



BARRIER FREE CLE

WORKING TO ELIMINATE BARRIERS TO
EVERYDAY LIFE IN CLEVELAND NEIGHBORHOODS





BARRIER FREE CLE

KENT STATE
UNIVERSITY

Cleveland Urban
Design Collaborative

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INTRODUCTION

Barrier-free Cleveland examines barriers to everyday life experienced by seniors and people with disabilities. Barrier-free Cleveland focuses mainly on barriers to physical mobility, but also looks at neighborhood-level supports for people with cognitive disabilities, developmental disabilities, vision and hearing loss.

This guide is for residents, caregivers, business owners, designers, public officials, developers, and anyone interested in creating more accessible inclusive neighborhoods. Recommendations are organized into design strategies, policy recommendations, and individual actions that reduce barriers and improve accessibility in city neighborhoods.

According to the US Centers for Disease Control, over 61 million adults in this country live with a disability. In addition, the national population of people 65-and-older is growing rapidly. Neighborhoods need to be adapted to meet the changing needs of residents.

Disability impacts everyone. At some point in their lives, many people experience temporary or permanent disabilities due to illness, accidents or the effects of aging. Family members, friends, and neighbors may experience disabilities as well. Barrier-free Cleveland aims to make neighborhoods safer and more inclusive for all.

Perhaps “disability” is not the right word. All human bodies have limitations of one kind or another. City neighborhoods and public spaces are designed for some bodies but not for others. A person isn’t disabled until they encounter a barrier or find themselves in an environment that is not designed to meet their needs. Barrier-free Cleveland aims to improve neighborhood accessibility with a focus on public spaces, public transit, and local destinations.



Barrier-free Cleveland was made possible through the generous support of the Cleveland Foundation. The project is a partnership between Kent State University's Cleveland Urban Design Collaborative (CUDC), DigitalC, and Cleveland State University.

CUDC focused on urban design strategies, community engagement, and social equity.

DigitalC led the research into assistive technologies and conducted interviews with residents of the Scranton Castle senior housing complex in Cleveland's Clark-Fulton neighborhood, a public housing estate that is run by the Cuyahoga Metropolitan Housing Authority.

- Cleveland State University led the research into smart and accessible parks. CSU also developed a survey to better understand the accessibility needs of older residents and people with disabilities.
- Suzanne Seifert of HRS Consulting conducted individual interviews with people experiencing physical and developmental disabilities, vision and hearing loss, and other mobility challenges, including older residents aging in place in their neighborhoods.
- Maximum Accessible Housing of Ohio and ADA Cleveland offered guidance throughout the process. The Cuyahoga County Board of Developmental Disabilities and ADA Cleveland arranged focus groups so the project team could hear directly from people impacted by neighborhood barriers. MAHO led mobility experiences in Clark-Fulton and Hough.

PROCESS

Barrier-free Cleveland is an on-going effort to identify barriers to the activities of everyday life in Cleveland neighborhoods for older residents and people with disabilities. The work is based on the experiences of Cleveland residents participated in the project through one-on-one interviews, focus groups, a community survey, and neighborhood activities.

Neighborhood barriers make it hard for people with physical impairments, vision loss, hearing loss, and cognitive challenges to feel safe in their neighborhoods and fully participate in the activities of everyday life. The project team worked with a community sounding board to explore ideas for removing neighborhood barriers through urban design and infrastructure investments, digital technology, and community programs.

The goal of this work is to make it easier for people of all ages and abilities to:

- Visit neighborhood destinations
- Socialize with family and friends
- Get to work, school, doctor's appointments, shopping, and religious services
- Use public transit and public space
- Access information, knowing what to expect and whether they will be safe and comfortable at their destination



Barrier-free Cleveland focused on two Cleveland neighborhoods, Hough on the city's east side and Clark-Fulton on the west side. These neighborhoods were developing master plans at the same time that community engagement efforts for Barrier-free Cleveland were taking place, so we looked for opportunities to integrate the principles of Barrier-free neighborhoods into the planning recommendations. However, this guide is meant to be useful in any neighborhood, not only the two that were the focus areas for the work.



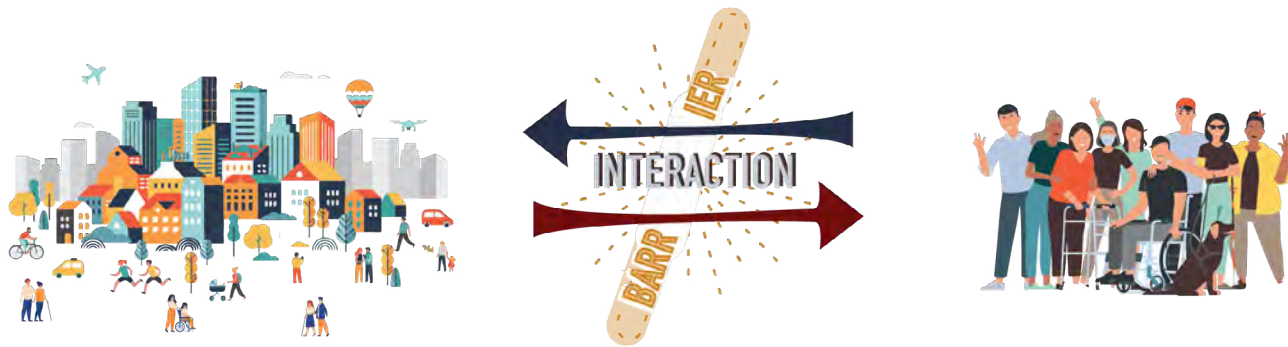
EQUITY AND ENGAGEMENT

There are many kinds of barriers in city neighborhoods and many kinds of disabilities. While disabilities affect everyone, some people bear a greater burden. Not all people and all neighborhoods have equal access. People with lower incomes often live in neighborhoods that have vacant buildings and land, poorly maintained streets and sidewalks, and few high-quality parks and public spaces. People of color may have less access to healthcare and may receive lower quality care, which leads to chronic health conditions and disabilities.

For everyone to participate in public life, public spaces must be accessible to all. Neighborhood barriers limit access and make some people feel invisible. It is especially important to address barriers that affect people who are experiencing the biggest challenges. If we ignore accessibility issues or meet the bare minimum for access, people with disabilities will continue to encounter barriers everyday.

The Barrier-free Cleveland initiative explores three questions:

1. What does a barrier-free city look like and how does it function?
2. How do we build equity into neighborhoods and address barriers present in public spaces?
3. What kinds of investments will produce the greatest benefits for the most people, and especially for people with the greatest needs?



Barrier-free Cleveland is about making investments to advance human potential, creating conditions for thriving neighborhoods.

The COVID-19 pandemic has exposed long-standing inequities. In this moment, increased federal funding has become available for COVID recovery and investments in America's urban infrastructure. We have an opportunity to rebuild the infrastructure of city neighborhoods to better meet the needs of all residents, and enable people to age in place more comfortably.

It can't just be a moment—it needs to become a movement. This is an opportunity to make big changes and to redesign public spaces and city streets from a more inclusive point of view. Now is the time to embrace the idea that accessible design is good design.

SMART CITY VISION

The City of Cleveland uses Smart City technologies to connect people, places, and opportunities. The city's main focus has been on smart street lights and security cameras to reduce energy costs and make neighborhoods safer and more sustainable.

Moving forward, Smart City tools can put data and digital technology to use to improve the lives of city residents. This is especially important for older residents and people with disabilities, since technology can offer options for people who need them the most.

A Smart City works at three levels:

1. Smartphones, tablets, and wearable devices (like smart watches) are connected to sensors in city neighborhoods through a high-speed communication network. Sensors send signals to smartphones or other digital devices to give people personalized information about transportation, navigation, neighborhood conditions, and safety issues.
2. Specific applications are designed for smartphones, tablets, and wearable devices that people can use in a variety of ways, like crossing streets safely, seeing in advance whether a destination is wheelchair accessible, or navigating around road construction projects. People can install applications on their personal devices to meet their specific needs.
3. As neighborhood sensors are installed and people use phone-based applications, this technology begins to respond more directly to users' needs. As a result, cities can make street repairs and infrastructure improvements in places where they will do the most good.



Smart City technologies can eliminate barriers and make neighborhoods more accessible by:

- Reducing crime and improving safety through the remote monitoring of public spaces
- Identifying and addressing barriers like flooding and damaged pavement as they arise, rather than waiting for someone to make a complaint.
- Monitoring and communicating neighborhood conditions that put people's health at risk like poor air quality, high heat days, storm and flash flood warnings, and beach alerts for water quality.
- Creating digital meeting places that bring people together.

Greater Cleveland has a large and growing number of older residents. Research by the American Association of Retired People (AARP) shows that most people prefer to remain in their own homes and communities as they get older. Smart City technologies can make neighborhoods safer and more comfortable for people as they age in place. These technologies can help to reduce the cost of care, as some health conditions can be monitored remotely rather than by an in-home care provider. Technology can also help older residents maintain their independence when they are no longer able to drive and help people get around in their neighborhoods more safely.

Technology needs to be simple and reliable. Overly complex devices and applications may be rejected by community members and exclude people with cognitive disabilities. For example, driverless cars will be able to offer cost effective transportation and robots may offer convenient grocery deliveries. But it will take time for people to understand and accept these new technologies.

ACCESSIBLE NEIGHBORHOOD DESIGN

This section is for designers, planners, and community development corporations looking to eliminate barriers to access in city neighborhoods.

1. START WITH THE FUNDAMENTALS

- Accessible streets and sidewalks are important, since this is the basis for how people get around. Consistent standards are needed for sidewalk widths, curb ramps, and the height and location of crosswalk buttons so people know what to expect, even when they are in unfamiliar neighborhoods.
- Curb ramps should be designed so that they don't pool with rain, snow, and ice in the winter.
- Sidewalks should be free of obstructions, like telephone poles, trash cans, and outdoor cafes. Maintaining a clear right-of-way is essential for pedestrian access and comfort.



Sidewalks in need of repair

- Outdoor lighting is essential for safety, visibility, and comfort. Well-designed lighting helps people find their way, which is especially important for people with vision loss and for those dealing with dementia and other cognitive impairments.
- Lighting should be bright enough that people can see where they are going, but not so bright to create glare.
- Continuous, well-maintained sidewalks of a standard, generous width are essential.
- Every intersection needs highly visible crosswalks. Avoid decorative crosswalks that could be confusing for people with visual impairments, dementia or autism.
- Provide accessible public restrooms in parks, public spaces, and commercial districts.



Accessible Public Restrooms Sanitronics International

2. RECOGNIZE EXISTING PROBLEMS

- The Americans with Disabilities Act was passed in 1990. It's easy to assume that most accessibility issues have been addressed over the past 30 years. But in every city neighborhood, there are many examples of intersections that are unsafe, buildings that are inaccessible, parks that exclude some users, and transit that doesn't meet the needs of all. Most neighborhoods are a confusing patchwork of accessible and inaccessible places.
- Better conditions are only possible when we notice the hard and ugly realities that many people have to live with everyday. Then we can visualize better and more inclusive neighborhoods.



3. MAKE IMPROVEMENTS IN PHASES

- Aim for complete accessibility but recognize that this will be an on-going process.
- The Barrier-free Cleveland team conducted interviews with older residents and people with disabilities. Many noted that they have specific routes that work for them. Once they have their route down, they stick with it, for safety and predictability.
- When working in a neighborhood, start by identifying a few key routes in places where people already need and want to be. Invest in excellent crosswalks and lighting, accessible transit, and other improvements along these routes. The goal should be to make each route as seamless and predictable as possible. These initial barrier-free routes will set the standard for additional investments, creating an expanding network of accessible connections across an entire neighborhood, street by street over time.
- Identify the most important routes through community conversations and on-site observation. Use color coding or wayfinding signage so accessible routes are easy to find.
- Provide seating and rest areas so people can take breaks. Ideally, seating should be provided every 200 to 300 feet on main pedestrian routes, to make walking more comfortable for older people and people with mobility limitations. [Boston's Age-Friendly Bench Program](#) is a good model for improving comfort along well traveled streets.
- Offer multiple forms of wayfinding, including text-based signage, verbal, and visual cues. Murals, statues, and paving colors can be used to help direct people to their destinations. But avoid designing places that are overwhelming to the senses.

4. CO-DESIGN WITH PEOPLE AFFECTED BY BARRIERS

- Reach out to people who have disabilities. They are experts in navigating their neighborhoods.
- Avoid a top-down approach to making design decisions and never presume that professional design expertise is more important than lived experience.
- Seek input and collaboration with people who have different kinds of disabilities.

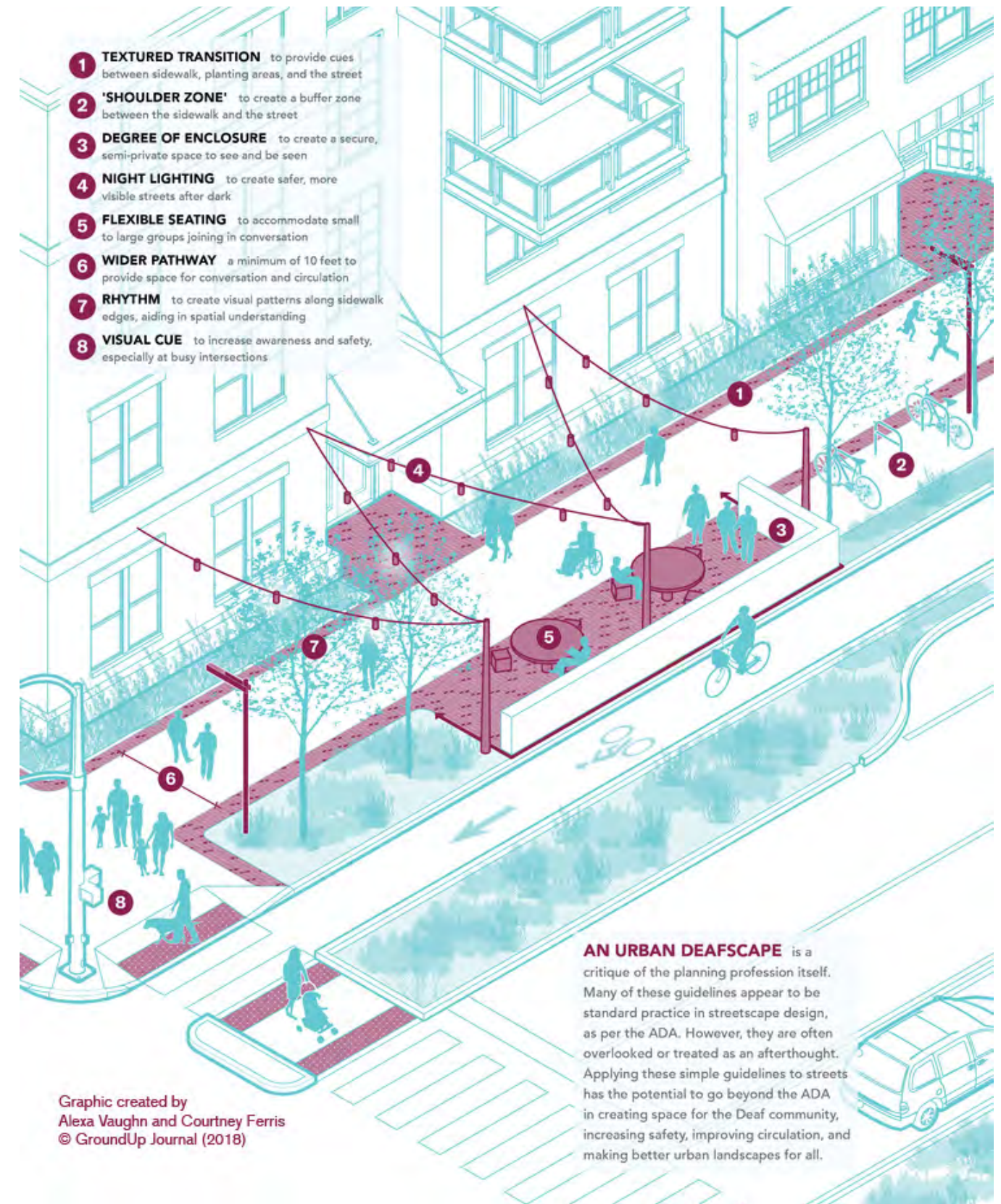


5. MAKE IN-ROADS INTO THE DESIGN PROFESSIONS FOR PEOPLE WITH DISABILITIES

- A fundamental principle of disability justice is, “Nothing for us without us.” But people with disabilities are rare in the design fields. The design professions need designers who have personally experienced barriers in the built environment. Architecture and design programs should find ways to recruit and train a diverse range of students and faculty.
- Designers need to form meaningful partnerships with people who have disabilities.
- Design fees should include funds to compensate community members for their knowledge and experiences in helping to create more accessible places.



Alexa Vaughn, landscape architect who is deaf
Vaughn pioneered the concept of “DeafSpace,” to make streets more accessible for people with hearing loss. The American Society of Landscape Architects consulted with her to create universal design guidelines for streets, parks, plazas, playgrounds, and gardens.



6. ONE SIZE DOES NOT FIT ALL

Learn all you can about the different kinds of disabilities people live with. Design spaces that benefit a wide range of users while also addressing specific disabilities.

1. Barriers experienced by people with mobility impairments.

Case study: [Smart Mobility Hubs](#) Columbus, Ohio
Smart Mobility Hubs are designed to bring the city's transit options together at a single, convenient location so people can get where they need to go efficiently and affordably.

2. Barriers experienced by people with vision impairments.

Case study: [Tactile and Braille Street Signs](#) Sydney, Australia
Pedestrian navigation in braille and large, raised lettering accessible to people who are blind or have low vision.

3. Barriers experienced by people with hearing loss.

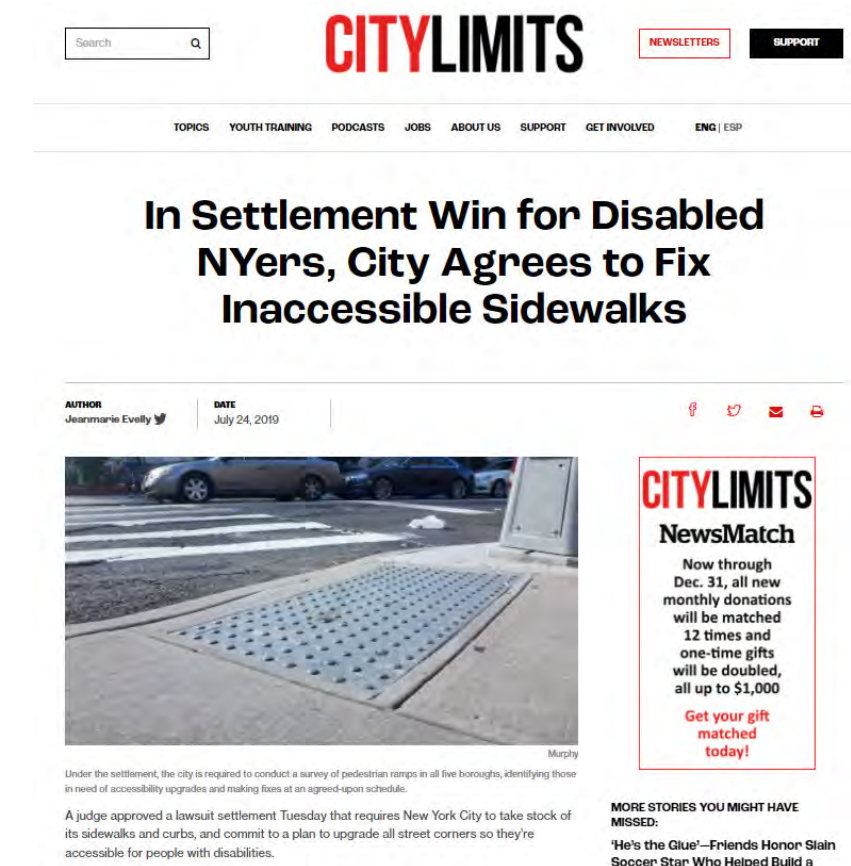
Case study: [DeafScape Streetscape](#)
The DeafScape Streetscape, created by Alexa Vaughn Brainard and Courtney Ferris calls for streets with public seating, vegetation, night lighting, tactile cues, and wide sidewalks.

4. Barriers experienced by people with dementia, autism, and other cognitive impairments.

Case study: [A City for Marc: An Inclusive Urban Design Approach to Planning for Adults With Autism](#) Elizabeth Decker, Kansas State University Master's degree project, 2014
A toolkit that helps designers and planners make cities more inclusive for adults with autism that proposes knitting together urban opportunities such as public transportation and affordable housing.

7. PLAN AHEAD FOR BETTER DESIGN & LOWER COSTS

- Inclusive design should be part of a project from the beginning, not as an afterthought or only to meet minimal legal requirements.
- It can be difficult and expensive to retrofit inaccessible spaces, so learn to recognize exclusion and eliminate barriers in the design phase, rather than after a project is built.



New York City has spent more than \$125 million on ramp upgrades and has another \$1.55 billion budgeted for the work for the next 10 years. The city has a long-term, comprehensive plan to survey and upgrade ramps citywide.

8. BOLD VERSUS SUBTLE?

- Some things are designed to be useful without being noticed. For accessibility features like ramps and lifts, one design approach might be to attract as little attention as possible. People who use these features should be able to easily locate them and count on them being available, but not feel like they are in the spotlight when they are moving around.
- However, discretion doesn't require invisibility. Accessible design can be beautiful and understated. And sometimes accessible features are meant to be highly visible, to bring attention to neighborhood barriers and the ways that streets and public spaces include and exclude different people. Highly visible accessibility features can be useful for public education, but prominent features might also draw unwanted attention to people who use them. Work with people who are facing barriers and take their preferences into account.

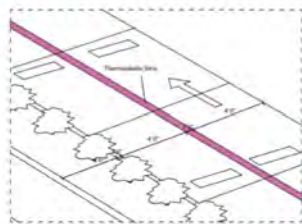


Fig 1

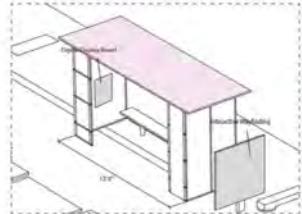


Fig 2

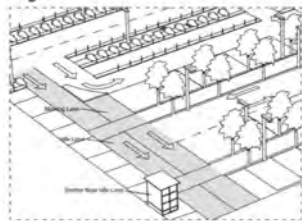


Fig 3



Case study: Sensory Street Scape [Autism Planning And Design Guidelines 1.0](#)

Planning through the lens of autism can benefit everyone. Sensory streetscapes create spaces and infrastructure that help people feel more connected, safe, and calm.

9. PILOT PROJECTS & TEMPORARY INSTALLATIONS

- Work through accessibility challenges and test new approaches using pilot projects and temporary installations. Long-term changes often start with small experiments, testing, and patience. A small, successful project can be refined, expanded, and replicated in other areas.
- Avoid temporary projects that make neighborhoods unpredictable and therefore harder to navigate. Talk to people about temporary projects early in the planning process. Involve older residents and people with disabilities in the design and implementation of a temporary project, and address any concerns they have.
- Help people navigate through changes in their neighborhoods, including construction sites. Design accessible temporary paths around construction zones, so pedestrians aren't forced into the street when construction blocks the sidewalk.



Case study: [Toronto StopGap Foundation](#)

The StopGap Foundation creates colorful, temporary ramps wherever they are needed. The ramps are custom designed to fit the height of a step. They are made of wood, are lightweight, and treated with high-grade exterior paint with a non-slip additive. An average sized ramp weighs around 30 pounds and can be easily transported. The design has gone through years of trial and error and results in a ramp that most find easy to manage and use.

10. SMART CITY TECHNOLOGIES

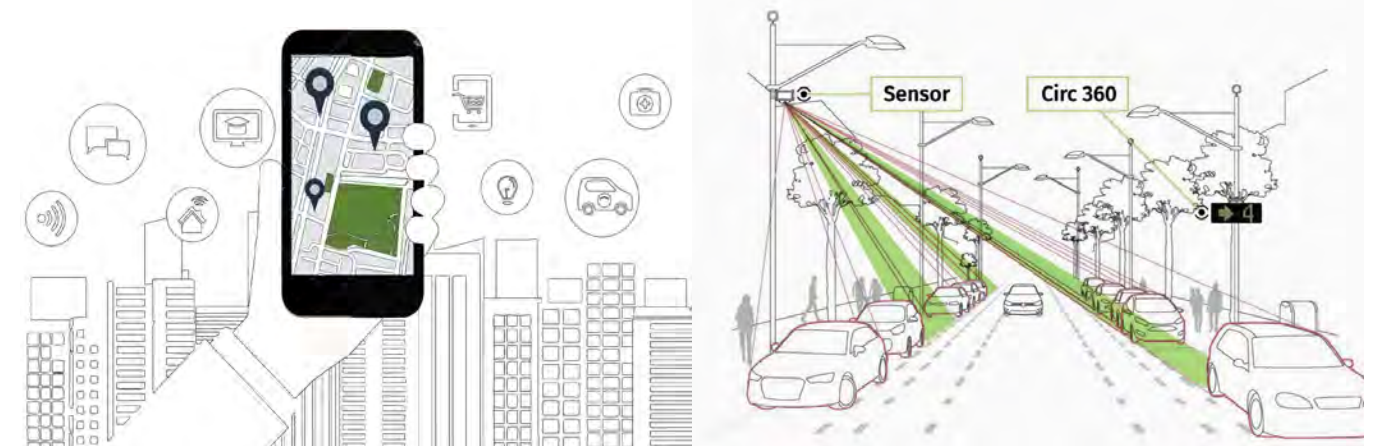
- 5G technology is increasing the speed and amount of data available through smartphones and other personal devices. This will create new opportunities for accessibility. For example, driverless cars will offer seniors and people with disabilities new levels of mobility, a critical issue given the patchwork of paratransit options currently available.

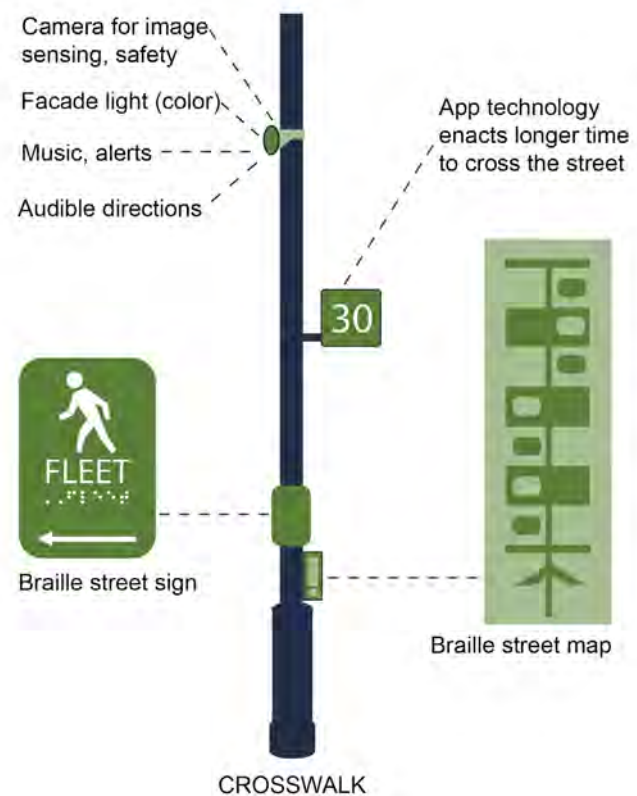
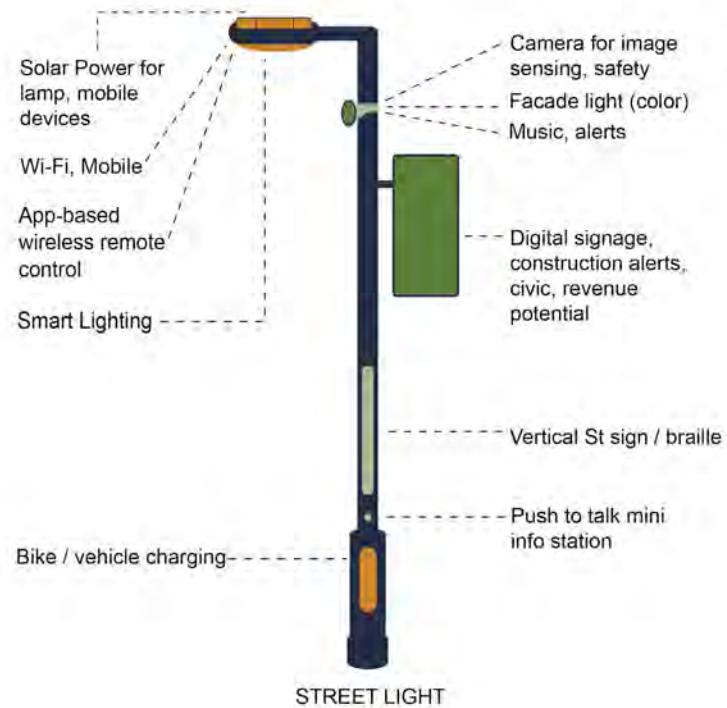


Case study: [UCLA Smart Parks Toolkit](#)

UCLA's Luskin Center for Innovation created a Smart Park toolkit describing technology tools that can be incorporated into park spaces to make them accessible to a wider range of users. The toolkit describes each technology, how it fits into a park setting, why a park manager may decide to use the technology, and challenges that may occur during implementation. The toolkit also provides specific examples to explain how technology can be applied in park settings.

- Incorporate the knowledge of people with different kinds of disabilities into smart city investments. Smart city tools will only work if they are designed with a deep understanding of the needs and preferences of people who will use them.
- Sensors and other technology can be designed into streets and public spaces. New technologies offer greater independence and provide opportunities for spontaneous interactions.
- Focus on ways that digital technologies can improve social interactions. For example, Smart Parks can be designed to be safe and accessible to all, while helping to bridge the digital divide.
- Smartphone applications can be designed to improve the efficiency of Paratransit, so people who use this service don't experience the long delays which are currently very common.
- 5G technology and the Internet of Things is increasing the speed and amount of data available through smartphones and other personal devices. This will create new opportunities for accessibility. For example, driverless cars will offer seniors and people with disabilities new levels of mobility, a critical issue given the patchwork of paratransit options currently available.





Standardized traffic lights and crosswalks make city streets easier to navigate.

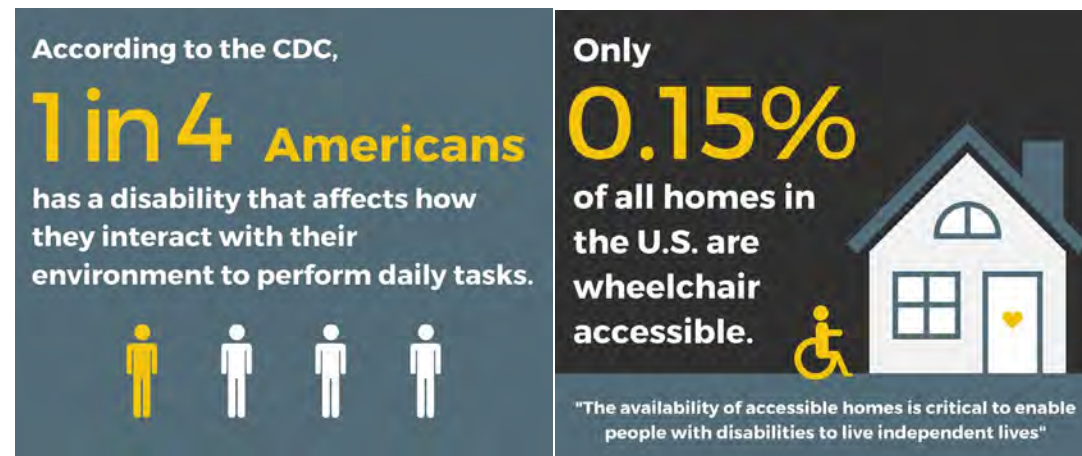
GOVERNMENT ACTIONS AND POLICIES

This section is for cities and public agencies working to make neighborhoods safer and more accessible for all residents at every stage of their lives.

1. PLANNING AND INFRASTRUCTURE

Neighborhood plans, infrastructure investments, and development projects should focus on accessibility from the beginning. Encourage and incentivize projects that go beyond the Americans with Disabilities Act (ADA) for truly inclusive communities.

- Accessibility should be an integral part of all neighborhood plans, not an afterthought.
- Housing tax abatement should be linked to the creation of accessible housing units and site features.



- Require public sidewalks to comply with city codes and be in good repair before issuing an occupancy permit for a new or rehabbed building.
- Conduct accessibility audits to identify and address barriers in the built environment.
- Rehabilitate or demolish vacant buildings and maintain vacant lots so these properties don't become barriers and safety hazards.
- Outdoor shopping centers can be particularly challenging for seniors and disabilities. Make sure sidewalks are continuous and extend from bus stops to and parking lots directly to store entrances. Require or suggest awnings and other features that protect pedestrians in bad weather.



Case study: Walkability Audit - Scores and Comments

[Walkability-Audit-Scores-and-Maps-PDF \(trpc.org\)](https://trpc.org/Walkability-Audit-Scores-and-Maps-PDF)

The U.S. Environmental Protection Agency and Thurston Regional Planning Commission conducted a walkability audit in the cities of Lacey, Olympia and Tumwater, Washington in 2012. The daylong event began with a presentation on what makes streets great and training on the use of a walkability audit survey tool. This tool assisted the participants to document the existing conditions along the audit route and record their impressions about aspects of the built environment that are important for walkability.

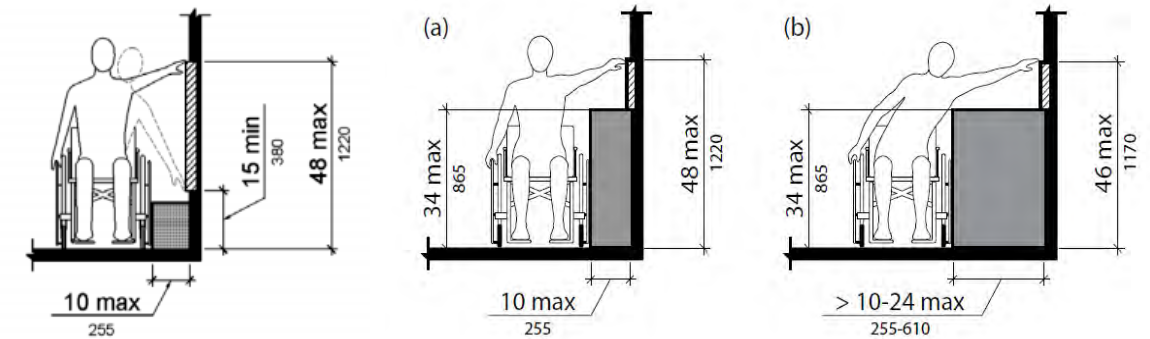
2. EXISTING TOOLS AND ORDINANCES

- Roadway, streetscape, and transit infrastructure projects should fully comply with the city's updated Complete & Green Streets ordinance and Vision Zero standards.
- The city's zoning ordinances can help expand the supply of safe and flexible housing for older residents and people with disabilities. Zoning policies may need to change to encourage more multi-generational housing and accessory dwelling units where on-site caregivers can live.
- Give parks and public spaces street addresses so people can get there by Paratransit and ridesharing services, which require a street address for pick up and drop off when scheduling a ride.

3. CONSISTENT STREETSCAPE STANDARDS

Adopt consistent citywide streetscape standards, including:

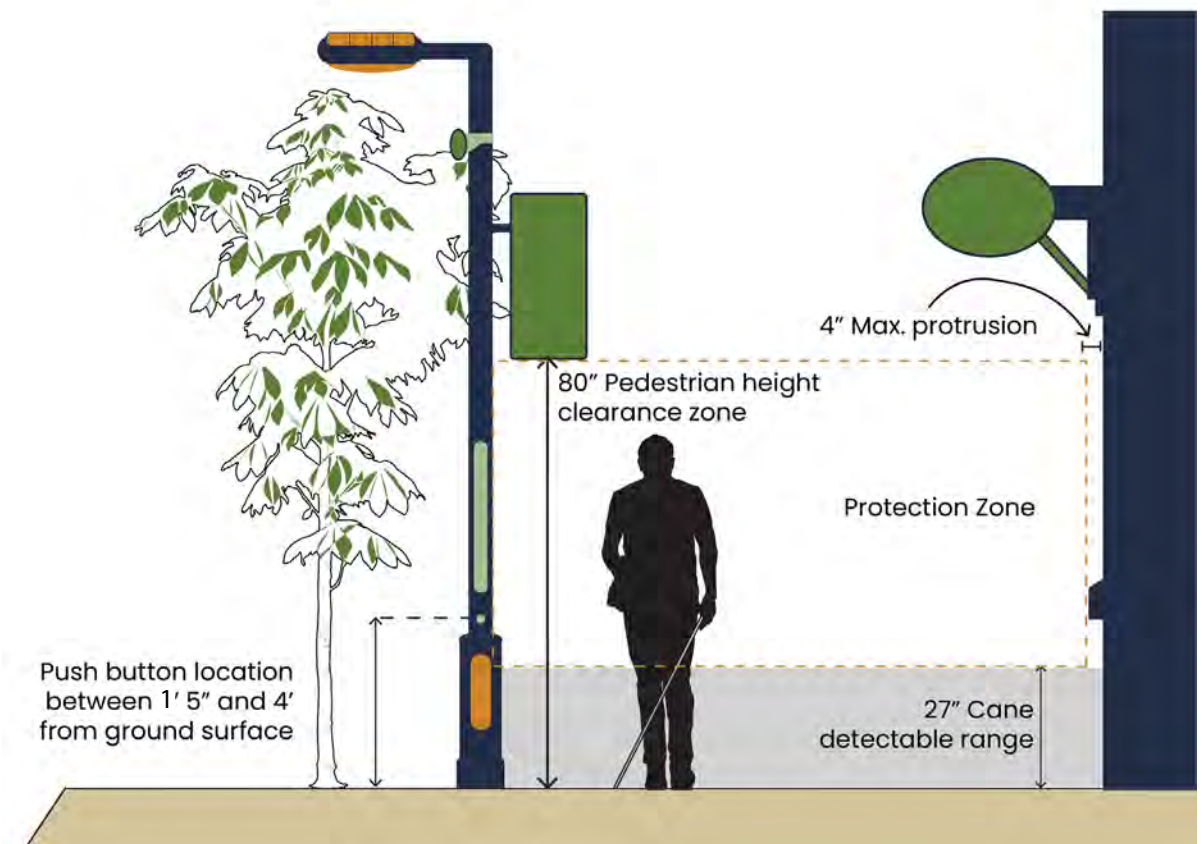
- Pedestrian signal buttons should be at the same height and placement and must be accessible to people in wheelchairs.



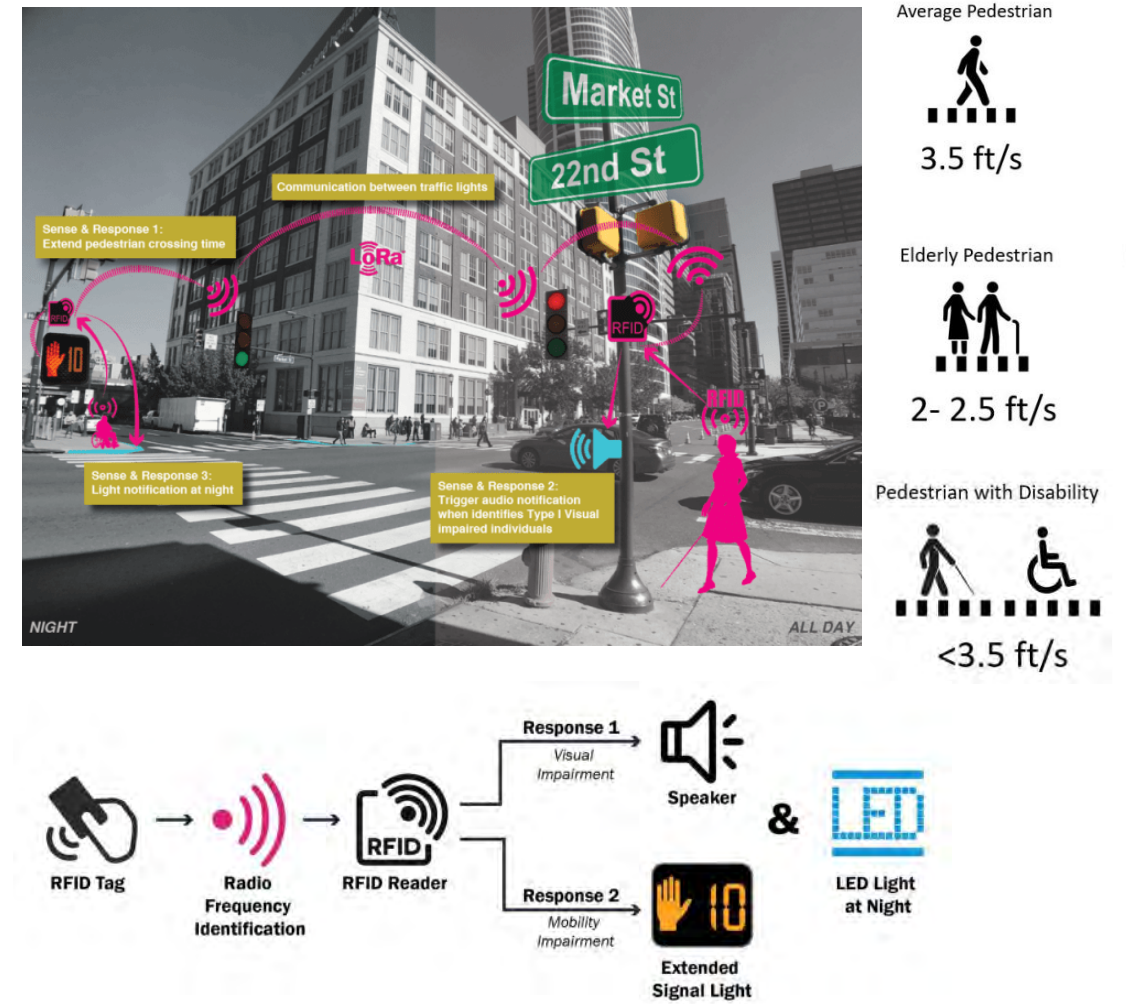
Vision Zero calls for systems change



Case study: Complete Streets Policies
[Complete Streets policy implementation](#)
 - Smart Growth America



- Minimum pedestrian clearances should be maintained; sidewalk dining should only be permitted in areas where sufficient sidewalk width can be maintained.
- Maintain street trees so their roots don't damage sidewalks and their branches don't block the right-of-way.
- Traffic signals should allow a consistent amount of time for pedestrians to cross the street, based on the width of the street. Existing pedestrian crossing time guidelines don't work for older walkers and people with limited mobility. Federal guidelines are based on a walking speed of 3.5 to 4.0 feet per second, but many pedestrians walk more slowly and have slower reaction times. To ensure older adults and people with disabilities have enough time to cross the road, transportation agencies should use 2.5 feet per second or slower speeds when setting crossing times.
- Smart traffic lights can use cameras and sensors to detect when a pedestrian needs more time to get across the street. But until that technology is available citywide, the pedestrian signal can simply be longer at all intersections across the city. This would slow down traffic and prioritize the needs of all pedestrians.
- Reduce speed limits in areas with high pedestrian traffic. Consider eliminating right-turn-on-red in these areas as well.
- A traffic signal timing technique called [Leading Pedestrian Interval](#) gives pedestrians a head start of about seven seconds to cross the street before cars are given a green light. This has been shown to reduce pedestrian-vehicle collisions as much as 60% at treated intersections.



Case Study: Smart Intersections Philadelphia, Pennsylvania
[Crossing Guard: A Smart Intersection for Vulnerable Pedestrians](#)

4. COMMUNITY ENGAGEMENT

Ensure that the community engagement process for public projects includes older residents, people with disabilities, and others with mobility limitations. Encourage inclusive engagement efforts for private sector development projects as well.

- Meeting in person can increase a sense of belonging. Make sure all meeting spaces are fully accessible. Provide accessibility information on meeting invitations and offer a telephone number and email address where people can get information about the meeting space and share their specific needs. But don't assume older residents and people with disabilities will come out for meetings. Create more than one way for people to participate.
- Conduct targeted outreach through interviews, focus groups, and community surveys.
- Guided walks allow people to experience a neighborhood together, identify barriers as they are encountered, and brainstorm solutions together.
- Communicate with people with disabilities and their care partners, not just the latter.
- Build relationships with local organizations that serve older adults and people with disabilities. Include financial support to these organizations into project budgets.
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5. POST-OCCUPANCY EVALUATION

Post-occupancy evaluations of new or improved roadways, parks, and public spaces ensure that accessibility features are working as intended.

Case Study: [ADA-plus Assessments](#)

Maximum Accessible Housing of Ohio offers ADA+ Assessments for businesses, organizations, and government entities wanting to go above and beyond ADA compliance. The MAHO team analyzes building and site layouts, as well as details and finishes to help eliminate barriers and improve accessibility. ADA+ assessments can occur:

- In the pre-construction phase of a project, to identify and correct for accessibility issues before construction begins.
- During the construction process if accessibility questions emerge.
- For a completed building or public space, as a post-occupancy evaluation.

6. ON-GOING MAINTENANCE

- Consider issues of maintenance and wear. Monitor parks, public spaces, and streetscapes through routine inspections and sensors to detect maintenance needs as they arise.
- Invite the public to participate in the maintenance of streets, sidewalks, parks, and public spaces by reporting problems through crowd-sourced tools accessed through their smartphones or a telephone hotline.
- Crowd-sourced tools can provide information to help people anticipate and avoid barriers. But as Aimi Hamraie, Director of the Critical Design Lab at Vanderbilt University has noted, crowd-sourcing can create as many problems as it creates. For example, people who move primarily by walking might not recognize a barrier that would impact a person using a wheelchair. Someone who uses vision to navigate might not know how to assess whether a location is accessible to someone with a vision impairment. For digital accessibility maps and other crowd-sourced tools to work, they need to be designed by cross-disability coalitions—people who have experienced barriers in their everyday lives and can recognize them in their neighborhoods.

Case Study: [Park Inspection Volunteers - Parks | seattle.gov](#)

The Parks Inspection Volunteer program invites community members to assist Seattle Parks and Recreation in surveying parks in a systematic and transparent way. Volunteers work with city staff and are trained to carry out park inspections.

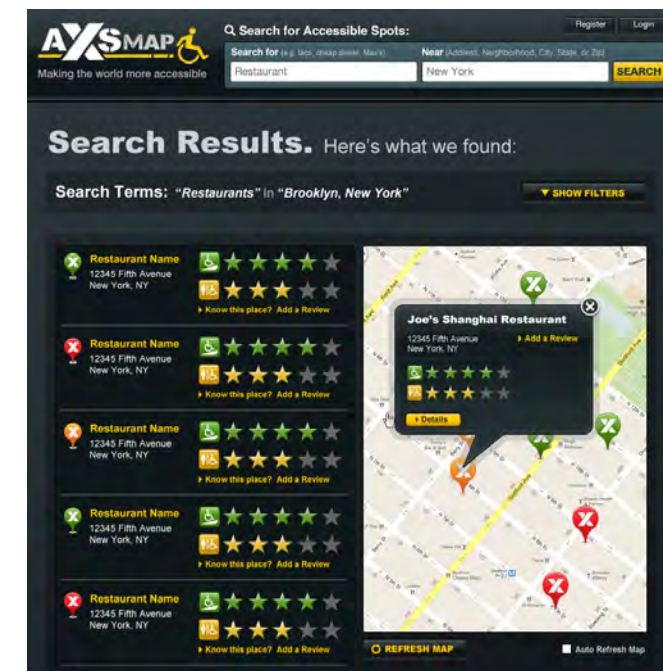
Case Study: [SeeClickFix](#)

SeeClickFix is a phone-based application that allows users to post a complaint about problems in their neighborhood on a Google Map. For example, a resident could post a complaint about a broken sidewalk, a pothole on their street, or snow piled up in a crosswalk. The site communicates the problem to the appropriate government agency and marks the problem on the map. Users can comment on the issue or label it resolved. Government agencies can post on the site to respond to residents and to see what issues people are most concerned about.



Case Study: [AXS Map](#)

AXS Map is a smartphone application that allows users to map accessible areas and barriers in their communities and determine at a glance how other users have rated an area or destination for accessibility.



7. TRANSPORTATION

- Work with and expand paratransit programs. Paratransit is a lifeline for people with physical disabilities, especially in the winter months when accessing fixed route bus lines can be difficult and dangerous. Paratransit is also essential for older adults with dementia who might have difficulties navigating various bus routes to reach their destinations. But paratransit services are often inconvenient, since rides need to be booked far in advance. Also, riders can't rely on paratransit to get them to their destination on time, even when they build in extra time when scheduling a ride. Increased funding for paratransit and more frequent service is needed to get people where they need to go.
- Section 5310 funding from the Federal Transit Administration provides cities and states with support for transportation to serve older adults and people with disabilities. Funds can be used to support drive cessation programs, volunteer driver programs, paratransit equipment, mobility management programs, and other support services.



Case Study: Self-Driving Shuttles [SMRT Columbus](#)

This project educates community members about autonomous vehicle technology and uses self-driving shuttles to connect residents to jobs and community resources to help them live their best lives.

8. ACCESSIBILITY DURING CONSTRUCTION

- Temporary obstructions pose serious hazards, especially if people have no way to anticipate and avoid a barrier or hazard. When a contractor applies for a sidewalk obstruction permit, they should be required to provide a detailed plan for maintaining pedestrian access. This is important for all construction projects, but especially for those that last for weeks or months.
- The City of Cleveland can vigorously enforce its Safe Passage Ordinance to protect pedestrians in construction areas. Other cities can adopt similar ordinances.



Cleveland City Council approves 'safe passage' ordinance aimed at protecting pedestrians

Case Study: [Pedestrians Checklist and Considerations for Temporary Traffic Control Zones](#)

This document provides a checklist and overview of pedestrian-related considerations during planning, design, and construction phases for a project and is designed to enhance pedestrian safety and accessibility, maintain Americans with Disabilities Act of 1990 (ADA) compliance, and provide positive guidance to avoid pedestrian confusion throughout each phase.

9. FUNDING

- Expand financial assistance programs for sidewalk repairs and enforce sidewalk maintenance and snow removal ordinances. Consider developing a Barrier-free Cleveland fund to address problems and barriers quickly.

10. WEATHER ISSUES & EMERGENCY PREPAREDNESS

- Enforce snow removal ordinances.
- Remove snow quickly after a snowfall, eliminate puddles that form at street crossings and curb ramps, and focus on ice prevention to maintain a safe, accessible, and comfortable pedestrian environment in the winter.
- City public works staff and snowplow drivers in privately-owned companies should be trained not to pile snow in crosswalks, on sidewalks, and in parking spaces designated for people with disabilities.



- In most US cities, no public agency is responsible for clearing sidewalks. Sidewalk maintain and snow removal is the responsibility of property owners. Many landlords do not live in their buildings and often do not hire someone to shovel snow. Relying on residents to shovel their sidewalks in freezing weather results in a scattershot approach to sidewalk clearance. This creates unpredictable conditions for people in wheelchairs and for people who sometimes feel unsteady on their feet.
- The City of Cleveland takes care of roads and crosswalks. Perhaps the city could also provide snow removal as a city service, at least along key routes that have a lot of pedestrian traffic.



Case Study: [Syracuse Sidewalk Takeover](#)

Syracuse, New York has taken an ambitious approach to snow removal from city sidewalks. Syracuse, like in many cities, requires property owners to keep sidewalks clear after a snowstorm. But getting thousands of property owners to shovel their walks just doesn't work, especially in Syracuse where it snows more than 10 feet a year, on average.

As a pilot project in 2018, the city took over shoveling responsibilities for 40 miles of sidewalks. The program was controversial at first, but in 2021 it was expanded to cover 100 miles of sidewalks. The city also took over maintenance responsibilities for all city sidewalks, funded by a fee on property owners. The city pays a contractor up to \$170,000 to clear sidewalks along heavily-trafficked pedestrian routes throughout the city once there is three inches of snow on the sidewalks. The contractor is paid per deployment, not a flat rate.

- Develop emergency response plans for floods, heatwaves, storms, and other disasters that take into account the needs of seniors and people with disabilities.
- Incorporate the needs of people with autism and dementia in emergency planning. People with these conditions are at increased risk during emergencies and may not be able to follow evacuation plans that were developed without taking their needs into account.

EVERYDAY ACTIONS

Everyday actions are things we all can do to make our neighborhoods safer and more inclusive for everyone



BARRIER-FREE

SNOW REMOVAL



Shovel sidewalks when it snows and make sure that if your driveway is plowed, the snow pile doesn't block sidewalks or intersections. Help shovel your neighbors' sidewalks if you're able to. Also, keep leaf piles from blocking sidewalks.

DIY



SIDEWALK MAINTENANCE AND REPAIR

Keep sidewalks in good repair. Replace or relevel sidewalks as needed. Take advantage of the city's financial assistance programs for sidewalk repairs.



DIY



BARRIER-FREE



BARRIER-FREE

DIY

TREE PLANTING

Plant trees to provide shade for pedestrians, but trim overgrown tree branches and shrubs so they don't block the sidewalk.



BARRIER-FREE

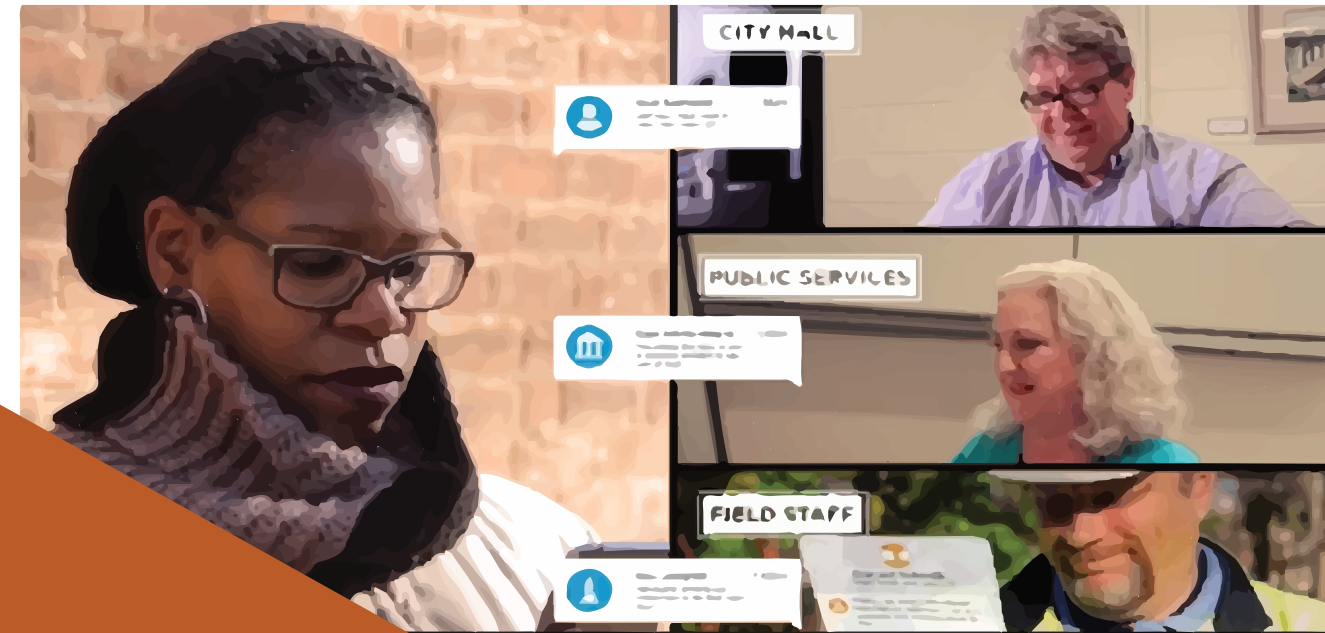
DIY

SAFE DRIVING

Drive with care through communities, at intersections, and in high pedestrian areas



BE PROACTIVE



BARRIER-FREE

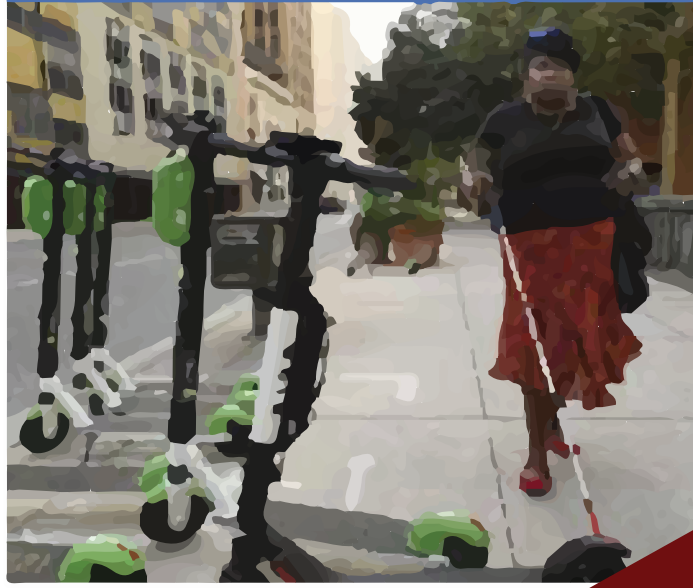
BUSINESS DISTRICTS

If you own a store, a restaurant, or other business, make sure your entrances, parking lots, and indoor spaces are fully accessible to seniors and people with disabilities. This is an on-going process, not something you can do just once when you open your business. Ask your customers if they are experiencing any accessibility issues. And if you're a customer and you notice a problem, raise it with the owner or the manager even if it doesn't directly affect you.



BARRIER-FREE

Report problems you see even if they don't directly affect you. Broken sidewalks, inaccessible construction areas, access issues with parks and public spaces, and snow piles can be reported to the city's public works department (or through a mobile app service like SeeClickFix, if the city implements this technology)



Never block the sidewalk with trash cans or your car.

SIDEWALK OBSTRUCTIONS

DIY

ADVOCATE FOR ACCESSIBILITY

DIY



Participate in community meetings for neighborhood plans and development projects. Voice your support for accessibility and inclusion.





BIKES & SCOOTERS

Ride bikes and scooters on bicycle lanes. Never leave scooters in the middle of the sidewalk where they pose danger for people with limited vision or those using wheelchairs. Move scooters onto the treelawn and out of the way.



DIY

DIY

BARRIER-FREE

SHARE YOUR KNOWLEDGE

Publicize and share these actions to make our community safer for everyone.



BARRIER-FREE



IMAGINING A BARRIER-FREE CITY

Inclusion is imperfect. Inclusion is ongoing...

Since the Americans with Disabilities Act (ADA) was passed in 1991, many buildings have added ramps, lifts, and other accessibility features. Public agencies and private property owners have invested in accessibility improvements. Transit agencies have made services more inclusive. But there is much work left to do.

Too many people can't fully participate in the activities of daily life and are denied access to buildings and public spaces that were not designed to be inclusive. We can do better.

Barrier-free Cleveland is about moving beyond basic ADA compliance to envision beautiful, accessible, neighborhoods that are welcoming to all, and where people can comfortably age in place. This section includes a collection of inspiring projects for barrier-free neighborhoods.

If you know of an innovative project that improves community accessibility, please consider sharing it with Barrier-free Cleveland so we can include it in future editions of this tool kit. Send your ideas to barrierfreecle@kent.edu or call 216.357.3434.

ACCESSIBLE STREETS



Bell Street Park Seattle, Washington
HEWITT | SvR Design | MIG

Bell Street Park runs through the center of Belltown, a densely populated Seattle neighborhood. The four-block linear park is a shared street that incorporates universal design principles. It has one lane of car traffic plus pedestrian-friendly landscaping, lighting, and open space. The continuous level pavement encourages pedestrians, wheelchair users, cyclists, and automobiles to share the space.

The street improvements were completed in 2014 and cost \$3.5 million for planning, design, and construction plus \$1.5 million for right-of-way acquisitions.

Source: National Association of City Transportation Officials (NACTO) Case Study
nacto.org/case-study/bell-street-park-seattle/

Photos: HEWITT

ACCESSIBLE STREETS



Green buffers protect pedestrians, wheelchair users, and bicyclists, from car traffic while also collecting stormwater.

Photo: Bruce Buckley for Toole Design

Jackson Street Reconstruction Saint Paul, Minnesota
Toole Design

Jackson Street was designed to make biking and walking in downtown Saint Paul accessible and comfortable for all users.

As part of a utility replacement project, the city took a new approach to street design from concept through construction. This project included full roadway reconstruction from building face to building face and the first segment of the Capital City Bikeway and separated pedestrian facility.

Toole Design created an all-ages, all-abilities bikeway featuring a 12-foot-wide, two-way bikeway that is separated from car traffic by low rails and landscaping. Intersections were redesigned to make people walking using wheelchairs, and biking more visible to drivers making turns.

Source: Toole Design
tooledesign.com/project/jackson-street/

ACCESSIBLE STREETS



Image: AECOM

LinkUs Mobility Initiative Columbus, Ohio AECOM

LinkUs is a proposed project for three Bus Rapid Transit (BRT) corridors in Columbus, Ohio.

The first two corridors, nearly nine miles of improvements along West Broad Street and 13 miles along East Main Street, are in the funding pipeline for the Federal Transit Authority's Capital Investment Grants Program.

The proposed Complete Street Improvements include level surfaces and no curbs with adequate space for people to walk or wheel safely between the BRT station and the bus. Snow Melt pavement will be free of snow and ice.

Source: City of Columbus and Central Ohio Transit Authority
linkuscolumbus.com

ACCESSIBLE STREETS



Photo: © Jannes Linders

Tactile Surfaces Multiple locations



Image: © Sutthi Chuvichit / Shutterstock

The use of tactile road surfaces pavement can make public spaces easier to navigate for people with vision impairments.

For example, Paleisbrug (palace bridge) in the Dutch city of 's-Hertogenbosch is an accessible elevated park, a pedestrian bridge and bicycle bridge designed by Benthem Crowel Architects. Contrasting pavement materials and textures differentiate the space for walking, biking, and resting areas.

Tactile bricks are often painted bright colors to contrast with surrounding pavement and make edges more visible to partially-sighted pedestrians. Tiles with 'blister lines' or parallel lines of truncated domes indicate a transition from the sidewalk to the road. Offset blister lines, where the domes are staggered, indicate the edge of a railway platform.

Source: Arch Daily
archdaily.com/952355/why-we-should-integrate-tactile-surfaces-into-architecture

ACCESSIBLE PUBLIC SPACES



Image: Arup

Squibb Park Bridge, Brooklyn Bridge Park

Brooklyn, New York

Michael Van Valkenburgh Associates and HNTB

Squibb Park Bridge at Brooklyn Bridge Park uses principles of universal design to create outstanding access and million dollar views. The 8-foot-wide, 396-foot-long pedestrian bridge has gentle slopes, continuous handrails, and dramatic views of the Manhattan skyline, Statue of Liberty and Brooklyn Bridge. It zigzags through tall oaks, between buildings and over a street, descending 30 feet from beginning to end.

The bridge designed so that wheelchair users and people with limited mobility can enjoy the same access as runners, bicyclists, and other visitors. Ramped pathways and bridges are incorporated throughout the park because they are less prone to technical difficulties than lifts or elevators.

Source: New Mobility

brooklynbridgepark.org/places-to-see/squibb-park-bridge

ACCESSIBLE PUBLIC SPACES



Photo: Paralyzed Veterans of America

Millenium Park Chicago, Illinois

Denise Arnold, inclusive design specialist and Edward K. Uhler, The Millennium Park Foundation

Chicago's 25-acre Millennium Park's original design featured grand staircases and other elements that were not conducive to universal design. The Millenium Park Foundation worked with designers to increase accessibility via ramps, gentle slopes and barrier-free play areas. The Crown Fountain, designed by Jaume Plensa and executed by Krueck and Sexton Architects is set within a reflecting pool that has no more than a quarter-inch lip at any place. It is a completely accessible mini-water park enjoyed by people of all abilities.

Source: Plusurbia

plusurbia.com/on-common-ground-universal-design-inclusive-mobility/#post-content

ACCESSIBLE PUBLIC SPACES



The Dequindre Cut

Detroit, Michigan
MAde Studio

The Dequindre Cut is an urban greenway created from a former railroad corridor in Detroit. Near the Detroit River, the greenway is at grade level, but as it moves north, it is more than 25 feet below grade. Using Universal Design principles, MAde Studio designed accessible connections to city streets and neighborhoods in an effort to reinvigorate the city through public spaces while also addressing stormwater issues and reinvesting in crumbling infrastructure.

Source: New Mobility
<https://newmobility.com/accessible-public-spaces/>

ACCESSIBLE PUBLIC SPACES



Clark-Fulton Neighborhood

Cleveland, Ohio
Cleveland Urban Design Collaborative

Conceptual design for an inclusive public space with a flexible layout, movable seating, pedestrian-friendly street lighting and Smart traffic signals programmed to prioritize pedestrian safety and access.

Source: Clark Fulton Together
clarkfultontogogether.com

ACCESSIBLE PLAYGROUNDS



Photos: Play By Design

OurSpace Park Binghamton, New York Play by Design

OurSpace Park is a fully accessible, multi-generational playground located in the City of Binghamton's Recreation Park. The four-acre playground includes an accessible restroom, an accessible merry-go-round, musical instruments, a natural play area, raised planting beds, a wheelchair-accessible swing and a wheelchair-accessible treehouse, and other equipment for adults and children.

The inclusive park was designed for adults and children, with or without mobility impairments and supportive of sensory needs.

Source: City of Binghamton Parks & Recreation
ourspacepark.org

ACCESSIBLE PLAYGROUNDS



Image: ©Preston's H.O.P.E.

Preston's H.O.P.E. Accessible Playground Park Beachwood, Ohio

Preston's H.O.P.E. is a playground for children with all levels of abilities and disabilities. It is operated by the Mandel Jewish Community Center and open to the public everyday from 10am until dusk. It includes the Imagination Village, with make-believe houses connected by a raised walkway; play theatre, sand area, and swings, tunnels, and slides.

Source: Preston's H.O.P.E.
prestonshope.com

ACCESSIBLE PLAYGROUNDS



Photo: ©Madison's Place

Madison's Place Universal Access Playground Woodbury, Minnesota Play by Design

A 16,000-square-foot, fully inclusive playground designed to allow children to play together regardless of their abilities. The playground includes covered play decks, swings, sensory play equipment, and ramps for wheelchair access. Madison's Place is a regional gathering place for children of all ages and abilities to foster friendships, experience the excitement of climbing on a playground, and spend time outdoors.

Source: City of Woodbury
woodburymn.gov/482/Madisons-Place-Playground

ACCESSIBLE PLAYGROUNDS



Photo: MIG | Billy Hustace

Always A Dream Play Park Alameda, California MIG, Inc.

Part of Fremont's Central Park, this play area supports a child's physical, mental and social development. The park has smooth surfaces throughout for wheelchair access, that can also to cushion a fall. It has a series of colorful mounds rising out of the field of turf, stepped seating, picnic tables, shade umbrellas, and sound play. Seat wall transfers at the mounds allow a person in a wheelchair to transfer onto them. A slide in the central mound is accessible through transfer steps.

The park was funded by Kristi Yamaguchi's Always Dream Foundation

Source: Playgrounds for Everyone
playgroundsforeveryone.com/playground/always-dream-play-park-at-central-park-alameda-ca.html

ACCESSIBLE PLAYGROUNDS



Rendering: Isometric Studio

Cloud Swing at Grounds for Sculpture

Hamilton, New Jersey

Isometric Studio

Cloud Swing suspends two wheelchair accessible and three standard seats from a cloud-shaped steel structure. Designed by Isometric Studio, a design firm based in Brooklyn, New York, this play structure aims to create an inclusive sense of community and belonging among users of different ages.

Isometric Studio and the project's fabricator, Serett Metalworks of Gowanus, Brooklyn consulted with IncludeNYC, a youth-centered disability advocacy organization and advisor Trina Hazell, Ms. Wheelchair New York 2018. Project sponsor Grounds for Sculpture, a sculpture museum and park, will install Cloud Swing at their site in 2023.

Source: Urban Omnibus

<https://urbanomnibus.net/2022/12/on-the-up-and-up/>

RESOURCES

AGING IN PLACE

- Dementia Friendly America (2022) [Community Toolkit](#)
- International Council on Active Aging [Model and Resources](#)
- National Conference of State Legislatures and the AARP Public Policy Institute (2011) [Aging in Place: A State Survey of Livability Policies and Practices](#)
- Stanford Center on Longevity (2021) Build Longevity Ready Communities in [The New Map of Life: 100 Years to Thrive](#)

DESIGN APPROACHES

- Jos Boys, ed. [Disability, Space, Architecture: A Reader](#) (2017) Routledge.
- Ian Dillon and Jared Green. [The ASLA Guide to Universal Design](#) (2019) American Society of Landscape Architects.
- Global Campaign on Accessible and Inclusive Cities. [Building Cities For All Training Program](#)
- Aimi Hamraie, [Building Access: Universal Design and the Politics of Disability](#) (2017) University of Minnesota Press.
- Kat Holmes. [MisMatch: How Inclusion Shapes Design](#) (2018) The MIT Press.
- National Association of City Transportation Officials (NACTO) [Urban Street Design Guide](#)
- National Endowment for the Arts. [Disability Design: Summary Report from a Field Scan](#) (2021)
- Steve Wright. [8 Major Roadblocks to Inclusive Streets](#) (2022) Planning Magazine.

SMART CITIES

- McKinsey Global Institute (2018) [Smart Cities: Digital solutions for a more livable future](#)
- [Smart City for All Toolkit](#) Contains four tools to help Smart Cities include a focus on accessibility and the digital inclusion of older people and people with disabilities.
- [UCLA Smart Parks Toolkit](#) Toolkit describing technology tools that can be incorporated into park spaces to make them accessible to a wider range of users. The toolkit provides examples of how technology can be applied in park settings.

CROWD-SOURCED TOOLS

These tools are not currently available to Cleveland residents but could be worthwhile accessibility investments.

- [SeeClickFix](#) SeeClickFix is a 311 request and work management app bridging the communication gap between residents and their local governments. A SeeClickFix user reports an issue (like a pothole or a missing curb ramp) uploads the information to the site through their smart phone. SeeClickFix sends this information the city who now knows exactly where the problem is located and can fix it. When the repair is complete, that information is relayed back to the person who reported the problem.
- [Project Sidewalk](#) Smartphone application that allows users to explore city streets virtually to find and label accessibility issues. The app is designed as a game, where users walk through city streets in Google Streetview, labeling the barriers they see and checking the accuracy of labels applied by other users. Project Sidewalk is available in several cities, but not currently available in Cleveland.



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