Getting to the Curb

A Guide to Building Protected Bike Lanes That Work for Pedestrians

This report is dedicated to Joanna Fraguli, a passionate pedestrian safety advocate whose work made San Francisco a better place for everyone.

This report was created by the Senior & Disability Pedestrian Safety Workgroup of the San Francisco Vision Zero Coalition. Member organizations include:

- Independent Living Resource Center of San Francisco
- Senior & Disability Action
- Walk San Francisco
- Age & Disability Friendly SF
- San Francisco Mayor's Office on Disability

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- ***Annette Williams***, San Francisco Municipal Transportation Agency
- ***Jamie Parks***, San Francisco Municipal Transportation Agency
- ***Kevin Jensen***, San Francisco Public Works
- ***Arfaraz Khambatta***, San Francisco Mayor's Office on Disability

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Introduction

Standard Protected Bike Lane Design Poses Safety and Accessibility Challenges for Seniors and People with Disabilities

Cities have been implementing "protected" bike lanes, also known as cycle tracks, to provide safer environments for bicyclists and to provide more comfortable spaces that can attract new cyclists to city streets.

Cycle tracks are bike lanes that are separated from traffic with infrastructure such as soft-hit posts, raised medians, planters, a transit island, or a lane of parked cars. On streets with parking, cycle tracks are usually located against the curb, with the parking "floating" on the other side of the cycle track.

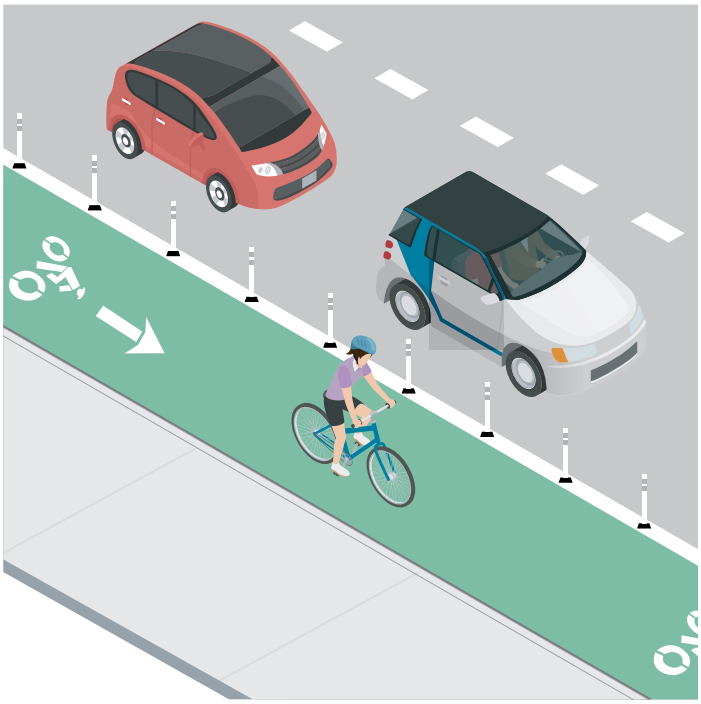

Figure 1. Cycle track protected by soft-hit posts.

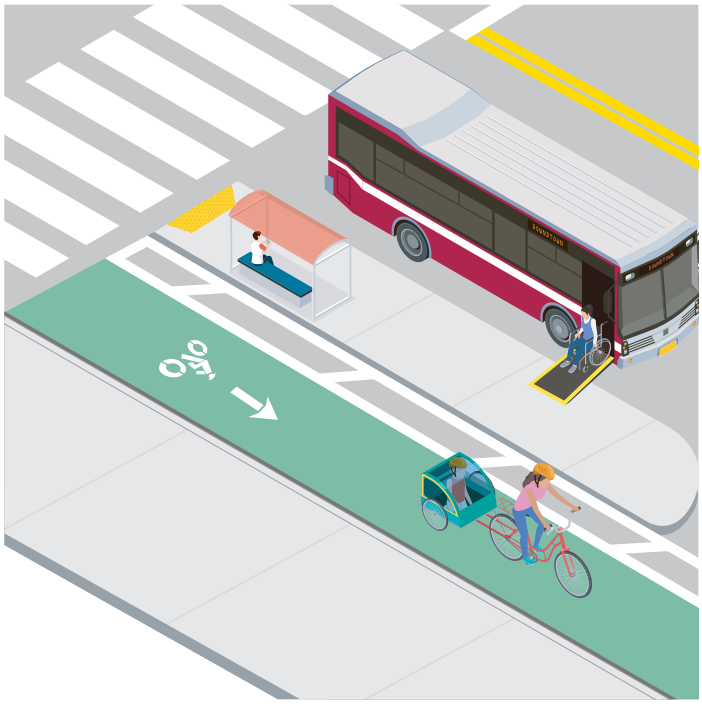

Figure 2. Cycle track protected by a transit island.

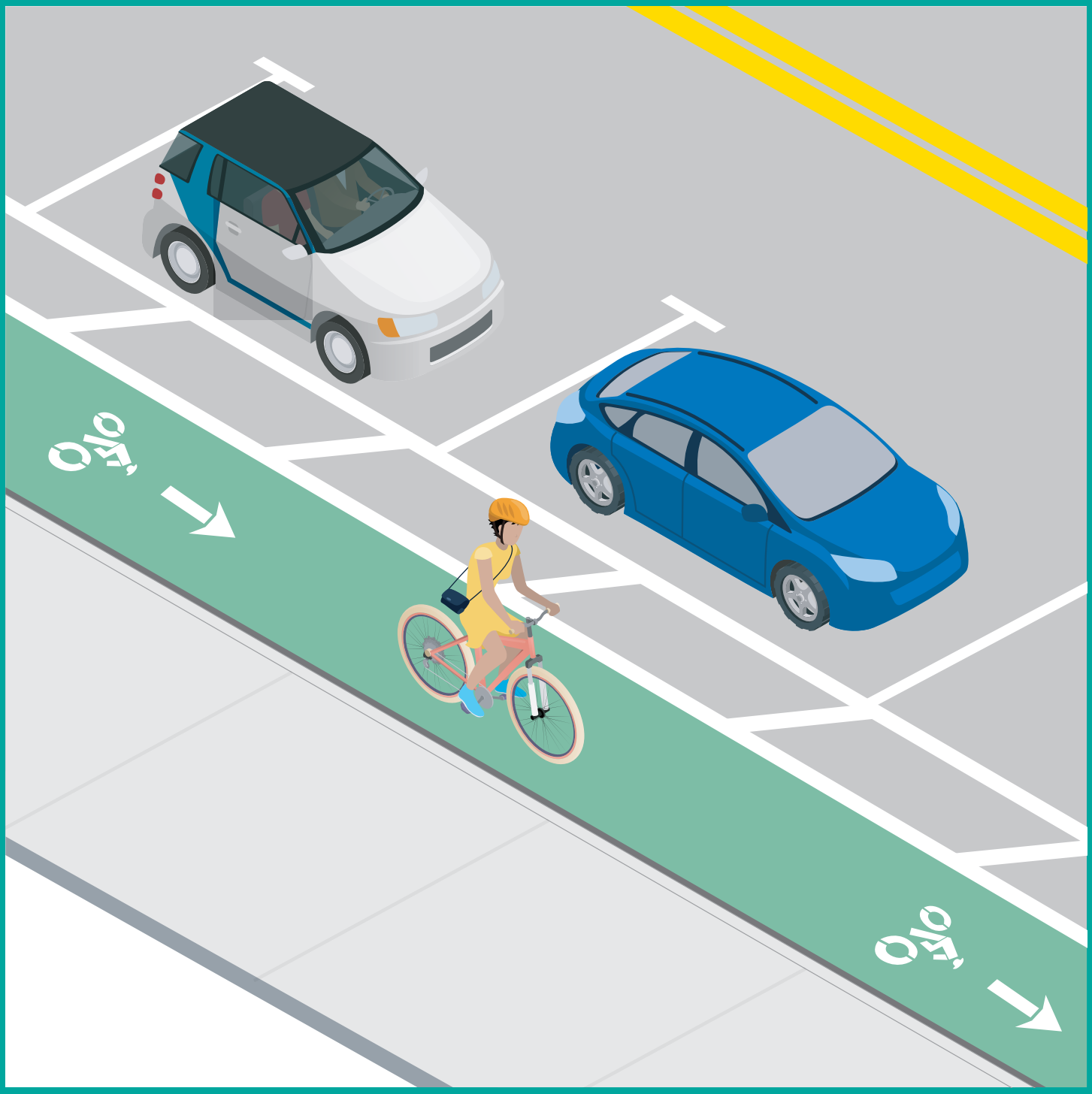

Figure 3. Cycle track protected by parking.

Figure 4. Cycle track protected by a median with plantings.

Safe bike infrastructure is imperative for protecting bicyclists and is one of the ways cities can get closer to Vision Zero, the goal to end all severe and fatal traffic crashes.

Although cycle tracks create safer conditions for bicyclists, their location next to the curb has two major impacts:

1. **It eliminates direct access to the curb for people parking or being dropped off.**
2. **It often results in pedestrians having to cross an active cycle track to access parking and transit islands.**

While these changes may only be a minor inconvenience for able-bodied individuals, **they are more problematic for people with disabilities or seniors who rely on easy access to the sidewalk.**

Sidewalks are not just ways to get from one end of the block to the other. They provide access from the curb to buildings and open space, they provide access to bus stops, and they provide a safe space to get pedestrians where they need to go. Access to the sidewalk needs to be safe, direct, and as plentiful as possible.

Cycle tracks must be designed to not only protect bicyclists, but also to not disadvantage or endanger pedestrians. Such a design is difficult, given constraints in right-of-way and funding, but it should be the goal.

This guide grew out of an effort to provide solutions to problems with early cycle track designs in San Francisco by the Senior and Disability Pedestrian Safety Workgroup of the San Francisco Vision Zero Coalition. The group came to these solutions over a series of meetings between City staff, advocates, and community-based organizations, which culminated in a three-hour charette on March 6, 2018 called "Designing Protected Bike Lanes That Are Safe and Accessible for Pedestrians."

Overview of this Guide

Every city has different engineering practices, and every street has different characteristics and needs. Therefore, this guide doesn't offer strict design guidelines, but rather larger considerations and specific design features that solve some of the challenges that cycle tracks pose for pedestrians.

The Importance of Universal Design

Universal design is a design methodology that ensures that people of all ages and abilities can utilize the end product.

Universal design creates better streets for everyone. Making sure bike lane design accommodates pedestrians who are older or who have disabilities isn't about designing streets for a special interest group. It's about building streets that work for all users. Also, design that meets the needs of one group often enhances streets for the needs of others. For example, curb ramps were designed to make public streets and sidewalks accessible for wheelchair users. Curb ramps also benefit many other users, including families with strollers, seniors with shopping carts, people walking their bikes, and delivery people using dollies.

Finding a design solution that meets the needs of 100% of the population is sometimes impossible, but designing the most inclusive, boundary-pushing protected bike lanes that do not compromise safety for any user should always be the goal.

The seven main principles of Universal Design are included here. For more information, please visit the National Center on Accessibility at Indiana University Bloomington's website.

Universal Design Principles

1. Equitable Use
2. Flexibility in Use
3. Simple and Intuitive Use
4. Perceptible Information
5. Tolerance for Error
6. Low Physical Effort
7. Size and Space for Approach and Use

Universally designed protected bike lanes avoid causing unnecessary movements, trips, or workarounds for pedestrians. Because Universal Design isn't standard practice in much of our street design, we could not find examples of bike lanes that were designed for all users. Instead, we are sharing examples of common bike lane designs that are **not** accessible for pedestrians.

Examples of Cycle Tracks That Don't Meet Universal Design Standards

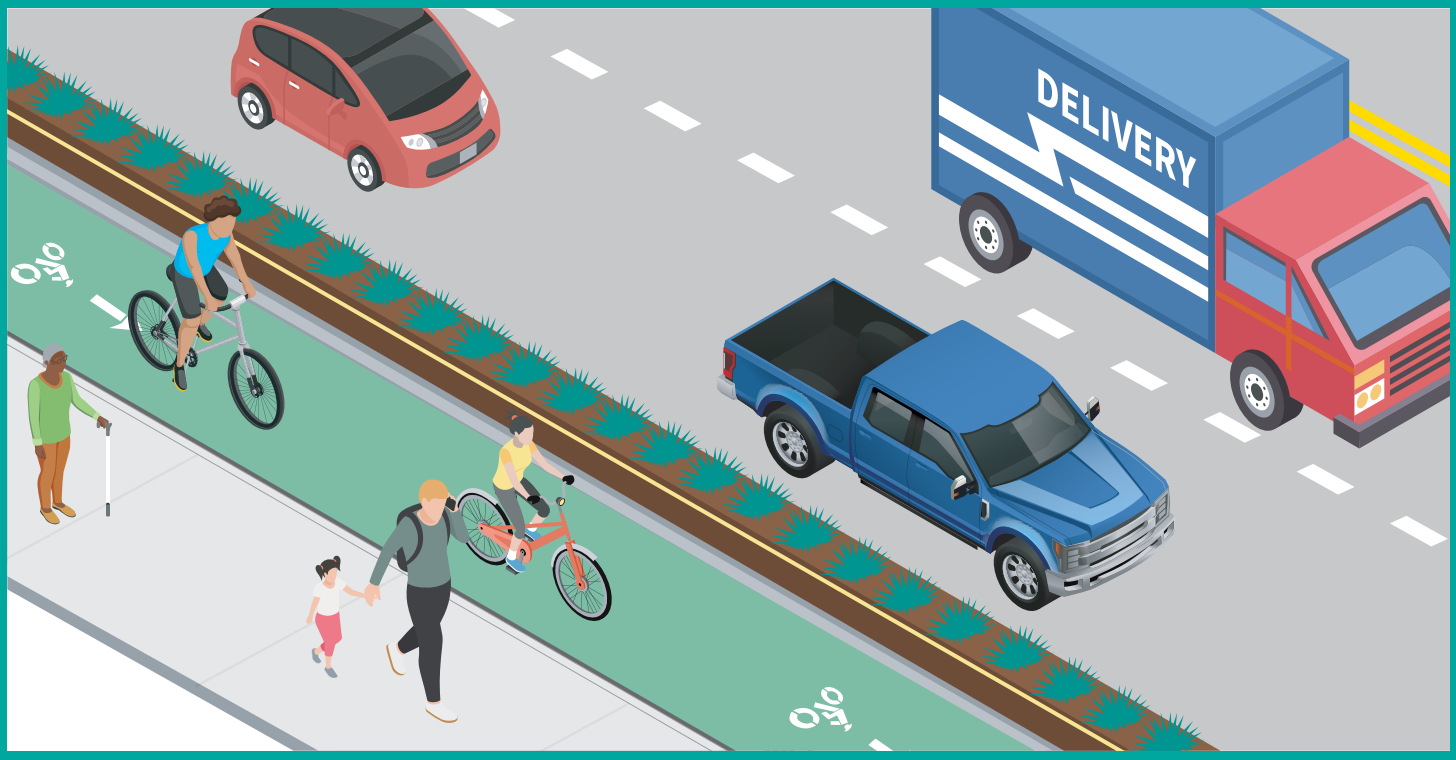

Figure 7. Cycle track protected by planters does not allow for accessible loading and unloading or paratransit pick-ups or drop-offs to destinations along the corridor.

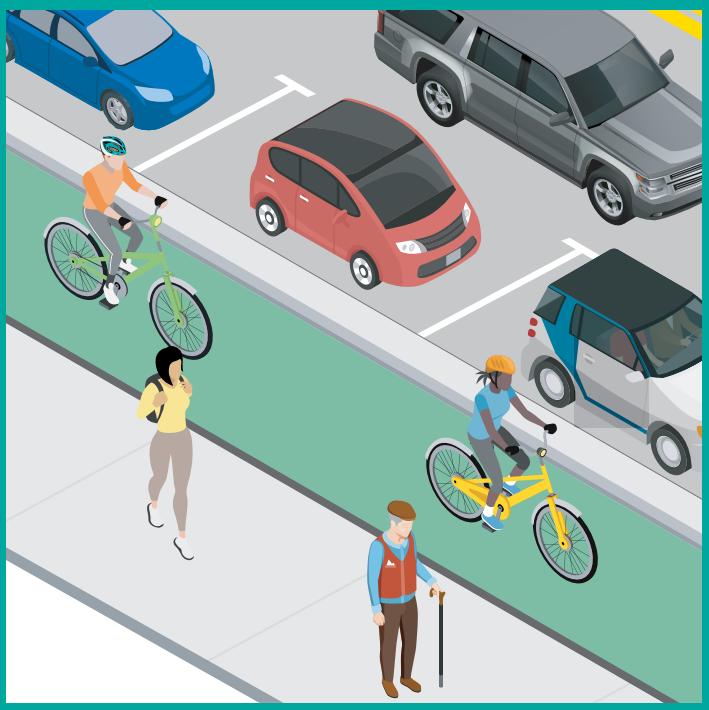

Figure 5. Cycle track protected by an inaccessible raised cement buffer. This buffer is too narrow for a person in a wheelchair or walker to navigate. It does not provide space for deployment of a vehicle wheelchair ramp. It also requires someone to dismount the raised buffer or travel to the end of the buffer zone to find a ramp.

Figure 6. Parking-protected cycle track with no ability for people exiting cars to accessibly and intuitively access the curb. Plastic bollards obstruct the "path of travel," forcing those who must access the sidewalk via a ramp to travel in the bike lane.

Providing Safe and Plentiful Access to the Curb

Challenges Crossing Cycle Tracks

When cycle tracks are installed, new challenges are created for pedestrians.

Crossing a new lane of traffic. When transit stops, parking, and loading are moved into the street on the other side of the cycle track, pedestrians must now cross a lane of bike traffic to access the curb. Navigating a flow of bicyclists can be especially challenging for seniors and people with disabilities.

Longer distances to travel. Parking that is "floating" in the street, like that shown in Figure 8, increases the distance one has to travel from their vehicle to the sidewalk, which can be a problem for someone who uses a wheelchair or has trouble walking long distances.

Figure 8. Parking-protected cycle track where two individuals have exited their car into a narrow buffer and are narrowly avoiding a cyclist passing by. There is no accessible way to reach the sidewalk once they cross the bike lane.

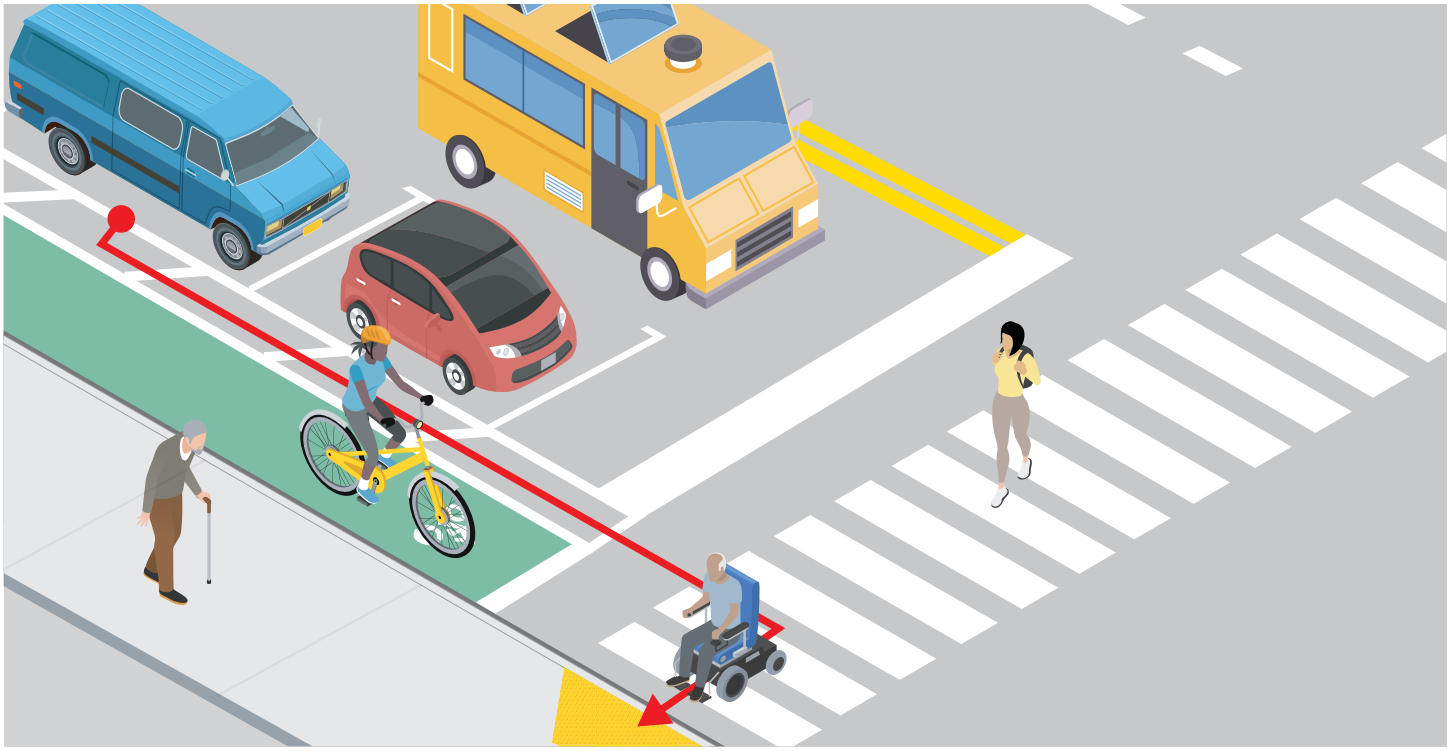

Figure 9. The arrow shows the path a person with a wheelchair, walker, or other assistive device must now travel to access the sidewalk from a parking spot that is located on the street-side of a cycle track.

Getting on and off the sidewalk or transit island.

- **Grade challenges.**
  For individuals with walkers or wheelchairs, or for those who are unsteady on their feet, it can be difficult to travel all the way to the ramp to get to the curb. Descending the transit island into the cycle track to then ascend the sidewalk curb can be difficult. These users will have a similar challenge mounting the sidewalk curb when they are not able to travel to a far-off ramp from floating parking.

- **Decreased access.**
  People who use a mobility device (e.g., wheelchair or walker) no longer have full access to the bus stop from the sidewalk and need to use the available ramp to gain access to the transit island.

- **Awareness of transit islands.**
  Blind or low-vision individuals can become disoriented when looking for the transit island or exiting from a bus onto a transit island. They may not know they are on a transit island when exiting a transit vehicle, they may not know where to safely cross to get to the sidewalk, and they may not be able to find bus stops if they have been relocated to transit islands.

Getting in and out of a vehicle. People with disabilities may now have a harder time getting in and out of a car, van, or shuttle, because removing access to a curb means they have to step down into the street then up onto the curb.

Unintended Consequence: Fewer and Less Convenient Blue Zones

In San Francisco, blue zones (accessible parking spaces per ADA requirements) are often excluded from floating parking areas because the parking buffer tends to be narrower than the width required by ADA for loading. In these cases, the San Francisco Municipal Transportation Agency moves the blue zones to side streets close to floating parking, which is burdensome for individuals looking for accessible parking.

Many of the accessibility challenges that people with disabilities face come from having to move between spaces that have different heights, such as sidewalks and streets. The solution to this problem has mainly been the addition of curb ramps. Although curb ramps have been a revolutionary design feature for people with disabilities, more can be done to create accessible access points to areas separated by protected bike lanes.

Raised Crossings and Speed Management

Raised crossings eliminate the need for individuals to navigate getting on and off the curb. They also increase visibility of pedestrians across the bike lane and act as an effective speed management tool for bicyclists.

Cycle tracks must be designed to ensure that cyclists are travelling at a safe speed when approaching areas where people will be crossing a bike lane. Tools include rumble strips, speed bumps, or a narrowed lane.

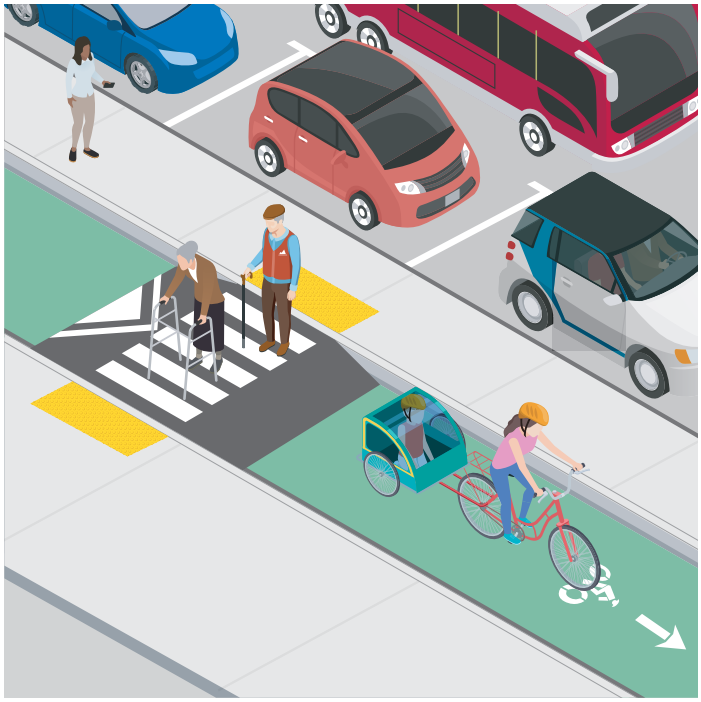

Figure 10. Cycle track protected by a concrete median, with a raised crossing. Median must be wide enough to comfortably navigate and facilitate wheelchair ramp deployment.

Figure 11. Two-way protected cycle track with a wide raised crossing to a transit island.

Figure 12. Rumble strips slow down bicyclists and alert riders to an upcoming pedestrian crossing.

Figure 13. Speed bumps with drainage strips.

High-Visibility Crossings

High-visibility crossings are important for the safety of pedestrians because they designate a clear location for pedestrians to cross and deter cyclists from encroaching into crosswalks when they are being used. High-visibility crossings are easy to notice because they are bright in color and contrast with the bike lane.

Figure 14. Raised crosswalk across a two-way cycle track painted with a bright rainbow motif.

Figure 15. High-visibility raised cycle track with high-contrast crosswalks that lead to a transit island.

Accessible Loading Islands

Some people need to be transported directly to their destination, which is why paratransit vehicles must provide "origin-to-destination" access.

Some cycle tracks eliminate curb access for an entire block due to the use of protection that cannot be permeated, as shown in Figure 1. This inability to access the curb is onerous for those who need door-to-door access. When these types of cycle tracks are built on blocks that contain services and other destinations, advocates and City staff in San Francisco have discussed using "accessible loading islands" as a design solution. These islands are a safe area that can handle a variety of pick-ups and drop-offs when direct curb access isn't available.

Accessible loading islands function like a transit island, but are not designed for use by municipal transit. These islands would serve paratransit, bus, van, and private automobiles.

Design Considerations for Accessible Loading Islands

- Should be sidewalk level.
- Need to be at least 8 feet wide to allow use of a vehicle's wheelchair ramp or lift.
- Should be located midblock.
- Should have a designated area for seating and greening when widths greater than 8 feet are available.
- Should have multiple access points that are well marked, ideally with raised crossings.

If the bike lane is raised to the level of an accessible loading island, a buffer between the loading zone and the bike lane needs to be created.

Figure 16. A shuttle picking up passengers from an accessible loading island.

Building a Better Buffer

When a bike lane is protected by parking, a buffer is created between the parking spaces and the bike lane. This buffer can take several forms: it can be a concrete median or platform, or it can be a painted buffer (the most common design currently used in San Francisco). Either way, this buffer area serves three functions:

1. **It provides a space for individuals to get in and out of vehicles.**
2. **When it is wide enough, it can serve as a "path of travel" — a space that pedestrians can use to travel to and from the curb.**
3. **It protects bicyclists from being hit by car dooring.**

Buffer Design Standards

The Americans with Disabilities Act Accessibility Guidelines (ADAAG), which outline standards for accessible design in a number of areas, do not address protected bike lanes. There are no direct ADAAG recommendations for minimum buffer widths between a parking lane and a protected bike lane. There are also no ADAAG standards that require accessible paths of travel from floating parking spaces, unless those floating parking spaces are designated blue zones, for which a separate set of accessibility requirements must be met.

The National Association of City Transportation Official's (NACTO's) *Urban Bikeway Design Guide*, a commonly used design manual, recommends the following guidelines for buffer design alongside one-way cycle tracks:

> *When configured next to a parking lane, 3 feet is the minimum desired width for a parking buffer to allow for passenger loading and to prevent dooring collisions. The buffer can be at street level or at the level of the cycle track.*

[1] "Dooring" is a traffic collision in which a cyclist rides into a car door or is struck by a car door that was opened quickly without the driver checking first for cyclists by using the side mirror and/or performing a proper shoulder check.

Notice that this recommendation does not mention the possibility of the buffer being used as a path of travel, although it does recognize loading needs.

Without national design standards that take accessibility into account, protected bike lanes will not consistently serve all pedestrians. In the absence of such guidelines, some municipalities have stepped up by developing their own standards. Knowing that people would use these buffers as travel ways, the City of San Francisco took ADAAG's "path of travel" requirements, adapted them to the context of protected bike lanes, and came up with their own minimum and recommended buffer widths, as shown in the table below.

Although the City of San Francisco's buffer minimums result in buffers that are generous compared to the designs used by many other cities, these minimums still do not meet the needs of all users, especially the need for an ample path of travel for wheelchair users from floating parking. When designing buffers, we strongly encourage cities to go beyond minimum standards and work with the community to find the widths that best serve people with disabilities.

Figure 17. Table of Separated Bikeway Buffer Dimensions found in the City of San Francisco's "Guidelines for Accessible Building Blocks for Bicycle Facilities" document.

SEPARATED BIKEWAY BUFFER DIMENSIONS		
Description	**Recommended Width (ft.)**	**Minimum Width (ft.)**
Painted buffer adjacent to parking**	5	4
Raised buffer adjacent to parking***	5	4
Buffer adjacent to white zone or blue zone	5	4
Buffer adjacent to van accessible blue zone	8	8

** Although four feet (4') is the preferred minimum, in exceptional cases, such as when the buffer area, bikeway, and parking lane add up to less than eighteen feet (18') and parking turnover is low, a painted buffer may be as narrow as three feet (3') with approval by SFMTA Accessible Services.

*** Raised buffer minimum width is exclusive of the width of the curb (typically 6" on each side). Thus the net width of the minimum buffer is five feet (5').

Buffer Design Challenges

Buffer area is not wide enough to allow safe and comfortable exiting from vehicles. The buffer area between the parking and the cycle track may not be wide enough for those exiting a vehicle or deploying a ramp to be at a safe distance from passing bicyclists.

Buffer area is not safe for traveling to a crossing. Traveling down the buffer area can sometimes feel too narrow and too close to the cycle track and its moving traffic.

Insufficient access points to the curb. The buffer oftentimes does not lead to an accessible crossing, which leaves people traveling down it with no clear or safe place to cross to the curb. In addition, there are often no accessible ramps at the end of these buffer areas.

Confusing markings in the buffer. The markings in the buffer area often do not intuitively indicate that the area is for people to use. In fact, the markings could be interpreted as indicating an area that should not be occupied at all.

Obstacles in buffer. The buffer area can sometimes contain obstacles, making it difficult, if not impossible, for people to use it to travel to/from the parked cars. This leaves people who cannot mount a curb and need a ramp stranded in the buffer zone or unable to reach their vehicle, unless they venture into the cycle track to get around the obstacle, which could be dangerous.

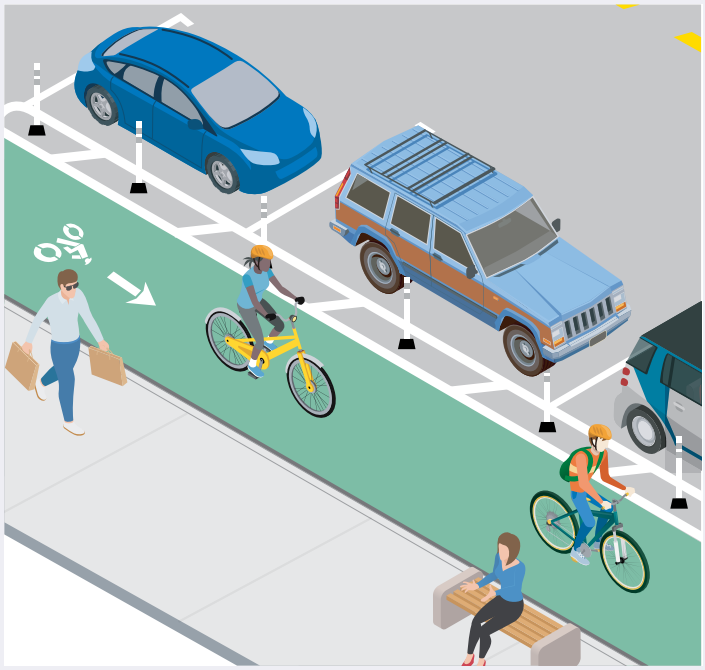

Figure 18. Parking-protected cycle track with narrow buffer and soft-hit posts obstructing the path of travel. A wheelchair user would not be able to unload from a vehicle in this design, and people using wheelchairs or walkers could not navigate safely down the buffer to an accessible crossing.

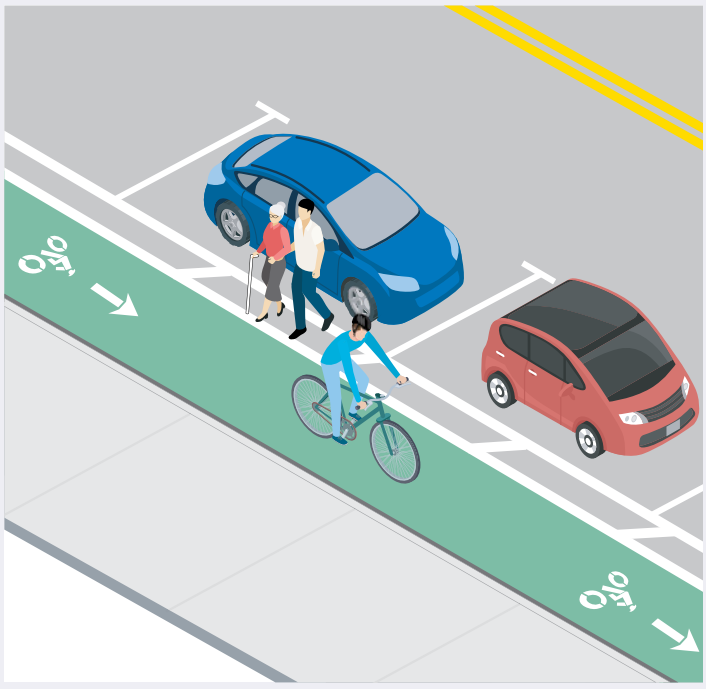

Figure 19. Parking-protected cycle track with narrow buffer and no accessible way of getting to the sidewalk.

Solutions

Buffers That Are Wide and Free of Obstruction

Buffers that are wide and free of obstacles allow for comfortable loading and unloading to and from vehicles. They also make for safer paths of travel to accessible curb ramps.

Connection to Safe Crossings

All buffers should lead to safe and accessible crossings.

Multiple Crossings Distances of Travel

There should be multiple accessible crossings from floating parking, loading, and transit islands. Multiple crossings give wheelchair users or people with mobility challenges more flexibility and create shorter distances travel to reach the sidewalk.

Soft-Hit Post Placement

Oftentimes, temporary soft-hit posts are installed to add light protection and delineation to a protected cycle track. When they are used next to parking or loading areas, it is important to consider spacing. Making sure the posts are positioned so they do not block the opening of doors or deployment of lifts or ramps is necessary to ensure accessibility.

Figure 20. Parking-protected cycle track buffer area with confusing markings.

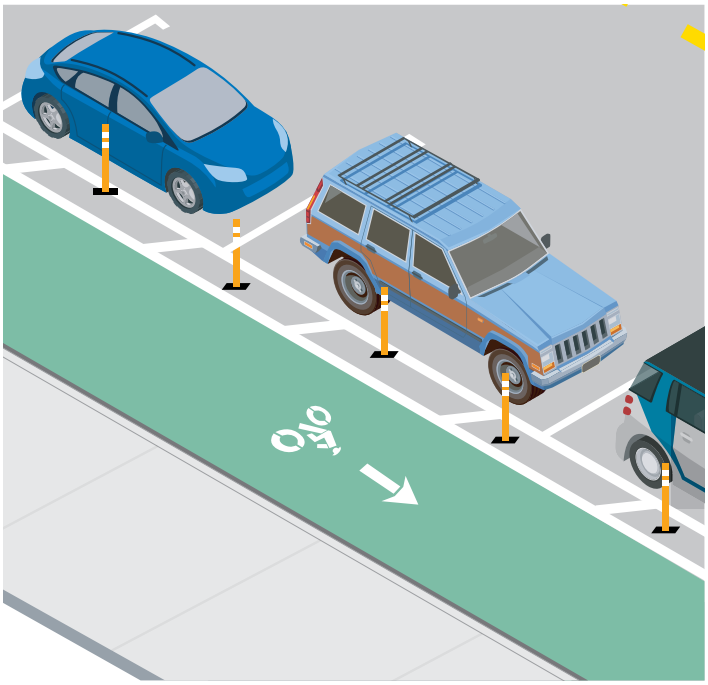

Figure 21. Parking-protected cycle track with orange delineator posts blocking vehicle loading and unloading possibilities as well as obstructing the buffer/path of travel area.

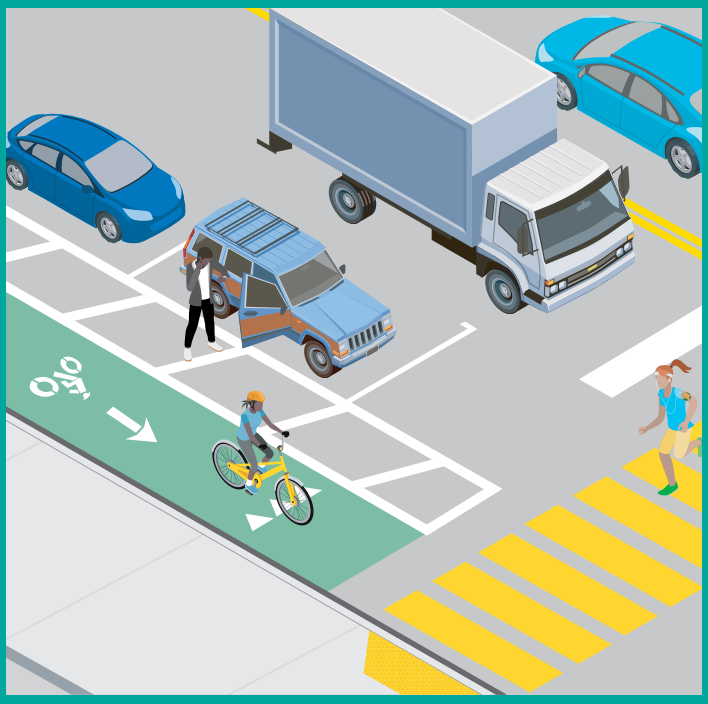

Figure 22. Parking-protected cycle track with ample buffer, free of obstructions, and leading to a crosswalk with a ramp.

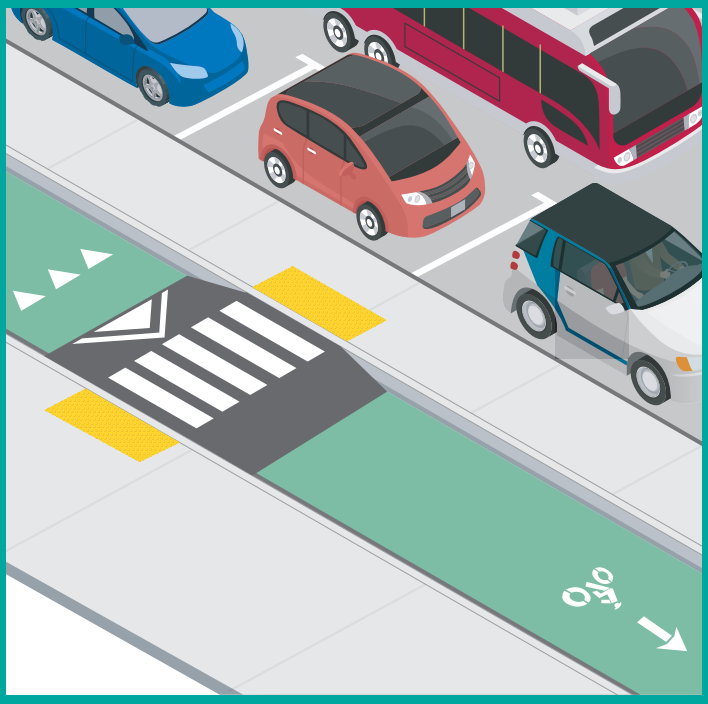

Figure 23. Parking-protected cycle track with a wide, unobstructed concrete median.

Figure 24. Parking-protected cycle track with a raised, wide median that serves as a buffer. Features a raised, high-visibility crossing from the buffer to the sidewalk.

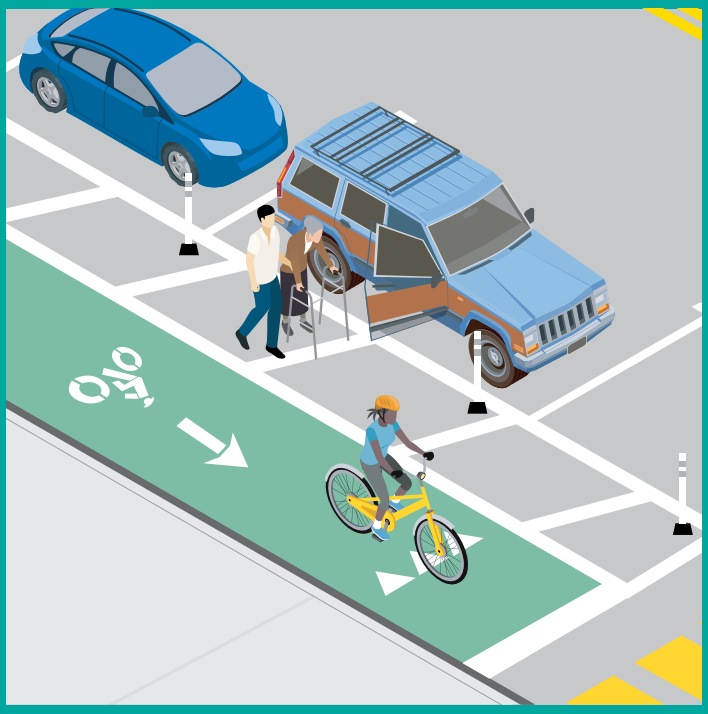

Figure 25. Parking-protected cycle track with soft-hit posts. Posts are spaced with enough room for vehicle doors to fully open and lifts or ramps to be deployed.

Figure 26. Transit island with accessible crossings at both ends of the island. One crossing is raised, which is both accessible and acts as a speed management device for oncoming bicyclists. The second crossing is a ramp that feeds directly to a wide, high-visibility crosswalk and curb ramp.

Staying Nimble: Temporary Design

Designing protected bike lanes that work for all users is extremely complex and oftentimes is not successful upon first try.

Starting with a pilot design that is flexible and can easily be modified. Flexible design can be executed using near-term, lower-cost engineering treatments such as paint and soft-hit posts. After a design is implemented, it can be easily changed based on user experience.

Engage Seniors and People with Disabilities

Even for pilots and temporary designs, do not wait until after the design is in the ground to see how it works for seniors and people with disabilities. Engage these user groups in the initial design process, in order to start with a design that is most likely to serve everyone. In addition, seniors and people with disabilities should be consulted during implementation, to determine how the design is or isn't meeting their needs, so that future designs can be improved.

Don't Forget the Funding

More and more, cities are designing quick and inexpensive bike lanes using paint and posts. While this nimble design style is great for getting vital safety infrastructure in the ground quickly, it does not always lend itself to accessible design. For example, curb ramps, which are more expensive than paint and posts, are often left out of these quick projects, meaning that accessible crossing opportunities are limited. Often, a long-term project with capital improvements (including ramps and raised crossings) is planned for the future, but that future is typically several years out. Waiting years for bike lanes to be made accessible for pedestrians is unacceptable. **We urge agencies, planners, and engineers to include sufficient funding in near-term or quick-build projects so they can include vital accessibility features like curb ramps.**

Examples of Designs That Utilize Temporary

While we're not necessarily recommending the following designs, they provide clear examples of temporary or low-cost pilot options.

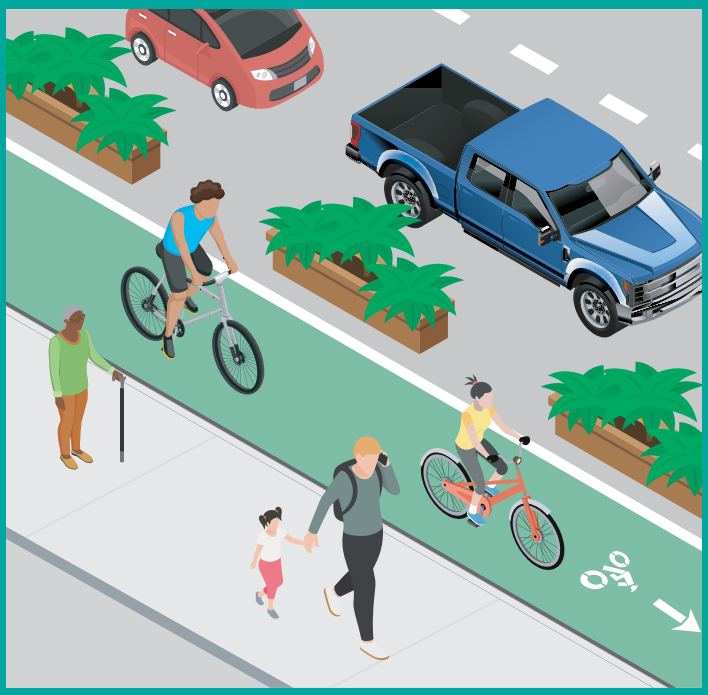

Figure 27. Cycle track protected by temporary planters. *(Note: This specific design may not provide sufficient access to the curb.)*

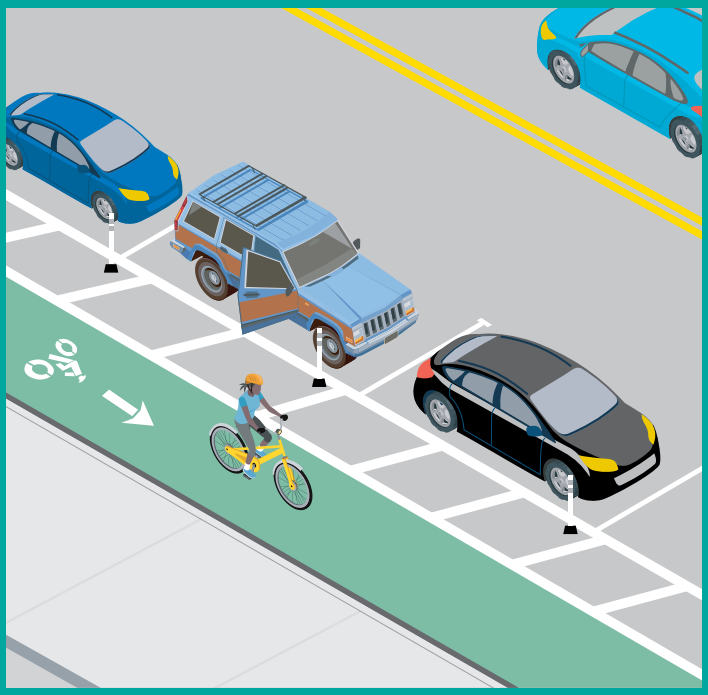

Figure 28. Cycle track protected by paint and soft-hit posts.

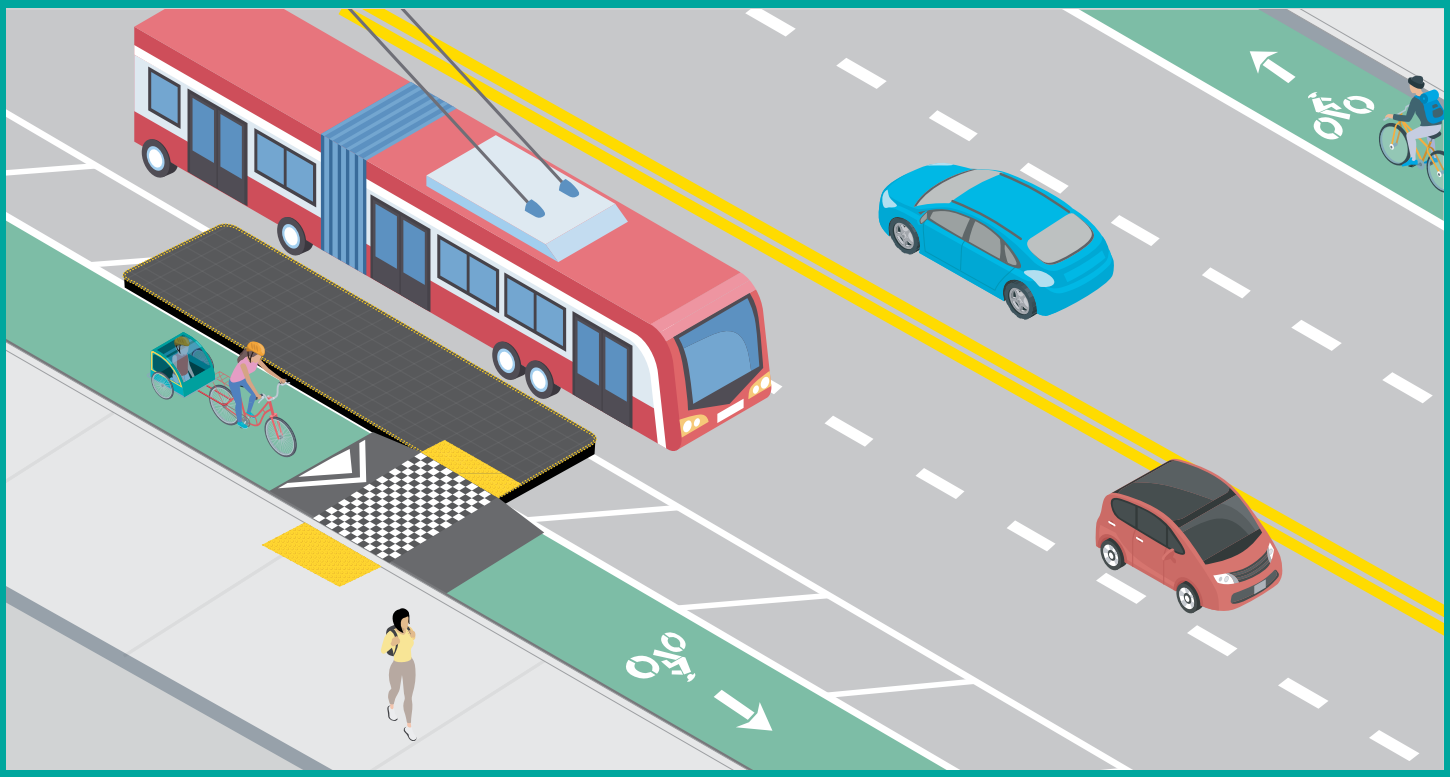

Figure 29. Pre-fabricated transit island that includes a raised cycle track crossing along the sidewalk curb.

A Word About Sidewalk-Level Cycle Tracks

As cities strive to create more inviting environments for people biking, city planners are turning to sidewalk-level cycle tracks to enhance safety and create biking facilities that are fully separated from motor vehicles. Making these designs safe and accessible for all sidewalk users is a great challenge. There are no national standards and few, if any, local guidelines.

When cycle tracks are immediately adjacent to, and at the same level as, the sidewalk area, dangerous interactions may take place between cyclists and pedestrians. For those who are blind or low vision, a sidewalk area that includes a cycle track can create new navigational challenges and conflicts. Also, the same curb access issues that have been highlighted throughout this guide still plague this design style, since people dropped at the curb must cross the sidewalk-level cycle track.

While we discussed the challenges of sidewalk-level bike lanes at our charette, we barely scratched the surface of what could be done to ensure that these designs adequately addressed the concerns of people with disabilities. Therefore, we do not have best practices to recommend. This guide is intended to be a living document, one that does not offer rigid solutions, but that promotes proactive and thoughtful design to increase safety for all users.

Conclusion

We urge planners, designers, transportation advocates, and engineers to constantly research best practices and enhance their knowledge of the needs of people with disabilities and seniors. All too often, the needs of people with disabilities are met with a set of ADA minimum requirements that are, of course, vital to quality of life, but that miss great opportunities to go above and beyond and provide a higher, safer, and more comfortable user experience.

We also urge government agencies that design our streets to prioritize early, deep, and ongoing community engagement with the many diverse stakeholders that make up our cities. By working closely with seniors, people with disabilities, and disability organizations to codesign and pilot context-appropriate solutions, we can create inclusive streets that serve everyone.

Appendix:

Nine Essential Principles for Designing Protected Bike LanesThat Are Safe and Accessible for Pedestrians

While this guide, Getting to the Curb*, was being designed, the Senior and Disability Workgroup also created simple bike lane design guidelines specifically for the City of San Francisco. These Nine Essential Principles, outlined below, do not correspond directly to the chapters in this guide, but the concepts are the same — the content is just organized differently.*

Safe bike infrastructure is imperative for protecting bicyclists and is one of the many ways cities can get closer to Vision Zero, the goal to end all severe and fatal traffic crashes. "Protected bike lanes" are considered the safest type of bike lane. Protected bike lanes built at the level of the street, which are the subject of these guidelines, are located against the curb and are separated from traffic with infrastructure such as soft-hit posts, raised medians, planters, a transit island, a loading island, or a lane of parked cars.

Although street-level protected bike lanes create safer conditions for bicyclists, their location next to the curb has two major impacts:

1. **It eliminates direct access to the curb for people parking or getting dropped off / picked up.**
2. **It results in pedestrians having to cross an active bike lane to access parking, loading, and transit islands.**

While these changes may only be a minor inconvenience for non-disabled individuals, they are more problematic for people with disabilities or seniors who rely on easy access to the sidewalk. Some seniors and people with disabilities cannot safely walk or roll long distances, may need space for assistive devices, and are at greater risk of being hit and injured in a crash with a bicycle.

Seeing problems with early protected bike lane designs in San Francisco, the Senior and Disability Pedestrian Safety Workgroup of the Vision Zero Coalition held a series of meetings between City staff, advocates, and community-based organizations to come up with potential solutions. These meetings culminated in a three-hour charrette in March of 2018, from which the below design principles emerged. (For a more in-depth discussion of these issues, including illustrated examples, see our publication "*Getting to the Curb: A Guide to Building Protected Bike Lanes.*")

To be safe and accessible for pedestrians, protected bike lanes at street level should include the following nine design principles:

PRINCIPLE 1: Institutionalize Inclusive Engagement and Co-Design

PRINCIPLE 2: Design a Wide Buffer Area, At Least Five Feet

PRINCIPLE 3: Ensure the Buffer Area Is Obstacle-Free

PRINCIPLE 4: Build Raised Pedestrian Crossings Across the Bike Lane

PRINCIPLE 5: Install Robust Speed Management Features at Bike Lane Crossings

PRINCIPLE 6: Make Crossings High-Visibility

PRINCIPLE 7: Ensure There Are Access Points to/from the Curb At Least Every 100 Feet

PRINCIPLE 8: Ensure That Quick-Build Projects Include Sidewalk Curb Ramps

PRINCIPLE 9: Include Accessible Loading Islands When No Paratransit Access or Parking

A detailed explanation of the principles follows.

PRINCIPLE 1: Institutionalize Inclusive Engagement and Co-Design

The design and approval of protected bike lanes must be tied to a community process that ensures that bike lanes are accessible to all. Seniors and people with disabilities must be included in this process, and their feedback must be incorporated into final designs. Making engagement more inclusive does not preclude rapid implementation of projects if standard engagement and design review processes are in place.

PRINCIPLE 2: Design a Wide Buffer Area, At Least Five Feet

The buffer serves as an area for people to get in and out of cars, including people with walkers, wheelchairs, strollers, etc. It also may serve as a path of travel to reach an accessible crossing to the curb.

The buffer area between floating parking and the bike lane must be wide enough for people to comfortably exit vehicles and travel to an accessible crossing. Ideally, it should also be wide enough to allow for deploying a ramp or lift from a vehicle. We recommend a minimum buffer width of five feet.

PRINCIPLE 3: Ensure the Buffer Area Is Obstacle-Free

The buffer area must not contain obstacles that impair one's ability to get into / out of vehicles or travel securely along the buffer. For example, placement of soft-hit posts should not impede a clear path of travel. Maintaining an obstacle-free buffer is also important for visibility, since it allows pedestrians getting in and out of vehicles to see oncoming bicycle traffic and vice versa.

PRINCIPLE 4: Build Raised Pedestrian Crossings Across the Bike Lane

Raised crossings allow people to stay at the same level as they travel from the sidewalk, across the bike lane, to the raised infrastructure in the street (like a transit island, raised parking buffer, or raised loading island). Keeping the grade the same eliminates the need for curb ramps that allow users to ascend or descend to the differing levels. Navigating up and down ramps can be burdensome for pedestrians who use assistive devices, so raised crossings allow an easier-to-navigate, more direct path of travel. Raised crossings also increase visibility of pedestrians across the bike lane and act as an effective speed management tool for bicyclists.

- Pedestrian crossings from floating parking, loading, or transit islands should be raised across the bike lane when possible.
- Raised crossings may be discrete crossings across a street-level bike lane, or the entire bike lane could be raised to curb level next to a transit island or loading island.

PRINCIPLE 5: Install Robust Speed Management Features at Bike Lane Crossings

When pedestrian crossings can't be raised, the bike lane design must attempt to slow bicyclists before the pedestrian crossing. Options include markings in the bike lane or bicycle-friendly rumble strips.

PRINCIPLE 6: Make Crossings High-Visibility

Designated pedestrian crossings across the bike lane must be high-visibility to indicate a clear location for pedestrians to cross and to notify bicyclists to expect pedestrians.

PRINCIPLE 7: Ensure There Are Access Points to/from the Curb At Least Every 100 Feet

A long path of travel can be prohibitive for some seniors and people with disabilities. Therefore, infrastructure that is no longer located along the curb – parking, transit stops, loading zones – must be easily accessible. Also, the sidewalk must be easily accessed from this infrastructure. To achieve this, designers must ensure there are multiple access points between the sidewalk and the infrastructure to avoid creating a travel burden. We recommend an accessible point of entry / exit at least every 100 feet. This could take multiple forms, depending on the design variables:

- Raised parking buffer / loading zone / transit island:
    - Raised crossings every 100 feet between raised infrastructure and the sidewalk OR
    - Curb ramps every 100 feet on the raised infrastructure, with corresponding curb ramps at the sidewalk
- Painted parking buffer / loading zone:
    - Curb ramps every 100 feet at the sidewalk

PRINCIPLE 8: Ensure That Quick-Build Projects Include Sidewalk Curb Ramps

Quick-build protected bike lane projects, which are constructed with paint and posts, must also include ample sidewalk curb ramps to minimize travel burden. Waiting years for curb ramps to be installed as part of a permanent project is not acceptable.

PRINCIPLE 9: Include Accessible Loading Islands When No Paratransit Access or Parking

To accommodate people who cannot walk far, access to the curb must be maintained. Therefore, on blocks that contain services and other destinations, when the barrier used to protect a bike lane does not allow paratransit vehicles to cross, or when no parking areas are included, accessible loading islands should be installed. These islands would function like a transit island, yet would serve paratransit and private automobiles. Ideally, the islands would be sidewalk level, at least 8 feet wide, include raised crossings to the sidewalk, and would be located midblock.

Glossary

Accessible
Refers to facilities designed to be useable by people with disabilities.

Blue Zones
Accessible parking spaces per ADA requirements. These colored curb areas are intended to ensure that people with disabilities can park close to public destinations; only those with valid disabled parking placards can use them. Blue zones are marked by signage and blue curb paint and are generally located in areas with high public use, such as commercial areas and areas near public parks and playgrounds.

Buffer
An area that distances the bike lane from the adjacent motor vehicle travel lane or floating parking.

Buffer, Painted
A striped area designed to separate a bike lane from a motor vehicle lane. In general, painted buffers are marked with white, wide, retro-reflective cross-hatching.

Buffer, Raised
A grade-separated buffer between a bicycle lane and a motor vehicle lane.

Cycle Track
An exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor vehicle traffic and distinct from the sidewalk. Level of protection can vary from soft-hit posts to large cement barriers. Cycle tracks can be one way, two way, or even go against the flow of traffic.

Cycle Track, Raised
Bicycle facilities that are vertically separated from motor vehicle traffic. Raised cycle tracks may be at the level of the adjacent sidewalk, or set at an intermediate level between the roadway and sidewalk to segregate the cycle track from the pedestrian area. A raised cycle track may be combined with a parking lane or other barrier between the cycle track and the motor vehicle travel lane.

Detectable warning
A distinctive surface pattern of domes detectable by cane or underfoot that alert people with visual impairments of their approach to street crossings and hazardous drop-offs (per the United States Access Board).

Floating Parking
Parking that is moved away from the curb, further into the street, to allow for a bike lane against the curb. Drivers use the parking spaces in this lane just as they would any other parking space. Drivers may not park or drive in the bike lane.

High Contrast
Refers to a drastic difference in luminance or color that makes an object distinguishable. High contrast often benefits users with low vision or other visual impairments.

Path of Travel
A continuous, unobstructed way of pedestrian passage by means of which an area may be approached, entered, and exited. (Related term: "accessible route")

Pavement Markings
Lines, symbols, and words painted on a roadway to help direct motor vehicle drivers and bicyclists and control traffic flow.

Pedestrian
For the purposes of this guide, a pedestrian is any person who walks or uses a mobility device such as a manual or power wheelchair.

Soft-Hit Post
A plastic, vertical post attached to the street surface.

Transit Island
Dedicated waiting and boarding areas for transit passengers that are located on a median and separated from the sidewalk by a lane of motor vehicle traffic or a bike lane.

WALK SAN FRANCISCO

Walk San Francisco was founded in 1998 by a small group of volunteers who were united by the belief that our streets and sidewalks should be safe and welcoming for everyone, of every age and ability.

Today, Walk SF is known as a tireless advocate in pushing for – and winning – life-saving changes across the city. Powered by our diverse, passionate members, we want nothing less than to make San Francisco the most pedestrian-friendly city in the United States.

Learn more at **walksf.org**.