    - Increase diversity of activities in the public realm
    - Enhance character of district identities
    - Improve key public plazas
    - Improve quality of green infrastructure
- Enhance access

    - Improve comfort and security of transit boarding areas
    - Balance private auto circulation with operational needs of other modes
    - Accommodate taxis and paratransit
    - Strengthen pedestrian connections to adjacent destinations
- Spotlight unique identity
    - Maintain a One Street identity, while strengthening identity of districts
    - Emphasize locations of special urban form
    - Introduce designs unique to Market Street, using existing success to focus future improvements
- Reduce conflict and friction
    - Increase diversity of groups and activities
    - Improve the comfort and security of pedestrians
    - Re-imagine the concept of boarding islands
    - Simplify and reconfigure street intersections
    - Provide a continuous bicycle facility

Initial public outreach for the project, engaged the public to envision a revitalized Market Street – a place of vibrant public life, fast and reliable public transit and thriving commerce – and then to realize a physical plan for those improvements. During this round of outreach, the public responded with their top priorities for a better Market Street. The list below represents the top vote-getting categories.

- Placemaking: receiving the highest number of votes, participants felt the character of Market Street and the quality of its spaces needed to be enhanced
- Walking: the safety and enjoyment of the pedestrian realm is a key priority and participants would prefer a more attractive and interesting pedestrian experience
- Bicycling: participants want a street where cycling is prioritized, safe and convenient
- Economic vitality: participants indicated preference for the project to support the economic vitality of businesses, particularly ground floor uses, along the Market Street corridor
- Public transit: reliable public transit is key to the success of Market Street. Outreach participants indicated that public transit offers many advantages, such as its convenience and the fact that it is faster than walking
- Civic: participants indicated that some great civic amenities like Civic Center are beautiful but lack diverse activity and are compromised by criminal activity
- Connecting neighborhoods: participants indicated that Market Street's role as a connector of many diverse neighborhoods and the fact that is passes through the heart of the City could be accentuated
- Service and taxi access: participants indicated difficulty finding a taxi on Market Street at any hour, via loading areas other than at hotels
- Vehicular circulation: participants raised several concerns about how vehicles dominate the Market Street environment, and indicated a need to reduce conflicts with other modes

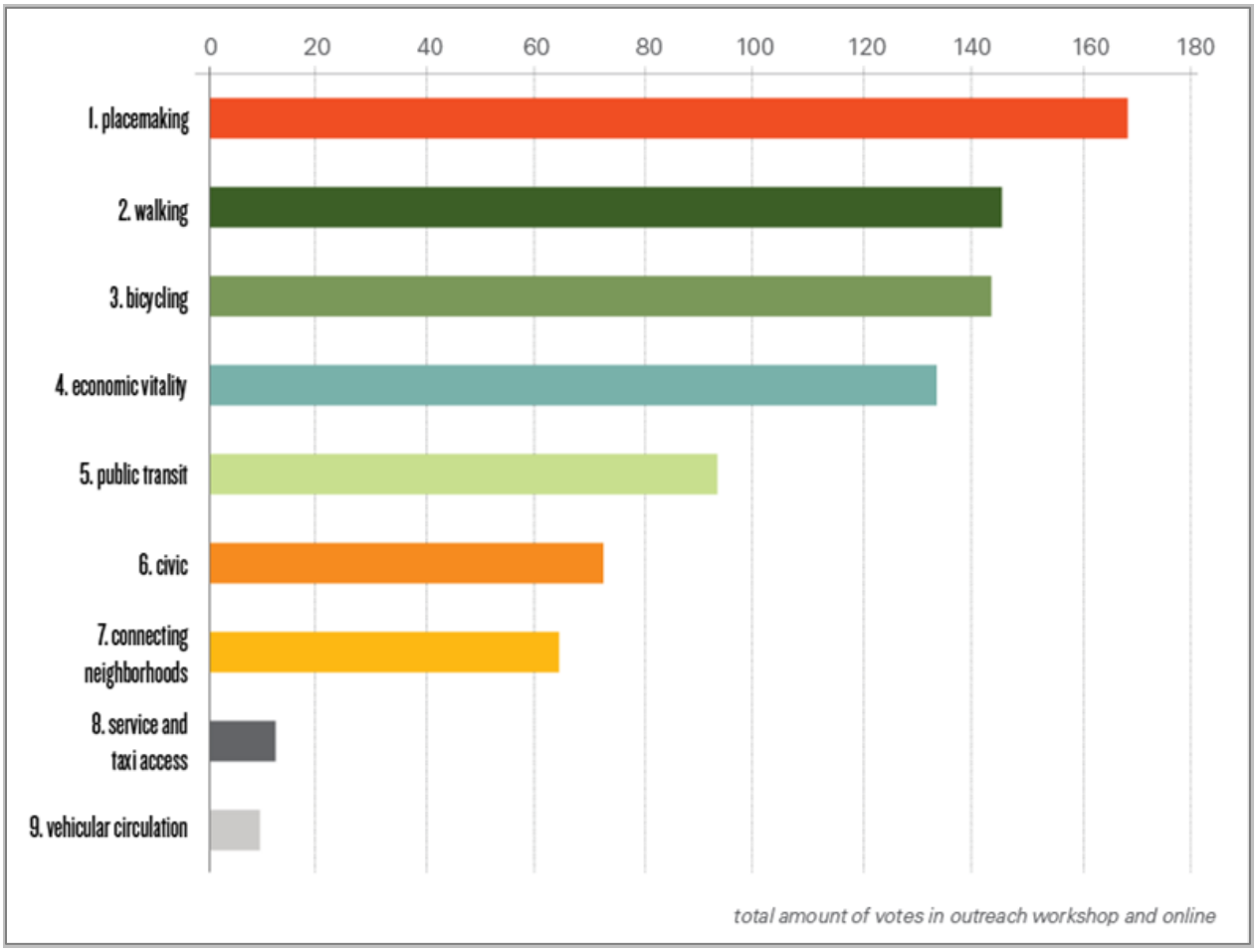
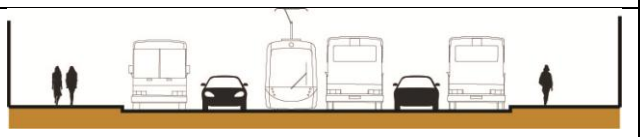
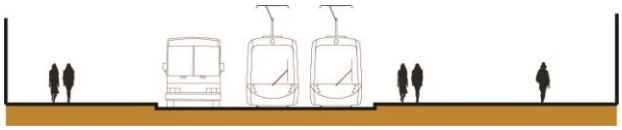
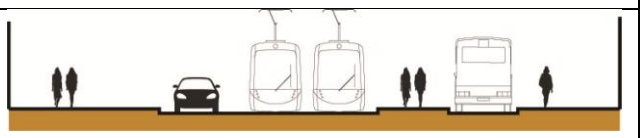
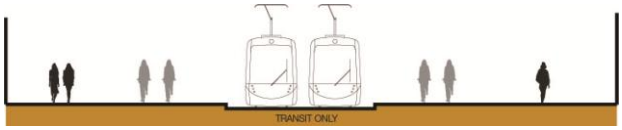
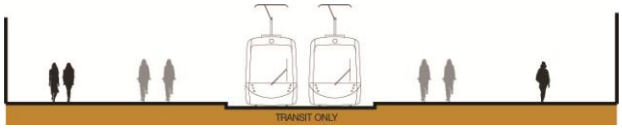
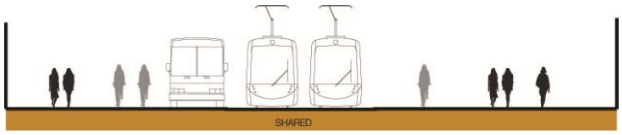


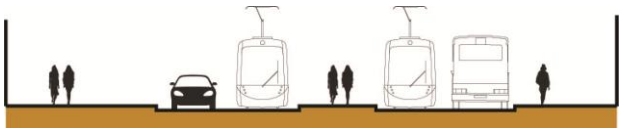
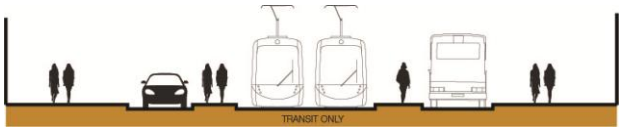
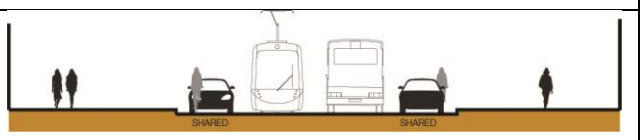
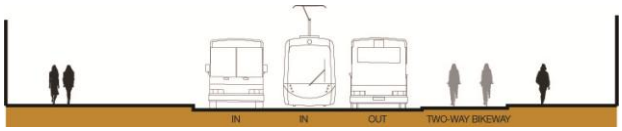
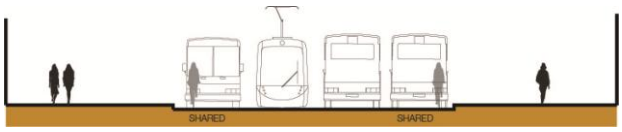
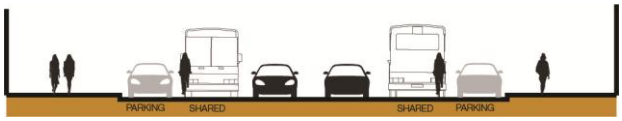
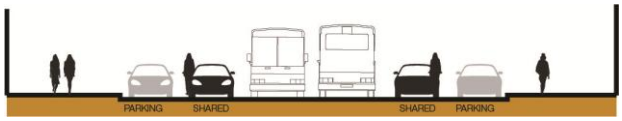
Figure 5. Public priorities for a better Market Street

4. Range of Transportation Elements

Based on the Better Market Street project's purpose, need, "design drivers", and community input, the project team identified 17 potential corridor-wide transportation elements for consideration, including four along the Mission Street corridor. The following provides a brief description of each transportation element. The various corridor-wide elements were later evaluated using a set of "design priorities", as discussed in the next section of this report.

Corridor-wide Transportation Element	Conceptual Cross-Section
1. Widen to Provide Total of Six Travel Lanes • Reduces sidewalk width to accommodate six travel lanes.	

II. One Lane along Boarding Area, Two Lanes in Opposite Direction • Buses would share the center transit-only lane where there are boarding islands, otherwise there would be four lanes. • Would require a new, third signal phase, resulting in shorter phases overall. • Best suited for outbound stops where majority of boardings occur. • Could provide significant opportunities to activate and enliven public realm by merging waiting and public life.	
III. Replace Historic F-line with Modern, High Speed, ADA-accessible Tram • Maintain current street alignment, but replace historic cars with modern tram cars.	
IV. Limited Transit Turnarounds During Peak Hours and All Transit Operates in Transit-only Center Lanes • Center lanes would be transit only. • During peak hours, limited number of bus lines would turn around at Market Street. • F-line service would be supplemented with modern low-floor streetcars during peak to alleviate transit-transit conflicts and improve speed, reliability and accessibility. • Transit service would resume to operate as normal during off-peak hours, but still in center lanes. • Bicyclists would share curb lane with private vehicles, taxis and loading.	
V. Rail-only Service between 5th Street and The Embarcadero, with Pedestrians and Bicyclists • All transit lines would be rerouted such that riders would alight at Market Street at 5th Street and transfer to augmented Market Street rail service. • Creates possibility of new significant transit node, with associated economic development potential and public realm activation. • Could free up space along the curb to accommodate a bike lane and loading zones.	
VI. Rail-only Transit Service between Van Ness Avenue and The Embarcadero, with Pedestrians and Bicyclists • Remove all transit except for F-line, supplemented by additional modern trams. • Would allow for flexibility in the streetscape design to accommodate pedestrians and bicyclists and capture Complete Street objectives.	
VII. Single Surface, Shared Space between 4th and 5th Streets • Curb-less shared space for all modes with paving treatments, street layout, and signage to encourage cooperative use of the space. • Would reflect prominence of this block in the City as the most visited street in San Francisco • Would offer potential to best capture public life potential of confluence with Powell Street, Hallidie Plaza, Westfield Mall, and Market Street.	

VIII. Create Ramblas (i.e., large center median allowing active uses), Realign Tracks with Center Boarding and Wide Center-Street Public Space • Shift F-line to provide 20-foot center space along length of corridor to act as shared waiting space for center-running transit (F-line and bus routes). • For stretches not including transit stops, space could be engaged with varied streetscape and recreational opportunities.	
IX. Boulevard Layout, Local Access and Center Through Lanes • Maintains four lanes of traffic. • Maximizes private vehicle access to buildings. • Potential to improve quality of waiting experience of transit riders, depending on design of local-access lane.	
X. Skip Stop • Transit concentrated into center lanes. • Curbside lane shared by taxis, paratransit, private vehicles and bicyclists.	
XI. "3:1" Concept • Two inbound Market Street lanes, one outbound lane/couplet with Mission Street for a portion of Market Street's outbound transit. • Two-way cycletrack on Market Street.	
XII. Limited Auto Restriction and Shared Transit/Bicycle Lane • Transit only center lanes • Auto restrictions, with curb lane shared by transit, paratransit/taxis, private autos and bicycles.	
XIII. Curbside Cycletrack • Transit only center lanes • Auto restrictions, with curb lane shared by transit, paratransit/taxis, and private autos, but not bicycles. • Directional, separated bicycle facilities at mid-grade or sidewalk grade.	
XIV. Mission Street TEP Moderate Concept with Side-running Bus Lanes • Miscellaneous features, e.g., extending right-turn lanes • Bus stops: extend existing bus zones, select stop consolidations, new boarding island at Transbay Transit Center (inbound) • 24-hour transit only lanes between Beale and 11th • No parking between 7 a.m. and 7 p.m.	
XV. Mission Street TEP Expanded Concept with Center-running Bus Lanes • Miscellaneous features, e.g., extending right-turn lanes, required right turns, queue jumps • Bus stops: extend existing bus zones, select stop consolidations, near-side boarding islands (inbound at 6th, 5th, 4th, 3rd, 2nd, Fremont; outbound at 2nd, 3rd, 4th) • 24-hour transit only lanes between Beale and 11th; center-running transit lane between Fremont and 6th	

• No parking 24 hours a day between Fremont and 6th	
XVI. Mission Street Bikeway with One-way Cycletrack on Each Side • Two six- to eight-foot wide bikeways on each side of Mission Street, with two- to five-foot painted buffer • Floating parking on one side of the street • Introduce left-turns from Mission Street at select intersections • Move Muni 14-Mission line, Golden Gate Transit buses and SamTrans lines to Market Street • Time traffic signals to prioritize bicycle progression along Mission Street	
XVII. Mission Street Bikeway with Two-way Cycletrack on One Side • A 12- to 16-foot wide two-way bikeway on the north side of Mission Street • Curbside parking on the south side of Mission Street • Move Muni 14-Mission line, Golden Gate Transit buses and SamTrans lines to Market Street • Time traffic signals to prioritize bicycle progression along Mission Street	

5. Design Priorities and Evaluation

The project team, using Better Market Street project's purpose, need, "design drivers", and community input, developed design priorities to assist in evaluating the corridor-wide transportation elements described in the previous section. Eight design priorities related to transportation ("One Street Moving", 1 through 8), seven priorities related to urban design ("One Street Meeting", A through G), and three additional considerations were adopted by the project team. Each design priorities contain one or more "metric." During the evaluation of the corridor-wide transportation elements, the metrics were used to assess each element's viability.

"One Street Moving" Design Priorities and Metrics:

1. Improve pedestrian mobility and safety
    - Serious injuries and fatalities
    - Interrupted desire lines
2. Improve comfort and safety of bicyclists along length of the street
    - Length of continuous, protected bike facility along Market Street, both approaching and through intersections
    - Width
    - Separation
    - Speed
3. Improve transit speed, reliability and system capacity
    - Travel speed by route and Market Street segment
    - Reliability
    - System capacity

4. Improve comfort and security of transit boarding islands (curb and island)
    - Amount of seating
    - Size of waiting area
    - Sun exposure and wind/rain protection
5. Reduce private vehicle conflicts
    - Number of collisions involving all modes
    - Transit delay (minutes/route)
    - Amount of double parking and parking on sidewalk
6. Accommodate people using taxis and paratransit
    - Enhance ability for people using these vehicles to safely board and alight along Market Street
7. Accommodate delivery vehicles
    - Maintain ability for these vehicles to traverse and access businesses along Market Street
8. Implement a wayfinding system that is clear and simple for everybody
    - Number of major destinations identified by a variety of on-street signage
    - Distinct zones clearly delineated for each mode

"One Street Meeting" Design Priorities and Metrics:

A. Increase levels and diversity of pedestrian activity on the sidewalk
    - Number of lingering activities
    - Variability in uses
B. Integrate waiting and lingering activities
    - Percentage of non-standing lingering activity at transit stops
C. Public life at sidewalk grade
    - Increase density of activity per unit of area
D. Strengthen public space network
    - Number of interrupted pedestrian desire lines
    - Number of pedestrian obstacles from Market Street to nearby key destinations
    - Effective wayfinding to nearby key destinations
E. Connect cycling to public life
    - Number of bikes parked on or near Market Street
F. Increase diversity of groups and activities
    - Increase the diversity of users as measured by age, gender and socioeconomic status
G. Improve the comfort and security of pedestrians
    - Lighting level and consistency
    - Light quality

Additional Considerations:

- Cost
    - Cost of comparable streets projects in peer cities
- Constructability
    - Need to move utilities, curbs, etc.; need to improve sidewalk; stormwater considerations; etc.

- Economic development
    - Likelihood of positive economic impact on corridor and city

The 17 corridor-wide transportation elements, described in the previous section, were evaluated against the above 18 "design priorities."

Corridor-wide Transportation Element	**Purpose/Benefits** ***Addresses Design Priorities*** ***(listed in 5. Design Priorities and Evaluation)*** **Notes**	**Fatal Flaw/Reason Discarded** ***Conflicts with Design Priorities*** ***(listed in 5. Design Priorities and Evaluation)*** **Notes**
I. Widen to Provide Total of Six Travel Lanes	• *3, 6, 7* • Maximizes speed, capacity, reliability for transit, taxi, private autos and loading vehicles • Avoids impacting SOMA vehicular circulation	• *1, A, B, C, D, E, F, G, Econ. dev.* • Jeopardizes sense of place and importance of Market Street as an urban civic street • Dismisses ideals of a Complete Street (streets that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities)
II. One Lane along Boarding Area, Two Lanes in Opposite Direction	• *1, 4, A, B, C, D, E, F, G* • Enhances comfort and experience of transit riders by connecting boarding islands to pedestrian amenities on sidewalk • Allows for seamless transition from public life to riding transit	• *3, 6, 7* • Jeopardizes speed, reliability and flexibility of transit from 8th Street to Main Street
III. Replace Historic F-line with Modern, High Speed, ADA-accessible Tram	• *3* • Improves transit speed, reliability, and accessibility – would eliminate need for ramps providing greater flexibility with design • Reduces ambient noise	• *Fatally flawed* • Cannot procure transit fleet on a timeline consistent with the Better Market Street Project
IV. Limited Transit Turnarounds During Peak Hours and All Transit Operates in Transit-only Center Lanes	• *3* • Transit-only in the center lanes • Curb lanes remain to allow for flexibility • Improves speed and reliability of transit • Accommodates high volumes of cyclists in curb lanes • Requires minimal infrastructure changes, saving costs	• *3, 5* • Short line and full line decreases service legibility • Creates a "transfer penalty" (65-95% of inbound passengers that reach Market Street travel beyond the Civic Center BART/Muni station, and 35-50% travel beyond Powell BART/Muni; both are potential points of transfer) • Mission Street transit is at maximum capacity and cannot accommodate more transit • In event that supplemental shuttle is no available, Muni Metro does not have capacity to accommodate transfers at Market Street for those who take a short line bus • Creating a Market Street shuttle service is resource consumptive, SFMTA staff required for operations and vehicles

V. Rail-only Service between 5th Street and The Embarcadero, with Pedestrians and Bicyclists	• *2, 3, 6, 7, 8, E* • Reduces transit-transit conflicts to improve speed, reliability, accessibility, and legibility • Allows more flexible use of curbside lane • Allows current curb alignment to be maintained, reducing project construction costs	• *3* • Jeopardizes comfort of a subset of transit riders as it forces them to transfer, which could hurt ridership, depending on the duration of transfer time • Requires significant operational adjustments to turn routes around near Market Street • Turnaround and layover space currently does not exist; would require a redesign of Hallidie Plaza west of Cyril Magnin
VI. Rail-only Transit Service between Van Ness Avenue and The Embarcadero, with Pedestrians and Bicyclists	• *1, 2, 4, 5, 6, 7, 8, A, B, C, D, E, F, G* • Improves pedestrian and bicycling experience by removing conflict with private autos and most transit • Maintains historic streetcar identity feature and supplements with modern trams	• *3, 4, 5, 6, 7* • Jeopardizes transit ridership as there would be a transfer penalty to all routes that terminate at Market Street • Requires riders to transfer to the expanded F-line service or to subsurface transit • Loss of ridership may negatively impact economic development along corridor
VII. Single Surface, Shared Space between 4th and 5th Streets	• *1, 2, 4, 5, 6, 7, 8, A, B, C, D, E, F, G* • Improves pedestrian experience in an area with almost 90,000 pedestrians on a weekend day • Supports identity and economic development • Possible solution to conflict between portals, boarding islands and bike facility	• *3, Cost, Constructability* • There are design questions regarding how best to address safety issues with defining space for accessibility purposes • Jeopardizes transit speed and possibly reliability, although other streets have successfully integrated transit and Shared Space. Substantial best practice research would be necessary. • Rider comfort and overhead wire connectivity with vertical shift to single surface would need to be addressed through design
VIII. Create Ramblas, Realign Tracks with Center Boarding and Wide Center-Street Public Space	• *1, 4, 6, 7, 8, B, C, D, F, G* • Improves waiting experience for transit riders • Creates identity and new opportunities for public life	• *Cost, Economic development* • Very expensive to move track and utilities for F-line, realign overhead wires for buses, move grates for subsurface transit, and replace/upgrade fleet for left-side boarding • May shift pedestrian activity to center area and away from businesses on sidewalk
IX. Boulevard Layout, Local Access and Center Through Lanes	• *1, 3, 4, G* • Transit would be realigned to accommodate a center space along the length of corridor, but just wide enough for transit stop activity • In stretches along corridor not used for transit stops, streetscape treatments could capture Complete Street elements	• *Cost* • Requires new fleet for left-side boarding and while this may not negatively impact conditions for different modes, it does not significantly improve any either • Does not actively improve transit speed nor provide enough space in the center to generate a new public life space. Rather, it may take away some space that could be used for a bike facility or public, such as on the sidewalk.

X. Skip Stop	• *4, 11, Cost* • Maintains existing historic streetcar service, with ability to introduce modern streetcars in the future • Potential to reduce vehicle speed • No changes to transit service or lane assignment; all to center lane to improve legibility	• *3, 4, 5, Cost* • Transition for buses to move from boarding island back into transit lane requires significant curb cut • Movement for buses from boarding island back into transit lane slows transit and increases chances of disconnecting overhead wires • Requires moving the tracks and utilities/grates in places where F-line stops
XI. "3:1" Concept	• *2, 11, Cost* • Provides separated bicycle facility • Eliminates need to cut curb for cycletrack, allowing for more public activation zones	• *2, 3, 5* • Decreases service legibility • Reduces transit service area • Would overload Mission Street • A single outbound lane on Market Street would impact SFMTA's ability to respond to vehicle breakdowns and creates problems for emergency access • A two-way cycletrack on Market Street prohibits paratransit access and would require significant engineering and enforcement to alleviate conflicts between autos, pedestrians, and bicyclists.
XII. Auto Restrictions and Shared Transit/Bicycle Lane	• *10, Cost* • Improves opportunity to expand street life activation • Reduces need to make significant changes to curb alignment	• *2, 3* • Relies primarily on automobile restrictions to improve comfort and safety for people on bicycles sharing the curbside lane. • Does not provide dedicated right-of-way to separate people on bicycles from transit vehicles. Relies on transit stop placement and curbside lane widening to provide bicycle-transit passing opportunities and to reduce intermodal conflicts.
XIII. Curbside Cycletrack	• *2, 10, 11* • Provides separated bicycle facility • Allows for spontaneous interaction – bicyclists can engage the public realm	• *2, 5, 7, 8, 9* • Cycletrack's location next to curb may conflict with standard paratransit loading and unloading operations where there is no dedicated loading zone. Curbside paratransit operations require eight feet of area perpendicular to and above curb to allow patrons safe access between vehicle and sidewalk. • Potential bicyclist conflicts with people crossing the bicycle facility would exist under the proposed design.
XIV. Mission Street TEP Moderate Concept with Side-running Bus Lanes	• *3, 5, 6, 7* • This concept is compatible with all Market Street proposals that do not divert Market Street buses onto Mission Street.	• Does not substantially address Market Street design priorities and metrics

XV. Mission Street TEP Expanded Concept with Center-running Bus Lanes	• *3, 4, 5, 6, 7* • This concept is compatible with all Market Street proposals that do not divert Market Street buses onto Mission Street.	• Does not substantially address Market Street design priorities and metrics
XVI. Mission Street Bikeway with One-way Cycletracks	• *2, 5* • Eliminates conflict with buses and rail vehicles, creates a straightforward path of travel • Has the potential to allow left turns on Mission Street, requires greatest degree of auto restrictions on Market Street • Enables cycletracks separated from traffic by wide buffer areas	• *2, 3* • Creates the primary bicycle facility one block away from Market Street on Mission Street • Consolidates Mission Street transit service onto Market Street. Requires Mission Street users to divert one block from the existing stop pattern. May introduce operational challenges for bus operations at peak demand along Market Street and at transit stops.
XVII. Mission Street Bikeway with Two-way Cycletrack	• *2, 5* • Eliminates conflict with buses and rail vehicles, creates a straightforward path of travel • Has the potential to allow left turns on Mission Street, requires greatest degree of auto restrictions on Market Street	• *2, 3, 6* • Creates the primary bicycle facility one block away from Market Street on Mission Street • Consolidates Mission Street transit service onto Market Street transit service. Requires Mission Street users to divert one block from the existing stop pattern. May introduce operational challenges for bus operations at peak demand along Market Street and at transit stops • Restricts curbside access on the cycletrack side of the street to a larger extent than a one-way bicycle facility

The project team and the technical advisory committee considered the project goals and design drivers to prioritize the benefits and fatal flaws and determined Element XII, XIII and XVI should move forward in the planning process with the following revisions:

- XII. Auto Restrictions and Shared Transit/Bicycle Lane: private auto restrictions should also be considered wherever there is not a dedicated cycletrack on or parallel to Market Street
- XIII. Curbside Cycletrack: the facility should consider a mid-level cycletrack between the vehicular travel lanes and abutting the adjacent sidewalk
- XVI. Mission Street Bikeway with One-way Cycletracks: the Market Street design will be consistent with XII.

Elements XIV and XV are compatible with Elements XII and XIII, and are moving forward with their own environmental study (Transit Effectiveness Project). Element XVI precludes Elements XIV and XV, and will be analyzed as part of this projects' environmental study. Because the fatal flaws of the other elements substantially conflict with the project goals and design drivers and also outweighed any benefits, they were removed from further consideration.

6. Description of Transportation Elements to be Further Considered

Transit Operating Plan

The existing design of Market Street consists of a near-side transit stop at every intersection with a numbered street, except for at 2nd Street (stop at New Montgomery Street). Curbside stops were placed midblock to prevent both travel lanes from being blocked by transit vehicles at the intersection. The legacy signal timing for the Market Street corridor was designed to have every transit vehicle board and alight at the intersection's stop (red) phase, with buses ready to depart at the next green signal phase. However, this signal timing scheme no longer works due to changes in the traffic modal distribution (e.g., the addition of the historic F-Line streetcar and the dramatic increase in bicycle traffic), changes to the freeway network after the Loma Prieta earthquake, and the temporary traffic/transit rerouting due to Central Subway construction.

The goal of the two transit concepts summarized below is to create a more resilient scheme for improved transit operations. The basic premise for improving transit operations is through stop location and distance optimization. Rather than providing a transit island and curb stop every block (about every 900 feet, on average), the proposals attempt to provide stops every one and a one-half blocks (about every 1,400 to 1,500 feet, on average) or farther. The Enhanced Local Transit concept would preserve the existing route-based travel lane assignments, while the Rapid Transit concept would assign all limited service buses to the center lane and the local buses to the curb lane.

Another goal for the transit stop design is to move the island stops from near-side to far-side or midblock locations to reduce instances where near-side island stops prevent vehicles in the curbside lane from moving into the center lane to get around vehicle queues near the intersections. This is a common occurrence at high pedestrian traffic intersections where right-turning vehicles frequently queue at the crosswalk.

- Enhanced Local Transit operations: with minor stop optimization changes, Enhanced Local Transit operations would result in nine island stops and seven curb stops in the inbound direction and nine island stops and six curb stops in the outbound direction. Transit operations would continue to assign lines on a destination basis, i.e., inbound buses headed to the Ferry Building travel in the center lane and inbound buses en route to the Transbay Transit Center (TTC) travel in the curbside lane. Outbound buses headed to the Castro would stay in the center lane, while buses turning onto the North-of-Market grid would travel in the curbside lane. This lane assignment would allow passenger to board both limited and local bus service at the same stops, thereby preserving system legibility.
- Rapid Transit operations: with significant stop optimization changes, Rapid Transit operations would result in six island stops and nine curb stops in the inbound direction and six island stops and eight curb stops in the outbound direction. Limited-stop transit lines would be assigned the center lanes, while local lines would use the curbside lanes. The limited lines in the center lane should benefit greatly from the greater stop spacing (averaging about 2000 feet). However, route legibility for customers may be jeopardized for customers, as they would no longer be able to catch limited and local buses at the same stop. The Rapid Transit lane assignment scheme would also require inbound limited buses headed to the Transbay Transit Center to change lanes before turning right at 1st Street. Similarly, outbound limited buses headed to the

NOMA grid would need to transition to the curbside lane before taking a right turn, which is a maneuver not currently needed with the existing lane assignments.

- In addition to transit stop spacing, all of the alternatives would include significant enhancements to transit such as: widened and raised platforms to meet ADA standards and enable level boarding, ticket vending machines and pre-payment, improved signal timing and transit signal priority where appropriate, etc. These improvements, all of which can contribute to increase transit travel speed and reliability, will be considered and refined as part of the environmental review and design phases for the project.

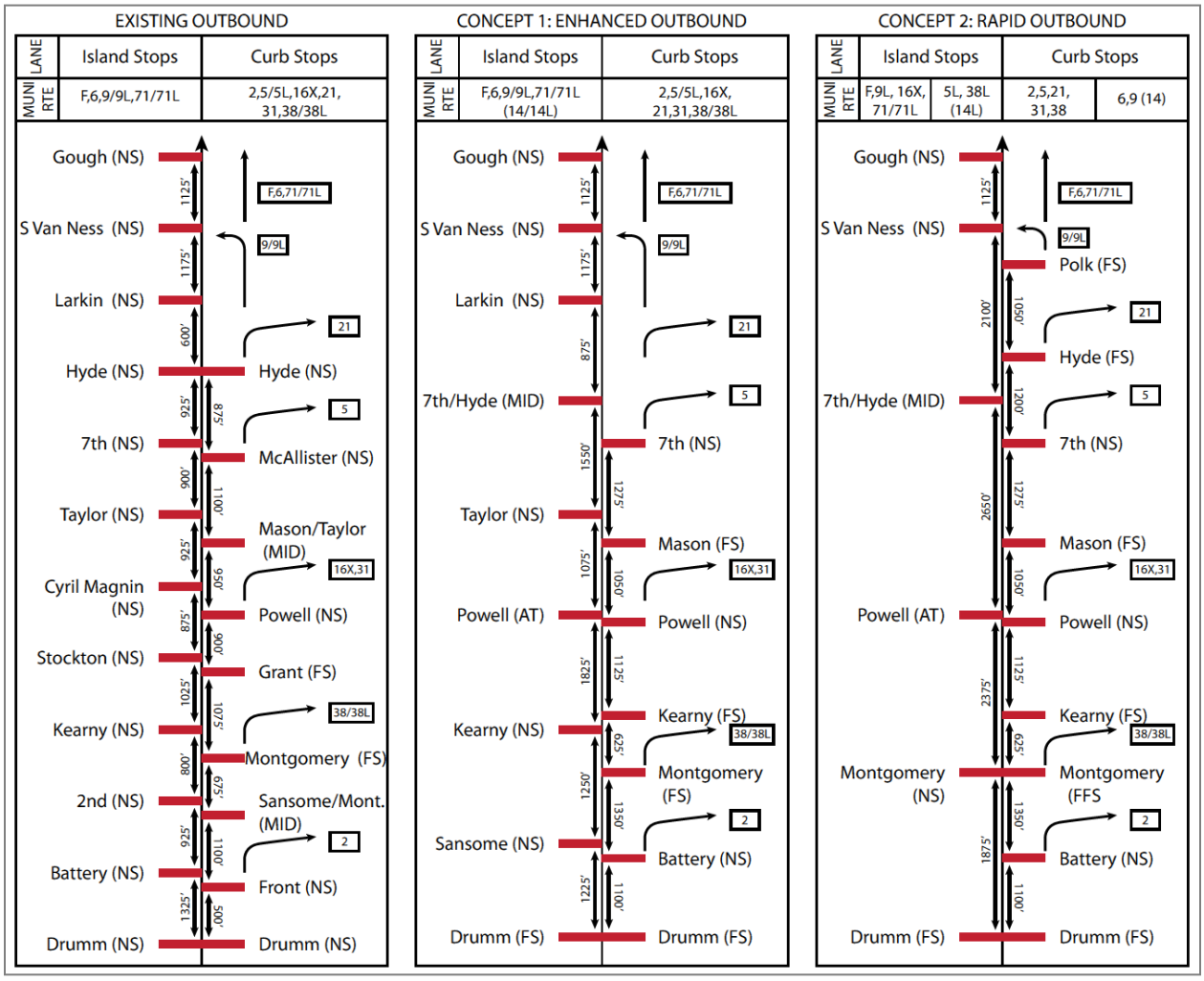


Figure 6. Transit stop comparison

Bicycle Circulation

Further study on each bicycle facility proposal's ability to provide a safer and more comfortable bicycle facility will be conducted. Key metrics will include the width, separation, design speed, and length of the bicycle facility.

- Shared lane operations on Market Street: similar to existing operations, this circulation option would realign portions of the curb line to widen the shared curbside lane, minimizing conflicts between cyclists and vehicles. Based on the current operating conditions on Market Street,

people on bicycles traveling in a shared lane will be able to maintain an average speed of 10 mph. The planned widening of the curb lanes will alleviate conflicts between people on bicycles and transit/auto vehicles, particularly when the lane is channelized at a near-side boarding island.

- Cycletracks on Market Street: the sidewalk width would be reduced and the curbline redesigned for a significant portion of the corridor to provide a seven- to eight-foot wide vertically separated bicycle facility. High pedestrian volumes between 3rd and 5th Streets would necessitate maintaining the existing or widening the sidewalk. The cycletrack in this two-block segment would transition into a shared lane facility. Based on the current operating conditions on Market Street, people on bicycles traveling in a dedicated cycletrack will be able to maintain an average speed of 12 mph. The dedicated bicycle right-of-way will alleviate conflicts between people on bicycles and transit/auto vehicles for the majority of Market Street.
- Cycletracks on Mission Street: moving Mission Street's transit lines to Market Street, this circulation option would convert the existing transit only lane on Mission Street to a separated bicycle facility. Bicyclists would not be prohibited from cycling along Market Street, but signage would direct cyclists to the Mission Street cycletracks. All Mission Street transit service would need to transition onto Market Street, including the Muni 14 Mission line, and select Golden Gate Transit and SamTrans lines currently using Mission Street. The dedicated cycletrack and opportunity to provide bicycle-preferential signal timing (green wave) could allow people on bicycles traveling to maintain an average speed of 14 mph. This concept includes improvements to roadways connecting to Mission Street, including to/from The Wiggle and Valencia Street via Otis and McCoppin Streets.

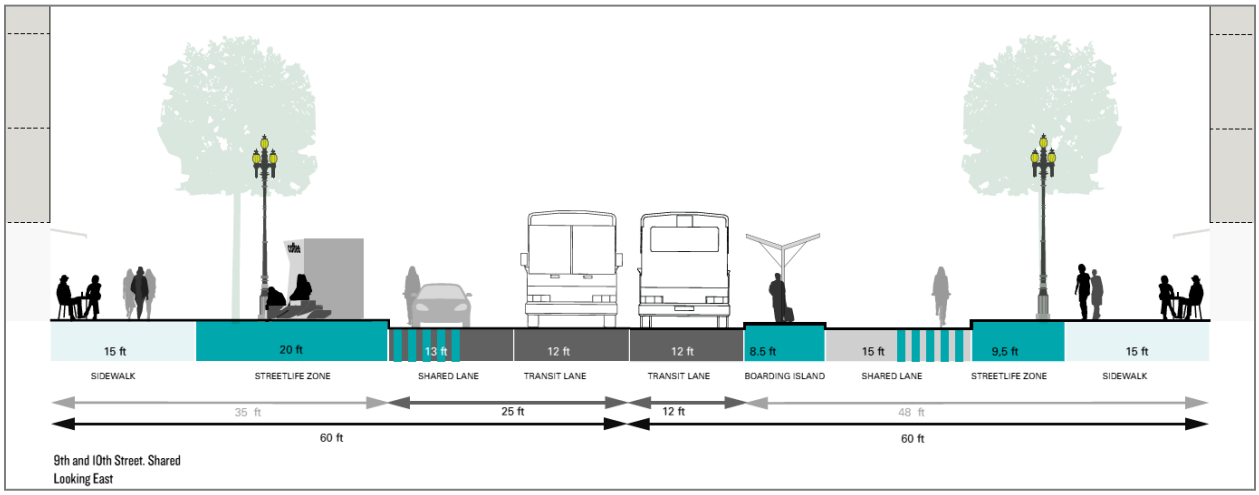


Figure 7. Market Street Shared Lane

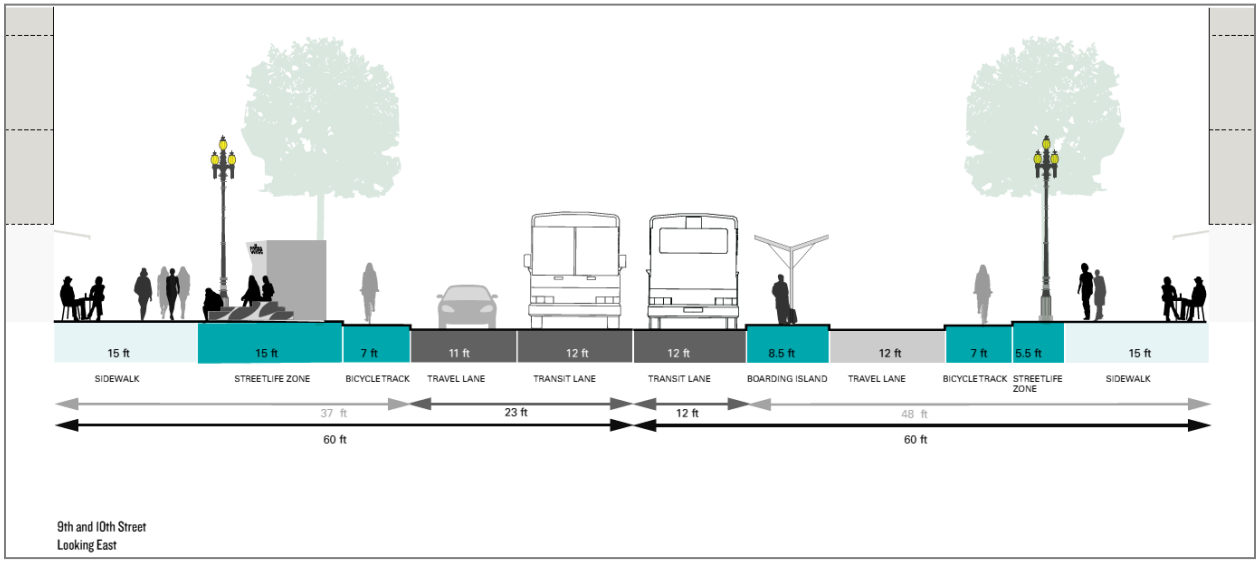


Figure 8. Market Street Cylcetrack

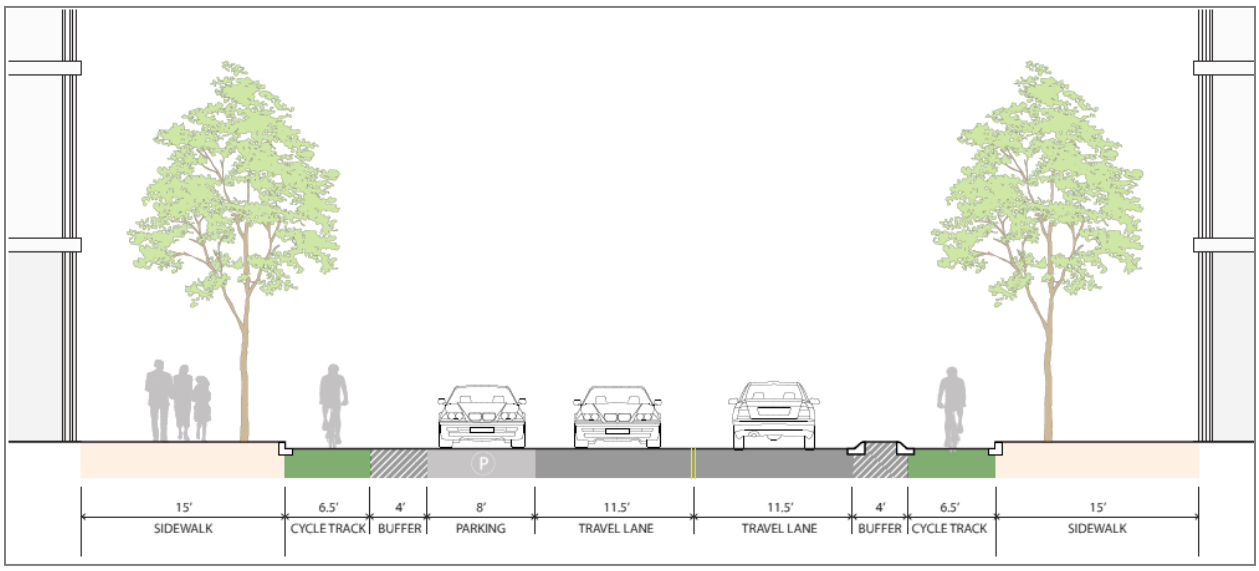


Figure 9. Mission Street Cycletrack

Private Auto Circulation

Under all private automobile proposals, further study on each proposal's effect of automobile restrictions on corridor automobile circulation would be conducted, as would their potential benefit to transit and bicycle traffic, and level of design and enforcement needed to enact the auto restriction.

- Level 1 – Car-free from 5th Street to Transbay Terminal: This proposal would make the segment of Market Street between Fremont and 5th Streets prohibited to private automobiles from about 7 a.m. to about 7 p.m. The proposal would add a third required right turn in the inbound direction at 5th Street, and two required right turns in the outbound direction at Sutter and Geary Streets. There would be turn prohibitions for northbound 5th Street ("No Right Turn"), southbound 4th/Stockton/Ellis Street ("No Turns"), inbound O'Farrell Street ("Left Turn Only" at Grant Street), northbound 3rd Street ("No Turns"), southbound Montgomery Street ("No

Turns"), 2nd Street (no through access north of Mission Street), southbound Bush Street ("No Turns"), and northbound Fremont Street ("No Left Turns"). Auto restrictions also under consideration include a required left turn for autos at inbound O'Farrell Street onto Grant Street and closing Battery Street between Bush and Market Streets.

- Level 2 – Car-free from 8th Street to Fremont Street: This proposal would make the segment of Market Street from 5th Street to Fremont Street prohibited to private automobiles during daytime hours (e.g., 7 a.m. to 7 p.m.). This segment of Market Street has the highest transit and pedestrian volumes.
- Level 3 – Car-free from Van Ness Avenue to the Embarcadero: This proposal would make the entirety of the Market Street east of Van Ness Avenue car free during most of the day (e.g., 7 a.m. to 7 p.m.). All autos traveling on streets intersecting Market Street would be prohibited from making turns onto Market Street. Streets that "T" onto Market Street would either permit limited auto access or would be closed at the nearest upstream intersection.

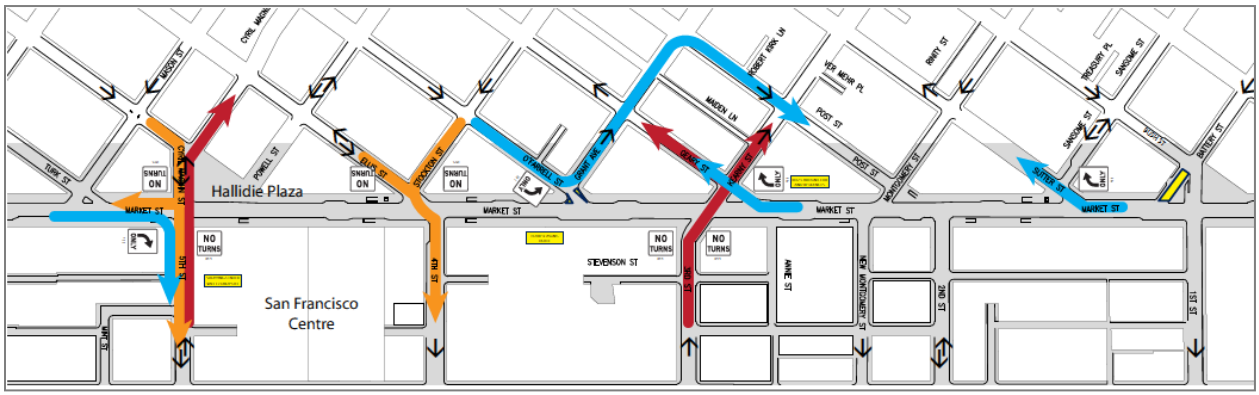


Figure 10. Car Free Market Circulation Diagram, Level 1

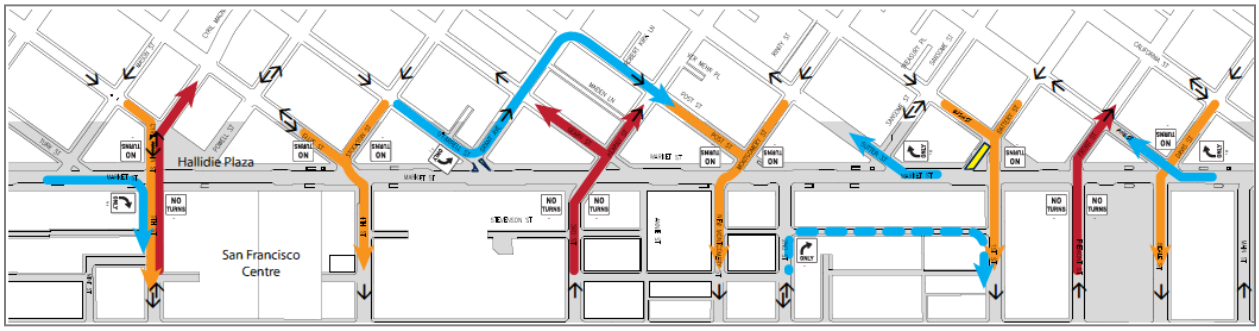


Figure 11. Car Free Market Circulation Diagram, Level 2

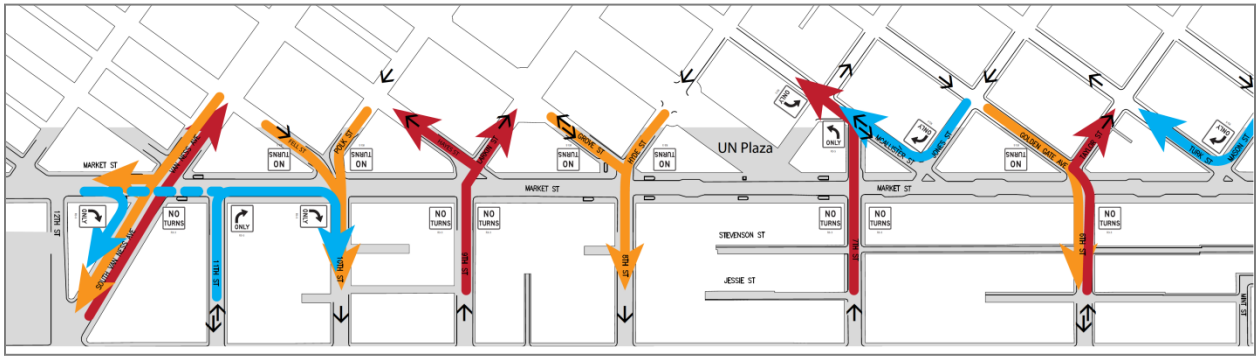


Figure 12. Car Free Market Circulation Diagram, Level 3 (Between 6th Street and Van Ness Avenue)

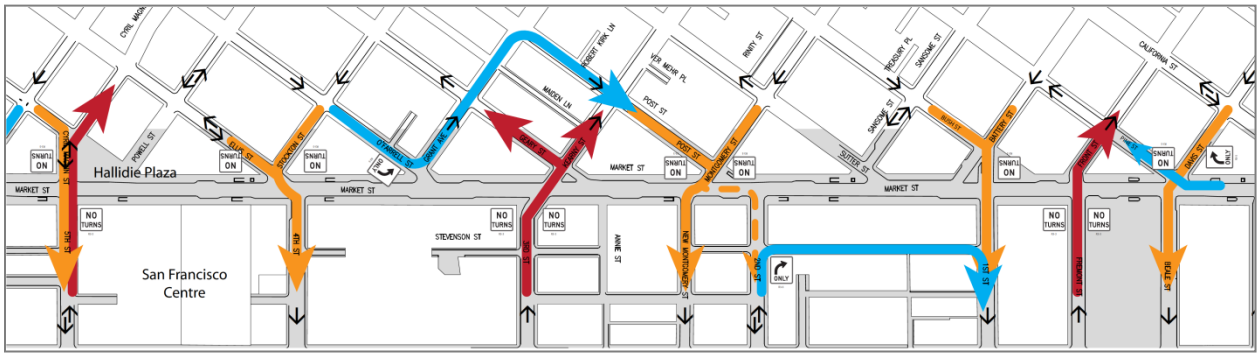


Figure 12. Car Free Market Circulation Diagram, Level 3 (Between Beale Street and 6th Street)

Public Spaces and Street Life

The pedestrian network provides the critical connections for all walking trips, but also for every automobile, transit and cycling trip. Strengthening a coherent network of high quality pedestrian routes will enhance the social and economic vitality of the downtown, with Market Street as the critical spine in the network.

Pedestrians, more so than any other mode, are sensitive to the quality of the immediate environment and make trip and route choice decisions based on whether the sidewalks, open spaces and adjacent buildings offer a sense of comfort, protection and delight to pedestrians. By providing a safe and comfortable space for pedestrians, they are less likely to make movements into spaces that would impede transit travel. All three options will provide appealing paths to and from transit boarding areas to enhance access and the waiting experience.

All the proposed designs for Market Street improve on the existing conditions in a number of ways:

- Sidewalks are scaled to provide a greater sense of intimacy and vitality;
- An adaptable Streetlife Zone is introduced to create local opportunities for activation, while providing space for streetlights, stormwater areas and pedestrian amenities;
- A new paving system will provide smoother conditions in the pedestrian through zone and more flexibility for alternative enhancements in the Streetlife Zone;
- Transit boarding areas will be visually tied to the sidewalk through paving to highlight to all users the elevated levels of pedestrian activity within the area;

- Improved soil and drainage conditions will allow for a healthier, more robust urban forest; and,
- Intersections will be redesigned to narrow and simplify pedestrian crossing, while creating new mini-plazas.

The variation between the three options developed revolves on the amount of space pedestrians have and the degree to which cyclists are invited to transition from cyclist to pedestrian and back again, depending on shopping opportunities, spotting friends, or compelling invitations to stop and enjoy the enhanced public realm. Specifically:

- A cycletrack, as compared to the shared bike lane, makes it easier for a cyclist to transition to a pedestrian, thereby increasing the amount of activity on the sidewalk; and,
- Pedestrian space is reduced, at times significantly, when cycletracks are included, thereby limiting the amount and range of pedestrian activation possible.

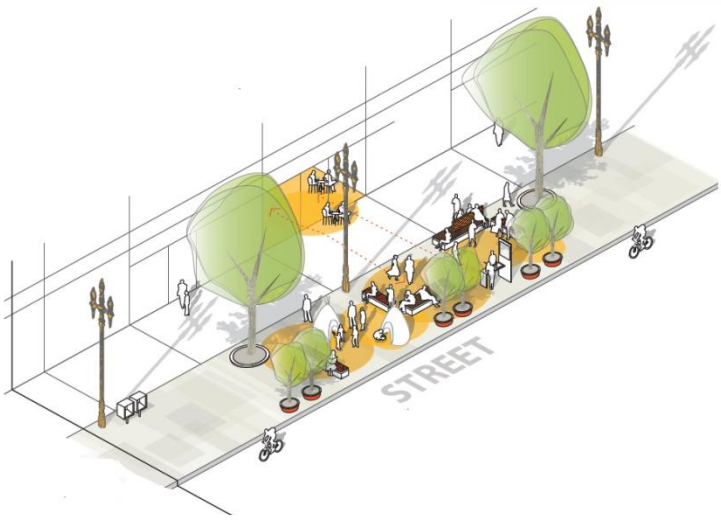


Figure 13. Illustration of proposed pedestrian throughway and Streetlife Zone.

Summary of Community Involvement

The Better Market Street project team has held two rounds of public workshops. The second round, including a webinar, occurred in July 2012 to showcase proposed improvements along Market Street and collect public feedback. A major concern was safety along Market Street for pedestrians and bicyclists, and an overall sense of security along the corridor. With respect to transportation, over 80 percent of respondents favored a separated cycletrack, with over 70 percent indicating the importance of a consistent design along the entire length of the corridor. Please refer to appendix 4. for detailed public outreach findings.

Almost 80 percent of respondents strongly supported reducing private auto access along Market Street, with others preferring a compromise between private vehicle usage and other modes. Eighty-five percent of respondents indicated they were willing to reduce the amount of bus and train stops to achieve faster, more reliable transit, even if it meant they had to walk farther.

Public comments on the Better Market Street project for the second round workshops were collected through a 28-question survey using questions that corresponded with the workshop exhibits. Exhibits were also available for review on the project website.

A third round of public outreach is scheduled for July 2013. Workshop and webinar participants will view and discuss designs for three options and provide input on the parameters that matter most to people in order to help the City make future decisions about the direction for revitalizing Market Street.

Figure 14. Better Market Street public workshops

7. Description of Options to Carry Forward

This section briefly introduces the project options encapsulating the range of transportation elements for further consideration in the environmental review stage of the project. However, there are also public realm and urban design considerations to be taken into account for all options. The project team performed an initial analysis of performance of these alternatives, particularly with respect to transit performance. This analysis can be found in Appendix 3 and will support the additional work that will occur during the environmental review phase.

No Project Option

Under the No Project option, no substantial transportation improvements would be made along Market Street or Mission Street, with the exception of already planned improvements.

Option 1: Market Street Cycletracks + Level 1 Auto Restrictions (private car-free from 5th to Fremont/Transbay Terminal) + Local Enhanced Transit

Cycletracks along Market Street would provide the greatest separation for bicycles from other modes and could therefore achieve the project goals with a lesser degree of auto restrictions and transit priority.

Option 2: Market Street Shared Lane + Level 2 Auto Restrictions (private car-free from to 8th to Fremont/Transbay Terminal) + Rapid Transit

The shared lane alternative would not provide substantial improvement for some bicycle conditions and correspondingly would not resolve many transit-bicycle conflicts. As such, a greater degree of auto restrictions and transit priority would be anticipated for this concept to achieve the project goals.

Option 3: Mission Street Bikeway with One-way Cycletracks + Level 3 Auto Restrictions (private car-free from Van Ness to The Embarcadero) + Local Enhanced Transit

The Mission Street bikeway concept would add a substantial amount of buses onto Market Street for a large extent of the project area. This concept would need the greatest level of automobile restriction to facilitate transit vehicle flow. The Local Enhanced transit concept would reduce the degree of travel lane changes for buses when approaching the terminals or leaving Market Street.

Near-term Market Street Projects

In response to public desire for improvements on Market Street before implementation of the Better Market Street project, a multi-agency group comprised of representative from DPW, SFMTA, SF Planning Department and the Mayor's Office has developed a list of priority projects on Market Street (please see the appendix). The projects on this list have been identified in coordination with the Better Market Street team but are not a part of the project. Priority projects include the activation of Market Street through new legislation for a special permit area; urban design interventions such as a redesign of Mechanics Plaza; infrastructure upgrades including repaving the curbside lane, including the bikeway; and analyzing automobile restrictions between 3rd Street and 5th Street. At this time there are no funded plans to include pilot projects as a part of the BMS project. Please refer to appendix 5.

Environmental Review Process

Next Steps

For the environmental review process, the City team will submit a Preliminary Project Assessment to the Planning Department. This is the opportunity for the Planning Department to evaluate the Better Market Street project for planning issues and pertinent planning policies. At the same time, the City team will post a Request for Qualifications to begin the consultant selection process. The City team will review proposals from interested consultant teams and hire a qualified team to perform the environmental review.

The consultant team will be in charge of completing the Environmental Evaluation which relates to the California Environmental Quality Act CEQA process for this project. The initial submittal to City Planning will highlight basic project information and provide a general assessment on the level of technical information required for environmental review. The City will also engage the Federal Transportation Administration (FTA) and Caltrans on the National Environmental Protection Act (NEPA) requirements for a joint CEQA/NEPA document.

Future Community Involvement

As part of the environmental review process, the information from the environmental evaluation form will be compiled into a formal Notice of Preparation. The notice will include the description of the Better Market Street project, project limits, and salient environmental issues. The Planning Department will hold a Public Scoping meeting to hear oral comments and learn about public concerns. This is the first formal opportunity for members of the public to comment on the environmental aspects of the Better Market Street project; however, the public is welcome to write letters in response to the environmental aspects of the project at any time before the Public Scoping Meeting.

Additionally, members of the public are welcome and encouraged to attend and participate in the next round of community outreach scheduled for July 2013. These public workshops/community meetings will focus on the project design and discuss the three options that are being evaluated during the environmental review process.

Appendices

1. Market Street Conceptual Designs
2. Mission Street Conceptual Designs
3. Better Market Street Transit Delay and Reliability Analysis
4. Public Participation Reports
5. Market Street Near-term Project List