

## ITE Western District Transportation Project of the Year Nomination

Category: Complete Streets  
Agency: San Francisco Municipal Transportation Agency  
Project Name: SFMTA's Mid-Valencia Center-Running Bikeway Pilot  
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### Introduction

The [Valencia Bikeway Improvements Project](#) is an ongoing effort to improve safety for people who bike and walk on Valencia Street. Valencia is one of the most popular bicycle routes in San Francisco and is the primary north-south bike route through the Mission neighborhood. Parking-protected bikeways were installed on northern Valencia between Market and 15<sup>th</sup> streets in 2019, but the remainder of the corridor continues to have Class II bike lanes on both sides of the street. Most of Valencia is on the Vision Zero High Injury Network, which is the 12% of City streets that account for 68% of severe and fatal collisions.

Two key challenges exist on Valencia Street:

1. **Traffic safety conflicts between different modes of travel.** The existing Class II bike lanes do not provide separation from vehicle traffic, leading to dooring of bicyclists, vehicles encroaching into the bikeway, and people on bikes being forced to move in and out of the travel lane due to bikeway blockages. On average, Valencia Street experiences 2.2 collisions per month, and more than half the time there is a collision, a person bicycling or walking is involved.
2. **An imbalance between curb supply and demand, which has resulted in illegal, dangerous, and inefficient loading activities that include vehicles double-parking in the bike and travel lanes.** As a commercial corridor, Valencia experiences a high demand of diverse loading needs ranging from goods deliveries and passenger pick-up and drop-offs that are primarily conducted by on-demand transportation network companies to commercial delivery trucks of all sizes. There are not enough loading spaces both physically and temporally to accommodate the activity, which results in vehicles constantly double-parking in the bike and travel lanes. The Class II bike lane serves as a de-facto loading lane, forcing bikes to swerve in and out of the lane.



Figure 1 April 2022 Pre-Pilot Conditions on Valencia Street

Figure 1 highlights the challenges on Valencia Street, which include vehicles pulling across the existing bike lanes to get to and from parking spaces, vehicles double parking in the bike lanes, and new Shared Spaces parklets along the curb.

### Background

In early 2020, the project team recommended replicating the northern Valencia parking-protected design on southern Valencia between 19<sup>th</sup> Street and Cesar Chavez. The team began outreach and held a project open house, but work was paused due to the onset of COVID-19. From the outreach conducted, the proposal was opposed by merchants and faith institutions, because it would have resulted in repurposing 40% of the parking and loading in the project area to accommodate the curbside protected bikeway.

In spring 2022, with the pandemic receding, the project team resumed work. Rather than restart the early 2020 southern Valencia effort, the team proposed new project limits, mid-Valencia between 15<sup>th</sup> and 23<sup>rd</sup> streets as shown in Figure 2, to address more of the High Injury Network and provide connectivity to the protected bikeways to the north. Reviewing the 2020 feedback, the parking-protected bikeways were no longer recommended due to impacts to both commercial loading and Shared Spaces parklets, which had proliferated and occupied up to 20% of the curb space during the pandemic. The impact to curb space was especially important to consider as Shared Spaces moved from a pandemic-response to a permanent program.

### Pilot Project Design

The team established three key goals for the mid-Valencia project: 1) to improve safety for all who travel on Valencia, 2) to preserve the economic vitality of the corridor, and 3) to ensure the movement and access of goods.



Figure 2 Mid-Valencia Project Area Map

In April 2023, the SFMTA Board approved a 12-month pilot for a Class IV center-running protected bikeway, pedestrian safety improvements, and a curb management plan on mid-Valencia. This proposal was the most balanced approach that addressed the two key issues from the existing conditions. The main design element of this pilot is a center-running bikeway that is accompanied by bikeway separation materials, bike signals, and bike boxes as shown in Figures 3-5. Two-stage turn boxes are included at all intersections to accommodate bicycle turns on and off Valencia, except for 15th and 23rd streets, where signal modifications, including new bicycle signals and signal timing changes were installed to accommodate a new bicycle phase. New bikeway separation materials, including bus lane curbs and K71s, which had not been previously used in San Francisco, were included in this design.



Figure 3 New Bike Boxes on Valencia



Figure 4 New Bike Signals at Valencia/  
23<sup>rd</sup> Streets



Figure 5 New Bikeway Separation  
Materials

To improve pedestrian safety, the project implemented daylighting and advanced limit lines to improve visibility among vehicles, bicyclists, and pedestrians and to discourage vehicles from encroaching into the crosswalk. The project also included vehicle left turn restrictions onto all side streets to reduce the overall number of conflict points at the intersections.

The complementary curb management plan included a reconfigured curb layout for Valencia, new cross street meters, and the application of dual use zones and general loading zones. Introduced by the SFMTA in 2021, dual use zones allow users to pick up or drop off goods in their personal vehicle and to leave their vehicles unattended for up to five minutes. By combining these general loading zones and commercial

loading for trucks and vehicles, a “dual use” zone is created. This is a zone where there are two regulations in the same curb space at different times of the day to increase the number of loading zones both physically and temporally along the corridor.

The suite of tools used for this pilot is reflected in the plan view and cross section shown in Figures 6-7.

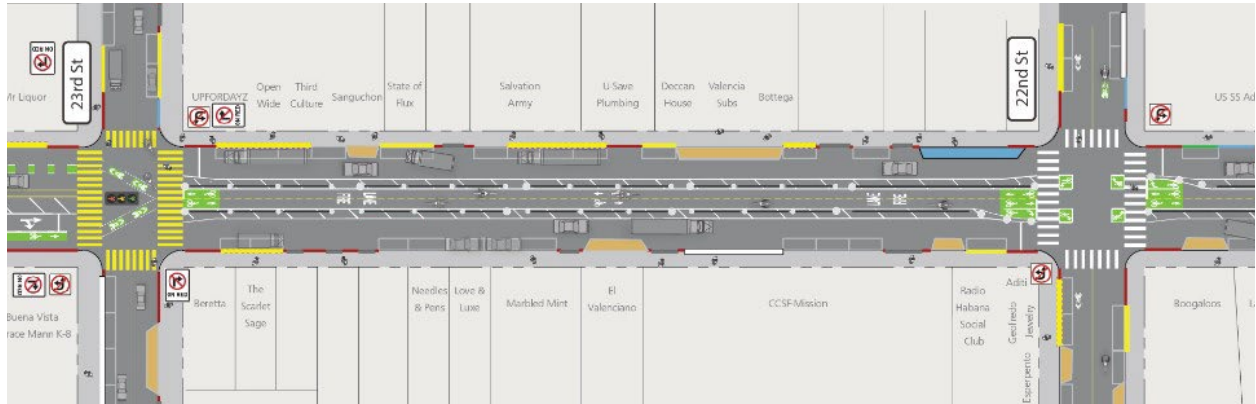


Figure 6 Plan View of Center-Running Bikeway

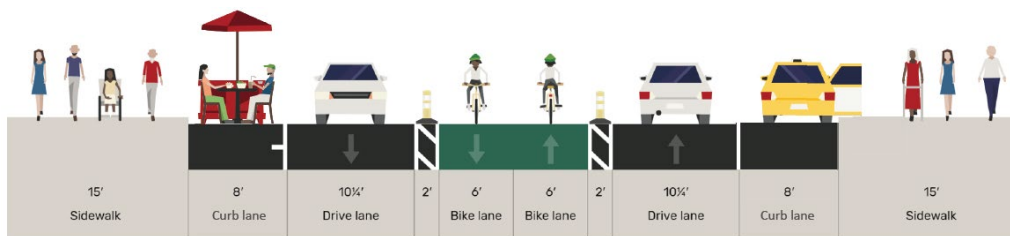


Figure 7 Cross Section of Center-Running Bikeway

### Pilot Evaluation

The mid-Valencia bikeway pilot finished construction on August 1, 2023, at which time the 12-month evaluation period began. This bikeway design and curb plan is being evaluated on metrics, including safe behavior, effective design, and mobility, in fall 2023, spring 2024, and summer 2024 to inform the final design and preferred alternative. To gauge changes in safe behavior, observations will be made of user compliance with the new left-turn restrictions and bicycle signals, vehicles speeds, and bicycle and pedestrian conflicts at the intersection. Traffic collision data, vehicle loading behavior, bicycle positioning along the street, bikeway ease of access, and emergency vehicle interactions with the bikeway are metrics that will be evaluated to determine if the center-running proposal is an effective design. To better understand mobility trends, bicycle, pedestrian, and vehicle volumes; transit travel times, and changes in vehicle congestion levels will be observed.



Figure 8 People on Bikes in the Valencia Center-Running Bikeway

Upon reviewing data collected at the three-month milestone in October and November 2023, the data shows that the pilot design with its center-running bikeway and curb management plan has improved traffic safety, especially bicycle safety, and loading access on the street.

From a bicycle safety standpoint, the center-running bikeway has reduced many factors that led to traffic

collisions in the previous Class II bike lanes. The new bikeway is rarely blocked by vehicle loading, therefore people on bikes can ride through the corridor without the constant need to mix with vehicle traffic. Vehicle left and U-turns are less frequent, which has helped to reduce conflicts at the intersections, and the turn restrictions have generally shown a high compliance rate from people driving. In pre-pilot conditions, conflicts were less predictable and occurred randomly throughout the roadway. With the new design, traffic collision patterns are concentrated at intersections, but additional design revisions and increased enforcement are needed to ensure compliance with the turn restrictions.

From a loading access standpoint, the curb management plan significantly increased loading availability and better matched the regulations to the needs of the corridor for commercial activities. Overall, throughout the day, the frequency of double parking has been significantly reduced with more vehicles now loading in designated loading zones. However, double-parking continues to be an issue in the evening, therefore more curb management work is required to encourage safer loading practices.

Key findings from the [Mid-Valencia Pilot 3-Month Evaluation](#) report are summarized below:

Metric	Key Finding
<b>Review of traffic collision factors</b>	Factors related to the pre-pilot design have been significantly reduced
<b>Vehicle left turn frequency (turn restriction compliance)</b>	1% of through volumes (pre-pilot: 8%)
<b>Frequency of double parking / loading in the bikeway (vehicle loading)</b>	13% / 0.1%
<b>Review of vehicle loading activity and loading characteristics</b>	Implemented loading regulations better match user needs based on higher compliance of loading at the curb and observed vehicle dwell times
<b>Vehicle incursions in the bikeway</b>	1%; 3-4 vehicles per hour
<b>Average daily vehicle speed</b> <i>Measured at the average, 50<sup>th</sup> (median) and 85<sup>th</sup> percentile</i>	-1 mph
<b>Average daily vehicle volume</b>	-26%
<b>Average daily bicycle volume</b>	+3%
<b>2-hour pedestrian volume (AM and PM peak)</b>	-5%
<b>Bicycle signal compliance / vehicle signal compliance</b>	79% / 98%
<b>Bicycle and pedestrian interactions at the intersection</b>	5% of crossing pedestrians interact with a person bicycling. When compared to the northern design (side-running), there is little difference between post-implementation bicycle-pedestrian interaction rates.
<b>Bike positioning</b>	98% of bicyclists are in biking the in bikeway (pre-pilot: 88%)
<b>Traffic Impacts on adjacent street</b> <i>Measured by using vehicle speeds and vehicle travel time on parallel neighboring streets</i>	Insignificant to no change on all metrics evaluated

Overall, the major finding from the pre-implementation and 3-month post-implementation comparison is that the observed positive effects or preferred impacts from the pilot design have improved over time. Typically, user behavior requires 3 to 6 months post-implementation to stabilize due to an adjustment period to the new design. The evaluation's key metrics will be re-evaluated at the 6-month milestone, at which time an intercept survey will also be deployed to measure people's perceptions on the new design.

### **Application of Innovative Ideas**

This 12-month pilot is San Francisco's first center-running bikeway project. Though an unconventional and controversial design, a center-running protected bikeway design created an opportunity not currently available along Valencia, fully separating bikes from moving vehicles. When vehicles double-parked in the previous Class II bike lanes, those who were traveling by bike did not have the choice of avoiding moving vehicle traffic. People on bikes often had to maneuver into the vehicle travel lane to get around the double-parked vehicle. The center-running protected bikeway separates bicycle traffic from the various travel and curb lane activities that led to multimodal conflicts, while considering the needs of the commercial corridor by preserving curb space for loading and parklets. The center-running bikeway utilizes two-stage turn boxes and bike signals in a non-traditional way to facilitate movements on and off the center-running facility, and the curb management plan builds upon traditional loading zones with the introduction of general loading zones and dual use zones. Other alternatives, including a two-way protected bikeway on one side of the street or pedestrianizing Valencia Street, were also considered for the corridor, but these concepts require traffic and circulation studies, capital improvements for signal infrastructure, extensive environmental clearance, and further community engagement and outreach. Therefore, the project team had to think creatively and innovatively to address the current safety challenges on Valencia in the near-term with a center-running bikeway.

### **Commitment to the Advancement of the Profession**

As transportation professionals continue to work to create better complete streets, we will need to find more tools for our bikeway design toolkits. The SFMTA implemented its first parking-protected bikeway in 2012, and even though this design has been used throughout the City and throughout the country for over 10 years, it was not the correct answer for Valencia Street as it was emerging from the pandemic. While intersection designs for parking-protected bikeways have always been challenging, a center-running bikeway forces transportation professionals to thoroughly consider the design alternatives to safely transition people on bikes on and off the center-running bikeway and onto cross streets. Finally, this pilot project also encourages additional conversations about what makes a bikeway accessible for all ages and abilities, how safety and comfort are defined for bikeways, and the joy that comes from being on a bike.

### **Applicability to the Industry**

When the SFMTA initially considered a center-running bikeway, the project team conducted interviews with other jurisdictions who have implemented similar designs to better understand the challenges and opportunities. This 12-month center-running bikeway pilot on Valencia is another case study for center-running bikeways in the USA that can be studied alongside Pennsylvania Avenue in Washington, D.C., Sand Street in Brooklyn, NY, and North Fremont Street in Monterey, CA to determine if this design is viable on streets in this country. The SFMTA has committed to three evaluation periods within a 12-month period to thoroughly and comprehensively understand if this is an effective design for safety and mobility, and this data will contribute to the literature and ongoing dialogue about bikeway designs, especially in urban settings, in professional organizations like ITE.