



Mobility Solutions Toolkit

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Developed by:



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Understanding Mobility and Environmental Justice Communities

Mobility refers to the ability to move readily from place to place. Being able to travel to work, school, medical facilities, or grocery stores, for example, and back home safely and comfortably is critical to a person’s wellbeing. There are many different mobility choices that people make when travelling in their day-to-day lives. Mobility choices include walking, biking, using transit, driving, and participating in shared-use mobility, such as carpooling, carsharing, or bikesharing. Despite all of these mobility choices and more, not all options are readily available to everyone. Mobility barriers are attributes or conditions that limit people’s mobility choices and in turn limit or impede their mobility. Cracked or missing sidewalks, for example, may limit the ability of a person to walk safely and comfortably in his or her neighborhood. A person’s mobility choices are influenced by multiple variables – such as income, infrastructure, available services, or physical ability. These variables can act as barriers to a person’s mobility.

This *Mobility Solutions for Environmental Justice Communities Toolkit* (Toolkit) identifies mobility barriers that residents of **environmental justice** (EJ) communities may experience and explores possible solutions that start to address these barriers. The Toolkit is intended to be used by residents of EJ communities to learn more about the context shaping their mobility choices – including what it means to live in an EJ community; the laws, regulations, and other guiding principles that affect transportation planning and services; and some of the mobility barriers they may face in their communities. Further, this Toolkit offers information on engagement strategies, policies, capital improvements, programs, and other possible solutions that work to resolve mobility barriers.

It is important to keep in mind that some solutions may be more appropriate for a particular community than other solutions. Also, one community may have different priorities as it relates to mobility than another community. The same is true of individuals. One community member, such as a parent, may have a different priority than another community member, such as a business-owner. Resolving mobility issues in a community requires compromise and consensus.

While this toolkit has been informed by findings of the existing conditions and mobility barriers identified in City Heights, an EJ community in San Diego, it also is intended to serve as a resource for other EJ communities within the San Diego region as well as statewide. Your EJ community can use this Toolkit by choosing the mobility solution(s) most appropriate to your community’s mobility barrier(s).



What is an Environmental Justice Community?

For purposes of this Toolkit, EJ communities are considered to be communities with higher than average numbers of **low income** or **minority** persons. It is not uncommon for these communities to have a history of disproportionately high or adverse environmental impacts, including health burdens, from the implementation of programs, policies, and activities. EJ communities are sometimes characterized by low educational attainment and low civic engagement. Historically, EJ communities have been underrepresented in policy- and decision-making processes. In the context of mobility and transportation, EJ communities may experience significant, negative effects on quality of life as a result of infrastructure, transportation projects, and transportation services. Residents of EJ communities may be excluded from meaningful involvement in public planning, including transportation planning, due to a language barrier, not understanding their rights, a lack of familiarity with the planning process, and in some cases a fear of getting involved.

Environmental Justice Communities and Mobility

Many residents of EJ communities rely on public transit and/or active transportation to access jobs, education, and day-to-day activities. Socio-economic factors such as monthly income, vehicle ownership, native language, and family structure often limit other mobility choices. Additionally, EJ communities may lack adequate and appropriate infrastructure and have limited transportation services available, which presents further mobility obstacles. To ensure equitable distribution of transportation planning, programming, and services, it is critical to understand mobility barriers facing residents of EJ communities and explore solutions that increase mobility equity. By providing education about mobility barriers and possible solutions, EJ communities can improve the livability and sustainability of their neighborhoods, contribute to urban diversity, and address their social, economic, and environmental goals.



How to Use this Toolkit

This Toolkit is designed with readers like you in mind. Information is presented in digestible, one-to-two page fact sheets that incorporate symbols for ease of navigation. Fact sheets are divided into two sections: guiding principles and mobility elements.

Guiding Principles

Guiding principles include selected policies, concepts, regulations, and legislation that affect mobility in EJ communities. The fact sheets are intended to provide you with a background of information in social and mobility equity; roles in government and decision-making, including strategies for you and other community members to get involved; and policies affecting mobility. The following fact sheets are included under the Guiding Principles section:

- Environmental Justice and Title VI
- Americans with Disabilities Act
- Roles in Government and Decision-making
- Public Participation Plan
- Community Engagement Strategies
- Complete Streets
- Vision Zero

Mobility Elements

Mobility elements include infrastructure, transportation services, and other conditions or factors that affect how you get around. Each fact sheet highlights one mobility element. Each mobility element relates to one or more mode choices, which includes *walking*, *biking*, *transit*, and *shared-use mobility*. Shared-use mobility refers to transportation that is shared among two or more people. Each mode is represented with a mobility symbol (shown below) to allow for easy understanding and quick referencing when using this Toolkit. You will find the symbol in each solution fact sheet.



Walking



Biking



Transit



Shared-Use Mobility

The following fact sheets are included in the Mobility Elements section:

- Sidewalks
- Crossings
- Traffic Calming
- Placemaking
- Bikeways
- Bike Network
- Transit Information
- Transit Affordability
- Transit Fare Payment Systems
- Reliable, Efficient Transit
- Transit Stop Amenities
- Ridesharing
- Carsharing
- Bikes sharing
- Community Safety
- Mobility Hubs

Each fact sheet emphasizes the importance of the featured mobility element, describes associated mobility barriers, offers possible mobility solutions, and highlights a local or national example of a solution in action. This information is organized into the following areas with designated symbols:



Mobility Matters - A description of a mobility element and the significance of the element among residents of EJ communities.



Barriers to Mobility - A description of the mobility barriers typically experienced by residents of EJ communities.



Possible Solutions - A list of strategies - including treatments, programs, or policies - that may be implemented to address mobility barriers.



Example in Action - An example of a solution or solutions that have been implemented.

Guiding Principles



Environmental Justice and Title VI

What is Environmental Justice?

In response to a historic pattern of low income and minority communities bearing disproportionate and adverse health and environmental burdens, the United States government requires all federal agencies to pursue environmental justice (EJ) in a manner that safeguards the rights spelled out in **Title VI of the Civil Rights Act of 1964**:

"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

The U.S. Department of Transportation (U.S. DOT), which is the agency that provides funding for many transportation programs and projects, has also issued regulations that are intended to extend the equitable treatment requirements expressed in Title VI to low income populations.

The U.S. DOT names three fundamental EJ principles:

- To avoid and minimize disproportionately high and adverse human health and environmental effects on minority and low income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low income populations.

Similarly, California has its own EJ principles, which are included in state laws and regulations. The goal of EJ at any level of government is for everyone to enjoy the same level of protection from environmental and health hazards and equal access to the decision-making process and government-funded programs in order to have a healthy environment in which to live, learn, and work.

What Does it Look Like in Action?

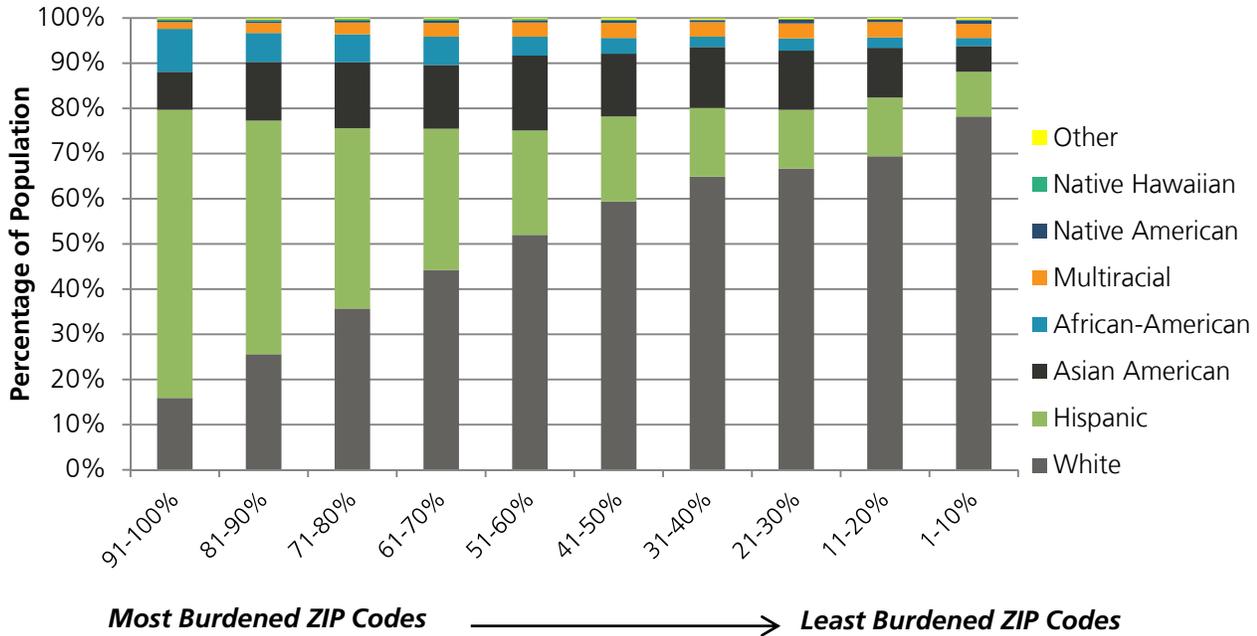
Many transportation projects, transit services, and programs are funded through the federal and/or state government. As such, transportation agencies using federal and/or state funds must comply with the applicable federal or state laws intended to protect the interests of EJ. The primary method at agencies receiving federal funding for ensuring nondiscrimination for minorities and LEP communities is a Title VI Program, including a Public Participation Plan and Language Assistance Plan.

Check out the *Environmental Justice and Title VI* section of Appendix A for links to resources where you can learn more.

Environmental justice principles are intended to provide you with the opportunity to influence plans and projects that affect your neighborhood. Plans and projects are improved when community needs are understood, and these needs are better understood when community residents share their opinions. EJ policies let you influence how your neighborhood and region are planned.

Figure 1 displays data from the California Environmental Protection Agency (CalEPA) and the Office of Environmental Health Hazard Assessment (OEHHA). Together CalEPA and OEHHA developed the California Communities Environmental Health Screening Tool (CalEnviroScreen), which uses environment, health, and socioeconomic data to provide a snapshot of the extent to which communities across the state are currently burdened by adverse health impacts. CalEnviroScreen is a tool that uses previously collected demographic data to provide a picture of where the most burdened communities exist. CalEnviroScreen does not predict future burden levels of communities; however, it does provide some understanding about which communities have been more burdened than others in the past.

Figure 1: CalEnviroScreen – Racial Breakdown of California Communities Burdened by Pollution



The factors used to measure burdens in CalEnviroScreen are:

Exposures

- Ozone concentrations
- Particulate matter smaller than 2.5 micrometers
- Diesel particulate matter emissions
- Pesticide use
- Toxic releases from facilities
- Traffic density

Environmental Effects

- Cleanup sites
- Groundwater threats
- Hazardous waste facilities and generators
- Impaired water bodies
- Solid waste sites and facilities

Sensitive Populations

- Prevalence of children and elderly
- Rate of low-weight births
- Rate of asthma emergency department visits

Socioeconomic Factors

- Education attainment
- Linguistic isolation
- Poverty

For a link to the CalEPA Environmental Justice Program Update (February 2014) and other resources where you can learn more about *Environmental Justice and Title VI*, check out the *Environmental Justice and Title VI* section in Appendix A.

The tool assesses pollution burden and population characteristics using the above factors and creates a relative ranking of communities by ZIP Code. The resulting ten groups, or deciles, rank communities from the most burdened (91-100% range) to the least burdened (1-10% range). As seen in Figure 1, the ZIP Codes that experience the most environment, health, and socioeconomic burdens have a higher percentage of Hispanics and other race groups and a lower percentage of whites than the least burdened ZIP codes.

Americans with Disabilities Act

What is the Americans with Disabilities Act?

The Americans with Disabilities Act (ADA) is a wide-ranging civil rights law that was enacted by the U.S. Congress in 1990. It specifically prohibits discrimination based on disability. The ADA requires public agencies to provide programs, services, and activities that are readily accessible to, and usable by, individuals with disabilities. In most cases the ADA requires public agencies to make reasonable modifications in their policies, practices, and procedures to provide equal access to individuals with disabilities. In particular, Title II of the ADA requires public transportation operators that provide fixed route services to also provide paratransit services. The ADA is discussed in this Toolkit because seniors and disabled persons often live on a fixed income and so there is overlap between these populations and low income EJ communities. Additionally, individuals with disabilities may have mobility issues and a history of low involvement in the public decision-making process. Like Title VI, the ADA is a federal law that can help ensure everyone's needs are taken into account.

What Does it Look Like in Action?

ADA compliance takes many shapes, especially when it comes to mobility. The ADA guides how an agency communicates with individuals with disabilities, whether modifications need to be made to policies and procedures, and how to design communities that are accessible.

This Toolkit provides possible solutions that work to create a transportation system that can accommodate users of all abilities. The ADA protections that explicitly serve individuals with disabilities often benefit other users as well. For instance, ADA curb-cuts benefit individuals with disabilities as well as people pushing strollers or wheeled grocery baskets. When you look out for the interests of the most vulnerable in your neighborhood, including the disabled, you are creating a safer environment for everyone else too.

Check out the *Americans with Disabilities* section of Appendix A for links to resources where you can learn more.

Examples of Accessible and Mobility-Promoting Facilities

- Tactile warning strips and doormats on station platforms
- ADA curb-cuts and entrance ramps
- Ramps and wheel-chair tie-downs on buses, light rail, and other transit services
- Audible crosswalks
- Audio station stop announcements



Roles in Government and Decision-Making

Understanding the role you and others play in decisions made by government agencies will help you decide who to contact for various issues in your community. Oftentimes, navigating the political and departmental landscape can be challenging and intimidating, so team up with a local community group or a community-based organization to find support. Below are some examples of the roles played by decision-makers on mobility matters.



Individuals - A person – like you! – with an idea to improve his or her community. The individual brings a fresh perspective; personal, real-life experience; and passion. This is important in any political structure. Individuals may play different roles in their communities. For example, a community member may be a parent of a child or children that attend school in the community, business-owner, or community leader. Individuals may have varying perspectives, opinions, and priorities based on their unique roles.



Community Groups - Volunteer community groups are composed of multiple residents who have similar interests and common goals. A group of people can have more political power than one individual person. Community groups achieve solutions by partnering together, having a regular meeting schedule and place, and sharing local knowledge and connections. Community groups come in different shapes and sizes:

- Neighborhood associations
- Special interest or hobby groups
- Faith-based organizations
- School parent centers or parent-teacher associations



Local Non-Profits - Local non-profits are non-governmental organizations committed to improving the communities they work in. They offer crucial resources such as professional staff time, meeting space, technical expertise, and political networks. Even organizations without a mobility or transportation focus often are eager to support grassroots leaders to develop mobility solutions, which benefit everyone in the community.

- Community-based organizations
- Community development corporations
- Mission-driven regional organizations
- Business improvement associations
- Maintenance assessment districts



Civic Advisory Groups - Civic advisory groups provide residents a formalized platform to directly influence city planning and policies.

- Community planning groups: Elected neighborhood leaders provide recommendations to local government (e.g., city council) on development and transportation projects.
- Working groups, advisory committees, and task forces: Technical advisory groups comprised of concerned persons who provide feedback on very particular issues (e.g., Bike Advisory Committee, Parking Advisory Board, etc.) to a local government entity.



Local Government - Local governments consist of elected officials from the city and county as well as their support staff. Officials are elected into office by individuals who vote in a democratic process. Elected officials strive to represent the needs and desires of their geographic jurisdiction. They approve the budget and local policies. City and county staff members implement policies, including land use policy, and facilitate city and county operations. Local governments consist of multiple departments – such as, street, planning, and transportation departments – that perform different roles and provide various services.



Regional Councils - Regional councils are regional governing and/or coordinating bodies made up of representatives from local government. Regional councils have authority over specific functions. Often, regional councils are designated as their region's metropolitan planning organization (MPO), an agency mandated by the federal government to develop transportation plans and policies. They also may be a regional transportation planning agency (RTPA), an agency designated by the State of California to administer state transportation funds. Typically, regional councils offer planning, coordination, and technical assistance to the local governments that they support. They are responsible for creating long-range transportation plans and improvements and developing a list of projects and project timelines to build out their region's transportation system, including transit, freeways, and active transportation. Regional councils also may have additional responsibilities based on specific state and federal legislation.



Transit Operators - Local public transit operators manage transit systems in accordance with MPO or RTPA plans. These organizations provide transit service(s) to local residents and determine frequency and routes of transit service(s). In most cases transit operators control the fares that are charged to riders. Transit operators have a governing board comprised of local elected officials.



State Government - The state government develops state policy and allocates state tax money to metropolitan regions. Money is usually distributed based on a population, lane mile (a measurement of pavement), or project basis. Projects that achieve statewide goals generally receive more funding. MPOs and RTPAs create plans that will execute state goals and compete for state funds for their projects.

- California Department of Transportation (Caltrans)
- CalEPA



Federal Government - The federal government develops federal policy and allocates federal tax money. The U.S. DOT supports the nation's transportation system and strives to enhance public safety and mobility. The U.S. DOT has several agencies including the Federal Transit Administration and Federal Highway Administration. These agencies distribute billions of dollars in formula funds and grants to state and local governments and other organizations to support transportation projects. These agencies also set regulations to ensure these projects meet federal standards.

Public Participation Plan

What is a Public Participation Plan?

A Public Participation Plan (PPP) is required under Title VI for agencies receiving federal funds. The PPP defines a public agency's process for informing and obtaining input from the public about its programs, projects, and policies. The PPP outlines the agency's public outreach efforts and lets you know how you can request information, participate in planning efforts, and provide input on the decision-making process. The purpose of a PPP is to ensure everyone has the opportunity to be included in the planning process so that the public's vision and community concerns are addressed and reflected through the implementation of planning activities.

What Does it Look Like in Action?

Planning activities (such as those for transit projects, policies, transportation plans; setting toll rates; and changing transit fares) have a public participation element. Outreach efforts vary based on the specific planning activity. Below are some examples of outreach efforts and opportunities for the public to stay informed and get involved in the planning process:

- Information via an agency's website, social media posts, newsletters, and in local news media
- Fliers, pamphlets, and other printed material
- Solicitation of comments on planning documents
- Public hearings, meetings, and workshops
- Working groups and advisory committees
- Surveys

Check out the *Public Participation Plan* section of Appendix A where you can learn more.

Outreach efforts should be designed to be inclusive of everyone regardless of race, income, age, gender, language, or ability. To encourage broader participation of the community, public meetings and other outreach activities can be:

- Held at different locations throughout the community and at locations accessible by transit and accessible for persons with disabilities
- Held at different times to accommodate varying work schedules, such as in the evenings or on weekends
- Offered in different languages to accommodate people with limited English proficiency



Community Engagement Strategies

So you want to make it easier and/or safer to get around in your neighborhood? But you don't know where to start? These strategies will get you on the right path. Some problems can be addressed with a phone call or service request to your city's streets or transportation department; however, city budgets are often tight and not all requests can be accommodated in a given year. Every problem has a solution. Some solutions are harder than others. Consider working with others in your community to develop and achieve mobility solutions.



Experience your Environment – Go for a walk, or better yet, help organize a community walk to observe and discuss mobility barriers. Look for ways to make your route faster and more pleasant. *Take notes and photos.*



Join the Community Conversation - Get in touch with neighborhood groups that are working to improve your community or establish a new group and commit to a time and place to meet on a regular basis. It's likely you're not the only one with your concern. Keep in mind that other community members may have a different perspective and different priorities than you. Some compromises may need to be made. Try to build consensus within your community and prioritize community issues. Agree to focus on one issue at a time. Reach out to local non-profits that can support you in your efforts. By working together you will have access to more creativity, manpower, expertise, and political power to address the issue. *Collaborate to build support.*



Document the Barrier - Describe the problem in detail. Include the exact location and specifics like transit station number, time of day of concern, or which side of the street the problem exists. Take photos, collect testimonies, and gather data. Many city staff have large workloads, so you may get a quicker response if you provide information that will help them understand your concern. Solicit feedback from neighbors or local advocates to improve your case. *Be thorough and persuasive.*



Report the Problem - Call your city to describe the problem, location, and impact on your and your neighbors' lives. If you don't know the correct department to contact, pick the one that seems relevant and they can steer you in the right direction. Take and submit photos. Many cities and jurisdictions have online service request forms that are easy to fill out. Describe the issue in detail and in a calm tone. *Be specific and courteous.*



Build your Skills - Attend a leadership training hosted by a community organization. Commit to regular attendance at a community group – it's amazing how much you'll learn simply by consistent attendance. *Ask questions.*



Identify Solutions - Use this Toolkit to help you begin to identify solutions. Be specific about what mobility solutions you think could benefit your community. Seek consensus and collaboration with community members and experts. *Borrow solutions that have worked elsewhere.*



Spread Awareness - Invite more neighbors to your community meetings. Ask your local community-based organizations to help spread the word. Schedule community walks to highlight mobility needs in your area. *Document your efforts and share them on social media.*



Meet your Elected Representatives - Keep your local officials informed on your issue. Demonstrate community support for your issue to gain officials' attention. Attend public meetings, such as planning group or city council meetings, to provide public comment on policies and projects related to your goals. Many local elected representatives hold regular office hours in the community. Check their website or call their office to find out times and locations so that you can talk to your local elected representatives. *Talking face to face is crucial to building trust and rapport.*



Take it Step by Step - Working to encourage your government to make noticeable and significant changes in your community can sometimes take a lot of work, volunteer hours, and time over the course of months or years. It's important to have realistic expectations. Focus on each step of the way and involve other people who support your idea. You may encounter opposition. Listen to their concerns and go back to the Identify Solutions step to explore options that might address both perspectives. You may have to loop back and repeat steps multiple times to strengthen the case for your proposed solution. *Keep it up!*

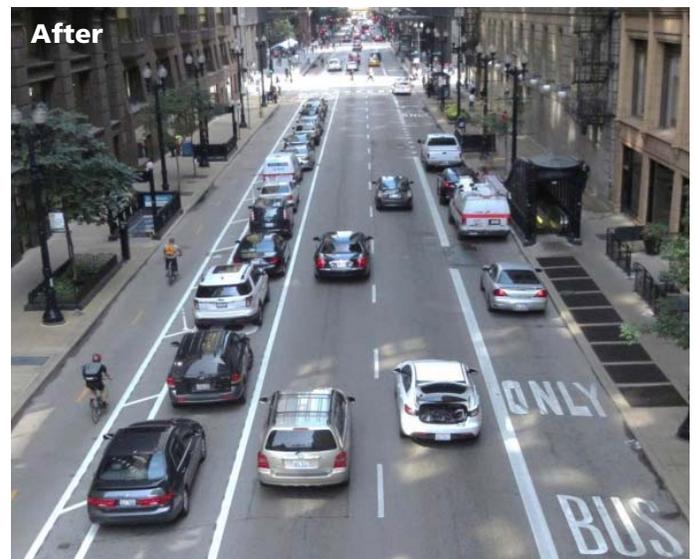
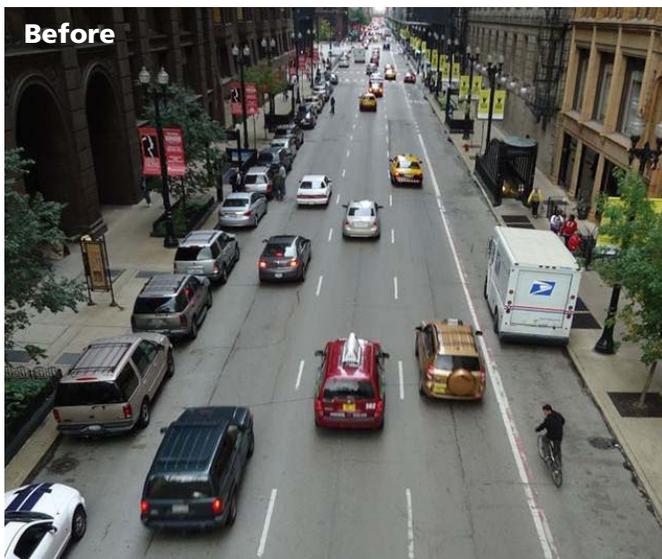


Celebrate your Accomplishments - Publicize your project's milestones. You and your community have worked very hard. Plan a celebration and invite all who have collaborated with you and those whom have yet to join you! Your efforts will affect your entire community in a positive way.

Complete Streets

What are Complete Streets?

Historically, streets were often designed with motor vehicles in mind, which can limit mobility options for people walking, biking, and taking transit. Complete Streets, on the other hand, are designed and operated to enable safe access for all users. They accommodate people of all ages and abilities, traveling by all modes, including walking, biking, using public transit, and driving cars or commercial vehicles. Complete Streets are designed in many different ways, including wide sidewalks, shortened crosswalks, bike lanes or protected cycle tracks, narrow travel lanes, bus-only lanes, and traffic calming elements such as bulb-outs, medians, or roundabouts. The concept serves as a decision-making framework for street improvements that aim to transform streets into ones that are more accessible for multiple uses.



Left: Before photo of Dearborn Avenue between Polk and Kinzie Streets (12 blocks) in Chicago's central business district. Right: After photo of Dearborn Avenue. In 2012, the Chicago Department of Transportation redesigned the street, reducing vehicle travel lanes from three to two and installing a two-way cycle track, which is protected by a parking lane.

Photos courtesy of the National Association of City Transportation Officials (NACTO)

What is a Complete Streets Policy?

A Complete Streets policy is a community's commitment to select, design, and build transportation projects that address the needs of everyone using the road and/or sidewalk. It supports safe transportation choices to homes, jobs, schools, healthcare, civic and cultural centers, and other important destinations. Also, it guides decision-makers to consistently fund, plan for, construct, operate, and maintain streets to accommodate all users. In 2008, California signed into law the California Complete Streets Act, which requires cities to include Complete Streets policies when updating the mobility element of their general plan. Around the same time, Caltrans established Complete Streets as the policy governing all state highway projects. Approximately 38 cities, 5 counties, and 6 metropolitan regions in California currently have some form of a Complete Streets policy in place – whether it is a policy, ordinance, tax measure, resolution, plan, or design guidelines.

To find out if your community has a Complete Streets policy, check out the interactive [Complete Streets Atlas](#) online. Links to additional resources are available in the Complete Streets section of Appendix A.

What Does it Look Like in Action?

Complete Streets policies are typically developed by a group of stakeholders, which may include representatives from the planning, engineering, public works, economic development, and health fields. The stakeholder groups also may include elected officials, people who reside in the community, and other community representatives. Once a policy is developed, it is taken to the governing body of the local jurisdiction, such as a city council, for approval. City policies are not legally binding; however, policies tend to build robust partnerships between agencies, community members, and decision-makers more so than other measures, such as resolutions or ordinances. Because of these partnerships, there is a shared push for implementation of the policy. Ideally, a policy results in an implementation process that integrates Complete Streets planning into all future projects including the redesign or reconstruction of existing infrastructure. The process provides clear guidance on how to decide what Complete Streets elements will be included in a project, and when they need not be included. It also ensures that the decision-making process is public. Complete Streets are achieved incrementally through new construction and improvement projects. The policies should encourage the prioritization of projects to outline the opportunities – both big and small – to implement Complete Streets.

Vision Zero

What is Vision Zero?

A Vision Zero strategy is one in which a city or jurisdiction commits to zero deaths or life-altering injuries on a jurisdiction's roadways by a certain date. The Vision Zero commitment asserts that no traffic-related loss of life is acceptable. A comprehensive three "E" approach can be adapted to your community:

Engineering – Road design dictates how streets will be used. Historically, most streets have been designed solely to accommodate vehicular traffic (similar to a highway system). This approach can compromise the safety of all other users because the street design promotes faster driving. The engineering component of Vision Zero campaigns identifies high-collision streets and accelerates the process of re-engineering those streets. These re-engineering projects focus on reducing vehicle speeds, calming traffic, and creating safe and attractive environments for people who drive, walk, bike, or use transit.

An increasing number of cities in the United States have *Vision Zero* directives. Check out the *Vision Zero* section in Appendix A for links to more resources and *Vision Zero* webpages of select cities.

Education – Education is critical to create a common set of expectations and change the behavior of all road users. Education campaigns focus on raising public awareness of traffic fatalities and teaching people how to safely use the road. Campaigns may include driver training or bike and pedestrian safety education among other programs.

Enforcement – Although well-designed streets should guide users to make safe choices, enforcement of traffic violations is an important deterrent to unsafe behavior. Stronger police enforcement can help to increase awareness of each person's responsibility for safe behaviors.

What Does it Look Like in Action?



Sometimes referred to as a fourth "E", an **equity** framework is a crucial component to achieving safe streets for the most vulnerable. Successful Vision Zero campaigns focus on engaging a diverse audience and place particular emphasis on engaging those most affected by traffic collisions. Vulnerable populations - such as individuals with disabilities, low income individuals, seniors, youth, and minorities - frequently rely on walking, biking, and using transit to get around and are disproportionately affected by traffic collisions. These vulnerable populations also are often underrepresented in community planning and governance. To ensure success of Vision Zero policies, campaigns must engage underrepresented populations and ensure they contribute to the conversation about improvements that work for them.

WalkSmartCA Ad. WalkSmartCA is a part of the "It's Up to All of US" public education campaign created by the California Department of Public Health. WalkSmartCA provides free and ready-to-use campaign materials.

Mobility Elements



Sidewalks



Mobility Matters



Walking is a fundamental mobility option for people who live in EJ communities as both a mode of transportation and a connection to other modes, such as transit. Walking is an affordable and reliable choice to get around. Aside from mobility benefits, walking is healthy exercise and strengthens community connections. Walkable communities are places where people of all ages and abilities have safe, enjoyable, and easy access on foot. Sidewalks play an important role in contributing to the walkability of a community.

Barriers to Mobility



Missing or cracked sidewalks create challenging walking conditions for residents accessing nearby amenities, including transit.

Narrow sidewalks and sidewalk obstructions, such as overgrown vegetation, cause safety hazards and discourage residents from walking.

Possible Solutions



Sidewalk network - Continuous sidewalks in a community enhance connectivity and create a safe environment for people to walk.

Sidewalk repairs - Repairs of broken, cracked, or uneven sidewalks prevent injury and provide safe access.

Wide and clear sidewalks - Wide sidewalks and sidewalks that are clear of any obstructions allow people to walk together in groups and with greater ease.

Example in Action

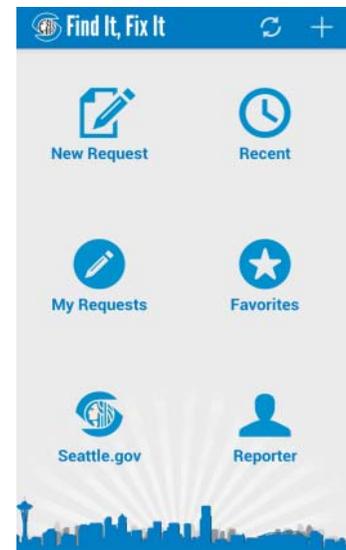


The City of Seattle launched the Find It, Fix It application for smartphones in August 2013. The application allows residents to quickly report infrastructure issues by snapping a photo, adding detailed information, and hitting submit. The application allows users to report issues such as abandoned vehicles, graffiti, illegal dumping or debris, potholes, and streetlight outages or damages. The mayor of Seattle leads monthly Find It, Fix It Community Walks during which city officials and community members identify physical elements in the neighborhood that are poorly maintained and could be improved. Once identified, the City of Seattle and community work together to fix the problem.

Source: City of Seattle, seattle.gov

Home screen of the Find It, Fix It smartphone application.

Image courtesy of the City of Seattle



Crossings



Mobility Matters



People walking should have adequate opportunities to safely and conveniently cross the road. Marked crossings show people driving where to expect people walking in the street. Streets that are safe for people walking also are safe for people driving, biking, and using transit. Safe crossings are critical considering people walking are disproportionately the victims of traffic-related injuries.

Barriers to Mobility



Infrequent crossings along commercial boulevards force people to walk long distances to cross legally and safely (which can be strenuous for the elderly or individuals with disabilities).

Unmarked crossings put people walking at risk of being unseen by people driving.

Wide streets with fast-moving traffic present challenges for people attempting to cross the street.

Inaccessible crossings and curb ramps fail to accommodate individuals with disabilities.

Possible Solutions



High visibility crosswalks - High visibility crosswalks have special paint treatments and flashing lights to warn people driving to look for people crossing the street. The crosswalk design makes people walking more visible.

Mid-block crosswalks - Mid-block crosswalks break up long city blocks and provide access to places that people want to go.

Safety islands - Safety islands are medians in the middle of crosswalks. Safety islands break up wide streets, slow traffic, and provide a safe haven for people walking across the street.

Curb extensions or bulb-outs - Curb extensions or bulb-outs widen the sidewalk and narrow the street at intersections. These treatments shorten the distance people have to walk to safely cross the street and encourage people driving to slow down.

Corner parking restrictions - Corner parking restrictions (also known as “daylighting”) remove parking spaces near intersections. By removing parked cars, people driving can see people crossing the street better and sooner. Parking restrictions also can be applied to mid-block crosswalks.

Signal timing - The timing of traffic signals can be adjusted to allow more time for people to cross the street.

Accessibility features - Audible crosswalks announce street names and provide instructions for crossing the street. Audible crosswalks and ADA curb-ramps enhance the accessibility of intersection crossings for individuals with disabilities.

For photos of *Possible Solutions*, check out the photo glossary in the *Crossings* section of Appendix A.

Example in Action



Upon requests from residents, City of San Diego traffic engineers redesigned the intersection of 50th Street and University Avenue in the City Heights neighborhood to make it safer for people crossing the street. Prior to 2011, the intersection did not have a crosswalk and the curve of the road, hilly topography, and high-traffic volume on University Avenue made it difficult for people walking and people driving to see each other. City engineers installed a crosswalk, re-engineered the south side of University Avenue by painting a buffer on the roadway, eliminated parking, and converted a left turn lane into a refuge protected by plastic bollards. The low-cost treatment enhances the visibility of people crossing the street.

Source: *City Heights Community Development Corporation (CHCDC)*



Left: Before photo of intersection of 50th Street and University Avenue in the City Heights neighborhood of San Diego. Right: After photo of crosswalk and painted buffer installed in 2011 upon the request of residents.

Photos courtesy of the CHCDC

Example in Action



BeautifulPB – a non-profit within the community of Pacific Beach in San Diego – collaborated with Pacific Beach Middle School to paint an intersection mural in front of the school. The intersection mural indicates to people driving that they should slow down and look for people crossing the street. The mural was designed by a student and showcases artwork reflective of the community and brought the community together through the process of selecting the artwork and painting the mural.

Source: *BeautifulPB, beautifulpb.com*



Left: Aerial view of mural in front of Pacific Beach Middle School at the intersection of Haines and Diamond streets. Right: Students and community members painting during a community block party.

Photos courtesy of BeautifulPB

Traffic Calming



Mobility Matters



Most streets have been designed to accommodate cars. Traffic calming is motivated by the idea that streets should be places where people can walk, bike, shop, play, socialize, and coexist safely alongside cars. Traffic calming measures seek to reduce vehicle speeds, improve safety, and enhance the street experience for everyone.

Barriers to Mobility



Speeding vehicular traffic puts all road users, including people walking, biking, and using transit, in danger of traffic collisions.

Streets with higher vehicular traffic speeds and without adequate space for all mode users are unwelcoming to people walking, riding bikes, or using transit.

Possible Solutions



Reduce speeds - Lowering the speed limits on commercial and residential streets creates safer environments for all people using the road whether they are driving a car, biking, walking, or using transit.

Traffic calming features - Examples of traffic calming features include roundabouts, center medians, and curb extensions. These features force people driving cars to slow down due to physical obstructions in the roadway.

Rightsizing - Rightsizing is the process of redesigning a street to allow enough space for everyone using the road, including people walking, biking, and using transit. Rightsizing may include narrowing lane widths, installing bike and transit-only lanes, and implementic traffic calming features.

For more information on specific *Traffic Calming* features, check out additional resources and the photo glossary in the *Traffic Calming* section of Appendix A.



Left and right: Pedestrian improvements, including new crosswalks and safety islands, at Dewey Circle. Dewey Circle is a traffic circle at the five-street intersection of Claremont Boulevard, Taraval Street, Montalvo Avenue, Dewey Boulevard, and Kensington Way. The improvements were part of San Francisco Municipal Transportation Agency's Dewey Area Traffic Calming Project, which included the West Portal Safe Routes to School project. West Portal Elementary School is located on Claremont Boulevard adjacent to Dewey Circle.

Photo credit: Jeremy Menzies, SFMTA Photo | sfmta.com/photo

Example in Action



The San Francisco Municipal Transportation Agency (SFMTA) manages a traffic calming program that is grounded in the community. People living in the neighborhood may submit a traffic calming request application that documents problems on a street in their neighborhood. The request requires multiple signatures from people living in the neighborhoods so applicants are encouraged to reach out to their neighbors and build consensus. SFMTA reviews requests and ranks applications based on several factors such as speeding data, collision history, and proximity to schools. SFMTA works with the neighborhood to develop and agree on traffic calming improvements; and ultimately designs, receives permits, obtains funding, and implements the improvement project.

Source: SFMTA, sfbetterstreets.org



Speed humps (left) and crosswalks (right) along Claremont Boulevard in front of West Portal Elementary School. The improvements were part of SFMTA's Dewey Area Traffic Calming Project, which included the West Portal Safe Routes to School project.

Photo credit: Jeremy Menzies, SFMTA Photo | sfmta.com/photo

Placemaking



Mobility Matters



The design of a streetscape influences the type and level of activity within the space. Design elements such as parklets, shade trees, benches, and open space create an inviting atmosphere for people walking or biking and can activate the streetscape. Expanded public spaces have the effect of calming traffic and increasing safety for people who walk, bike, and use transit. Additionally, spaces oriented around people walking foster a sense of community and safety, as well as support the vitality of the surrounding economy as more people frequent the neighborhood on foot.

Barriers to Mobility



Barren streetscapes create unfriendly environments for people walking.

Dark, unlit sidewalks limit visibility for people walking and increase perceptions of danger.

Possible Solutions



Appropriate lighting - Lighting that is appropriate for people walking enhances visibility at night and makes people walking more visible to people driving.

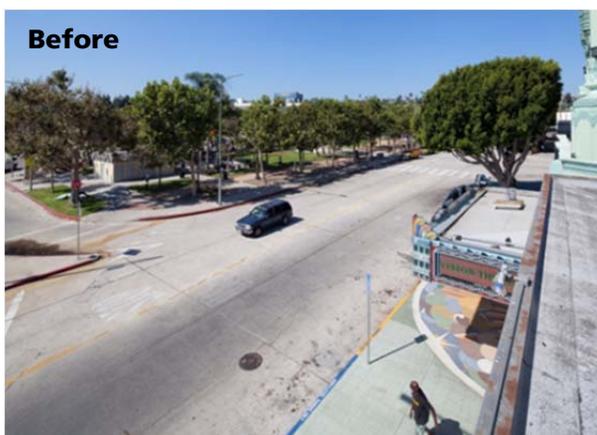
Shade trees and street furniture - Shade trees and street furniture transform a street into an active space and a place for social interactions, also providing safe places to stop and rest.

Parklets and plazas - Parklets are expansions of the sidewalk into one or more on-street parking spaces to create spaces for people to interact. Plazas convert redundant or underused portions of streets into a public space with tables, chairs, and other furniture.

Public art - Incorporating public art into the streetscape enhances the sense of place in a neighborhood, showcases neighborhood culture, and creates attractive places where people want to be.

Sidewalk gardens - Community members can establish a sidewalk garden. Community gardening strengthens social relations, increases foot traffic, and beautifies the streetscape while promoting a safer, more pleasant walking experience.

For Photos of Possible Solutions, check out the photo glossary in the Placemaking section of Appendix A.



Left: Before photo of 43rd Place between Degnan Boulevard and Leimert Boulevard in Leimert Park, Los Angeles. Right: After photo of Leimert Park Village Plaza – the result of a Los Angeles Department of Transportation People St Project completed in February 2015.

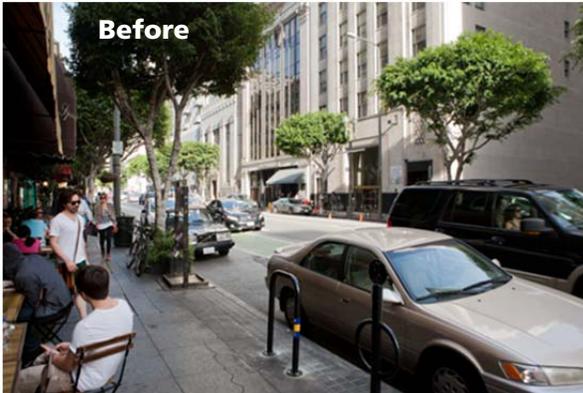
Photo credit: Jim Simmons

Example in Action



The Los Angeles Department of Transportation (LADOT) implemented the People St Program in October 2013 with the goal of transforming city streets into active, accessible spaces for people. People St projects are community driven and funded. Eligible community partners can apply for approval to create plazas, parklets, or bike corrals. The community partners generate community support, identify appropriate sites, assist with installation, and provide long-term management and maintenance of the project. People St provides easy-to-navigate online applications and a Kit of Parts for each project type. The Kit of Parts offers preapproved configurations and materials, which streamlines the permitting process and ensure projects are implemented in a matter of months once approved.

Source: LADOT, peoplest.lacity.org



Left: Before photo of Spring Street in Downtown Los Angeles. Right: After photo of Spring Street Parklet – the result of a LADOT People St Project completed in February 2013.

Photo credit: Sam Comen



Mobility Matters



Biking offers residents of EJ communities an affordable, reliable, and active choice for getting around. Safe infrastructure for biking makes biking safer for people already riding and helps to get those who want to bike, but are concerned about safety, out on the streets. Biking, as opposed to driving, improves air quality, provides personal health benefits, increases mobility, and can stimulate the local economy.

Barriers to Mobility



Streets that have high traffic volume and/or traffic at high speeds are unwelcoming environments for people biking.

Streets that do not have separate bike facilities put people biking in conflict with people driving at high speeds.

Poorly maintained streets, such as those with cracks and potholes, create challenging biking conditions.

Possible Solutions



Protected bike lanes- Protected bike lanes have a physical barrier that separate people biking from people driving. Physical barriers can be planters, curbs, parked cars, or posts.

Left-side bike lanes - Left-side bike lanes are conventional bike lanes placed on the left side of one-way streets or two-way median-divided streets. They lower the risk of people biking getting “doored” by people opening the door of their parked car.

Colored bike facilities - Colored pavement increases the visibility of people biking and identifies potential conflict areas.

Bike boxes - Bike boxes are designated areas at the front of a traffic lane at a signalized intersection that allow people biking to move ahead of people driving or “queue jump” during red lights by increasing the visibility of people biking and allowing them to make turns safely.

Bike detection - Bike detection at signalized intersections detects people biking and communicates to the traffic signal. There are different types of bike detection including electromagnetic loops embedded in the street pavement, video detection, or push-buttons mounted on poles facing the street, it triggers green traffic lights for people biking and keeps traffic moving efficiently.

Bike signals - Bike signals, which have green-yellow and red bike stenciled lights, make crossing an intersection safer for people biking. Some bike signals may include flashing amber warning beacons for increased visibility.

Protected intersections - Protected intersections include several safety features that allow people biking to travel through an intersection safely, by including corner refuge islands to protect people biking from vehicle traffic; forward stops that give people biking a car-length head-start from vehicle traffic; and bike-friendly traffic signal phasing.

For photos of *Possible Solutions*, check out the photo glossary in the *Bikeways* section of Appendix A.

To learn more about *Protected Intersections*, go to protectedintersection.com and watch a video demonstrating how protected intersections work.

Example in Action



The New York City Department of Transportation reconfigured Allen and Pike streets in Manhattan’s Lower East Side to allow for protected bike lanes. The project, which was completed in 2010, reduced the roadway from three to two travel lanes in either direction. Bike lanes were moved from the curb on the right – where they were often obstructed by delivery trucks or double-parked cars – to the left between the median pedestrian mall and left travel lane. The six-foot bike lanes include colored-asphalt, an additional nine-foot striped buffer, and flexible bollards and planters for separation from travel lanes. In a later phase of the project, completed in 2012, some segments of the bikeway were made more permanent by raising the bikeway and incorporating it into the pedestrian mall where it is protected by a curb and landscaping. The project also involved connecting four of the pedestrian mall segments with roadbed plazas and closing off through-traffic on three side-streets. The roadbed plazas are defined by color-coating, planters, and fixed seating.

Source: NACTO, nacto.org



Left: Before photo of Allen Street at the intersection of Allen and Delancey in Manhattan’s Lower East Side. Right: After photo of interim left-side bike lanes with painted buffers and plastic bollards for protection completed in 2010.

Photo credit: Sam Comen



Left: Before photo of Pike Street at Monroe Street. Through-traffic on Monroe Street was blocked and interim left-side bike lanes were installed in 2010. Right: After photo of permanent bike lanes, or cycle tracks, and public plaza, which were installed in 2012.

Photo credit: Sam Comen



Mobility Matters



An interconnected network of bikeways is critical in enabling people to bike with greater safety, directness, and convenience within their neighborhoods and between regional destinations. Bike networks also include support facilities and bike programs. Support facilities, such as bike lockers, bike corrals, and even showers make it easier for people to choose to bike or bike in combination with using transit to get to their destination. Bike programs include traffic safety and bike maintenance training, bike to school or bike to work programs, and other programs that encourage people to bike.

Barriers to Mobility



Lack of bike facilities on high-traffic, commercial streets force people riding bikes to choose different routes through residential streets, which may be less direct and lengthen travel time.

Missing connections between bike facilities and inconsistent quality of bike facilities make it challenging and stressful to navigate streets by bike and may discourage people from choosing to travel by bike altogether.

Destinations that do not have support facilities, such as bike parking, discourage travel to those locations by bike.

Possible Solutions



Bike master plan - A bike master plan is a document that outlines long-range planning for developing bike infrastructure in a city or region. The plan identifies existing and planned bike routes and prioritizes improvement projects.

Bike boulevards - Bike boulevards are streets with low traffic volume and speeds that have been designed to give people biking priority over people driving cars. Bike boulevards have signs and pavement markings as well as speed and volume management measures to discourage use by people driving and encourage use by people biking.

Bike wayfinding system - A bike wayfinding system consists of signage and/or pavement markings that guide people biking to their destinations along preferred routes. Signs or pavement markings are typically placed at decision points, such as intersections.

Bike support facilities - Bike support facilities include bike parking, bike accommodations on transit, bike repair stations, showers, and other infrastructure that make it easier for people to travel by bike. There are several different types of bike support facilities, and they can be provided by various entities, including cities, transit operators, private businesses, and employers.

Bike programs - Bike programs are designed to raise awareness of biking; connect people to bike resources; educate people about bike safety, rights, and responsibilities; and encourage people to bike. Examples of bike programs include Bike to Work Day, open streets or car-free events, Complete Streets education, employer incentives, bike maintenance and safety classes, and bike maps and information.

For photos of *Possible Solutions*, check out the photo glossary in the *Bike Network* section of Appendix A.

Example in Action



City Heights Community Development Corporation (CHCDC), a place-based non-profit, collaborated with Hoover High School's Academy of Information Technology to introduce geographic information system (GIS) students to active transportation project planning. Together they developed a curriculum on how to use ArcGIS Story Map to demonstrate built environment deficiencies and possible treatments along a planned bike boulevard in City Heights near the school campus. Students use this corridor as a daily route to school and immediately connected with the issues. CHCDC invited project managers from the San Diego Association of Governments, the local metropolitan planning organization, to a monthly community group meeting where students presented their story map and provided input on specific design elements of the bike boulevard project.

Source: CHCDC



GIS students from Hoover High School review plans of a planned bike boulevard near their school in City Heights with one of the project engineers.

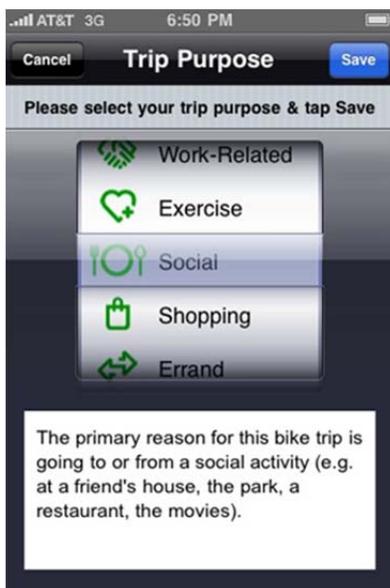
Photo courtesy of CHCDC

Example in Action



The San Francisco County Transportation Authority (SFCTA) developed the smartphone application CycleTracks in 2009 to collect data on residents' bike trips. CycleTracks uses the phone's GPS to record and map a person's bike ride through the city. People biking can also put in information on the trip purpose. The date, time, route, and trip purpose help SFCTA understand the needs of people biking and better prioritize bike infrastructure projects.

Source: SFCTA, sfcta.org



Left and Right: Screenshots of the CycleTracks mobile application. Using the application, people can record their bike trips including information such as trip purpose, travel time, distance and speed.

Images courtesy of SFCTA



Mobility Matters



Public transit is an integral component of mobility among EJ communities, and access to transit information directly affects a person's ability to navigate the transit system. Transit information is communicated through various avenues including public outreach, media, printed materials, transit stop signage, and on-board announcements. It is critical that transit information is communicated in a manner that is appropriate and accessible to persons of all ages, linguistic backgrounds, and cognitive and physical abilities.

Barriers to Mobility



Transit information, such as transit schedules or service changes, which are primarily published in English, may be inaccessible to limited-English proficient persons.

Navigating a complex transit system may be challenging to immigrants, refugees, seniors, and individuals with disabilities.

Language and cultural barriers between transit operator personnel and transit riders prevent riders from communicating their transit needs and receiving meaningful information.

Lack of auditory and visual information limits access to transit by the visually- and hearing-impaired, respectively.

Possible Solutions



Partnerships - Partnerships between transit operators and community-based organizations help ensure transit information reaches community members in a meaningful way. Community-based organizations serve as trusted ambassadors within their communities and can provide appropriate outreach.

Translation and interpretation - Translating transit materials or providing interpretation makes transit information accessible to limited English proficient individuals and visually-impaired individuals. Opportunities for translation and interpretation include transit schedules, station signage, audio announcements, public meetings, and outreach materials.

Travel training - Travel training is individualized or small-group instruction designed to teach travel skills, such as trip planning, reading transit maps and schedules, making transfers, paying fare, and asking for assistance while using transit. Limited English proficient persons, immigrants, refugees, seniors, and individuals with disabilities can all benefit from travel training, and instruction can be tailored to meet the needs of each individual.

Language identification tools - Language identification flashcards or posters in transit vehicles and transit offices help transit operators and planning staff provide better assistance to limited-English proficient individuals. Additionally, identification of languages spoken by individual bus or train operators, through signs or name badges, help facilitate meaningful interaction between transit operator personnel and people using transit.

Example in Action



The International Rescue Committee (IRC) in San Diego offers programs to assist refugees to become self-reliant and build lives in San Diego. Transportation is a component of many of the IRC's programs, including employment and youth programs. IRC San Diego provides classes on how to use the San Diego transit system, assists refugees with route planning, and offers field trips using public transit. IRC San Diego staff collectively speaks more than twenty different languages, which allows them to communicate effectively with the limited English proficient refugees they assist. In addition to the San Diego office, the IRC has offices in the following cities in California: Los Angeles, Oakland, Sacramento, San Jose, and Turlock. Many of these offices also offer transportation services as a part of their assistance to refugees.



Left and right: Students of Vocational English as a Second Language classes offered by IRC San Diego take field trips on the Metropolitan Transit System bus and Trolley to learn more about public transportation.

Photos courtesy of IRC San Diego

Source: IRC, rescue.org

Transit Affordability



Mobility Matters



According to the Mineta Transportation Institute, transportation costs are a concern for most low income families. Low income individuals and families are often strategic about managing their finances to respond to changes in income or transportation costs. They may modify their travel behavior; use creative cost-covering strategies; manage expenses, including transportation expenses; or reduce non-essential expenses (discretionary spending). Low income individuals often experience hardships in finding a way to cover their transportation costs. These financial management strategies have negative effects on their lifestyles, including increased stress, reduced spending on necessities such as food, inability to participate in leisure activities, and being trapped in the neighborhood around their homes.

Barriers to Mobility



Regular transit fares may be cost-prohibitive for low income individuals and particularly low income families or students.

Limits to the number of children who can ride free with paying adults create challenges for large families or single-parent families who travel together.

A Note on Funding

None of the solutions on the following page are possible without raising fares, reducing service, or an infusion of new funding. Revenue generated by transit fares does not cover all of the cost associated with operating transit services even when no fare discounts are applied. Transit operators receive subsidies from the state and federal government to offset operation expenses. Reduced fares for low income or other groups such as youth, students, or families must be subsidized at an even higher rate. These subsidies may come from various sources, such as state funding, fare increases to all other users, local tax measures, or other private funding sources. Even with these extra subsidies; however, transit operators may experience a decrease in fare revenues associated with reduced fare programs, which can lead to budget shortfalls. Additionally, transit operators may incur costs to administer the programs, including verifying the eligibility of participants. All of the solutions below must be weighed against the budgetary impacts of implementing fare reductions.



Possible Solutions

Youth pass or student pass - Youth passes or student passes provide reduced fares or free fares for low income or all children or students depending on the pass program.

Employer programs - Employer programs offer employers discounted group fares in order to provide free or subsidized transit passes to employees.



Low income fare - Reduced fare for individuals with low income increases the affordability of transit for these individuals.

Family plans or family pass - Family plans or family transit passes provide discounts or incentives for multiple transit users in one family. Transit operators also may allow children to ride free with a paying adult.

Neighborhood pass programs - Neighborhood passes are discounted passes purchased by neighborhoods, residential complexes, or low income housing offices to provide transit passes to residents.

Transit pass grant programs - Certain transportation grant funds – distributed through transit operators, regional transportation planning agencies, or metropolitan planning organizations – may be used by community-based organizations, non-profits, or cities to purchase transit passes and distribute them to low income individuals they serve.

Other discounts and incentives - There are many other possible discounts and incentives that can help people using transit save money. Below are some examples:

- Discounts for travel during off-peak hours
- Daily, weekly, and monthly travel caps, which set a limit to the amount people using transit pay for trips in a given day, week, and month
- Weekly travel rewards, such as free travel after the completion of eight trips in a week
- Free transfers within a certain time-frame, such as within 60 minutes
- Discounts to people collecting unemployment benefits and actively seeking employment
- Payment plans which divide large, lump-sum transportation costs into smaller, more frequent payments to make the costs more manageable



For Examples in Action for each of the *Possible Solutions* on the previous page, check out the *Transit Affordability* section of Appendix A.

Transit Fare Payment Systems



Mobility Matters



Flexibility in fare payment method contributes to the convenience and ease of use of public transit.

Barriers to Mobility



Fare boxes on buses do not provide change for one-way fares, which potentially cost people using transit more money.

Outdated fare payment choices provide fewer opportunities for discounts and other incentives.

Different fare payment systems among transit services or transit providers cause challenges in using multiple types of services to get around.

Paying transit fares in cash increases wait times at transit stations, which can slow travel times and reduce on-time performance.

Possible Solutions



Universal fare cards - Universal fare cards are transit passes which can be used on all transit services. Universal fare cards make it easier to transfer between service types – such as bus, train, and light rail – and service providers. Some universal fare cards can be used at participating retail stores.

Stored-value cards - Stored-value cards are transit passes which are capable of having any dollar amount value stored on the card. With stored-value cards, single-ride fares can be deducted from the total amount on the card.

Mobile ticketing - Mobile ticketing allows people using transit to purchase transit fare using an application on a smartphone. Fare payment may be validated by waving the virtual ticket over a contactless payment reader.

Transit fare/banking cards - Combined bank and fare cards are credit or debit cards that also function as transit passes. The cards can be used at any vendor that accepts electronic payment. When used as a transit pass, transit fares are billed to the credit card or deducted from the user's bank account.

For more *Examples in Action*, check out the *Transit Fare Payment Systems* section of Appendix A.

Example in Action



Transport for NSW, the transit operator in New South Wales, Australia uses a smartcard ticketing system, Opal, for fare payment. The Opal card offers many benefits such as fare discounts, never having to wait in line to purchase a ticket or have the correct cash fare, and being able to use one card for all transportation services. Transit riders can load value on their Opal card online, via phone, or at Opal retailers. The pay-as-you-go system charges riders single fares based on trip distance, which is recorded when riders tap on at the start of their trip and tap off at the end of their trip. Because Opal is an electronic system, Opal can apply rewards for frequent travel, discounts for off-peak travel, and caps on how much a rider pays in a day and week.



Opal Card

Photos courtesy of Transport for NSW

Source: Transport for NSW, transportnsw.info; Opal, opal.com.au

Reliable, Efficient Transit



Mobility Matters



Consistency and dependability is important when considering mobility choices. People traveling to and from work or traveling to medical or other appointments need to arrive to their destination on time and in a manner that they can depend on. Reliable transit means that transit services arrive at pick-up and drop-off locations on time and consistently. Reliable transit also means that people using transit can expect the same level of customer service, safety, and quality of experience every time they ride.

Barriers to Mobility



Typical a.m./p.m. peak service hours and span of service may not accommodate the non-traditional work hours kept by many people in EJ communities.

Overcrowding on transit services detracts from the experience of riding transit and causes schedule delays. Transit services that arrive at transit stops later than scheduled are inconvenient and cause people to be late or miss transfers.

Multi-leg trips between EJ communities and regional activity centers create a challenge for residents travelling for the purpose of work, medical appointments, shopping, or other activities.

Without infrastructure giving priority to transit, people using transit experience the same traffic as those driving their own vehicles.

Possible Solutions



Regional routes - Direct routes between residential areas and regional activity centers are critical in reducing travel times and enhancing quality of life. Regional transportation plans help identify routes that make travel within a region more efficient.

Community-appropriate scheduling - Transit schedules can be adjusted to reflect the unique travel needs and behaviors of the community and reduce transfer wait times.

Trippler service - Trippler service is extra transit vehicles put into service at times when there is high demand in order to prevent overcrowding. Often tripper service is associated with school schedules or special events.

Fare payment streamlining - Buses often get delayed at stops due to a high volume of people boarding and paying fare. Streamlining the fare payment process and teaching people how to use the fare payment system can help buses stay on schedule.

Transit signal priority - Transit signal priority uses technology to give priority to transit vehicles at traffic signals. Devices on the bus and at the traffic signal communicate with each other to extend a green light or shorten a red light in order to reduce dwell times for transit vehicles at traffic signals.

Transit-only lanes and queue jumps - Transit-only lanes are dedicated travel lanes on streets for transit vehicles. Transit-only lanes improve travel times for transit and can be paired with queue jumps to reduce dwell times for transit vehicles at traffic signals. Queue jumps give transit vehicles a green light before traffic in other lanes so they can “jump” ahead of all the traffic.

Possible Solutions *(Continued)*



Real-time transit information - Real-time transit information can be displayed at a transit station or via text or smartphone application. This technology, which links to GPS on transit vehicles, provides people waiting for transit with information on the location and arrival time of their transit vehicle in real-time. This improves the satisfaction that riders have of transit by empowering them with additional information to control their own schedules.

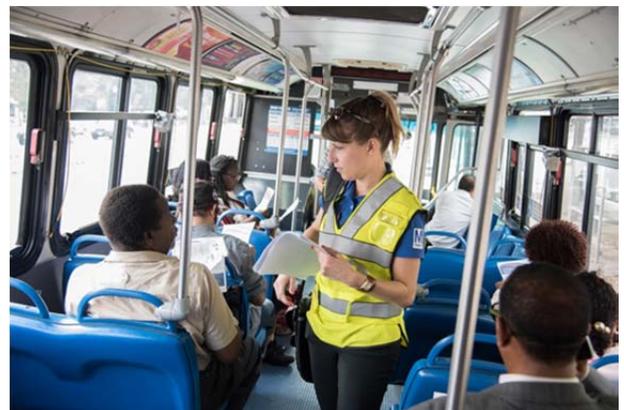
Guaranteed Ride Home program - Guaranteed Ride Home programs provide people who commute by walking, biking, or using public transit a “guaranteed ride home” when they work late unexpectedly, have a personal or family illness or emergency, or are stranded at work after a carpool or vanpool driver has left. The Guaranteed Ride Home program – offered through MPOs, RTPAs, or employers – provides members with a free taxi or rental car ride home. Often there are restrictions on how many times a member can use the “guaranteed ride home” option in a given year.

Example in Action



The Washington Metropolitan Area Transit Authority (Metro) in Washington, D.C. proposes service changes to bus operations every year. Metro has a public participation period in which they collect public comment on the proposed changes. Metro offers an online survey; administers surveys at bus stops, rail stations, and on transit vehicles; provides an email address for written or audio comments; holds a public hearing; and goes on a “Better Bus Road Show” in which Metro staff tour bus stops and attend community meetings and festivals to collect public input on how the proposed changes affect their travel choices. Through its outreach, Metro has talked to or heard from people from all economic and ethnic groups, including people who speak Spanish, Vietnamese, and Amharic.

Source: Metro, wmata.com



Left and right: Outreach as a part of Metro's Better Bus Road Show.

Photo credit: Larry Levine, Metro

Transit Stop Amenities



Mobility Matters



The features or amenities at transit stops affect a person's overall transit riding experience, including their perception of time waiting at a stop. Creating comfortable, pleasant transit stops increases access to transit for people of all ages and abilities.

Barriers to Mobility



Lack of infrastructure surrounding transit stops, such as sidewalks and lighting, potentially create insecurity for people accessing transit.

Standard sidewalks may not be ADA-compliant and not wide enough to include a transit stop where one is needed.

Transit stops that lack amenities, such as shelters, benches, and lighting, may be unpleasant spaces for people waiting for transit.

Inaccessible transit stops prevent individuals with disabilities from accessing transit safely and conveniently.

Information about how to report a problem may not be readily available at transit stations.

Possible Solutions



Sidewalks - Smooth, wide sidewalks make it easy for people of all ages and abilities to access transit stops. Wide sidewalks also allow shelters and benches to be installed.

Shelters and benches - Shelters and benches provide people comfort while waiting for transit. Shelters protect against the sun, rain, noise, and other disturbances. Benches provide a place to sit and rest.

Lighting - Lighting at transit stops increases safety at night.

Trash cans - Trash cans help keep transit stops clean and keep litter off the street.

Signage - Signage at transit stop can assist people in navigating not only the transit system, but also the community. Signage can provide the following information: route schedules; location of the transit stop within the larger community; nearby shops, schools, or other attractions; and methods to get more information, request assistance, or notify transit operators of an issue.

Real-time transit information - Real-time transit information can be displayed at transit stops or via text or smartphone application. This technology, which links to GPS on transit vehicles, provides people waiting for transit with information on the location and arrival time of their transit vehicle in real-time.

Safety and security - Many transit operators employ security staff or coordinate with local law enforcement to address safety issues at or near transit facilities.

Information on methods to report a problem – by calling, texting, or using a mobile application – can be displayed at transit stations. Transit stations can also feature other forms of security such as video surveillance.

Bike parking - Bike parking at transit stops allow people to travel to and from transit by bike with more convenience. Bike parking can be standard bike racks or bike lockers, which provide more security.

For photos of *Possible Solutions*, check out the *Transit Stop Amenities* section of Appendix A.

Example in Action



TriMet, the transit operator in the Portland metropolitan area, teamed up with local cities and property owners to improve bus stop access and amenities. The two-year project was primarily funded through state funds with local cities providing matching funds. The project added sidewalks, bus shelters, and benches for more than 370 TriMet bus stops. TriMet also has an Adopt-a-Stop program in which community groups sponsor a bus stop. TriMet provides a trash can with a plaque thanking the community group and the community group takes on the responsibility of emptying the trash can as needed.

Source: TriMet, trimet.org



Left: Before photo of bus stop location near a drainage ditch along Highway 8 in Hillsboro, Oregon. Right: After photo of a wide sidewalk and bus shelter installed through the partnership between the Oregon Department of Transportation, Washington County, and TriMet.

Photos courtesy of TriMet

Ridesharing



Mobility Matters



Ridesharing provides a more affordable option than car ownership and more flexibility and convenience than public transit. Ridesharing is particularly beneficial for individuals accessing jobs with non-traditional work hours and/or jobs in locations not easily accessible by public transit. For individuals who own cars, ridesharing reduces the financial burden of owning a car by sharing gas and toll fees with other passengers. Ridesharing also provides a safer alternative to travelling alone or at night.

Barriers to Mobility



Walking, biking, or taking transit may not be available, appropriate, or convenient for travel over long distances or in the early morning or at night.

High gas prices make driving alone unaffordable for low income individuals and families.

Many low income individuals and families are carless and do not have access to a vehicle for trips where driving is more appropriate or convenient than other mobility choices.

Possible Solutions



Carpooling - Carpooling allows people that live and work near each other to share a driving trip and split the cost of gas. Carpooling typically is arranged between peers, but databases maintained by MPOs or RTPAs can help match up people to carpool.

Vanpool program - A vanpool is like a carpool except it holds more people, typically a group of 7 to 15 people who commute to and from work together in a van. The van is typically leased and paid for by the riders. Vanpool programs – which may be offered through MPOs, RTPAs, or employers – offer subsidies to vanpools to help cover lease fees.

Employer shuttles - Employer shuttles pick up employees of a specific company, either from home or designated pick-up locations, and drive them to and from work.

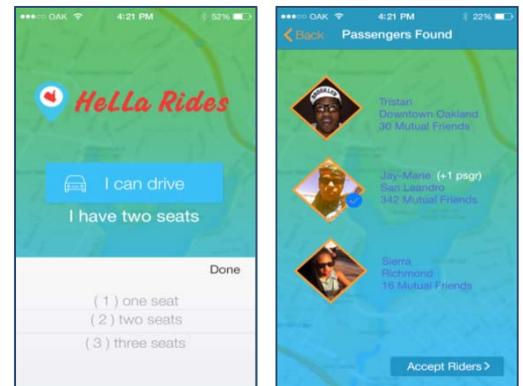
Employer-based trip reduction program - Through employer-based trip reduction programs, employers provide their employees with resources and incentives to reduce car trips. Resources may include carpool matching programs, vanpools, transit passes, or other transportation services.

Example in Action



HellaRides is a peer-to-peer ridematching service for residents of the East Bay in the San Francisco Bay Area. The service allows people that commute to work by car find one or more passengers in their neighborhood to pick up and share the cost of gas and toll fees. The ridematching smartphone application only matches drivers and riders who have mutual friends, and riders contribute no more than what it would cost to take the same trip by transit.

Source: HellaRides, hellarides.com



Screenshots of the HellaRides mobile application. People can indicate the number of seats that they have available and accept nearby passengers.

Images courtesy of HellaRides

Carsharing



Mobility Matters



Driving provides a more convenient and reliable transportation option especially for trips where the equivalent public transit trip is particularly onerous and time-consuming. However, car ownership is too expensive for many people living in EJ communities. The American Automobile Association estimates the cost of owning a car to be \$740 per month. Carsharing makes access to a car more affordable and reduces the number of vehicles on the road. It also can be used with transit as first mile or last mile connections. The cost of using carsharing services can be lower when the majority of the trip is accomplished using transit.

Barriers to Mobility



Walking, biking, or taking transit may not be available, appropriate, or convenient for travel over long distances or in the early morning or at night.

Expenses associated with owning or renting a vehicle are unsustainable for low income individuals.

Many carsharing services are unaffordable for sustained use.

Possible Solutions



Affordable carshare services - Carshare programs subsidized through philanthropic or health-oriented funders provide access to vehicles at an affordable price for low income individuals.

Peer-to-peer carsharing - People can share personal vehicles either informally or through a third-party organizer. Third-party organizers can equip personal vehicles with technology that allows the car to be unlocked using a smartphone application, which eliminates the need to for members to exchange keys.

Example in Action



City CarShare – a nonprofit carsharing service in the San Francisco Bay Area – provides convenient, affordable access to shared, fuel-efficient cars at 240 different locations. City CarShare has a fleet that includes 27 different types of vehicles – such as trucks, sedans, and accessible mini-vans – to accommodate a wide variety of individuals and their travel needs. Among its many programs, City CarShare partners with local community-based organizations to offer the CommunityShare program, which provides subsidized membership fees and driving costs for low to moderate income members.

Source: City CarShare, citycarshare.org



City CarShare operates the Dash program, which allows people that work in a particular job center to rent a carshare vehicle to complete errands during their lunch breaks. The Dash program makes it easier for people to choose to walk, bike, or use transit knowing that they have access to a vehicle at work if they need it. The program uses all-electric vehicles.

Photo courtesy of City CarShare

Bikesharing



Mobility Matters



Bikesharing systems provide people access to biking without having to own a bike. People can rent a bikeshare bike for short periods of time. Bikesharing has the potential to play an important role in bridging gaps in existing transportation systems by providing first-mile and last-mile connections to transit.

Barriers to Mobility



“One-size fits all” bikeshare bikes do not accommodate all body types.

Bike models do not support biking with children or cargo.

Bikesharing systems require a credit or debit card to use, which prevents people without bank accounts or credit or debit cards from using the system.

Bikesharing systems marketed for certain groups, such as tourists, create a perception that it is not acceptable for other groups to use bikeshare bikes or use them for other trip purposes.

EJ communities are typically underserved by bikeshare stations.

Possible Solutions



Subsidized bikesharing - Bikesharing programs subsidized through philanthropic or health-oriented funders provide access to bikes at an affordable price for low income individuals.

Bike libraries or bike exchanges - Bike libraries or bike exchanges fix up donated, used bikes and provide the refurbished bikes to low income individuals at no-charge or deeply discounted prices. Bike libraries or bike exchanges also may offer riding lessons, bike maintenance training, and other programs to encourage more people to bike.

Example in Action



Hubway is a bike sharing system providing Boston area residents access to more than 1,300 bikes at 140 stations. The system allows members to borrow a bike from one station and return it at another. With an \$85 annual fee, users get the first 30 minutes of every bike trip free and pay additional fees for additional time. Hubway is sponsored by the Boston-based footwear manufacturer, New Balance, and offers a subsidized membership for low income Boston residents. Eligible subsidized members pay a \$5 annual fee and receive the first hour of every bike trip free.

Source: Hubway, thehubway.com; Boston Bikes, bostonbikes.org

A person renting a Hubway bike at the Coolidge Corner bikeshare station on the corner of Beacon Street and Centre Street in Boston.

Photos courtesy of Hubway



Example in Action



The Community Partners Bike Library (CPBL), a program of Cycles for Change, partners with sixteen nonprofit and public organizations in Minneapolis and St. Paul in Minnesota to loan donated bikes to low income community members directly engaged with the partner organizations. CPBL loans bikes for up to six-months and provides members with a bike lock, lights, and helmet. Members attend a safe cycling workshop prior to receiving a bike and have access to mechanical support throughout the loan period. Parents or guardians can borrow trailers to transport their small children, or kids' bikes for older children, so that the whole family can ride together. CPBL also offers free classes – such as Learn to Ride, Riding in Traffic, and Basic Bike Mechanics – and other customizable programming.

Source: Cycles for Change, cyclesforchange.org



Left: Participants in the Youth Apprenticeship Program with Cycles for Change, repairing one of the Bike Library bikes. The Youth Apprenticeship Program teaches youth participants ages 14-21 bike maintenance. Right: Bike Library Participants go on a group ride as part of program orientation.

Photo courtesy of Cycles for Change

Community Safety



Mobility Matters



Safety is a key component in the decisions people make about mobility. Creating an environment in which people of all ages and abilities feel safe is critical to improving mobility and encouraging people to bike, walk, and use public transit.

Barriers to Mobility



Concerns about getting around safely when biking, walking, driving, or using public transit limits the mobility choices of an individual.

Lack of lighting at transit stops or along streets increase the perception of danger and cause people to feel unsafe getting around in their neighborhood.

Possible Solutions



Community safety network - A community safety network is a network of local businesses that provide concerned community members with a safe haven while they await assistance from police or security personnel.

Emergency call boxes - Emergency call boxes allow people to contact the police or fire department through a button or phone located on a pole or kiosk to report an emergency. Emergency call boxes are often found on college campuses and are associated with blue lights.

Neighborhood watch - Neighborhood watch programs consist of residents that act as the “eyes and ears” of a community. Residents keep an eye on personal property, report vandalism and suspicious activity, and patrol the street.

Lighting and infrastructure - Adequate lighting and appropriate infrastructure for walking, biking, and using transit enhances the safety of a community and the mobility of its residents.

Crime Prevention Through Environmental Design - Crime Prevention through Environmental Design (CPTED) is based on the idea that individual buildings, communities, or entire cities can be designed to reduce and prevent crime. A key strategy with CPTED is to increase the amount of people walking and biking and with it the opportunity for community members to be the “eyes on the street.”

Example in Action



In New York City, Columbia University’s Department of Public Safety implemented the Safe Haven program in partnership with surrounding businesses and the New York City Police Department (NYPD). Participating businesses display a Red Lion – the logo of the Safe Haven program – in their windows to indicate that their business is a safe haven. If students, faculty, staff, or community members feel unsafe walking in the neighborhood, they can enter a safe haven location, ask the business to call Columbia University’s Department of Public Safety or NYPD, and wait inside the business until security personnel responds. The simple Red Lion decal of the Safe Haven network provides community members with peace of mind knowing help is available if needed at participating businesses.

Source: Columbia University, columbia.edu



The Safe Haven program logo displayed in the window of a local business near Columbia University’s campus.

Photo courtesy of Columbia University Public Safety

Mobility Hubs



What are Mobility Hubs?

Mobility hubs are transportation centers designed to give people more choices for getting around. They are places of connectivity, where different modes of transportation – walking, biking, ridesharing, and transit – come together seamlessly to connect people to their jobs, school, shopping, errands, recreation, and back home.

What are the Benefits of Mobility Hubs?

Getting to and from transit stations can sometimes be challenging, and those first and last steps often end up being deterrents to using public transit. Mobility hubs can solve that “first and last mile” problem. They provide an integrated suite of transportation services, amenities, and urban design enhancements that bridge the distance between transit and an individual’s origin or destination. Mobility hubs promote choices like carsharing, bikesharing, and neighborhood electric vehicles – for short trips within the neighborhood or to connect to transit stations for longer trips outside the area. A centralized facility of mobility choices makes using transit easier, increases local and regional connectivity, and improves travel times for all modes.

What are Some Features of Mobility Hubs?

Mobility hubs feature a range of transportation choices including: bikeshare, carshare, neighborhood electric vehicles, bike parking, dynamic parking management strategies, real-time traveler information, real-time ridesharing, demand-based shuttle or jitney services, bike and pedestrian improvements, wayfinding, urban design enhancements, and supporting systems like mobile applications, electric vehicle charging stations, smart intersections, and a universal payment system to make it easy to access a wide range of travel choices.



Top left: Example of a park and ride facility with dynamic parking management. Individual space sensor technology registers full or open spaces and displays that information to help people driving find a parking spot easier.

Top right: Example of real-time traveler information at a bus station. The variable message sign inform people using transit arrival times of the buses.



Bottom left: Example of electric vehicle charging station.



Bottom right: Example of a bikesharing station.

Photo courtesy of Hubway

Appendix A

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Environmental Justice and Title VI

Resources

To learn more about Environmental Justice and Title VI, check out the following websites and publications by clicking on the links below.



[California Environmental Protection Agency \(CalEPA\) – Environmental Justice Program](#)



[CalEPA – Environmental Justice Program Update, February 2014](#)



[Office for Civil Rights, U.S. Department of Health and Human Services– Know the rights that protect us from discrimination based on race, color, or national origin](#)



[San Diego Association of Governments \(SANDAG\) - Your rights under Title VI of the Civil Rights Act of 1964 and the Americans with Disabilities Act of 1990](#)

Americans with Disabilities Act

Resources

To learn more about the Americans with Disabilities Act (ADA), check out the following websites and publications by clicking on the links below.



[ADA National Network – Information, Guidance, and Training on the Americans with Disabilities Act](#)



[United States Department of Justice Civil Rights Division – A Guide to Disability Rights Laws](#)



[San Diego Association of Governments - Your rights under Title VI of the Civil Rights Act of 1964 and the Americans with Disabilities Act of 1990](#)

Public Participation Plan

Resources

To learn more about Public Participation Plans, check out the following websites and publications by clicking on the links below.



[U.S. Department of Transportation Federal Highway Administration – Public Involvement/Public Participation](#)

Complete Streets

Resources

To learn more about complete streets, check out the following websites by clicking on the links below.



[National Complete Streets Coalition - Fundamentals](#)



[re:Streets – Streets Reconsidered, Inclusive Design for the Public Realm](#)

Vision Zero

Resources

To learn more about Vision Zero, check out the following websites by clicking on the links below.



[Vision Zero Initiative – The Vision Zero](#)



[California Department of Public Health - California Pedestrian Safety Program](#)

National Examples

Check out some of the cities in the United States that have Vision Zero campaigns, policies, and other initiatives. Below are just a few! Click on the links below to explore and learn more.

[Los Angeles, CA](#)

[New York, NY](#)

[Portland, OR](#)

[San Antonio, TX](#)

[San Diego, CA](#)

[San Francisco, CA](#)

[Santa Barbara, CA](#)

[San Jose, CA](#)

[Seattle, WA](#)

[Washington, D.C.](#)

Crossings

Photo Glossary



Photo courtesy of SANDAG

High visibility crosswalks

High visibility crosswalks have special paint treatments and flashing lights to warn people driving to look for people crossing the street. The crosswalk design makes people walking more visible.

Mid-block crosswalks

Mid-block crosswalks break up long city blocks and provide access to places that people want to go.



Photo courtesy of SANDAG

Safety islands

Safety islands are medians in the middle of crosswalks. Safety islands break up wide streets, slow traffic, and provide a safe haven for people walking across the street.



Photo courtesy of SANDAG

Curb extensions or bulb-outs

Curb extensions or bulb-outs widen the sidewalk at key points along the roadway. Typically curb extensions occur at crosswalks, which shorten the crossing distance for people walking and makes them more visible by lining them up with the parking lane. Curb extensions also narrow the roadway and increase the turning radius for people making right turns – both of which encourages people driving to slow their vehicle speed.



Photo courtesy of NACTO

Corner parking restrictions

Red curbs or other parking restrictions at intersections increase the sight distance between people walking and people driving. Corner Parking Restrictions, or “daylighting,” make people walking more visible.



Photos courtesy of SANDAG

Accessibility features

Audible crosswalks announce street names and provide instructions for crossing the street. Audible crosswalks and ADA curb-ramps enhance the accessibility of intersection crossings for individuals with disabilities.

Traffic Calming

Resources

To learn more about Traffic Calming and Rightsizing, check out these websites by clicking on the links below.

-  [Traffic Calming Measures – Institute of Transportation Engineers](#)
-  [Traffic Calming – Fehr & Peers](#)
-  [Traffic Calming 101 – Project for Public Spaces](#)
-  [Rightsizing Streets – Project for Public Spaces](#)
-  [Road Diet Case Studies – U.S. Department of Transportation Federal Highway Administration](#)

Photo Glossary



Photo courtesy of NACTO

Speed humps

Speed humps are rounded, raised areas of a roadway that are designed to reduce a vehicle's speed. Speed humps are typically 3 to 4 inches high and have a ramp length of 3 to 6 feet depending on the target speed.



Photo courtesy of NACTO

Speed tables

Speed tables are flat-topped speed humps. The flat section is typically 22 feet in length and built using brick or other textured material. Speed tables may be designed as raised mid-block crosswalks.



Photo courtesy of NACTO

Speed cushions

Speed cushions are either speed humps or speed tables that include wheel cutouts to allow emergency vehicles to pass through unaffected, while reducing speeds of passenger vehicles.



Photo courtesy of NACTO

Chicanes

Chicanes are design elements that create an artificial S-shaped curve in the roadway. Often chicanes are created with curb extensions that are offset and alternate from one side of the street to the other. They can also be created using medians and angled parking.



Photos courtesy of NACTO

Pinchpoints

Pinchpoints are curb extensions on either side of the roadway that narrow the roadway. Pinchpoints often occur at intersections or midblock crosswalks to shorten the crossing distance for people walking and drawing attention to people crossing the street.



Photo courtesy of NACTO



Photo courtesy of SANDAG



Photo courtesy of SANDAG



Photo courtesy of City of Charlotte / Project for Public Spaces

Traffic circles

Traffic circles are simple markings or raised islands placed in intersections around which traffic circulates. Traffic circles are often considered “mini-roundabouts.” Traffic circles calm traffic at intersections of lower volume, local streets. When combined with plantings, traffic circles can beautify the street.

Roundabouts

Roundabouts are center islands in intersections that require traffic to circulate counterclockwise. Roundabouts are larger than traffic circles and are used on higher volume streets. Roundabouts can incorporate fountains, public art, landscaping, and other design elements that beautify the space.

Rightsizing

Rightsizing is the process of redesigning a street to allow enough space for everyone using the road, including people walking, biking, and using transit. Rightsizing may include narrowing lane widths, installing bike lanes and transit-only lanes, and implementing traffic calming measures.

Placemaking

Photo Glossary



Photos courtesy of NACTO (left) and SANDAG (right)

Appropriate lighting

Lighting that is appropriate for people walking enhances the visibility for people walking at night and makes people walking more visible to people driving.



Shade trees and street furniture

Shade trees and street furniture transform a street into an active space and a place for social interactions. Shade trees and street furniture also provide safe places to stop and rest.



Photos courtesy of SANDAG



Photo courtesy of NACTO

Parklets

Parklets are expansions of the sidewalk into one or more on-street parking spaces to create spaces for people to interact.



Photo courtesy of NACTO

Plazas

Plazas convert redundant or underused portions of streets into a public space with tables, chairs, and other furniture.



Photos courtesy of SANDAG

Public art

Incorporating public art into the streetscape enhances the sense of place in a neighborhood, showcases neighborhood culture, and creates attractive places where people want to be.



Sidewalk gardens

Community members can establish a sidewalk garden. Community gardening strengthens social relations, increases foot traffic, and beautifies the streetscape while promoting a safer, more pleasant walking experience.



Photos courtesy of NACTO

Bikeways

Photo Glossary



Protected bike lanes

Protected bike lanes have a physical barrier that separate people biking from people driving. Physical barriers can be planters, curbs, parked cars, or posts.



Photos courtesy of NACTO (far above and above right) and SANDAG (above left)



Left-side bike lanes

Left-side bike lanes are conventional bike lanes placed on the left side of one-way streets or two-way median-divided streets. Left-side bike lanes lower the risk of people biking getting “doored” by people opening the door of their parked car.

Colored bike facilities

Colored pavement increases the visibility of people biking and identifies potential conflict areas.

Photo courtesy of NACTO



Photo courtesy of NACTO

Bike boxes

Bike boxes are designated areas at the front of a traffic lane at a signalized intersection that allow people biking to move ahead of people driving or “queue jump” during red lights. Bike boxes increase the visibility of people biking and allow them to make turns safely.



Photos courtesy of SANDAG (far above left) and NACTO (above and far above right)

Bike detection

Bike detection at signalized intersections detects people biking and communicates to the traffic signal. There are different types of bike detection including electromagnetic loops embedded in the street pavement, video detection, or push-buttons mounted on poles facing the street. Bike detection triggers green traffic lights for people biking and keeps traffic moving efficiently.



Photo courtesy of NACTO

Bike signals

Bike signals, which have green-yellow and red bike stenciled lights, make crossing an intersection safer for people biking. Some bike signals may include flashing amber warning beacons for increased visibility.

Bike Network

Photo Glossary



Photo courtesy of City of Philadelphia

Bike master plan

A bike master plan is a document that outlines long-range planning for developing bike infrastructure in a city or region. The plan identifies existing and planned bike routes and prioritizes improvement projects.



Photos courtesy of City of San Luis Obispo

Bike boulevards

Bike boulevards are streets with low traffic volume and speeds that have been designed to give people biking priority over people driving cars. Bike boulevards have signs and pavement markings as well as speed and volume management measures to discourage use by people driving and encourage use by people biking.



Photo courtesy of NACTO

Bike wayfinding system

A bike wayfinding system consists of signage and/or pavement markings that guide people biking to their destinations along preferred routes. Signs or pavement markings are typically placed at decision points, such as intersections.



Photo courtesy of SANDAG

Bike lockers

Bike lockers are metal boxes with locks for bike parking and storage. Bike lockers provide protection from theft, vandalism, and weather.



Photos courtesy of SANDAG

Bike stations

Bike stations are indoor bike parking facilities that are typically located at transit stations. Bike stations offer secure bike parking that can be accessed via a pin-pad or electronic keycard. Bike stations may include bike services and amenities such as bike self-repair station, restrooms, showers, or changing rooms.



Bike corrals

Bike corrals are on-street bike parking facilities that can accommodate up to 16 bicycles in the same area as a single vehicle parking spot. When placed near street corners, bike corrals increase visibility and create a buffer between people walking and people driving. Bike corrals can also be a form of public art.



Photos courtesy of NACTO (far above) and SANDAG (above)



Photo courtesy of SANDAG

Bike programs

Bike programs are designed to raise awareness of biking; connect people to bike resources; educate people about bike safety, rights, and responsibilities; and encourage people to bike. Examples of bike programs include Bike to Work Day, open streets or car-free events, Complete Streets education, employer incentives, bike maintenance and safety classes, and bike maps and information.

Transit Affordability

Examples

Youth pass or student pass



Free Muni for Youth Program: San Francisco Municipal Transportation Agency – San Francisco, California

The Free Muni for Youth Program allows school-aged youth to ride for free on Muni with the use of a Clipper® Card. Muni is the transit system in San Francisco operated by SFMTA and the Clipper® Card is the all-in-one card for the Bay Area, which can hold transit passes, cash value, and parking value (for select parking garages). The Free Muni for Youth Program developed out of a grassroots campaign lead by People Organized to Win Employment Rights (POWER), an advocacy group. POWER worked with families, SFMTA staff, and city leaders for two years prior to the launch of the 16-month pilot program in March 2013. The launch followed a decision by the San Francisco Unified School District (SFUSD) to reduce the use of yellow school buses for transporting students to and from school by 43 percent since 2011 because of state budget cuts. Additionally, the Muni Youth monthly pass had increased from \$10 to \$22 between 2009 and 2012.

The Free Muni for Youth pilot program cost SFMTA approximately \$9.4 million to operate and was funded by various grants through a number of local and regional agencies including the Metropolitan Transportation Commission (the Regional Transportation Planning Agency and Municipal Planning Organization for the nine Bay Area counties), SFMTA, SFUSD, and San Francisco County Transportation Authority. The pilot program was funded by these sources through June 2014 and provided transportation to over 31,000 students aged 5 to 17 years.

In an announcement in February 2014, Google pledged to provide SFMTA with a \$6.8 million gift to fund an additional two years of the Free Muni for Youth program. In April 2015, the SFMTA Board of Directors approved extending the program for two more years, given the gift from Google, and extended the program to include 18 year olds, and 19 to 22 year old students enrolled in the SFUSD's Special Education Services Program. Additionally, the SFMTA Board of Directors pledged to prioritize the continuation of the program beyond the two year extension.



Student Reduced Fare: Chicago Transit Authority – Chicago, Illinois

Chicago Transit Authority's (CTA) Student Reduced Fare offers students aged 7 to 20 years reduced fares Monday through Friday during the hours of 5:30 a.m. to 8:30 p.m. during the school term. Students must use the Student Ventra Card to receive the reduced fare. The Ventra Card is the transit payment/bankcard used by CTA (urban transit operator), Pace (suburban transit operator), and Metra (commuter rail operator) that stores value, offers contactless payment, and is also a MasterCard debit card. Full adult fare for a one-way trip is \$2.25 on the train and \$2.00 on buses. Transfers (up to two additional rides within two hours) cost full fare-paying adults \$0.25. The student reduced fare is \$0.75 for one-way trip on any CTA service, and transfers cost students \$0.15.

Chicago Public Schools (CPS) issue Student Ventra Cards directly to their student populations.

Students attending non-CPS, private or parochial schools are also eligible for the student reduced fare. Select non-CPS schools issue Student Ventra Cards. If a student's school does not issue cards, a parent or guardian can request a student fare for their child directly through CTA. Students may continue using their cards after the school term; however, a full fare or age-based reduced fare is deducted for travel outside of the school term. For children aged 12 to 20 years, a full fare is deducted. For children aged 7 to 11 years, a reduced fare of \$1.10 for the train and \$1.00 for buses and \$0.15 for transfers is deducted, if the card is registered for the reduced fare. Once school starts again, students will need to have their student riding privileges re-enabled. Student Ventra Cards are valid for up to five years after which students will need to be re-issued a new card.

CPS and non-CPS schools that issue Student Ventra Cards use a third-party vendor to distribute and manage the Student Ventra Cards. These schools do not receive any funding from CTA to administer the Student Reduced Fare program; the schools must assume the administrative cost themselves. This is one way that CTA can reduce some of their own costs in operating the program.

CTA receives funding from the Illinois Department of Transportation (IDOT) for reduced fares programs, which include reduced fares for seniors, individuals with disabilities, and students. In 2014, IDOT allocated \$34 million for reduced-fare programs across the state. CTA receives approximately 85 percent of state reduced-fare funding. Pace receives approximately 7 percent and Metra receives approximately 9 percent. This state funding, however, does not cover the entire cost to operate reduced-fare programs. The reduced-fare program collectively costs CTA, Pace, and Metra \$100 million annually. CTA uses internal funding to cover the rest of the cost of operating the program. The amount of state-funding distributed by IDOT for reduced-fare programs decreased significantly from 2013 to 2014. This reduction and future reductions put pressure on transit operators' operating budgets.



School Transit Subsidy Program (DC One Student Card): [Washington Metropolitan Area Transit Authority](#) and [District Department of Transportation](#) – Washington, District of Columbia

The School Transit Subsidy Program offers free or reduced fares for Washington, District of Columbia students who use Metrobus, the DC Circulator, or Metrorail to travel to and from school and school-related activities. There are a number of programs and fares under the School Transit Subsidy Program using the DC One Card – the consolidated credential card that provides access to DC government facilities and programs including public schools, recreation centers, libraries, and the Metro transit system.

The Kids Ride Free on Rail program provides free travel on the Metrorail in a given boundary to Washington, District of Columbia students aged 5 to 21 years who attend a Kindergarten through 12th grade (K-12) public or public charter school. Students who attend private or parochial schools are not eligible for the program. For these students, the DC One Student Card – Electronic Rail Passes are available for reduced monthly or 10-trip passes. The Kids Ride Free on Bus program provides free travel on the Metrobus to DC students aged 5 to 21 years who attend a K-12 public, public charter, private, or parochial school. Free travel on the Metrobus is only permitted Monday through Friday from 5:30 to 9 a.m. and from 2 to 8 p.m. when school is in session. For all other times, students may use the DC One Student Card – Electronic Bus Pass, which provides discounted monthly or ten-trip passes. The DC One Student Card discounted monthly pass for \$30 is valid on the Metrobus and Metrorail.

The School Transit Subsidy Program only works with a DC One Card. To obtain a DC One Card, students under age 18 must apply in person at a DC One Card Service Center with a parent, legal guardian, or agent of the state and provide an original proof of identity, proof of relationship, and proof of residency. DC One Card applications must be filled out online prior to applying in person.

For DC Public School secondary students (grades 6-12) and DC Public Charter School students, the DC One Student Card is issued through the school.

Employer programs



Group Pass Program: Lane Transit District – Eugene and Springfield, Oregon

Lane Transit District (LTD) offers discounts to organizations purchasing bus passes for 100 percent of their students, employees, or residents. There are different per participant rates depending on the organization enrolling in the program. For example, middle and secondary education institutions pay \$9.45 per student or faculty member for monthly passes. A regular adult monthly pass is \$50 and a youth pass for children aged 6 to 18 years is \$25. Once an organization is enrolled into the group pass program, the organization receives stickers, which serve as bus passes, to apply to the organization's ID card, such as a student ID or employee ID.



MTS ECO Pass Program: Metropolitan Transit System – San Diego, California

Metropolitan Transit System (MTS) offers employers discounts on bulk purchases of annual transit passes for their employees. Eco Pass discounts vary from 10 percent to 25 percent off depending on the number of participating employees.



Transit Pass Programs for Employers: TriMet – Portland, Oregon

TriMet offers employers three different transit pass programs to provide transit passes to their employees. Through the Universal Annual Pass Program, TriMet works with companies to survey their employees and determine their commuting choices (e.g. taking transit, driving, biking, or carpooling). TriMet will provide a price estimate that reflects the transit ridership of the company's employees. The company provides one-year passes to all employees, but only pays for their actual use.



Metro Employer Annual Pass Program: Los Angeles County Metropolitan Transportation Authority – Los Angeles, California

Los Angeles County Metropolitan Transportation Authority (Metro) offers two employer pass programs: Annual Transit Access Pass (ATAP) and Business Transit Access Pass (BTAP). The ATAP Program allows employers to pay for annual passes for a select number of employees. Annual passes are full price; however, the ATAP program provides peace of mind by eliminating the administrative burden of purchasing individual, monthly passes. The BTAP Program allows employers to purchase annual transit passes at a low cost group rate for all of their employees. Group rates are determined by Metro based on the level of service in the area. Metro sets group rates to ensure revenue neutrality, which means that Metro does not lose revenue despite providing a discount. Under both the ATAP and BTAP programs, employers decide how to pay for the passes. Employers may pay for the entire cost of the passes for its employees; employers may share the cost with their employees; or they may have their employees pay for the passes.

Low income fares



ORCA LIFT Reduced Fare Program: Metro, Sound Transit, and Kitsap Transit – Seattle, Washington Metropolitan Area

King County Metro Transit (Metro), Sound Transit, and Kitsap Transit - transit operators in the Seattle metropolitan area and Puget Sound region – established a low-income fare using ORCA (One Regional Card for All), which is the transit fare payment system used by all transit operators in the area. The ORCA Lift Program began in March 2015 and is offered on Metro’s bus service, Sound Transit’s Link light-rail service, and Kitsap Transit’s bus service as well as the Seattle streetcar and King County Water Taxi.

Individuals that qualify for ORCA LIFT can save up to 50 percent or more on the various transit services. For example, ORCA LIFT reduced fare on Metro is \$1.50 whereas regular fare is \$2.50 during off-peak and up to \$3.25 during peak times. To offset some of the cost of the program, Metro increased fares for all other riders by 25 cents per trip for fixed-route transit and by 50 cents per trip for paratransit. Similarly, Sound Transit increased the fare of all other riders of their light-rail service, including seniors, individuals with disabilities, and youth.

Individuals with household incomes at or less than double the federal poverty level (200%), as established by U.S. Health and Human Services Department, qualify for ORCA LIFT. These individuals must provide income verification documents, which must be submitted at ORCA LIFT enrollment offices. Income verification documents include proof of enrollment in other benefits program such as Social Security, unemployment, Medicaid, electronic benefits transfer, and Temporary Assistance for Needy Families. Enrollment offices are operated by the Seattle & King County Department of Public Health and various non-profit agencies, such as the Catholic Community Services and YMCA. Once an individual qualifies for ORCA LIFT, their ORCA LIFT card is valid for 24 months after which the individual must reapply for the program.



Lifeline Pass: San Francisco Municipal Transportation Agency – San Francisco, California

The Lifeline Pass offers a 50 percent discount off the standard adult monthly pass price for Muni Transit services for qualified customers on a limited income. San Francisco residents with a gross annual income (before taxes) at or less than double the federal poverty level (200%), as established by U.S. Health and Human Services Department, qualify for the Lifeline Pass. These individuals must bring a completed application, government-issued identification, and proof of income eligibility to the Human Services Agency (HSA) for income and residency certification. Proof of income eligibility documents include most recent year's tax return and copies of W2s; award letter for California Work Opportunity and Responsibility to Kids, Human Services Agency of San Francisco's County Adult Assistance Programs, CalFresh (food stamps), or MediCal; State Disability Insurance or Supplemental Security Income (SDI/SSI) check stubs; and current housing assistance program contract. The San Francisco Municipal Transportation Agency (SFMTA) has a contract with HSA to perform program administration of the Lifeline Pass program, including determining client eligibility. Under the contract, SFMTA pays HSA \$250,000 annually.

The Lifeline Pass is an ID card with valid monthly sticker, which serves as proof of payment. The Lifeline Pass is not a "Smart Card". Individuals with a Lifeline Pass must show their ID to a station agent for access to the light-rail Metro system. For Muni buses, individuals with Lifeline Pass may enter the back door or, when boarding the front door, display their ID card to the bus operator. Lifeline Pass stickers are valid through the third day of the following month.

The Lifeline Pass began in September 2005. It was created as a part of SFMTA's budget process. SFMTA identified a \$57.3 million operating budget shortfall. SFMTA proposed to raise the price of adult monthly passes, which were then \$45, to \$50. However, SFMTA was concerned about the financial impacts of the fare increase on low-income individuals. SFMTA decided to create the \$35 Lifeline Pass for low-income individuals. SFMTA received a one-time \$219,334 grant from the Municipal Transportation Commission, the Regional Transportation Planning Agency and Municipal Planning Organization for San Francisco County.

SFMTA did not end up raising the adult monthly pass at the time (though they did raise the price in later years) and instead raised the price of one-way trips from \$1.25 to \$1.50. Additionally, service was reduced on over 30 routes either by lengthening the wait between vehicles (decreasing frequencies), shortening hours of operation, or eliminating route segments. These reductions in service accounted for \$3.5 million in savings to help cover the shortfall.

To understand the financial impacts of the Lifeline Pass, in FY 2008 the Lifeline Pass program cost SFMTA over \$1.1 million. In FY 2011, the program increased to approximately \$7.5 million, which represents an increase of more than 550 percent. The annual cost to SFMTA per Lifeline Pass client increased from \$213 in FY 2008 to \$401 in FY 2011.



Transportation Disadvantaged Program: Pinellas Suncoast Transit Authority – Pinellas County, Florida

The Pinellas County Transportation Disadvantaged Program, administered by the Pinellas Suncoast Transit Authority (PSTA), is a state-funded program that provides a 50 percent discount to Pinellas County residents who qualify as “transportation disadvantaged.” Transportation disadvantaged individuals are considered those who cannot receive transportation from household members or others for life-sustaining trips (medical, grocery, work, job-related training/education and other vital services) and have documented household income at or below 150 percent of federal poverty guidelines for 2015. This includes children at-risk, seniors, individuals with disabilities, and low-income residents.

The program is funded by the Florida Commission for the Transportation Disadvantaged (CTD) through its state-wide Transportation Disadvantaged Program. The CTD collects and distributes funding known as the Transportation Disadvantaged Trust Fund (TDTF), which is generated through vehicle registration. For every registration or renewal, \$1.50 is put into the TDTF. Funds are also generated through the Transportation Disadvantaged Voluntary Dollar Program. Florida residents have the opportunity to “put their dollar to work” by donating \$1 or more to the TDTF when registering or renewing registration for their car, truck, or boat.

The CTD distributes TDTF funding to the Community Transportation Coordinator (CTC) of each county or service area. PSTA is the CTC for Pinellas County and receives TDTF funds from the CTD to support the Pinellas County Transportation Disadvantaged Program. Despite a fixed amount of TDTF funding that is allocated to PSTA, it is PSTA’s practice to not limit the supply of reduced fares and reduced fare passes. Therefore, the funding through the TDTF does not cover all of the cost for PSTA to sustain the Pinellas County Transportation Disadvantaged Program. PSTA has increased fares for all riders to help offset some of the cost. However, PSTA still operates transportation services at a loss.



Economy Pass Program: SunTran – City of Tucson, Arizona

SunTran provides reduced fare for low-income, senior citizens 65 years or older, Medicare Card holders, and individuals with disabilities. Pima County residents who meet low-income guidelines based on the U.S. Department of Labor’s Lower Living Standard Income Level are eligible to receive the Economy Pass for low-income riders. Eligible individuals must bring a completed application, photo ID, proof of household income, documentation of each income sources, and \$2 (processing fee) to SunTran’s Special Services Office. Documentation of income may include paycheck stub; W2 form; federal tax return; or statement or award letter showing benefits from the Arizona Department of Economic Security for Unemployment or Food Stamp benefits, Social Security, Supplemental Security Income, Veteran’s Affairs, worker’s compensation, or State Supplemental payment.

Once qualified, individuals receive a SunGo ID & Card, which is valid for one year from date issued. The SunGo ID & Card is a long-term plastic card that serves as an all-in-one ID and fare payment card by storing value or transit passes. Low-income qualified individuals must reapply at the Special Services Office annually, whereas seniors, Medicare cardholders, and individuals with disabilities need only to reapply every four years.

Fare for a one-way trip on SunTran services is \$1.50 for full fare and only \$0.50 for economy fare. A full fare 30-day pass is \$42, whereas an economy pass is only \$15. SunTran riders can load their SunGo cards with up to \$100 to pay for one-way trips. When riders use their SunTran card to pay cash fare, the appropriate one-way fare is deducted from the value on the card and a free transfer is loaded onto the card.

Neighborhood pass program



Neighborhood EcoPass: Regional Transportation District – Denver, Colorado

Regional Transportation District (RTD) allows neighborhoods in the Denver metropolitan area to purchase discounted transit passes in bulk. The Neighborhood EcoPass program (NECO) is available to neighborhoods that are represented by either a county or city government entity or a registered homeowner association. The neighborhood must also be located in the RTD service area and have all homes in the neighborhood included in the contract.

Pricing for the NECO contract is determined through a neighborhood survey. RTD operates NECO as revenue neutral, which means RTD seeks to receive as much revenue from the neighborhood through NECO as it received prior to implementation of NECO. The neighborhood survey helps RTD assess the transit usage among the households prior to receiving an EcoPass and thus determine how much revenue it has received previously from the neighborhood. Based on how pricing for the entire contract is determined, EcoPasses per household are discounted. The survey accounts for all households (whether the household previously used transit or not) and all households contribute to the overall contract amount. For example, if RTD previously generated \$7,500 from a neighborhood of 75 households in a year and set the NECO contract to that amount, each household would pay \$100 and receive annual EcoPasses for all the members of their household.

The City of Boulder, near Denver and within RTD's service area, has noticed an increase in the number of EcoPasses requested per household through NECO as more children begin to use transit. In Boulder, many students participate in open enrollment and therefore attend a school that is not in their neighborhood. These students are not eligible to receive transportation through the Yellow School Bus program. Through NECO, the City of Boulder has seen an increase in the number of school-aged children using RTD transit services.

NECO is administered through volunteer neighborhood coordinators. Coordinators are responsible for advertising the program throughout their neighborhoods, getting all households to participate in the program, and collecting money from all of the households (if a household chooses not to participate in NECO, all of the other participating households in the NECO neighborhood have to pay more in order to cover the cost of the NECO contract). In Boulder a local non-profit serves as a bank for the participating NECO neighborhoods in order to streamline the payment process. Each neighborhood has a bank account. Coordinators can deposit money that they collected from each of the households into the bank account. Once the entire contract amount is collected, the non-profit writes a single check to RTD. Payment is collected once a year in the fall as a lump sum. The City of Boulder has recently worked with a mobile app company to develop an online payment system. The online payment system allows households and neighborhoods to pay for NECO in installments (either monthly or quarterly), which eases the burden on households to pay for transit for an entire year up front and at once.

The City of Boulder provides assistance to NECO neighborhoods. It assists coordinators in advertising the program and provides subsidies for EcoPasses. The City of Boulder pays for 30 percent of each neighborhood's NECO contract amount to RTD. Participating Boulder neighborhoods are responsible for paying the remaining 70 percent. Recently, the City of Boulder has started providing slightly higher percentage subsidies to neighborhoods based on the percentage of affordable housing units in the neighborhood. Neighborhoods with a higher percentage of affordable housing units receive an additional 2-4 percent subsidy. The City of Boulder has also begun to require developers of multi-family homes to pay for EcoPasses for all of its residents for three years.

Transit pass grant programs



Discount Bus Pass Program: Intercity Transit Authority – Thurston County, Washington

Intercity Transit Authority – the transit operator in Thurston County, Washington – allows public agencies and non-profit organizations who serve low-income clients to purchase monthly bus passes at half price (50% off) through the Discount Bus Pass Program. The program is an annual grant program through which qualifying organizations can apply for grant funds. Successful applicants must provide a 50 percent match for bus passes provided through the program. For example, adult monthly passes cost \$36 each. Through the grant program, a successful applicant can purchase several adult monthly passes for \$18 each. Intercity Transit Authority invoices the successful applicant for \$18 multiplied by the number of adult monthly passes indicated on the successful applicant’s application. The successful applicant pays the invoiced amount (\$18 for each adult monthly pass) with its matching funds. The other \$18 of the \$36 price of adult passes is funded through the grant funds.

Organizations that are a public agency or non-profit organization and serve low-income people within Intercity Transit Authority’s service area are eligible to apply for grant funds. Applicants indicate the number of passes and type of passes (adult or youth) desired for each month of a calendar year. The grant award represents the maximum number of passes that successful applicants can purchase at the discounted rate during the year. Intercity Transit Authority distributes and invoices for passes monthly. Successful applicants are responsible for determining which of their clients are eligible for the passes and how the organization will distribute them to the clients.

Through the Discount Bus Pass Program, Intercity Transit Authority makes available \$200,000 worth of monthly bus passes each year. Intercity Transit Authority budgets for this \$200,000 in their overall agency budget.



Access Transit Fare Assistance Program: TriMet – Portland, Oregon

TriMet offers nonprofit organizations and governmental entities 20 percent administrative credit to continue or increase current funding levels for purchase of TriMet fares for low-income clients through the Access Transit Fare Assistance Program. To be eligible, non-profit organizations must serve low-income clients – the majority of which reside in the TriMet service area; use the fares to help low-income clients access services critical to employment, housing, and personal stability; and distribute the fares to only its clients. Eligible organizations must apply to participate in the program. If successful, eligible organizations enter into a fare-purchase agreement with TriMet that requires the organization to perform various administrative duties such as verification of fare-recipient low-income status, intake, processing and fulfillment of transit fare orders, and record keeping and management of fare inventory.

Other discounts and incentives



Concessions and Opal Benefits: Transport for NSW – New South Wales, Australia

Transport for NSW, the transit operator for New South Wales, Australia, provides several discounts or “concessions” on travel fare. Transport for NSW provides NSW Half Fare Entitlement Card to job seekers – those residents who are receiving unemployment or other eligible benefits and are actively seeking employment. Half fare is also extended to apprentices and trainees who are registered with the state training services, seniors, pensioners, and students. Transport for NSW provides free fare to veterans and people with disabilities. Family groups travelling together pay for all adult members of the family and one child; all additional children travel free.

More discounts are offered through the Opal card, the smartcard ticketing system used by Transport for NSW for fare payment. Opal implements daily and weekly travel caps. For example, a full-fare paying adult pays no more than \$15 in travel fares on Monday through Saturday. On Sunday, the travel cap is \$2.50. Transit riders pay no more than \$60 on trips in a given week. Opal also provides weekly travel rewards. Transit riders who pay for eight trips from Monday through Sunday enjoy free travel for the rest of the week. Opal provides 30 percent discount on full fare for travel during off-peak travel times which include weekends, public holidays, and before or after weekday morning and afternoon peaks. Transit riders can also enjoy free transfers between trips within 60 minutes of each other when using Opal.

Transit Fare Payment Systems

Examples

Universal fare cards



PASMO: Tokyo, Japan

PASMO is a smart card used in place of a transit ticket or cash. PASMO can be used to travel on the train and normal bus lines in the Tokyo metropolitan area as well as some airport shuttle buses, inter-city express buses, and overnight buses. PASMO cards can be loaded with money in increments of 1,000 yen (Japanese currency) up to a maximum amount of 10,000 yen. Transit fare is deducted from the balance on the PASMO card either at the beginning (pre-payment system) or end (post-payment system) of a trip depending on the transit service. If the card has insufficient funds to cover the cost of a transit trip, transit riders can top off their PASMO cards or pay the difference of the fare at a fare adjustment machine inside the transit station. PASMO can also be used to make purchases at stores that accept electronic money payments. This includes street shops, shops within transit stations, vending machines, coin lockers, and parking lots.



[Octopus](#): Hong Kong, China

Octopus is a smart card accepted all over Hong Kong to pay for transportation services as well as other goods and services. Octopus works on buses, coaches, ferries, public light buses, railways, trams, and some taxis. Octopus has been extended from transportation to a growing number of new applications. Octopus is accepted at retail stores, including supermarkets, and at vending machines or self-service kiosks that sell everything from food to umbrellas. Octopus can also be used at movie theaters, sports facilities, theme parks, hospitals, parking facilities, and to pay mobile phone bills and book vacations. In addition to fee payment, Octopus is used for access control. Octopus is used by commercial and residential buildings as well as schools to control who can access these facilities. Schools also use Octopus to take attendance and collect miscellaneous fees.

Octopus offers an Automatic Add Value Service (AAVS) that ensures members never run out of value. Several credit card companies participate in AAVS, which means members earn credit card benefits every time they use their Octopus card for purchases. Members can choose to reload their Octopus card with \$150, \$250, or \$500 (in Hong Kong dollars). Members earn rewards every time they tap their Octopus card at the Octopus reader when taking transportation or making purchases.

Mobile ticketing



[MBTA mTicket](#): Massachusetts Bay Transportation Authority – Boston, Massachusetts

MBTA has the MBTA mTicket app that allows transit riders to purchase monthly passes, single-ride, round-trip, or ten-ride tickets for the commuter rail and ferry services. To use the app, transit riders select their origin and destination and then enter their payment information. Riders' phones are their tickets. They must push "activate" right before boarding and show their ticket to the conductor upon request. Reduced fare tickets for students, seniors, and individuals with disabilities can be purchased using the app by accessing the settings section of the mobile ticket and clicking on "Reduced Fare." Riders will need to provide additional information to purchase Reduced Fare tickets. The mTicket app also works with employer benefits programs. Riders may use their monthly prepaid debit card (which is loaded with the full dollar value of a monthly pass) to purchase tickets using the mTicket app. Receipts for mobile tickets are available through email. Mobile tickets only need cell phone service to be purchased; they do not need cell phone service to be displayed. Mobile ticketing is currently a pilot project for commuter rail and ferry services only and does not work on bus services.



[TriMet Tickets App](#): TriMet – Portland, Oregon

TriMet Tickets app allows riders to buy and store transit tickets on their phone. Riders first choose the rider type (Adult, Honored Citizen, or Youth) and then choose the fare (2 ½-Hour Ticket, 1-Day Pass, 7-Day Pass, 14-Day Pass, or 30-Day Pass) and quantity of tickets. Riders can buy multiple tickets to use at a later time. Riders purchase fare with a major credit card. People that receive a transit benefit card (with the Visa/MasterCard logo) from their employer may use the transit benefit card to purchase tickets with the app. A wireless connection is needed to purchase tickets, but is not necessary to use tickets. To use tickets, riders select the ticket from their "My Tickets" tab and hit the "use" button. The virtual ticket has a button to display a barcode to present to a fare inspector upon request. The virtual ticket includes the date and time the ticket expires and will turn grey when the ticket is no longer valid. The TriMet website provides instructional videos on how to use the TriMet Tickets app.



CapMetro App: Capital Metro – Austin, Texas

The CapMetro App allows riders to purchase and manage tickets, check schedules and maps, and receive real-time information. Riders can purchase one transit pass or many and save their pass(es) to their device, enabling access with or without cell service, or to the Cloud, enabling access on multiple mobile devices. To use a pass, riders must select the pass from the “Use Tickets” tab and push the “Activate Tickets” button. Riders will receive a message informing them when the activated pass will expire. Virtual tickets have barcodes that fare inspectors can scan and verify using a handheld validator. MetroRapid vehicles have onboard app validators. When using MetroRapid, riders must hold the barcode on their virtual ticket under the app validator for validation. The CapMetro App saves a rider’s purchase history for quick future purchasing.

Riders can trip plan on the CapMetro app by entering an address, intersection, landmark, or bus stop ID of their origin and destination. The Trip Planner feature will map the route on Capital Metro and offer the option to purchase tickets to cover the trip. The app also provides real-time arrival information, which refreshes within 90 seconds. Riders can check transit schedules and maps by selecting the service type, route number, and day from drop down menus. Service alerts appear as notifications on the Capital Metro app. Riders can set their own notification preferences in the “Settings” tab. Riders can also share travel plans via social media and submit feedback using the “More Information” tab, which provides customer service phone numbers and email addresses and answers frequently asked questions.



GoPass App: Dallas Area Rapid Transit, The T, and the Denton County Transportation Authority – Dallas/Fort Worth, Texas

Dallas/Fort Worth and Denton residents can use the GoPass app to purchase transit passes for Dallas Area Rapid Transit, The T, and the Denton County Transportation Authority, which are all transit operators in the Dallas/Fort Worth and Denton metropolitan area. Tickets can be purchased up to 60 days in advance and are delivered to the phone as “Not Yet Activated.” Riders must activate tickets before using them and show the virtual ticket to the transit operator or fare enforcement officer when required. The GoPass app allows riders to plan trips and find out next bus or train times. The GoPass app also provides information on events and activities in the area.

Transit fare banking cards



ICICI Bank Unifare Card: Mumbai Metro, Delhi Metro, & Namma Metro (Bangalore Metro) – Mumbai, New Delhi, & Bangalore, India

ICICI Bank, an Indian multinational banking and financial services company, offers Unifare Cards (either credit or debit) for people using the Mumbai Metro, Delhi Metro, or Bangalore Metro in the three respective cities in India. The Unifare cards are combination transit smart cards and bank cards. Unifare cards feature auto top-off in which funds are automatically reloaded onto the card whenever the balance drops below a predetermined limit that the card holder sets. Unifare card holders receive a discount on travel (percentage discount varies by transit operator and card type). Unifare Credit Card holders receive all the benefits associated with the credit card. Unifare cards may be used for other purchases wherever credit or debit cards are accepted.



Ventra Card: Chicago Transit Authority, Metra, & Pace – Chicago, Illinois

Ventra is the transit payment system used by CTA (urban transit operator), Pace (suburban transit operator), and Metra (commuter rail operator). Transit riders can use a Ventra card, Ventra Debit MasterCard, or their personal bankcard to pay for travel on transit. Transit riders can choose the “pay-as-you go” option or add passes and transit value to their Ventra card or bankcard at transit stations, participating retail locations, online, phone, or via the Ventra app. To use a credit or debit card with Ventra, the card must be a contactless card. Contactless cards transmit data securely via radio waves when the card is tapped on a card reader. Because Ventra accepts other cards for payment, transit riders should take their Ventra Card or bankcard that they wish to use out of their wallet to avoid “card clash” and to make sure the desired card covers their fare. Transit riders tap their card on card readers at transit stations or inside transit vehicles to pay fare. With Ventra, a transit rider can pay for up to six other people travelling with him or her at any leg of a trip. The Ventra Debit MasterCard is a prepaid debit card and can be used for other purchases wherever Debit MasterCard is accepted.

Reliable, Efficient Transit

Photo Glossary



Photo courtesy of Lane Transit District

Transit-only lane

Transit-only lanes are dedicated travel lanes on streets for transit vehicles. Transit-only lanes improve travel times for transit and can be paired with queue jumps to reduce dwell times for transit vehicles at traffic signals.



Photo courtesy of Metro Linx

Queue jumps

Queue jumps give transit vehicles a green light before traffic in other lanes so they can “jump” ahead of all the traffic.



Real-Time Transit Information

Real-time transit information can be displayed at a transit station or via text or smartphone application. This technology, which links to GPS on transit vehicles, provides people waiting for transit with information on the location and arrival time of their transit vehicle in real-time.



Photos courtesy of SANDAG

Transit Stop Amenities

Photo Glossary



Photo courtesy of NACTO

Shelters and benches

Shelters and benches provide people comfort while waiting for transit. Shelters protect against the sun, rain, noise, and other disturbances. Benches provide a place to sit and rest.



Photos courtesy of MTS

Lighting

Lighting at transit stops increases safety at night.



Photo courtesy of SANDAG

Signage

Signage at transit stops can assist people in navigating not only the transit system, but also the community. Signage can provide the following information: route schedules; location of the transit stop within the larger community; nearby shops, schools, or other attractions; and methods to get more information, request assistance, or notify transit operators of an issue.



Real-time transit information

Real-time transit information can be displayed at a transit station or via text or smartphone application. This technology, which links to GPS on transit vehicles, provides people waiting for transit with information on the location and arrival time of their transit vehicle in real-time.



Photos courtesy of SANDAG



Bike parking

Bike parking at transit stops allow people to travel to and from transit by bike with more convenience. Bike parking can be standard bike racks or bike lockers, which provide more security.

Photo courtesy of York Region Transit