

(pedestrian demand and transit access), and existing plan.

APPENDIX D: PROGRAM AND POLICY RECOMMENDATIONS

Policies, Programs, and Practices

Achieving the goals and performance targets of the Plan will require policies, programs, and practices that support this Plan and other City efforts to improve walkability in Berkeley. The recommended policies, programs, and practices to achieve the Plan's goals and performance targets are consistent with the City's approach to pedestrian planning and align with best practices to improve pedestrian connectivity, experiences, and safety.

The Plan's recommended policies, programs, and practices are described in this section and fit within four themes:

- **Reducing conflicts between pedestrians and vehicles**
- **Making pedestrians more visible on the street**
- **Upgrading and adding enhanced crossings**

Within each theme are specific priority topics that together, create a comprehensive approach to improving Berkeley's pedestrian network and an action plan of policies, programs, and practices. Some recommendations will be addressed through this Plan, while others inform and support the City's Vision Zero Action Plan and other ongoing efforts.

The priority areas are listed below with the sub-set of specific priority topics. While the Plan's priority projects are specific to certain street segments in Berkeley's transportation network, the priority areas listed below can be implemented at any location throughout the city, unless already implemented there. For example, improving lighting to make pedestrians more visible on the street could be

implemented based on a lighting analysis or in response to public comment at certain locations.

Reducing Conflicts Between Pedestrians and Vehicles

- **Implement protected left turns:** Implement protected left turn phases to address multiple collision factors consistent with City of Berkeley's Vision Zero policy.

Making Pedestrians More Visible on the Street

- **Install pedestrian-scale lighting:** Install solar-powered LED lighting citywide at all crosswalks lacking such lighting on one or both sides.
- **Removing visual obstructions at intersections:** Install red curb for approaches to pedestrian crossings in order to make pedestrians attempting to cross streets more visible.

Adding Enhanced Crossings

- **Apply crosswalk policy (re-timing, leading pedestrian interval):** Apply the crosswalk policy as a transparent and predictable process for where crosswalks can and should be installed based on street characteristics and context which can be found in **Appendix B: Engineering & Design Guidance**.

The full list of recommendations that can be implemented throughout Berkeley is summarized in **Table D-1** below and detailed in the rest of this appendix. Specific guidance to implement recommendations on large, arterial streets are further detailed in **Appendix B: Engineering & Design Guidance**. These recommended improvements augment the four priority areas listed above by providing additional means and methods for improving experiences of walking and traveling with an assistive device. Topic areas of recommendations range from inter- and intra-

agency coordination to street design and pedestrian crossings.

TABLE D-1: SUMMARY OF ALL RECOMMENDATIONS FOR PEDESTRIAN-RELATED POLICIES, PROGRAMS,

Topic Area	Recommendations
Infrastructure and Operations	
Street Design	<ul style="list-style-type: none"> • Utilize pedestrian design guidance and treatment selection policies shown in Appendix B: Engineering & Design Guidance. • Adopt the Caltrans Temporary Pedestrian Facilities Handbook. Provide this to developers and utility service providers when construction impacts the public right of way. • Integrate bus stop amenities, including bus bulbs, into pedestrian amenities when making street improvements, as funding allows. • Continue the City’s Parklet Program and incorporate pedestrian amenities, including benches/seating and lighting, into grant applications when seeking funding, and into projects as opportunities arise. • The addition of accessible parking (blue zone spaces) should be considered when making street improvements, particularly along streets near commercial destinations, to support convenient access for people with disabilities.
Pedestrian Crossings	<ul style="list-style-type: none"> • Utilize the pedestrian crosswalk policy and enhancement guidelines shown in the Engineering and Design Guidance Appendix to this Plan. Marked crosswalks should be provided on all legs of all four way intersections except where doing so would decrease safety. • Install solar-powered LED lighting citywide at all crosswalks lacking such lighting on one or both sides. • In order to make pedestrians attempting to cross streets more visible, install red curb for approaches to pedestrian crossings. • Consistent with the Vision Zero Action Plan and the Engineering and Design Guidance in the Appendix to this Plan, utilize only protected left-turn signals at all new or modified signalized intersections and embark on a program to convert existing permissive left-turn operations to protected left turns as roadway geometry permits. • Utilize automatic walk signals (recall to walk) of the pedestrian signal at all locations and times of day where and when the concurrent (parallel) traffic phase has a green light indication and this concurrent traffic phase has enough time allocated for a pedestrian crossing. • Pedestrians should automatically receive a walk signal (recall to walk) without having to push the button at all intersections with high pedestrian demand. • Provide Leading Pedestrian Intervals (LPIs) when new signals are installed and when signal timing is modified.

Topic Area	Recommendations
Speed Management and Traffic Calming	<ul style="list-style-type: none"> • Revise criteria for the neighborhood traffic calming program to allow neighborhood streets with prevailing speeds above 25 mph to qualify, with a maximum of 20 applications evaluated per year. • Advocate for State legislation to allow local jurisdictions to reduce speed limits on neighborhood streets to below 25 mph, similar to many other states, such that Berkeley could establish a 20 mph speed limit on two-lane neighborhood streets and a 15 mph speed limit at all times on two-lane residential streets adjacent to schools, parks, and senior centers. • Advocate for State legislation to allow local jurisdictions to set speed limits based on safety goals rather than the existing prevailing (85th percentile) traffic speed, which would allow for a 20 MPH speed limit on neighborhood streets, consistent with “20 Is Plenty” traffic safety campaigns.
Accessibility	<ul style="list-style-type: none"> • Design curb ramps to align with the direction of the crosswalk where technically feasible. • Retain automatic walk signals after the installation of accessible pedestrian signals. • Propose a property-tax or other assessment to Berkeley voters to raise funds for maintenance of public sidewalks and public pathways. • Develop a strategy for prioritizing repaving crosswalks to eliminate tripping hazards in the near term, even if the street will be repaved farther in the future.
Evaluation and Planning	
Pedestrian Volumes	<ul style="list-style-type: none"> • Require pedestrian and bicycle counts as part of the traffic impact analysis that is required of development projects.
Pedestrian Safety	<ul style="list-style-type: none"> • Evaluate pedestrian safety outcomes after transportation capital projects are implemented. • Coordinate with the City’s Fatal Accident Investigation Team to develop rapid-response projects for fatal collision locations. • Conduct Road Safety Audits (RSAs) and implement safety projects on all high-injury streets by 2028.
Project Implementation	

Topic Area	Recommendations
Funding	<ul style="list-style-type: none"> • Develop an initiative for a property tax assessment to fund sidewalk repairs. • Fund projects to fill high-priority sidewalk gaps through the City Capital Improvement Plan (CIP). • Develop a line item in the CIP for implementation of the Pedestrian Plan. • Seek funding opportunities for all high-injury streets in the historically underserved area of Berkeley. • Ensure that pedestrian improvements continue to be included in street rehabilitation and modification projects, such as resurfacing, bridge replacement, or lane reconfiguration. • Explore the possibility of obtaining Highway Safety Improvement Program (HSIP) funds for pedestrian safety projects. • Through the Vision Zero Program, secure a funding source to be used for broader pedestrian safety education efforts, targeting speeding and failure to yield to pedestrians.
Intra- and Inter-Agency Coordination	<ul style="list-style-type: none"> • Continue to collaborate with transit agencies, Caltrans, and adjacent cities. • Explore opportunities for better aligning street design for reduced traffic speeds with emergency response equipment and service standards.
Education and Equitable Enforcement	
Safety Education	<ul style="list-style-type: none"> • Continue to promote walking and bicycling to school through participation in the Alameda County Safe Routes to School program. • Develop and implement a targeted safety education campaign through the Vision Zero Program, focusing on equity and culturally appropriate messaging.
Enforcement	<ul style="list-style-type: none"> • Utilize the equitable enforcement strategy to be developed through the Vision Zero Program. • Support state-wide traffic safety legislation allowing automated speed enforcement by local agencies. Utilize existing legislated automated enforcement strategies, such as red light cameras.

INFRASTRUCTURE AND OPERATIONS

Street Design

Development and implementation of policies and standards that govern the design of streets can be one of the most effective ways to improve conditions for pedestrians throughout the transportation system. Beyond guidelines pertaining to “Pedestrian Environments and Shared Streets” in the City’s Streets and Open Space Improvement Plan (2010) for Downtown, Berkeley does not currently have city-specific design guidelines or standards specifying preferred designs or the decision processes for applying such designs to enhance Berkeley’s transportation network to improve access and mobility for all users. The City relies on national and state guidance such as the National Association of City Transportation Officials’ (NACTO) Urban Street Design Guide and the California Manual on Uniform Traffic Control Devices (CA MUTCD).

The 2016 Berkeley Strategic Transportation Plan (BeST Plan) presents a strong policy foundation supportive of a multimodal transportation network that serves people walking, biking, riding transit, driving and moving goods and cites quality design of “complete streets” as integral to this effort. Protected bicycle lanes are particularly beneficial to the City’s complete streets efforts. However, the specifics of the City’s preferred infrastructure design and traffic operation strategies, or processes for



Many cities have developed street design manuals that present preferred designs for multimodal integration and clarify decision processes around right-of-way allocation.

selecting such strategies to enhance the pedestrian network would benefit from more detail.

The current Pedestrian Plan includes Pedestrian Design Guidelines in **Appendix B: Engineering & Design Guidance**. Treatments included are used throughout Berkeley but are generally applied without formal policies. For example, the City does not have a crosswalk policy to formally select between various striping applications. The guidelines also do not provide enough detail on selecting the right design vehicle for assessing the treatments and turning radii.

RECOMMENDATIONS

- **Utilize the pedestrian design guidance and treatment selection policies shown in Appendix B: Engineering & Design Guidance.** Building on the strategy established in the BeST Plan, **Appendix B: Engineering & Design Guidance** includes engineering and design guidance based on best practices for pedestrians. The guidelines include standards and decision processes that promote pedestrian safety and comfort to ensure that pedestrian improvements are implemented systematically throughout the City during new construction and street retrofits. Existing design resources such as the NACTO Urban Street Design Guide are valuable and should continue to be used to inform the City’s design practices. However, guidelines and standards adopted as part of Berkeley’s Pedestrian Plan will more clearly convey the decision process of selecting specific design treatments and hold more weight.

The Appendix includes standards and guidelines on the following topics:

- National, state, and local standards and design guides for pedestrians adopted by the City of Berkeley
- Overview of pedestrian facilities and amenities, including preferred widths for sidewalk zones
- Intersection and crossing treatments and policies, including crosswalk policy and design, corner and curb radii design, and a selection of enhanced crossing and traffic calming treatments
- Elements of creating a comfortable pedestrian environment, such as lighting, wayfinding, transit stops and amenities, vegetated stormwater management, interim and quick-build design treatments, and dockless mobility parking
- **Adopt the Caltrans Temporary Pedestrian Facilities Handbook. Provide this to developers and utility service providers when construction impacts the public right-of-way.** Providing uniform guidance on mitigating construction impacts to people walking and traveling in Berkeley will provide benefits to residents,

employees, and visitors citywide. This will also prevent unnecessary impacts to pedestrians due to development.

- **Integrate bus stop amenities, including bus bulbs, into pedestrian amenities when making street improvements.** A transit trip typically includes a walking trip, too. Bus stop amenities like benches and lighting benefits anyone walking and makes waiting for the bus more comfortable. Bus bulbs extend the curb so that buses don't have to merge before or after picking up riders; they also enhance experiences waiting for the bus.
- **Continue the City's Parklet Program and incorporate pedestrian amenities, including benches/seating and lighting, into grant applications when seeking funding, and into projects as opportunities arise.** The Parklets Ordinance (BMC 14.48.300) established in May 2018 allowed the City's Engineering Division to process minor encroachment permits for the installation of parklets in the public right of way. Parklet projects serve as public amenities that improve the pedestrian environment, animate streetscapes, and provide quality public spaces for the community. Provision of pedestrian amenities and street furniture, such as benches, water fountains, street trees, and pedestrian-scale lighting, enhance the walking environment when placed properly. Installation of benches can reduce barriers to walking and help create more aging-friendly conditions.
- **The addition of accessible parking (blue zone spaces) should be considered when making street improvements, particularly along streets near commercial destinations, to support convenient access for people with disabilities.** Blue zones should be placed as close as possible to the intersection. Substitute blue zones should be created for every blue zone displaced.

BEST PRACTICE EXAMPLE

- City of Fort Collins. Streetscape Standards. 2013. <http://www.fcgov.com/planning/pdf/streetscape-doc.pdf?1363368935>
- City of Seattle, <https://streetsillustrated.seattle.gov/> (accessed June 5, 2018).

- City of San Diego Street Design Manual, March 2017. https://www.sandiego.gov/sites/default/files/street_design_manual_march_2017-final.pdf

RESOURCES

- NACTO Urban Street Design Guide. 2013. <http://nacto.org/publication/urban-street-design-guide/>
- Caltrans. MUTCD Revision 5. 2014. <https://dot.ca.gov/programs/safety-programs/camutcd>
- FHWA. [Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts](#), 2016.
- FHWA. Pedestrian Checklist and Considerations for Temporary Traffic Control Zones. https://www.fhwa.dot.gov/indiv/docs/atssa_pedestrian_checklist.pdf

Pedestrian Crossings

Pedestrian crossings are an important part of the overall pedestrian network. They are a natural point of conflict with motor vehicles, and a high percentage of pedestrian crashes in Berkeley occur at intersection or midblock crossings. Furthermore, most pedestrian fatalities (nationwide) occur after dark, pointing to the importance of appropriate lighting at crossings⁴. Lack of appropriate or well-lit crossings can also deter some people from walking due to safety concerns or inconvenience.

Provision of safe and comfortable crossings is especially important on multilane roads with moderate to high traffic volume and speeds. In such contexts, the needs of pedestrians are sometimes overlooked relative to motor vehicle flow. Establishing safe crossings on multilane streets results in a safer transportation system



Photo: Amanda Leahy, Kittelson

⁴ National Center for Statistics and Analysis. (2017, February). Pedestrians: 2015 data. (Traffic Safety Facts. Report No. DOT HS 812 375). Washington, DC: National Highway Traffic Safety Administration.

that also supports goals of pedestrian access and connectivity.

The City does not have a formal crosswalk policy to determine where crosswalks should be marked or what crosswalk enhancement treatments should be applied. Policy 2.2, Pedestrian Crossings & Traffic Calming, in the Streets and Open Space Improvement Plan (2010) includes descriptions of many of the enhancements that should be included in the City's toolbox of crosswalk enhancements. The City has implemented speed tables (i.e. raised crosswalks) at some midblock crossings, but they have not been effective at slowing vehicles down, because they do not provide sufficient vertical deflection.

RECOMMENDATIONS

- **Utilize the pedestrian crosswalk policy and enhancement guidelines shown Appendix B: Engineering & Design Guidance.** The Appendix includes guidelines that establish criteria for implementation (or removal) of crosswalks. The crosswalk policy provides a transparent and predictable process for where crosswalks can and should be installed based on street characteristics and context. This policy was developed based on a significant body of research (see Resources below). The Appendix also includes guidance on designing corners and curb radii for pedestrian safety, and on appropriate enhanced crossing treatments for different street contexts. Enhanced crossing treatments included in the Appendix are: curb extensions, crossing islands, accessible pedestrian signals, leading pedestrian interval, pedestrian scramble, and speed tables and raised crosswalks.
- **Install solar-powered LED lighting citywide at all crosswalks lacking such lighting on one or both sides.** Lighting can enhance the walking environment and increase pedestrian safety and security. Lighting is especially important at intersections and other crossing locations, to help motorists see pedestrians crossing the street. Both sides of a crosswalk should be lit. For further guidance on pedestrian lighting, see **Appendix B: Engineering & Design Guidance.**
- **In order to make pedestrians attempting to cross streets more visible, install red curb for approaches to pedestrian crossings.** Parking restrictions in advance of crosswalks generally range from 10 to 20 feet. 20-foot red zones provide greater visibility enhancements but may also be more tempting for motorists to park in, as this is approximately the length of most parallel parking spaces. These restrictions are especially

important at uncontrolled intersections, but can enhance safety at all intersections.

- **Consistent with the Vision Zero Action Plan and Appendix B: Engineering & Design Guidance, utilize protected left-turn signals at new or modified signalized intersections and embark on a program to convert existing permissive left-turn operations to protected left turns where roadway geometry permits.** Left turning movements pose specific collision risks. Drivers may focus on finding a gap in traffic to complete the turn and not notice legal conflicting pedestrian crossing movements. Also, pedestrians crossing the path of a left turning vehicle may be obscured by the steel frame of the car. Protected left turn phases can address these collision factors. Installing left turns will often require additional signal phases and storage for left-turning vehicles.
- **Utilize automatic recall of the pedestrian signal at all locations and times of day where and when the concurrent (parallel) traffic phase has a green light indication and this concurrent traffic phase has enough time allocated for a pedestrian crossing.** Pedestrians should get walk signals with concurrent traffic phases without needing to activate a push button. Exceptions may be allowed at locations with very brief concurrent traffic phases, such as the intersection of a minor street with a major street.
- **Install red-light cameras at key intersections where pedestrian safety could be improved with this enforcement tool.** Safety for people crossing the street can be significantly compromised when drivers run red lights. Using cameras to enforce red-light running builds upon the City's current efforts with Vision Zero and with automating enforcement in Berkeley where possible.
- **Provide Leading Pedestrian Intervals (LPis) when new signals are installed and when signal timings are modified.** Giving people additional time to cross the street can be critical to their safety. LPis can give pedestrians a head start

BEST PRACTICE EXAMPLE

- City of Portland. Crosswalk Guidelines. <https://www.portlandoregon.gov/transportation/article/594882> (accessed June 7, 2018)
- City of Sacramento. Pedestrian Crossing Guidelines. 2014. <https://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/>

RESOURCES

- FHWA. Red-Light Camera Systems Operational Guidelines. 2005. <https://safety.fhwa.dot.gov/intersection/conventional/signalized/rlr/fhwasa05002/>
- FHWA. Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines. 2005. <https://www.fhwa.dot.gov/publications/research/safety/04100/04100.pdf>
- FHWA. Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, 2017. https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/guide_to_improve_uncontrolled_crossings.pdf
- NACTO. Urban Street Design Guide. 2013. <https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/traffic-signals/leading-pedestrian-interval/>
- NCHRP Report 562. Improving Pedestrian Safety at Unsignalized Crossings. 2006. <https://nacto.org/wp-content/uploads/2010/08/NCHRP-562-Improving-Pedestrian-Safety-at-Unsignalized-Crossings.pdf>
- UC Berkeley Traffic Safety Center. Driver/Pedestrian Understanding and Behavior at Marked and Unmarked Crosswalks. 2007. <http://repositories.cdlib.org/its/tsc/UCB-TSC-RR-2007-4>
- Project for Public Spaces: Lighting Use and Design (2008). <https://www.pps.org/article/streetlights>

Speed Management and Traffic Calming

Traffic speed directly impacts the chances of surviving a crash. While this is true for all modes, pedestrians are especially vulnerable and have a high chance of being seriously injured or killed when speeds reach moderate levels. For example, a pedestrian involved in a crash with a vehicle traveling 20 MPH has an 18 percent chance of suffering a serious injury or being killed, while at 25 MPH the risk is 30 percent, and at 40 MPH the risk is 80 percent. Higher speeds also increase the likelihood of a crash as stopping distances are greater at higher speed. As a result, speed reduction is a critical strategy for reducing pedestrian injuries.

The posted speed limit on all streets in Berkeley is 25 MPH, with the exception of a handful of streets where the posted speed limit is 30 or 35 MPH.

California state law restricts Berkeley from reducing speeds below 25 MPH in most cases. State law also requires that roadway speeds be set based on prevailing traffic speeds, and doesn't allow jurisdictions to lower roadway speeds in order to achieve safety goals.

Speed studies are typically conducted in response to resident concerns. The City has a formalized procedure for citizens to request physical traffic calming measures, and an annual line item of \$50,000 for Traffic Calming Capital Improvement Projects.

The following recommendations are designed to move Berkeley towards slower, more survivable



Source: Impact Speed and a Pedestrian's Risk of Severe Injury or Death, Brian Tefft, AAA Foundation for Traffic Safety, 2011

Greater impact speeds increase the risk of severe injury or death.

speeds for pedestrians, especially on neighborhood streets and near schools, parks, and senior centers.

RECOMMENDATIONS

- **Revise criteria for the neighborhood traffic calming program to allow neighborhood streets with prevailing speeds above 20 MPH to qualify.** Berkeley's traffic calming program uses street design strategies to slow vehicles speeds and create safer conditions for pedestrians at resident request. Current speed-related criteria for inclusion (in the absence of a documented collision or cut-through traffic pattern) are an 85th percentile speed greater than 5 MPH over the posted speed limit, or 3 MPH over the posted speed limit in proximity to schools, parks, and senior centers; under these criteria, neighborhood streets with typical speeds as high as 30MPH do not qualify under the speed criteria. Streets should be pre-emptively traffic calmed to a more survivable 20MPH without having to wait for a documented pattern of collisions. As the list of streets that qualify for the neighborhood traffic calming program diminishes, revise the criteria to

allow neighborhood streets with a prevailing (85th percentile) traffic speed above 20 MPH to qualify.

- **Advocate for State legislation to allow local jurisdictions to reduce speed limits on neighborhood streets to below 25 MPH, similar to many other states, such that Berkeley could establish a 20 MPH speed limit on neighborhood streets and a 15 MPH speed limit adjacent to schools, parks, and senior centers.** Berkeley should follow in the footsteps of many jurisdictions by adopting a 20 MPH speed limit on neighborhood streets and a 15 MPH speed limit near schools, parks, and senior centers. These speed limits would decrease the severity and increase the survivability of pedestrian collisions, and protect Berkeley’s most vulnerable residents. California state law will need to be changed to allow these speed limit changes. This strategy would need to be coordinated with new traffic calming treatments to lower vehicle speeds.
- **Advocate for State legislation to allow local jurisdictions to set speed limits based on safety goals rather than the existing prevailing (85th percentile) traffic speed.** California state law currently requires that speed limits on collectors and arterials be set based on prevailing traffic speeds, regardless of the safety performance or crash history of the street. It is recommended that Berkeley advocate to change state law so that jurisdictions are able to use speed limits as a traffic safety tool, and be responsive to the individual needs of specific streets and locations.

BEST PRACTICE EXAMPLES

- City of Portland, “20 is Plenty” residential speed limit reduction policy (accessed August 22nd, 2019) <https://www.portlandoregon.gov/transportation/article/669625>
- City of Boston, Neighborhood Slow Streets, (accessed June 5, 2018) <https://www.boston.gov/departments/transportation/neighborhood-slow-streets>
- City of Sacramento Traffic Calming. <http://www.cityofsacramento.org/Public-Works/Transportation/Programs-and-Services/Traffic->

[Calming/Calming-Measures](#) (accessed June 5, 2018)

RESOURCES

- FHWA. Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts, [Traffic Calming and Design Speed](#), 2016.
- FHWA. Traffic Calming ePrimer. https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm
- NACTO Urban Street Design Guide, Speed Reduction Mechanisms. <https://nacto.org/publication/urban-street-design-guide/design-controls/design-speed/speed-reduction-mechanisms/> (accessed June 5, 2018).
- NACTO. City Limits, Setting Safe Speed Limits on Urban Streets. https://nacto.org/wp-content/uploads/2020/07/NACTO_CityLimits_Spreads.pdf (accessed August 20, 2020).

Accessibility

The City’s ADA Transition Plan was completed in 2001, and the City is currently working on an update. The Transition Plan establishes a policy and framework for the use of City funds to improve accessibility, including recommendations for barrier removal and programmatic access expansion. The City also has a Commission on Disability, and an ADA coordinator who oversees the City’s efforts to comply with all applicable federal, state and local laws.

There are two major areas where it is recommended that Berkeley update its engineering policies to reflect best practices in accessible design:



ADA-compliant crossings ensure mobility for people with disabilities. Where possible, directional curb ramps are the preferred design for people with disabilities.

directional curb ramps, and automatic recall at accessible pedestrian signals.

RECOMMENDATIONS

- **Provide directional curb ramps at crosswalks.**
Provide sidewalk wheelchair ramps that are oriented directly in line with crosswalks wherever possible, orienting the ramp run perpendicular to a grade break at the base of the ramp where needed (at locations where orienting the wheelchair ramp perpendicular to the curb would cause it to face into the center of the intersection).
- **Automatic recall at accessible pedestrian signals.**
At locations where pedestrian signals are set on automatic recall, ensure that the automatic recall setting is retained when installing accessible pedestrian signals.
- **Propose a sidewalk, paths, and stairways maintenance assessment to Berkeley voters. Prioritize repaving crosswalks to eliminate tripping hazards, even if the street will be repaved in the future.** A key theme in the public comments we received was the ongoing needs of physical infrastructure maintenance, particularly for individuals using an assistive device. In assessing sidewalk, paths, and stairways citywide, the City could identify what areas are in need of repair and the appropriate timelines to maintain them. An assessment would also require staff or consultant resources in addition to funding.

BEST PRACTICE EXAMPLE

- City of Sacramento. <https://www.cityofsacramento.org/HR/Divisions/ADA>
- City of Seattle. <https://www.seattle.gov/transportation/permits-and-services/make-an-ada-request>
- City of San Rafael, ADA Access Advisory Committee. <https://www.cityofsanrafael.org/ada->

[access-advisory-committee/](#) (accessed June 8, 2018)

RESOURCES

- U. S. Access Board. Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way. 20911. <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines>
- Caltrans. Design ADA Accessibility Resources. <https://dot.ca.gov/programs/civil-rights/ada-design-resources>
- FHWA. Accessible Shared Streets: Notable Practices and Considerations for Accommodating Pedestrians with Vision Disabilities, 2017. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/index.cfm
- FHWA. Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts, *Accessibility*, 2016.

EVALUATION AND PLANNING

Collection and analysis of pedestrian-related data helps agencies prioritize resources, make more informed decisions, and evaluate trends and outcomes. Prior to collecting new data, it is important to have a clear sense for how the data will be used and managed. Ideally, data collection and analysis would be closely tied to established goals and policies and would help Berkeley monitor progress implementing the Pedestrian Plan.

Pedestrian Volume Data Collection

Berkeley does not routinely collect pedestrian volume data. Lack of pedestrian volume data hinders effective decision making and evaluation of pedestrian improvement and development projects. For example, two locations that have the same number of pedestrian crashes over a given period may have different crash rates if pedestrian volumes were accounted for. Collection of pedestrian volume data can help the City prioritize investments over

time or demonstrate the impact of infrastructure investments such as new sidewalks.

A variety of count methods can be used, but generally automated methods that collect continuous count data over a period of a week or more are preferred to ensure reliable estimates. At a minimum, video-based 15-hour counts should be used. Short-duration counts can be extrapolated to annual averages using expansion factors that account for daily and seasonal fluctuations in pedestrian activity. This process is discussed



Infrared counter on multi-use trail in Denver, CO. Credit: Colorado Department of Transportation.

in NCHRP Report 797 and the FHWA Traffic Monitoring Guide (see below).

RECOMMENDATIONS

- **Collect pedestrian volume data before and after installation of new pedestrian facilities.** Data collected before and after installation of pedestrian facilities, such as sidewalks and crossing treatments, can demonstrate the impact of infrastructure investments, which may lead to greater support for future investment.
- **Conduct pedestrian volume counts at existing pedestrian crosswalk locations when considering modifications to existing infrastructure or with new development applications.** These counts can help determine whether Pedestrian Hybrid Beacons (PHBs) or other enhancements may be an appropriate treatment. PHBs have been proven to be one of the most effective pedestrian crossing treatments for multilane roads. The California MUTCD includes guidelines for the installation of PHBs for low-speed and high-speed roadways based on the number of

pedestrian crossings and vehicle volumes. Existing crossing locations may meet those guidelines and be suitable candidates for implementation of pedestrian hybrid beacons. These locations should be evaluated when considering modifications to existing infrastructure (e.g. through capital projects) or with new development applications.

- **Establish targets for performance metrics.** While the sample metrics included in the BeST Plan allow for benchmarking of how pedestrian network and safety improvements are trending over time, they do not provide clear indication of what the appropriate action should be (i.e., more investment). Establishing targets would allow for more actionable evaluation. Targets should be informed by the needs, priorities and funding constraints identified through the Pedestrian Plan.
- **Require bicycle and pedestrian counts as part of traffic impact analysis for development projects.** Establishing a policy for development applications to collect bicycle and pedestrian count data as part of traffic analysis for proposed development projects would provide a baseline of data throughout the City and reduce some of the burden on the City for collecting such data.

BEST PRACTICE EXAMPLE

- Alameda County Transportation Commission. Bicycle and Pedestrian Count Program. <https://www.alamedactc.org/programs-projects/bicycle-and-pedestrian/bicycle-pedestrian-count-program/>
- Delaware Valley Regional Planning Commission, Pedestrian and Bicycle Counts. <https://www.dvrpc.org/webmaps/pedbikecounts/> (accessed June 8, 2018)

RESOURCES

- NCHRP Report 797. Guidebook on Pedestrian and Bicycle Volume Data Collection. 2014. <http://www.trb.org/Publications/Blurbs/171973.aspx>
- FHWA. Traffic Monitoring Guide. 2016. <https://www.fhwa.dot.gov/policyinformation/tmguide/>
- FHWA. Guidebook for Developing Pedestrian & Bicycle Performance Measures, 2016. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/performance_measures_guidebook/pm_guidebook.pdf
- California MUTCD. Chapter 4H – Pedestrian Hybrid Beacons. 2014. <https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/ca->

Pedestrian Safety Analysis and Planning

Review and analysis of pedestrian crashes, leading to quick-build and longer-term safety improvement projects, is an important strategy for saving lives and reducing injuries across the City. Berkeley lacks



Road safety audits bring together planners, engineers, enforcement, and others to assess high-crash locations and develop solutions.

an established process for reviewing crashes and developing solutions.

RECOMMENDATIONS

- **Evaluate pedestrian safety outcomes after projects are implemented.** As projects stemming from the Pedestrian Plan are implemented, the City should evaluate the pedestrian safety outcomes, particularly projects that respond to a safety concern. Since pedestrian crashes are rare, field observations could be used to determine the safety impact. For example, the City could evaluate yielding behavior before and after the addition of enhanced crossing treatments to an existing crosswalk. Over time, such information could help the City select and prioritize which treatments to use based on their effectiveness in Berkeley.
- **Coordinate with the City's Fatal Accident Investigation Team to develop rapid response projects for fatal crash locations.** Currently the Berkeley Police Department's Fatal Accident Investigation Team investigates fatal and severe

collisions without involvement from traffic engineering and the police report is not available in the CROSSROADS database for at least two months. Fatal crashes present an opportunity to bring together stakeholders from multiple perspectives to identify crash contributing factors and potential rapid-response solutions. Although fatal crashes are relatively rare in Berkeley, establishing a rapid response fatality review process would send a clear signal to City agencies and the public that fatalities are not acceptable on Berkeley's streets and that traffic safety issues should be treated with a high level of urgency. Strategies generated by the rapid response team should generally focus on short-term implementation.

- **Conduct Road Safety Audits (RSAs) and implement quick-build and longer-term safety projects on all high-injury streets by 2028.** Similar to the rapid response approach, RSAs can be used to identify multidisciplinary strategies at locations with a history of pedestrian crashes. Such locations may not have had fatalities in the past, but have a risk for future fatalities based on higher than expected levels of non-fatal crashes. RSAs can be used to develop both quick-build safety projects and longer-term safety improvements.

BEST PRACTICE EXAMPLES

- City of Fort Collins. Traffic Safety Report. 2015. <http://www.fcgov.com/traffic/pdf/traffic-safety-summary-2016.pdf?1476201877>
- City of Boston. Vision Zero: Rapid Response <http://www.visionzeroboston.org/rapidresponse>
- Massachusetts Department of Transportation. City of New Bedford, Coggeshall Street Road Safety Audit. <https://studylib.net/doc/13047554/road-safety-audit--coggeshall-street-city-of-new-bedford>

RESOURCES

- FHWA. Road Safety Audit Guidelines. 2006. <https://safety.fhwa.dot.gov/rsa/guidelines/>
- FHWA. Pedestrian Road Safety Audit Guidelines and Prompt Lists. 2007. <http://www.pedbikeinfo>.

PROJECT IMPLEMENTATION

Funding

Pedestrian projects in Berkeley are funded through a combination of ballot measure monies (Measure B and BB), the general fund, impact fees and grants. The City routinely uses local funds to provide matches for grant-funded projects. The Capital Improvement Program (CIP) includes a Sidewalk Repair category that allots nearly \$800,000 annually for sidewalk repairs. This category includes \$200,000 for an ADA curb ramp program. Staff seek Active Transportation Program grants and other State sources to fund most smaller projects, such as Safe Routes to School projects.

RECOMMENDATIONS

- **Develop an initiative to bring to voters for a property tax assessment to fund sidewalk repairs.** This would provide the City with a long-term sustainable funding source for sidewalk repairs that would stretch much further than the current CIP allocation. An assessment would also require staff or consultant resources in addition to funding.
- **Continue to fund high-priority sidewalk gap closures through the CIP.**
- **Develop a line item in the CIP for implementation of the Pedestrian Plan.** The Pedestrian Plan will include recommendations for sidewalks in addition to important pedestrian crossings, proactive traffic calming strategies, signal modifications, and other measures. Similar to the Bike Plan, which has line items in the CIP, achieving the goals of the Pedestrian Plan will require a reliable funding source.
- **Ensure that pedestrian improvements continue to be included in other street projects, such as resurfacing, bridge replacement, or lane reconfiguration.** One of the most effective ways to build a complete, connected network of pedestrian routes is by implementing pedestrian facilities within the scope of larger projects. Resurfacing likely offers the greatest opportunity, but all projects within the public ROW should be

reviewed for the potential to improve conditions for pedestrians.

- **Explore the possibility of obtaining Highway Safety Improvement Program (HSIP) funds.** HSIP funds may be used to address high-crash locations or to systematically implement improvements that reduce the risk of pedestrian crashes. The City should initiate a conversation with Caltrans to better understand how these funds may be accessed.
- **Through the Vision Zero Program, secure a funding source to be used for broader pedestrian safety education efforts, targeting speeding and yielding to pedestrians.** Funds could be secured through the Vision Zero Program to develop and implement a pedestrian safety education campaign targeting both pedestrians and motorists (and potentially including bicyclists). Educational messages should focus on speeding and failure to yield to pedestrians and other safety issues identified based on crash history or observed issues. Education efforts should be tied to the Vision Zero Action Plan.

BEST PRACTICE EXAMPLE

- City of Pasadena Department of Transportation. California Office of Traffic Safety Grant for the Safer Streets Pasadena – School Area Safety Program. <http://ww5.cityofpasadena.net/commissions/wp-content/uploads/sites/28/2016/09/2016-09-22-Transportation-Advisory-Commission-Agenda-Item-6A-Presentation.pdf>

RESOURCES

- Caltrans. Highway Safety Improvement Program. <https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program>

- California Office of Traffic Safety. Pedestrian and Bicycle Safety Grants. <https://www.ots.ca.gov/grants/pedestrian-and-bicycle-safety/>

Intra- and Inter- Agency Coordination

In general, Public Works and Planning and Development staff are well coordinated with planning and project delivery. While there has not historically been much coordination and collaboration with the Public Health Division, they are coordinating with Planning and Development staff on the Vision Zero policy. Additional coordination, and potentially training among staff and elected officials, may be needed to better align the City’s goals around developing a safe transportation system and the Fire Department’s goals for emergency response.

The City has successfully coordinated with Caltrans, the school district, ABAG, Alameda CTC, Union Pacific Railroad, AC Transit, BART and neighboring cities. Continuing and strengthening this



The BikeMobile provides bike maintenance and bike safety lessons at schools in Alameda County. Photo: Alameda County Public Works Agency

coordination can help Berkeley leverage resources to make a greater impact on the community’s walkability.

RECOMMENDATIONS

- **Continue to coordinate and collaborate with agencies and adjacent cities that have direct involvement in transportation system planning, design, construction and operations.**
- **Explore opportunities for better aligning**

street design for reduced traffic speeds with emergency response equipment and service standards.

RESOURCES

- FHWA. Pedestrian Safety Guide for Transit Agencies. 2008. https://safety.fhwa.dot.gov/ped_bike/ped_transit/ped_transguide/transit_guide.pdf
- Best Practices, Emergency Access in Health Streets, LA County Department of Public Health, March 23, 2013. <https://nacto.org/wp-content/uploads/2015/04/Best-Practices-Emergency-Access-in-Healthy-Streets.pdf>

EDUCATION AND ENFORCEMENT

Safety Education

Berkeley pedestrian safety education efforts have largely been focused in the Safe Routes to School program area. A partnership between the Public Health Division and Alameda County Safe Routes to School has delivered safety workshops, parent training sessions, walking school bus trainings, walk audits and events that allow students to learn about safety by walking through a miniature city (SafetyVille). The City has not conducted any broader pedestrian safety campaigns.

RECOMMENDATIONS

- **Continue to promote walking and bicycling to school through the Alameda Safe Routes to School program.**
- **Develop and Implement a targeted safety campaign through the Vision Zero Program, focusing on equity and culturally appropriate messaging.** As suggested in the Funding section, Berkeley should obtain funding to conduct a broad safety campaign, targeting all modes. This campaign should address key issues affecting pedestrian safety such as traffic speed and yielding at crosswalks. A combination of education and enforcement strategies is likely needed. Safety campaigns should be tied to the Vision Zero Action Plan. For education and enforcement to be effective it must be approached in an equitable manner and use messaging that resonates with all residents. This includes ensuring that all branding and messaging is inclusive of people from different races, income levels, and abilities. Residents should feel that they can relate to who or what is being portrayed. Consider collaboration

with community-based organizations or other groups that specialize in culturally appropriate communications.

BEST PRACTICE EXAMPLES

- Bike Arlington. PAL: Safety on Our Streets. <http://www.bikearlington.com/pages/pal-safety-on-our-streets/>

RESOURCES

- Communication Strategies to Advance Vision Zero. <https://visionzeronet.org/project/communications-strategies-to-advance-vision-zero/> (accessed June 6, 2018)
- National Center for Safe Routes to School. <http://www.saferoutesinfo.org/>.

Enforcement

Enforcement of laws pertaining to pedestrian safety is largely complaint-driven. The Berkeley Police Department (BPD) has one traffic safety officer dedicated to pedestrian and bicyclist safety issues. BPD has conducted pedestrian safety stings to increase yielding to pedestrians at crosswalks.

RECOMMENDATIONS

- **Use enforcement as an opportunity for education by distributing pedestrian safety pamphlets in-lieu of, or in addition to, citations.** As a part of the Vision Zero Program, enforcement officers will first focus on educating and engaging violators, then follow with punitive measures for repeat offenders.
- **Deploy “reinforcement” patrols in school zones during arrival/dismissal.** The presence of police officers in school zones may help to reduce speeding and increase yielding while also providing an opportunity for officers to engage students and drivers on safety issues and reinforce safe behaviors. Officer deployment may be done on a rotating basis. This will be done as a part of the Vision Zero Action Plan.
- **Use targeted crosswalk enforcement, focusing on failure to yield to pedestrians, in high-injury locations.** As a part of the Vision Zero Program, this will target enforcement actions on the behaviors shown to pose safety risks to pedestrians (such as traffic speeds and failure to yield to pedestrians), in the locations where safety risks to pedestrians are highest.

- **Train police officers on laws related to pedestrian safety and equity.** This is a part of the Vision Zero Program.

BEST PRACTICE EXAMPLE

- National Highway Traffic Safety Administration. Evaluation of the Miami-Dade Pedestrian Safety Demonstration Project. https://nacto.org/wp-content/uploads/2015/04/miami_dade_safety_demonstration_project_zeeger.pdf

RESOURCES

- National Highway Traffic Safety Administration. Pedestrian Safety Enforcement Operations: A How-To Guide. <https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/812059-pedestriansafetyenforcooperahowtoguide.pdf>
- Pedestrian and Bicycle Information Center: Working with Law Enforcement Officers. http://www.pedbikeinfo.org/archive/programs/enforcement_worklawenforce.cfm

