CMAP

SSMMA
SOUTH SUBURBAN MAYORS & MANAGERS ASSOCIATION

The South Suburban Mayors and Managers Association South Council of Mayors

# Complete Streets and Trails Plan

August 2017

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Unless otherwise specified, all photos are by CMAP staff.

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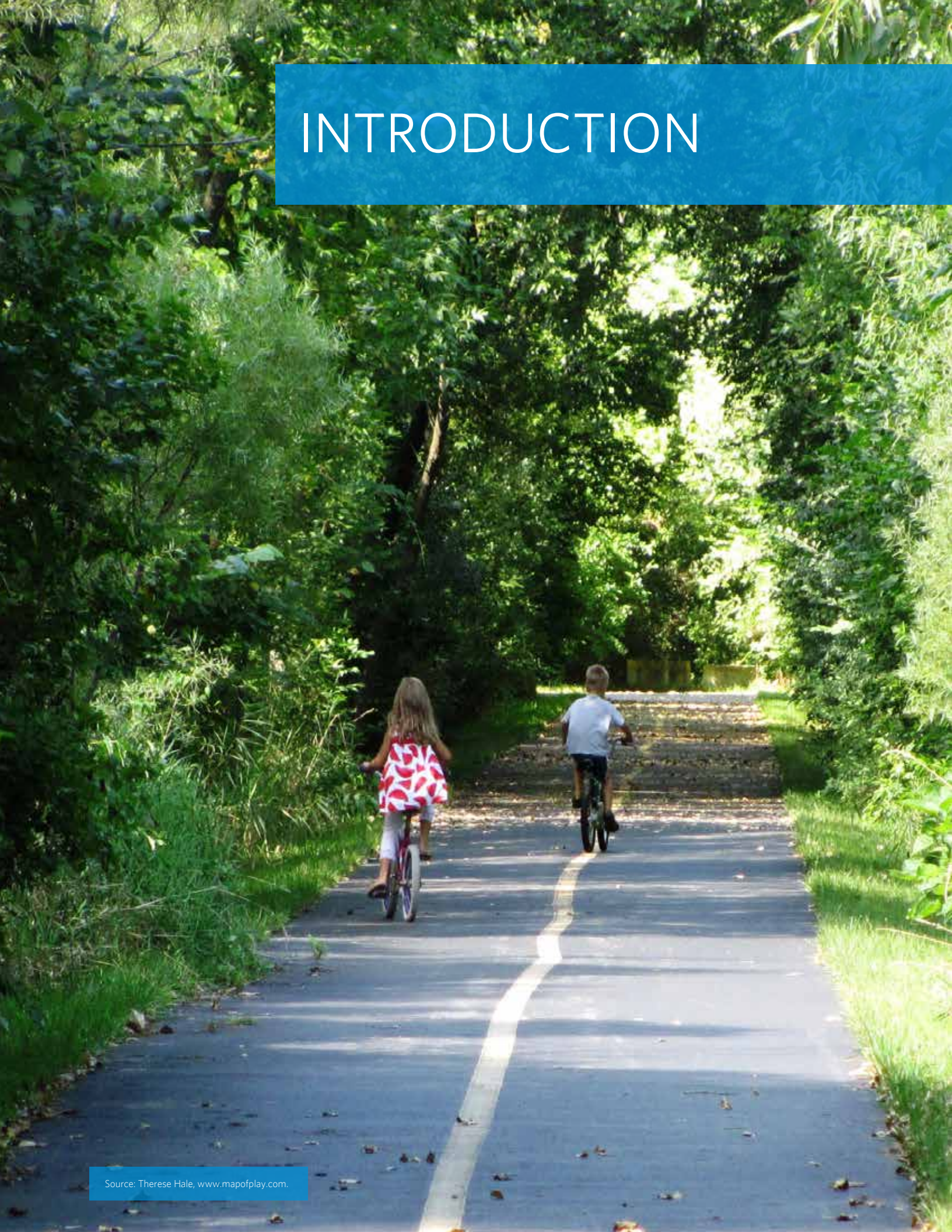
# INTRODUCTION



Source: Therese Hale, www.mapofplay.com.

# Introduction

The South Suburban Mayors and Managers Association (SSMMA) and South Council of Mayors (South Council) Complete Streets and Trails Plan includes an update to SSMMA's 2008 Bicycle Plan, as well as recommendations and best practices related to walking and access to transit. In addition, responding to growing interest in non-motorized and integrated multimodal transportation, the project builds upon recent efforts by SSMMA and South Council member communities to increase and improve transportation options for all users, and to enhance livability and sustainability throughout the Southland.

# Plan Elements

The plan includes three main elements. The first is an update to the 2008 Bicycle Plan to incorporate new (post-2008) and planned facilities and to identify a connected, Council-wide network of potential bikeway corridors, which takes advantage of existing regional trails and complements and connects to the local bikeways. The update also broadens the focus to include pedestrian travel, access to transit, and other key concepts and strategies of a Complete Streets approach. The plan provides information, resources, and best practices to accommodate bicyclists and pedestrians for various street types so individual municipalities can tailor the recommendations to the local context. Key strategies include assessing roadway segments for appropriate sizing according to context and traffic levels ("right-sizing"), design and implementation strategies for bikeway facility types, bike route signage, bicycle parking, and typical intersection improvements to increase the safety and comfort of pedestrians and bicyclists. Information and recommendations for education, enforcement, and encouragement programs and activities are also given.

A second element of the plan is a memorandum summarizing activities undertaken by CMAP and its partner, the Active Transportation Alliance, to work with several South Council communities, their staff, and elected officials over the course of a year to research, develop, and adopt Complete Streets policies. The outreach, community engagement, and technical assistance provided as part of this planning effort resulted in five South Council communities adopting local Complete Streets policies. Implementation strategies are being developed as part of a Cook County Department of Public Health and Active Trans' Partners in Community Health grant.

The final element of the plan is a review of the South Council's current methodology for programming Surface Transportation Program funds. The memorandum compares this methodology to those used at other Councils of Mayors and to best practices from around the country for incorporating and promoting Complete Streets in programming activities, as well as recommendations for how the South Council's STP program could be modified to better advance and promote Complete Streets.

# Plan Purpose

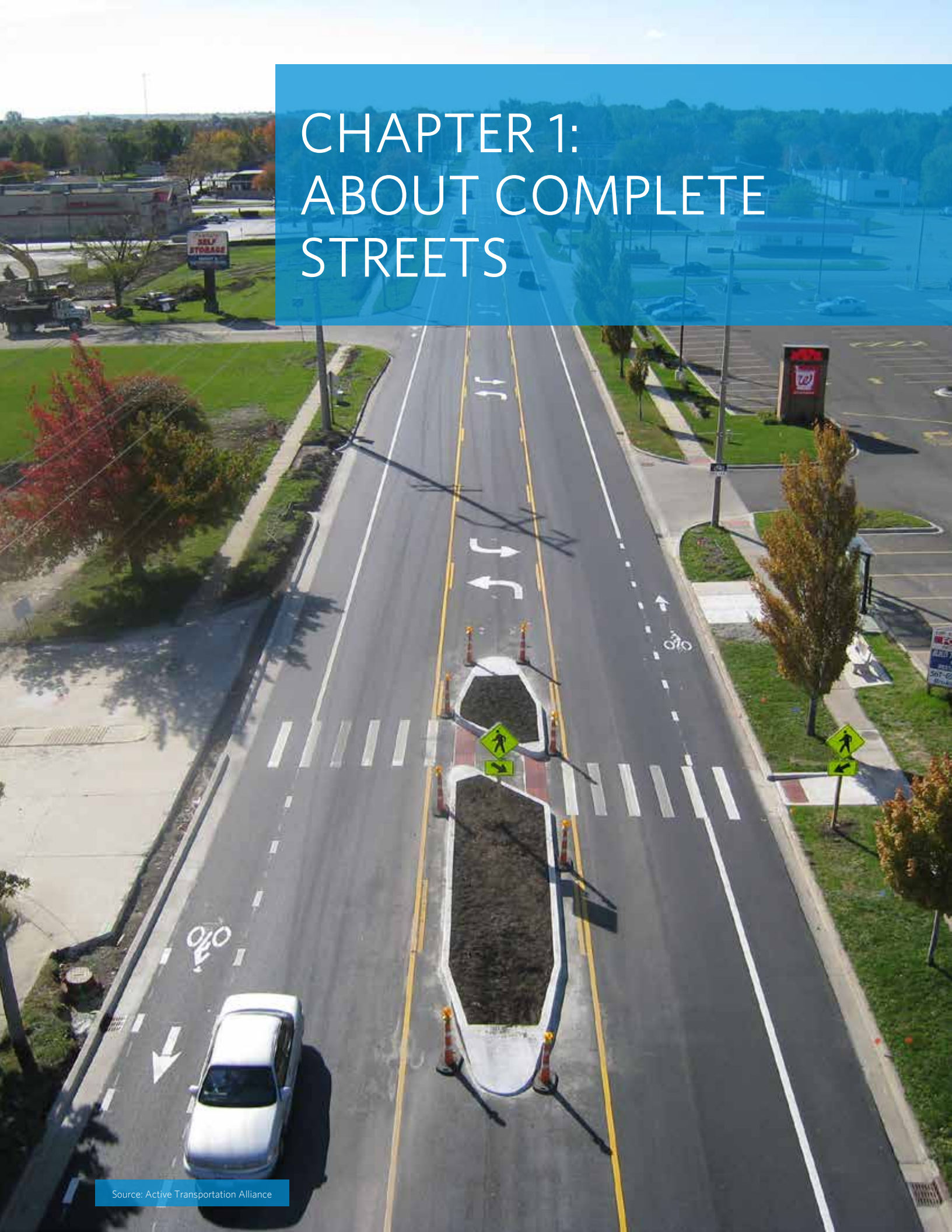
In addition to identifying 1) a recommended Council-wide bikeway network, 2) key areas within the South Council where pedestrian and accessibility improvements should be prioritized, and 3) potential corridors for right-size road reconfigurations, the plan also provides general information and broad recommendations related to Complete Streets and the types of improvements, strategies, and programs that are typically used. This includes information on bicycling, walking, and transit in the South Council, a Complete Streets road typology, and right-size road assessments. The purpose is to provide SSMMA and South Council staff with information, resources, and evidence they can share with member communities to promote a Complete Streets approach to transportation planning and programming and to develop and implement Complete Streets projects and policies.

# Vision

**"The South Suburban Mayors and Managers Association and South Council of Mayors are committed to creating a safe, convenient, and interconnected multimodal transportation system for all its residents, visitors, and businesses. The Complete Streets and Trails Plan reflects this commitment and the high priority these organizations place on modernizing and improving all streets to safely and comfortably accommodate all current and future users, including bicyclists, pedestrians and transit riders of all ages and abilities."**

The vision statement was developed by the South Council of Mayors, in collaboration with CMAP and the Active Transportation Alliance and with input from representatives of South Council member communities and the general public, through focus group meetings. It is intended to convey the course charted by the South Council for surface transportation and the role that this plan, together with other efforts and initiatives, will play in realizing this vision.

# CHAPTER 1: ABOUT COMPLETE STREETS



Source: Active Transportation Alliance

# What are Complete Streets?

Complete Streets is an approach to transportation planning, design, operation, and maintenance that ensures that all projects and programs affecting the street take into account the needs of all anticipated users, regardless of age, ability, or mode of transportation. The Complete Streets approach integrates people and place into the creation and operation of transportation networks, recognizing that these networks exist for people within a larger context or community. This approach helps to ensure that streets are safe and comfortable for people of all ages and abilities, that they balance the needs of different modes and, by responding to the context, support local land uses, economies, cultures, and natural environments.[1]

[1] Adapted from the National Complete Streets Coalition report, Taking Action on Complete Streets: Implementing processes for safe, multimodal streets (July 2013); available online at http://www.smartgrowthamerica.org/documents/cs/impl/taking-action-on-cs.pdf.

# Creating Complete Streets

To create Complete Streets, transportation agencies and their partners must think differently about the nature and function of roads and the public right-of-way. Instead of automatically prioritizing the movement of cars and the needs of drivers, transportation designers and decision-makers must consider all potential roadway users and create policies, programs, and procedures aimed at producing roads that safely and comfortably accommodate everyone. Surrounding context and travel patterns are used to determine how to best accommodate people using various modes.

In addition to accommodating all potential roadway users, a Complete Streets approach requires that transportation designers and decision-makers understand the larger role that roads and the public right-of-way play within communities. Beyond simply moving automobiles, the design and operation of roads can also have a profound effect on other community goals and issues – including ADA accessibility, public health, the environment, economic activity, social equity, and overall livability.

**Figure 1. Complete Streets can perform many functions to enhance mobility, the environment, and economic development**


Source: Vermont Agency for Natural Resources, Municipal Day, 2015.

Complete Streets redefines and broadens the purpose of transportation planning and engineering. The problem to be solved is no longer how to move cars at the highest, safest speed, but rather how to provide safe and convenient access and mobility for all anticipated users of a given roadway.[2] Complete Streets requires that engineers and other transportation professionals – including elected officials and programming agencies – see streets as part of the larger community fabric, and that they work together to create roads that fit the context in which they are built, serve the needs of all types of roadway users, and help communities achieve a range of diverse goals.

**Complete Streets allow people to get around safely on foot, bicycle, or public transportation. By providing safe and convenient travel for everyone – including children, families, older adults, and people with disabilities – Complete Streets not only help people stay active and healthy, but also reduce traffic and pollution.**

*Fact Sheet: What are Complete Streets*
*ChangeLab Solutions*

[2] National Complete Streets Coalition, 'Understanding the Complete Streets Approach,' http://www.smartgrowthamerica.org/complete-streets/changing-policy/model-policy#approach; and 'Changing Procedure and Process,' http://www.smartgrowthamerica.org/complete-streets/implementation/changing-procedure-and-process.

# What do Complete Streets Look Like?

The Complete Streets approach requires that local context – surrounding land use, development pattern, types of users, current and anticipated modes of travel and travel patterns – serve as the starting point and driving force for the design and operation of roadways. In contrast to a prescriptive, "one-size-fits-all" approach, the design elements of Complete Streets change depending upon the existing or desired character of the surrounding built environment. This approach stands in contrast to the prevailing roadway design process, which relies predominantly upon functional classification and motor vehicle level-of-service targets, and prioritizes the conceptual network and roadway speed over the real-life context and actual use of the road.

Because context and anticipated travel modes and travel patterns determine design, Complete Streets projects will look different in different communities, neighborhoods, or land use settings. A complete street may or may not include specific facilities such as sidewalks, bicycle lanes, dedicated bus lanes, comfortable and accessible transit stops, or specific treatments such as enhanced crossings, median islands, accessible pedestrian signals, curb extensions, traffic calming treatments, narrowed lanes, and roundabouts.

A road served by, or near,[3] transit will be designed and operated to ensure safe and convenient access for people walking and bicycling to and from the transit stops, including safe crossings near bus stops. A road in a rural area, but where bicyclists and pedestrians are likely to be present, may include wide paved shoulders as suitable accommodation. Low-volume, low-speed local residential streets may require no special treatment or facility to make them complete. Roads in urban and suburban areas, with higher population densities and multiple destinations nearby, will typically need to provide safe, accessible pedestrian ways and bicycle facilities that serve different types of users and connect key destinations. Regardless of design details, a complete street will in all cases be designed and operated to balance safety and convenience for everyone who will be using the road. Figure 2 shows a variety or range of complete streets.

**The Complete Streets concept focuses not just on individual roads but on changing the decision-making and design process so that all users are routinely considered during the planning, designing, building and operating of all roadways. It is about policy and institutional change.**

*Complete Street: We Can Get There from Here*
*ITE Journal, Vol. 78, May 2008*

[3] The Federal Transit Administration defines the catchment area for a transit facility as a half-mile for pedestrians and 3 miles for bicyclists. Administration, Federal Transit. 2011. "Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law." Federal Register 76 (161): 52046. https://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf.

**The context of the surrounding area and street type will impact the type of treatment needed to create a Complete Street, but in all cases they will be designed to accommodate all potential users**

**Figure 2. Examples of Complete Streets**



Source: National Complete Streets Coalition, www.pedbikeimages.org, Google Streetview, www.nearmap.com.

Source: National Complete Streets Coalition, www.pedbikeimages.org, Google Streetview, www.nearmap.com.

# Why create Complete Streets?

The SSMMA, the South Council, and member communities are committed to a safe, convenient, and connected multimodal transportation system that serves all Southland residents, visitors, and businesses, regardless of travelers' age, ability, or mode choice. Streets play a vital role in this system, comprising much of the land and representing key public space. However, much of the existing street network – as is the case throughout the region and beyond – was designed and built at a time when roadway engineering's primary goal was to facilitate the movement of motor vehicles. This approach has resulted in many roadways where walking or bicycling is inconvenient or dangerous, and where access to transit and other services is severely limited for many people. It has also contributed to worsening air pollution, water quality, and flooding, and reinforced public health problems related to the rise of obesity, diabetes, and other chronic diseases.

It is becoming increasingly apparent – as the population, the number of cars, and the number and length of trips has increased – that this automobile-focused approach to transportation is not practical for the future. Growth, diversity, and prosperity depend upon an efficient, modern transportation system. Providing an integrated, multimodal network that includes functional, accessible public transportation and safe and convenient accommodation for bicyclists and pedestrians is a crucial part of modernization and a vital element in the future prosperity of the Southland. Such a network offers viable alternatives to driving in order to reduce the number of vehicles on the street.

The capacity of Complete Streets to address these issues and to provide a range of benefits related to community livability and sustainability are numerous and well-attested to studies and in practice around the country and abroad. The National Complete Streets Coalition[4] has published fact sheets on the many direct and indirect benefits that Complete Streets can provide. Among these benefits, the following are especially important.

[4] Smart Growth America. n.d. National Complete Streets Coalition. https://smartgrowthamerica.org/program/national-complete-streets-coalition/.

## Safety benefits

Many roads built in the post-war period were intentionally designed to be safe for drivers traveling well over the posted speed. The rationale behind this approach was the perceived need to ensure safety of speeding drivers. This approach is now understood to have made roads less safe – not only for bicyclists and pedestrians, who share the road with motorists, but also for motorists, since speed is primary factor in fatal and serious injury crashes. Drivers, for the most part, adjust to the roadway they are traveling along, and when they are traveling on a road that is designed to be safe for drivers traveling 45 mph, they are more likely to drive 45 mph, even if the posted limit is 30 mph.[5] Wider roads and wider lanes, with less friction in the roadway design, make people feel comfortable driving faster than the posted speed limit and faster than is safe for most roadway contexts and user characteristics. While this design approach may be suitable for limited-access highways, it drastically increases the risk of serious, life-threatening crashes for community streets lined with shops, parks, schools, or homes.

In urban and suburban areas, people are at risk when streets are planned and designed without safe places to walk, cross, catch a bus, or bicycle. More than 4,500 pedestrians die on U.S. roads each year, and more than 67,000 are injured.[6] Pedestrian crashes are more than twice as likely to occur in places without sidewalks, and streets with sidewalks on both sides have the fewest crashes.[7] Of pedestrians killed between 2003 and 2012, more than 50 percent died on arterial roadways.[8] More than 40 percent of pedestrian fatalities between 2000 and 2009 occurred where no crosswalk was available.[9]

[5] Speck, Jeff. Walkable City: How Downtown Can Save America, One Step at a Time. North Point Press: New York, 2012.

[6] Smart Growth America (2014). Dangerous by Design 2014. http://www.smartgrowthamerica.org/documents/dangerous-by-design-2014/dangerous-by-design-2014.pdf.

[7] Campbell, B., et al. (2004). "A Review of Pedestrian Safety Research in the United States and Abroad." Federal Highway Administration Publication # FHWA-RD-03-042.

[8] Smart Growth America (2014), op. cit.

[9] Ernst, M. (2011). Dangerous by Design 2011. Transportation for America.

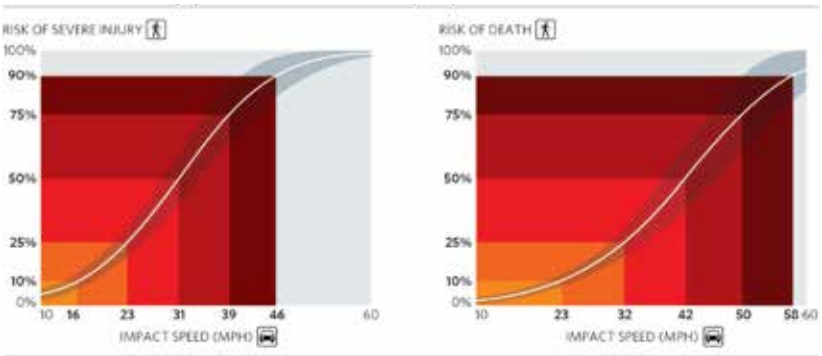
As the chart below shows, the risk to pedestrians of severe injury and death rise quickly with vehicle speeds. A pedestrian struck by a vehicle driven at 20 mph has around a 15 percent chance of being severely injured and a 5 percent risk of death. At 30 mph, these risks rise to around 50 percent for severe injury and 25 percent for death, and at 45 mph, 90 percent and 60 percent, respectively. At speeds above 50 mph, a pedestrian has almost no chance of escaping grievous injury or death.[10]

[10] Tefft, B.C. (2013, January). Impact speed and a pedestrian's risk of severe injury or death. Accident Analysis & Prevention, 50:871-878.

While the human cost of losing a family member or friend in a traffic collision is unquantifiable, the economic costs of crashes can be calculated. According the American Automobile Association, the cost of a single motor vehicle fatality is $6 million, the total cost of crashes in our urbanized areas in 2009 was nearly $300 billion, and the annual cost of crashes per person is $1,522. By reducing the frequency of crashes and the fatalities associated with crashes that do occur, communities can save enormous amounts of money.

Complete Streets practices reduce crashes through comprehensive safety improvements and the use of proven safety countermeasures. Simply painting crosswalks on wide high-speed roads does not reduce pedestrian crashes. Measures that recast the entire right-of-way with pedestrians in mind--sidewalks, raised medians, better bus stop placement, traffic-calming measures, and treatments for travelers with disabilities--all improve pedestrian safety. Well-designed bicycle infrastructure discourages sidewalk riding and reduces bike crashes by large margins. The design and engineering approaches commonly found in Complete Streets create long-lasting speed reduction. Speed plays a role in 30 percent of all traffic crashes, so all road users--whether driving, walking, or bicycling--benefit from slower speeds that are more appropriate for neighborhoods and communities than for interstate highways.

**Figure 3. Pedestrian risk of severe injury or death in relation to vehicle impact speed**




Source: Tefft, B.C. (2013, January). Impact speed and a pedestrian's risk of severe injury or death. *Accident Analysis & Prevention,* 50:871-878.


**Figure 4.**
**Complete Streets can promote economic activity by enhancing the pedestrian experience.**

Source: Carl Sundstrom, www.pedbikeimages.org.

## Economic development benefits

In *Walkable City*, author Jeff Speck describes what he calls the "Walkability Dividend," using Portland, OR as an example. Decades of investment in Complete Streets has created a city where people drive 20 percent less than other major metropolitan areas, leaving an estimated $1.5 billion in the pockets of residents annually.[11] Since nearly 85 percent of car and fuel expenses leave the local economy,[12] the billions of dollars saved are more likely to be spent locally.

- ***For communities:*** Complete Streets can spur private investment with an impressive rate of return. Communities across the country have multiplied the impact of their revitalization efforts by including well-designed multimodal streets in economic development plans. Well-connected, walkable and bikeable neighborhoods--especially those with good transit access--maintain property values better than areas without these features. Households that spend less on transportation have more income available for housing, shopping, and entertainment, keeping more money circulating locally.
- ***For households:*** Transportation is the second costliest item in most household budgets. Providing safe and convenient options for walking and bicycling can help households cut transportation costs by thousands of dollars each year.
- ***For businesses:*** Local businesses benefit from the increased exposure generated by more pedestrian and bicycle activity, transit access, and slower-moving, steadier automobile traffic. Giving people more options for getting to commercial areas can help reduce regional traffic congestion and boost sales and employee retention by providing improved access to employment centers.

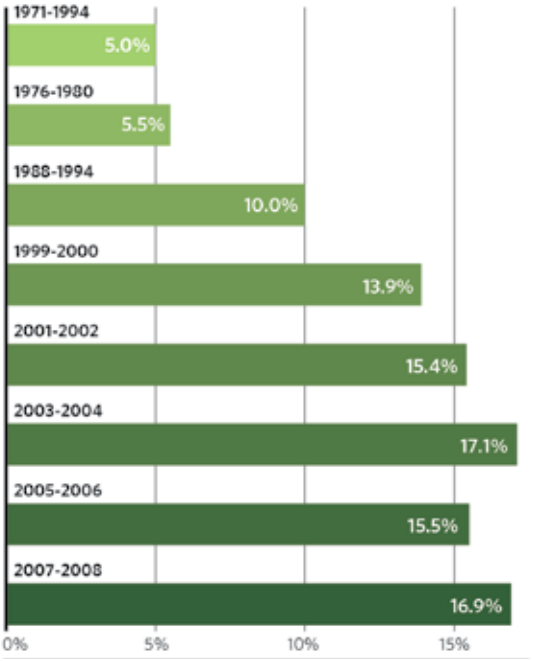
Complete Streets are crucial to economic competitiveness. Increasing numbers of Americans are attracted to places that offer the street life and transportation choices that auto-oriented places cannot provide. These factors play a major role when people are searching for jobs and places to live.[13]

## Health benefits

When streets are designed only for cars, walking and bicycling are in most cases uncomfortable or even unsafe. As a result, many people will choose to drive rather than walk or ride a bicycle, which has serious health consequences. On a daily basis, each additional hour spent driving is associated with a 6 percent increase in the likelihood of obesity, while each additional kilometer walked is associated with a 5 percent reduction in this likelihood.[14]

Complete Streets provide opportunities for increased physical activity by ensuring streets are designed for active transportation. In this way, Complete Streets promote healthier individuals and healthier communities. One study found that people in walkable neighborhoods, on average, performed 35–45 more minutes of moderate intensity physical activity per week and were substantially less likely to be overweight or obese than similar people living in low-walkability neighborhoods.[15] Nearly one-third of those who use transit as their primary mode for commuting to work meet the Surgeon General's recommendations for minimum daily exercise through these trips alone.[16] Strategies 17 and 18 of the Center for Disease Control's *Recommended Community Strategies and Measurements to Prevent Obesity in the United States* (July 2009) cite enhancing facilities for bicycling and walking as key to reducing obesity in children and adults.[17]

**Figure 5. Obesity rates for ages 2-19 over time**




Source: Ogden, C. and Carroll, M. (2010). "Prevalence of Obesity Among Children and Adolescents" Centers for Disease Control and Prevention, National Center for Health Statistics.

[11] Speck, Jeff. Walkable City: How Downtown Can Save America, One Step at a Time. North Point Press: New York, 2012.

[12] Ibid, p. 29.

[13] For additional studies on the economic benefits of Complete Streets, see the PDF version – including studies referenced in footnotes – of the National Complete Streets Coalition Fact Sheet on the potential for Complete Streets to stimulate local economies, at http://www.smartgrowthamerica.org/documents/cs/factsheets/cs-economic.pdf. See also the New York City DOT report, "The Economic Benefits of Sustainable Streets," at http://www.nyc.gov/html/dot/downloads/pdf/dot-economic-benefits-of-sustainable-streets.pdf. Finally, see the "Special Section: The Economic Benefits of Complete Streets" at http://vibrantneo.org/wp-content/uploads/2014/03/VibrantNEO_EconomicBenefitsofCompleteStreets.pdf., which is part of Northeast Ohio's Sustainable Communities Consortium Initiative's "Vibrant NEO 2040" report.

[14] Frank, L.D., Andresen, M.A., and Schmid, T.L. (2004). "Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars." American Journal of Preventative Medicine 27:2.

[15] Sallis, James F, et al. (2009). "Neighborhood built environment and income: Examining multiple health outcomes." Social Science and Medicine 68:1285-1293.

[16] Besser, L. M. and A. L. Dannenberg. (2005). "Walking to public transit: Steps to help meet physical activity recommendations." American Journal of Preventive Medicine 29(4): 273-280.

[17] Centers for Disease Control and Prevention. n.d. "Obesity: Community Strategies Guide." CDC. https://www.cdc.gov/obesity/downloads/community_strategies_guide.pdf.

## Age and disabilities

Many roads do not meet the needs of the growing population of older adults and people with limited mobility. Long crosswalks, expansive intersections, absent sidewalks, missing curb cuts, and poor transit stops limit safe mobility and contribute to isolation among individuals who do not drive.

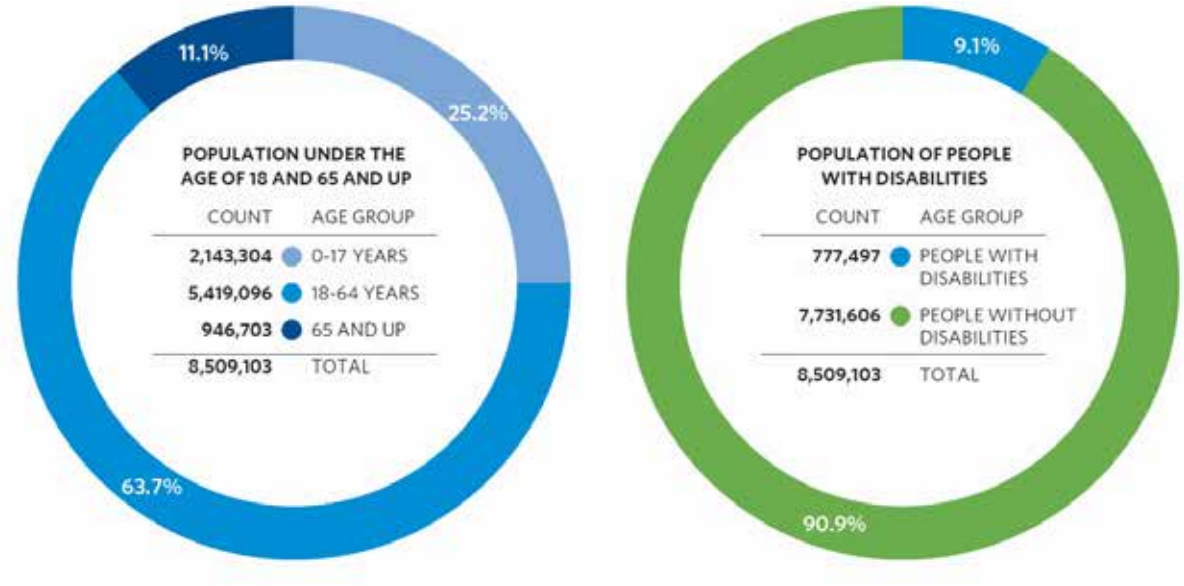
In northeastern Illinois, 2010 Census data show that the population of residents age 65 and older has grown 8.8 percent in the past decade, from 875,534 to 952,718 residents, more than double that of the region's overall population increase. According to GO TO 2040, the number of residents between 65 and 84 years of age is projected to double by 2040. Furthermore, the number of residents in the region who are over 85 years old is projected to triple.[18] Currently, according to 2010 U.S. Census American Community Survey data, the percent of older adults in the South Council area is 12.9 percent, vs. 11.7 percent for the region.[19]

A Complete Streets approach also helps create a safer environment for children to walk and bike to school, friends' houses, and other activities. The number of children who travel on their own to school dropped by almost three-quarters between 1969 and 2009 nationwide-and the rates of childhood inactivity and obesity took off. By giving parents and children more options for getting around safely, Complete Streets enable children to live the active lifestyles they need to be healthy.

[18] AARP is a founding member of and remains on the steering committee of the National Complete Streets Coalition. In 2009, AARP released the important report, Planning Complete Streets for an Aging America, which "encourages transportation planners and decision makers to build upon the principles of Complete Streets to address the specific needs of older drivers and pedestrians." The report argues that "Adoption of these principles ultimately improves the safety for all road users." The report is available online at assets.aarp.org/rgcenter/ppi/liv-com/2009-12-streets.pdf. More recently, AARP, as part of its Livable Communities initiative, published "The Road Ahead: Implementing Complete Streets Policies," which offers case studies of successful implementations of Complete Streets policies by AARP state offices, and is available online at http://www.aarp.org/content/dam/aarp/home-and-family/livable-communities/2014-01/complete-streets-case-study.pdf.

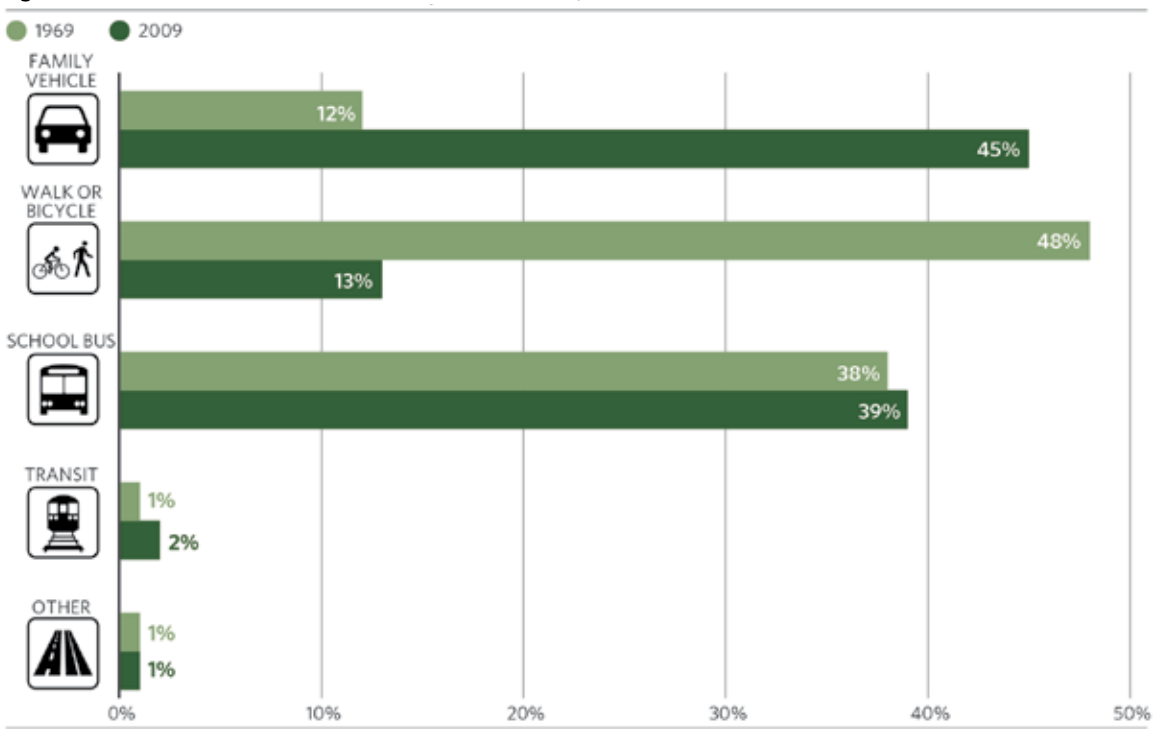
[19] Chicago Metropolitan Agency for Planning. 2011. New U.S. Census Data Analysis Overview of Trends in the Senior Population. August 4. http://www.cmap.illinois.gov/about/updates/-/asset_publisher/UIMfSLnFfMB6/content/new-u-s-census-data-analysis-overview-of-trends-in-the-senior-population.

**Figure 6. Children, other adults, and people with disabilities in the Chicago Metropolitan Area**




Source: US Census Bureau. 2008-12 American Community Survey.

**Figure 7. Usual mode of travel to school for K-8 students, 1969-2009.**




Source: National Center for Safe Routes to School (2011). *How Children Get to School: School Travel Patterns from 1969 to 2009.*

## Equity

The negative effects of incomplete streets disproportionately impact people of color. The national pedestrian fatality rate for Hispanics is almost 45 percent higher than the rate for whites, and the rate for African Americans is 60 percent higher than for whites. Despite representing less than 13 percent of the U.S. population, African Americans account for 17 percent of the pedestrian deaths.[20] African American and Latino children riding in cars are also more likely to be killed than white children per vehicle mile traveled.[21] In counties where more than 20 percent of households have incomes below the federal poverty line, the pedestrian fatality rate is over 80 percent higher than the national average.

Access to jobs, education, grocery shopping, healthcare, and other destinations is vital for all residents, regardless of their physical ability and economic status. Low-income Americans are more likely to take transit than their middle-income peers[22] and more likely to bike for transportation,[23] and low-income children in urban areas are more likely to walk or bike to school.[24] People with mobility issues (permanent and temporary), youth, and seniors are also more likely to take transit, walk, or bicycle. In the Chicago region, 28 percent of renter households do not own a vehicle, compared to 5 percent of owner-occupied households. In the South Council, 9 percent of the households do not own a car. Groups who cannot or do not drive comprise a large portion of the population (estimated to be close to one-third).

A Complete Streets approach ensures that the transportation system provides for the needs of all users regardless of race, income, age, or disability. Like other public places, streets cannot discriminate on the basis of any of these factors. Complete Streets help communities ensure that the letter and the spirit of the law coincide and work together.

**Figure 8. Deficient infrastructure in lower-income areas**

Source: Jay Walljasper, www.communitycommons.org.

[20] Smart Growth America (2014), op. cit.

[21] Gantz, T., Shaver, B., De La Garza, E., Ragland, D. & Cohen, L. (2003, November). "Traffic safety in communities of color." UC Berkeley Traffic Safety Center paper UCB-TSC-RR-2003-05.

[22] Sanchez, T., Stolz, R., & Ma, J. (2003). Moving to equity: Addressing inequitable effects of transportation on minorities. Retrieved from http://civilrightsproject.ucla.edu/research/metro-and-regional- inequalities/transportation/moving-to-equity-addressing-inequitable-effects-of-transportation-policies-on-minorities/.

[23] Pucher, J. & Buehler, R. (2011, March). "Analysis of bicycle trends and policies in large North American cities: Lessons for New York." Retrieved from http://www.utrc2.org/research/assets/176/Analysis-Bike- Final1.pdf.

[24] Young, S. (2011, July 4). "Who's walking to school?" Retrieved http://thechart.blogs.cnn.com/2011/07/04/whos-walking-to-school/.

## Public transportation benefits

Great public transportation systems go hand-in-hand with great places for walking and bicycling. Though nearly every transit trip begins as a walking trip, disconnects between transit and roadway planning can leave transit riders to wait in uncomfortable or unsafe conditions, or unable to access a stop or a station.

A Complete Streets approach makes accessing transit more safe, convenient, and comfortable by ensuring transit stops are accessible along a connected, ADA-compliant sidewalk network and near safe crossing locations. It also means keeping buses moving through traffic efficiently through signalization and design. Improving access to fixed-route transit also reduces dependence on costlier alternatives, such as paratransit or private transportation services. And better bicycle accommodation--on the streets, at stops, and on transit vehicles--helps increase the effective range of transit services.[25]

**Figure 9. A multi-modal transportation makes accessing transit easier and safer for pedestrians and bicyclists**

Source: Jarrett Walker, www.humantransit.org.

[25] Pace Suburban Bus recently published "Transit Supportive Guidelines." The guidelines include information on road and roadside design treatments that provide accessibility for transit facilities and users. The guidelines are available online at http://pacebus.com/guidelines/index.asp. In addition, see the NCSC's webpage on Complete Streets at http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/factsheets/public-transportation/.

## Placemaking benefits

Great streets are a foundation of great communities. Streets and other transportation elements represent a significant percentage of public-owned land. In automobile-oriented development, the public right-of-way (ROW) typically is 20 to 40 percent of land use in urbanized areas.[26] Off-street parking can take up another 10 to 20 percent of land use; some downtowns have dedicated as much as 30 percent of their land area for surface parking.[27] Neighborhoods that are less automobile-oriented may have as little as 10 percent of land dedicated to the public right-of-way.

A Complete Streets approach to roadway planning and design provides the opportunity for communities to re-envision their streets as more than just conduits and storage space for automobiles. With Complete Streets, transportation is integrated with and serves to advance broad community goals related to aesthetics, character, quality-of-life, and the public realm. It allows communities to see streets as public places, where people – both in and out of cars – move and interact with each other and where the communities proclaim their civic character.

[26] Elizabeth Macdonald, "Wasted Space/Potential Place: Reconsidering Urban Streets," Places: Forum of Design for the Public Realm 19:1 (2007): 22-27. Macdonald estimates that "... streets generally occupy between 25 and 35 percent of all land in American Cities." Authors of the CH2MHill white paper, "Sustainable Urban Street Design and Assessment," estimate that "Between 25 and 40 percent of all land within urban areas is in the public streets right-of-way." (p. 3). City of Chicago DOT staff estimates that 23% of city land is in the public right-of-way (see Slide 3 of CDOT presentation).

[27] Parking Strategies to Support Livable Communities, http://www.cmap.illinois.gov/programs-and-resources/local-ordinances-toolkits/parking.

**Figure 10. A Complete Street diagram that illustrates treatments for all roadway users**

Source: Multimodal Corridor and Public Space Design Guidelines, Indianapolis Metropolitan Planning Organization.

## Other benefits

In addition to the benefits described above, Complete Streets can help communities reduce congestion and improve air quality. By providing safe, viable alternative transportation options on the network scale, Complete Streets can shift trips to alternative modes, reducing the number of automobile trips, easing congestion, and improving the overall performance of the transportation system. By replacing automobile trips with walking, bicycling, and public transportation, Complete Streets helps reduce the quantity of tailpipe emissions ($CO_2$, NOx, CO, unburnt hydrocarbons, particulate matter, and water vapor). The potential for many shorter trips to be made by bicycle, walking, or transit – instead of by automobile – is significant. Such trips (three miles or less) comprise approximately 40 percent of all trips.[28] The following table summarizes trip length ("Mileage Category") by the portion of the nationwide total.

[28] According to the 2009 National Household Travel Survey, approximately 53 percent of all trips made in urban areas are 3 miles or less; in non-urban areas, 37 percent are 3 miles or shorter.

**Table 1. 2009 National Household Travel Survey - Mode Share by Mileage.**

| Mileage Category | *Portion of Total* | Walk | Bike | Transit | POV |
|---|---|---|---|---|---|
| 0-0.5 | *10%* | 61% | 3.1% | 1.5% | 34% |
| 0.5-1 | *9%* | 40% | 3.5% | 4.7% | 51% |
| 1 to 2 | *11%* | 9.2% | 1.8% | 5.0% | 84% |
| 2 to 3 | *11%* | 1.6% | 0.7% | 4.4% | 93% |
| 3 to 5 | *15%* | 0.7% | 0.5% | 4.5% | 94% |
| 5 to 10 | *19%* | 0.3% | 0.3% | 4.0% | 95% |
| 10 or More | *24%* | 0.1% | 0.1% | 2.8% | 97% |
| *Portion of Total Trips* | *100%* | *11.1%* | *1.1%* | *3.8%* | *84%* |
| *Portion of Total Travel Distance* | *100%* | *1.1%* | *0.3%* | *3.4%* | *95%* |
| *Portion of Total Travel Time* | *100%* | *8.7%* | *1.0%* | *7.3%* | *81%* |

Source: This table is from the Victoria Transport Policy Institute's analysis of NHTS data ("*Short and Sweet: Analysis of Shorter Trips Using NHTS Data*" – http://www.vtpi.org/short_sweet.pdf). The table summarizes mode share by mileage category. "Transit" includes local bus and train, intercity bus and school bus travel. "POV" stands for privately-owned motor vehicle.

# Policy and implementation

## Development process

Complete Streets policies formalize a community's intent to plan, design, and maintain streets so they are safe for users of all ages and abilities. Policies direct transportation planners and engineers to consistently design and construct the right-of-way to accommodate all anticipated users, including pedestrians, bicyclists, public transportation users, motorists, and freight vehicles.

The most successful policies are those that reflect input from a broad group of stakeholders, including transportation planners and engineers, elected officials, transit agencies, public health departments, and members of the community. In writing a policy, communities may want to:

- Host a workshop on policy development from a regional or national technical assistance provider.
- Host working sessions with representatives from various decision-making departments and organizations to begin asking questions and collaborating on policy language.
- Convene a committee or sub-committee to develop policy language based on the resources provided below and circulate the draft to other stakeholders.

The National Complete Streets Coalition has identified 10 elements that should be included in any comprehensive Complete Streets policy.[29] The Coalition uses these elements to judge the quality and strength of policies in its annual review of policies from across the United States. The 10 elements are:

1. Includes a vision for how and why the community wants to complete its streets.
2. Specifies that "all users" includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.
3. Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
4. Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
5. Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
6. Is adoptable by all agencies to cover all roads.
7. Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
8. Directs that Complete Streets solutions will complement the context of the community
9. Establishes performance standards with measurable outcomes.
10. Includes specific next steps for implementation of the policy.

## Types of Complete Streets policies

Complete Streets policies can take a variety of forms. The following policy types are discussed in more detail in the National Complete Streets Coalition's publication, Complete Streets Local Policy Workbook (2013):[30]

- ***Ordinance***: Complete Streets ordinances legally require that transportation projects and municipal code address the needs of all users. Ordinances may also apply to private developers by changing zoning and subdivision requirements. Ordinances require strong support from the community and elected officials and may be subject to judicial enforcement.
- ***Resolution:*** Issued by a community's governing body, resolutions are non-binding, official statements of support for approaching community transportation projects as a way to improve access, public health, and quality of life. Because resolutions do not require action, they may be forgotten or neglected if an implementation plan is not created.
- ***Plans:*** Complete Streets policies can also be situated within community comprehensive plans or transportation plans. The process of updating a plan or adopting a new one provides an excellent opportunity to engage all sectors of the community. To be truly effective, the Complete Streets approach must touch all aspects of the plan. For example, a policy should not be restricted to only the bicycle elements or applied only to streets included on a bicycle and pedestrian plan. Plans must also be well regarded by the community and inform the budget process, or they risk obsolescence or irrelevance.
- ***Municipal policies***: A city council or village board may also take action by adopting a Complete Streets policy as official municipal policy. Generally, this means that a Complete Streets policy is developed by a group of stakeholders and then taken to the full Council for discussion and a vote. These policies tend to be lengthier and more detailed than resolutions or ordinances and can build robust partnerships between agencies, community members, and decision makers. Like resolutions, such policies are not necessarily legally binding, but the support for change tends to be very high, resulting in a shared, lasting impetus for implementation of the policy.

[29] Smart Growth America. n.d. The Ten Elements of a Complete Streets Policy. https://smartgrowthamerica.org/resources/the-ten-elements-of-a-complete-streets-policy/.

[30] Smart Growth America. n.d. Complete Streets Local Policy Workbook. https://smartgrowthamerica.org/resources/complete-streets-local-policy-workbook/.

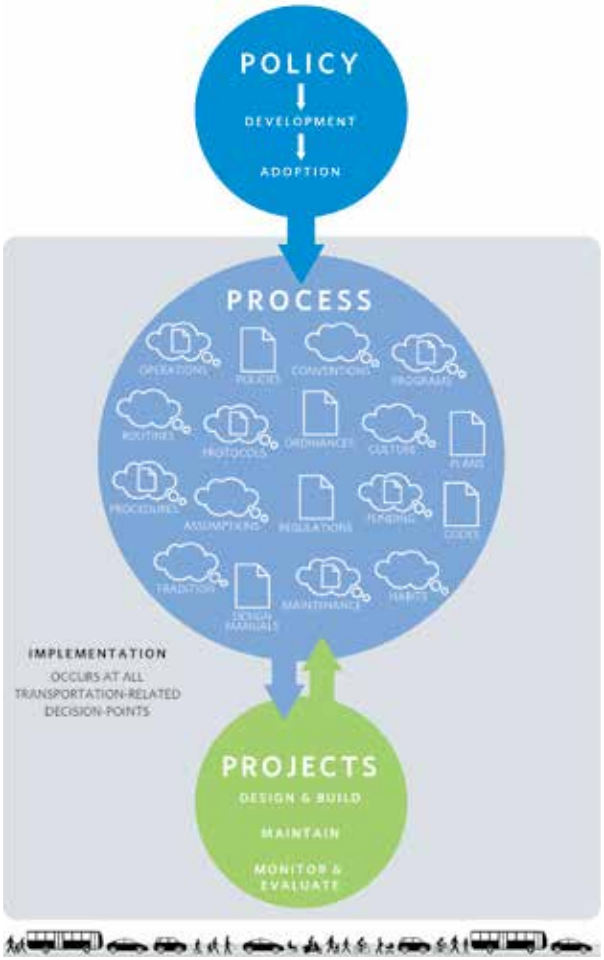
- ***Design guidelines:*** Communities may decide to integrate Complete Streets elements into new design guidance for their streets. Manuals can take years to develop, but, simply changing important details such as street cross-section standards can be done in a short time. Revisions to design guidance – including development of new standards – are an important step in policy implementation regardless of how the policy is initially adopted.
- ***Departmental policy:*** A relatively uncommon, but useful, policy adoption method is for a municipal department to issue its own Complete Streets policy directive. These policies are issued by the department head and usually created "in house" by that department. Though not mandated by law, such policies generally have good support from transportation professionals and are likely to be accompanied by changes in practice to ensure implementation.
- ***Executive order***: Directives issued by the municipality's chief executive are not as common as other policy types but have proved useful. These executive orders are most helpful in defining the problem and directing department heads to make the necessary changes. Though such policies reflect strong political will, they may only last as long as the current executive sits in office. Elected officials often have the power to facilitate or influence the hiring or appointment of key municipal staff that can enable individual units or departments to move ahead with Complete Streets changes.

Whatever type of policy is chosen, the development of an effective Complete Streets policy should include a full review and understanding of existing policies, practices, processes, and procedures – both informal and formal – for making all transportation-related decisions. This will allow for the identification of key places in current processes for the new Complete Streets principles and standards to be inserted. Local governments should identify the type of policy that would be most effective in sparking change, while still being realistic about the type of policy that can be passed and implemented successfully.

Once a policy has been developed and adopted, the real work begins: implementation. To successfully implement Complete Streets policies, focus must shift to the inner workings of the primary transportation agency and its partner agencies or departments – budgeting, programming, planning, public works, police, emergency services, parks, and more.

Transportation-related decisions are typically made across a variety of departments. The overarching vision and goals may have been articulated in a Complete Streets policy, but the day-to-day decisions made in funding, planning, designing, maintaining, and operating a transportation network should be reviewed and revised to support the Complete Streets vision. Policy implementation consists of fully institutionalizing an understanding of the transportation network as being multimodal in nature and of making this viewpoint routine, habitual, and obligatory in all transportation-related decisions and actions.

**Figure 11. Complete Streets policy implementation process**



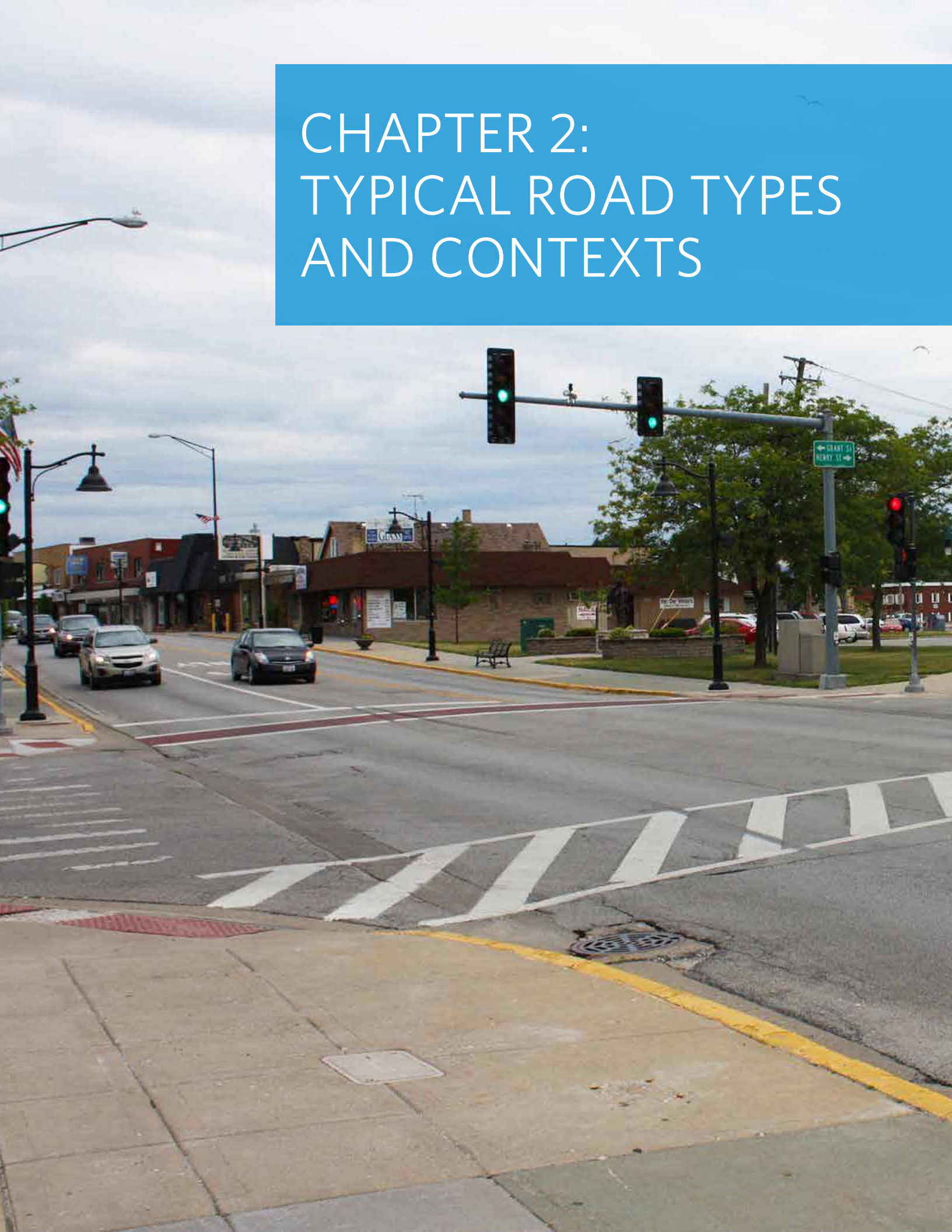

Source: Chicago Metropolitan Agency for Planning.

Five main types of activities are necessary to reorient a transportation agency's work to fully and consistently consider the safety of all users.[31]

1. Plan for implementation: Assess current procedures and activities and plan for the full implementation of Complete Streets. Ensure that all relevant staff are aware of the new policy and how it is expected to affect their day-to-day decision making and workflow.
2. Change procedure and process: Update plans and processes used in transportation decision-making and create new ones if necessary. Creation of bicycle, pedestrian, transit access, safe routes to school, and/or active transportation plans is especially important.
3. Review and update design guidance: Update or adopt new design guidance and standards to reflect current best practices in providing multimodal mobility.
4. Offer training and educational opportunities: Provide ongoing support to transportation staff and consultants, other relevant agency staff, community leaders, and the general public so that they understand the Complete Streets approach, the new processes and partnerships it requires, and the potential new outcomes from the transportation system.
5. Measure performance: Create new (or modify existing) metrics to measure success in accommodating all users on the project and network levels.

[31] The National Complete Streets Coalition provides information on activities and examples of policy implementation, including implementation plans and tools. Smart Growth America. n.d. Complete Streets Policy Implementation. https://smartgrowthamerica.org/program/national-complete-streets-coalition/complete-streets-implementation/.

# CHAPTER 2: TYPICAL ROAD TYPES AND CONTEXTS



A Complete Streets approach to road design stresses surrounding land use context, as well as the type of road and its ability to safely and comfortably accommodate all anticipated users and modes. In Complete Streets, context and desired road type are the primary drivers of roadway design, construction, operation, and maintenance.

There are 35 unique communities within the South Council, with a variety of neighborhoods, districts, and areas, each with their own character, form, and function. There is no one single roadway type that can be applied to each municipality in all situations. For the South Council and its member municipalities to determine what street designs, traffic operations, and travel mode priorities are best for a given road, it is crucial that all decision-makers and designers understand and adapt policies, priorities, and designs to the surrounding context, as well as to the function of the road in relation to the transportation network and its larger role in the community as a whole. Context varies with land use, development type, pattern, and intensity. Roadways vary in terms of typical trip purposes, modes served, speed, and relation to adjacent development.

A number of different kinds of “contexts” or “context zones” found throughout the Chicago Southland, are described in this section. These contexts are more fine-grained than the conventional, simple distinction of “urban vs. rural.” Additionally, several different roadway “types” are described, which can be found in the south suburbs and which are intended to augment and further contextualize the traditional functional classification system terminology in order to facilitate a Complete Streets approach. Complete Streets roadway types can overlap with functional classifications (arterial, collector, local), but are intended to help draw attention to the fact that, for example, an arterial in a historic downtown should be designed to look and function differently from an arterial in a rural context.

Using Compete Streets context and road typologies, roadways can be planned and built to better serve all users and to help achieve diverse community goals related to transportation, economic development, health, congestion mitigation, and quality-of-life. The roadway and context types discussed in this section of the report focus on populated areas, where a Complete Streets approach is most needed and can have the greatest impact.

# Context Zone

The three context zones identified for this report are: historic downtowns, suburban grid, and ex-urban. While each of these three context zones are defined by certain broad but distinct characteristics, it is important to note that they are "types," and within each there will be a range of differing features and attributes in different parts of the South Council area. Older communities along rail lines and closer to Chicago are more likely to have historic downtowns and denser suburban residential neighborhoods. The areas in the southern part of the region are more likely to be ex-urban, extending to some truly rural communities and areas. Many communities have all three of the context zones, with different areas or districts exhibiting different characteristics. In addition to these context zones, the South Council also has a significant portion of rural areas, industrial zones, and, of course, natural areas.

Some important characteristics of the context zones are housing density, building setbacks, the density of the street grid, and transit service provision. The following chart shows the typical characteristics and development patterns for the three context zones.

There are few places in the South Council with a high density of housing units,[32] so the context zones range from low to medium density. Building setbacks range from low to high, and the roadway grid density is either high or low. Transit service provision typically follows higher density routes, so it is more likely to be in the downtowns, but also works well on suburban network grids with houses closely spaced together. At the same time, there is not frequent, rapid transit service in the South Council, so the range is from low to medium, with many areas relying heavily on buses.

[32] Parts of the northern communities – Calumet Park, Calumet City, Dolton, Riverdale, and Harvey – along with Chicago Heights, exhibit the greatest densities.

**Table 1. 2009 National Household Travel Survey - Mode Share by Mileage.**

| Context Zone Characteristics | Development pattern | | |
|---|---|---|---|
| | Historic downtowns | Suburban grid | Ex-urban |
| Housing Density | Medium | Medium/Low | Low |
| Building Setbacks | Low | Medium | High |
| Roadway Grid Density | High | High | Low |
| Transit Service Provision | Medium | Medium | Low |

Source: Chicago Metropolitan Agency for Planning.

## Historic downtown

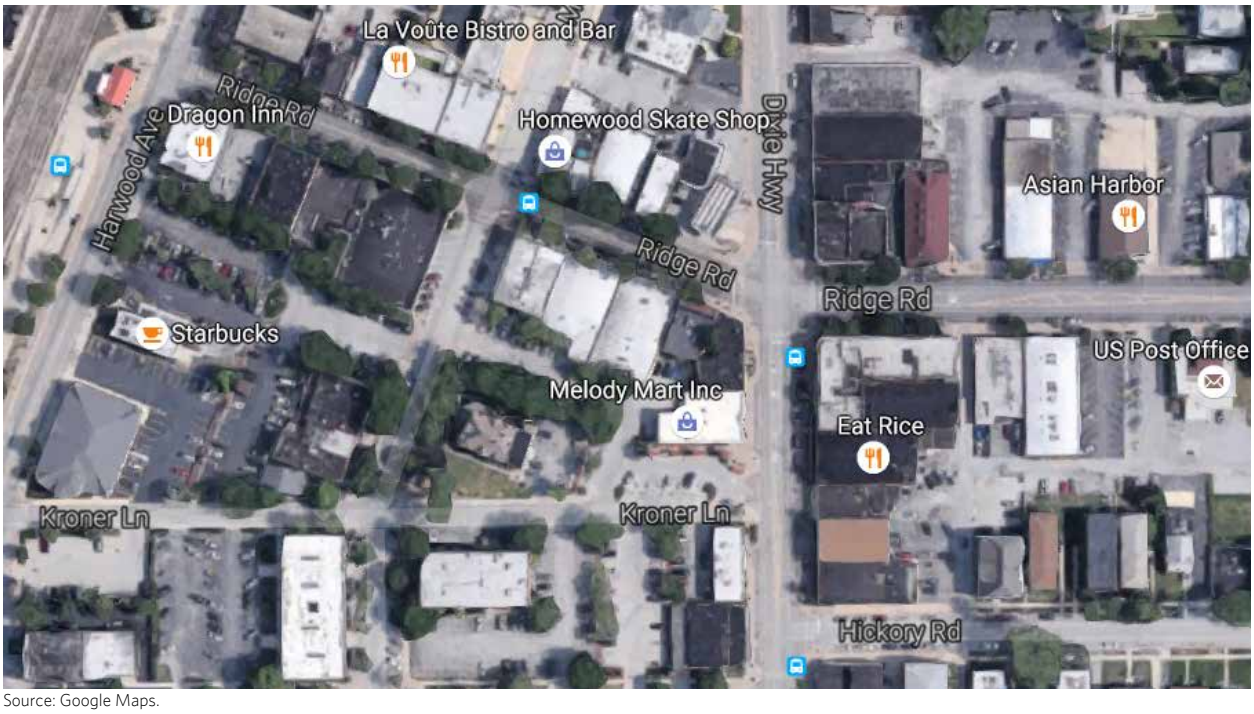
Historic downtowns were largely developed before widespread use of personal vehicles and are – or were at one point in time – naturally walkable. Historic downtowns typically have higher residential densities, often with second-story residences above ground level uses. Some locations will have additional floors; there will be more attached dwelling units and apartments.

For a visual example, the downtown corridor of Dixie Highway through Homewood has the characteristics of a historic downtown. Building setbacks are minimal, many buildings are attached, and there are street trees and sidewalks.

**Figure 12. Historic Downtown along Dixie Highway in Homewood**

Source: Google Maps Streetview.

**Figure 13. Aerial view of the Historic Downtown along Dixie Highway in Homewood**




Source: Google Maps.

Other areas that have characteristics of historic downtowns include: downtown Crete (**Figure 14**), downtown Flossmoor (**Figure 15**), and Center Avenue & 154th Street in Harvey (**Figure 16**). Main Street in downtown Park Forest (**Figure 17**) would fall between this context group and suburban neighborhood, even though it is a newer downtown, and not historic.

**Figure 14. View of the historic downtown in Crete, along Main Street**

Source: Google Maps Streetview.

**Figure 15. Flossmoor's historic downtown, viewed from Sterling Avenue**

Source: Google Maps Streetview.

**Figure 16. The intersection of Center Avenue and E. 154th Street in Harvey**

Source: Google Maps Streetview.

**Figure 17. The Main Street corridor in downtown Park Forest**

Source: Google Maps Streetview.

## Suburban grid

Suburban grid zones in the South Council consist largely of older residential areas where homes are somewhat smaller and closer together than those found in the ex-urban zones. These zones have primarily residential uses and are not nearly as mixed as historic downtowns, though some mixed-use buildings exist at intersections. As the name implies, these zones have a gridded network of streets. At their edges, these zones may be bordered by larger arterials, highways, forest preserves or other features that limit access in and out of the area.

Most of the older residential areas in the South Council can be classified as a suburban grid zone. In addition to a gridded street pattern, and smaller houses relatively close together, suburban grid zones typically have alleys and limited driveway curb cuts. Suburban grid zones would include large portions of Riverdale, Dolton, Homewood, Phoenix, Harvey, Calumet City, Midlothian, and others.

**Figure 18. An early-era suburban grid zone in a residential area, along E. 155th Street in Harvey**


Source: Google Maps Streetview.

**Figure 19. This early-era suburban grid zone in Harvey features only residential uses, with limited driveway curb cuts**


Source: Google Maps.

## Ex-urban

At the opposite end of the context spectrum from historic downtowns are the networks of quiet cul-de-sac streets that connect to the larger collectors and arterial roads. These ex-urban zones have the lowest street connectivity, meaning that there is not a true grid system, but a heavy reliance on collectors and arterials to gather and funnel local neighborhood traffic from the large, single-use, residential areas. Some ex-urban areas have sidewalks; others do not. For example, Bay View Drive in Richton Park (shown below, in **Figure 20** and **Figure 21**) and nearby cul-de-sac streets funnel out to Cicero Avenue, a large arterial bordering single-use residential areas.

**Figure 20. Ex-urban residential streets typically have curb cuts for each address, such as Bay View Drive in Richton Park**

Source: Google Maps.

**Figure 21. Bay View Drive in Richton Park connects to Cicero Avenue, an arterial, and dead ends into a cul-de-sac**


Source: Google Maps.

**Figure 22. Ex-urban residential traffic from Bay View Drive funnels onto the large arterial Cicero Avenue**

Source: Google Maps Streetview.

# Roadway Typologies

Streets have historically been categorized using the functional classification system into local, arterial, and collector roads, with classifications determined primarily by the current or projected volume of automobile traffic on the road and the function of the road in the state-wide roadway network. To promote improved safety for all roadway users – especially the more vulnerable pedestrians and bicyclists – a Complete Streets approach supports a broader range of roadway types. These new roadway types are intended to better capture the multi-faceted and multi-modal role most streets play in the community.

The three main roadway categories outlined for the South Council are: residential, business, and community. Within each of these broad categories, further sub-divisions include: streets, avenues, and boulevards.

The main roadway categories relate to the primary land use along the road, while the typology sub-divisions speak to the overall design of the road, including some basic elements such as the target speed and volumes, relative density of curb cuts, and typical roadway widths and cross-sections. These breakdowns are similar to those found in the Active Transportation Alliance's "Complete Streets, Complete Networks,"[33] and many other Complete Streets guides, manuals, and guidelines. Highways and freeways are not part of the analysis, since they limit access and are not intended for pedestrians or cyclists.

The roadway types presented here can exist in each of the context zones described previously (historic downtown, suburban grid, ex-urban), where they could vary in character and design, depending upon the context. In the historic downtowns, the network of streets is primarily comprised of residential streets and business main streets. In suburban grid areas, there are primarily residential streets, with a number of residential avenues, community streets, and community avenues. Ex-urban areas mainly consist of residential streets feeding to business boulevards.

[33] Active Transportation Alliance. n.d. Design Guides. http://atpolicy.org/resources/design-guides/.

**Table 3. Understanding roadway types by context of the surrounding use.**

| Residential | Business | Community |
|---|---|---|
| *Residential Streets* | *Business Main Street* | *Community Street* |
| *Residential Avenue* | *Business Avenue* | *Community Avenue* |
| *Residential Boulevard* | *Business Boulevard* | -- |

Source: Chicago Metropolitan Agency for Planning.

## Residential

Residential roadways provide access to houses, apartments, and other residential uses at varying scales and densities. While a residential street in an ex-urban context will serve the same function as a residential street in a suburban grid context, the character will be very different. There will be fewer parked cars, more driveways, and, in most cases, fewer pedestrians.

### Residential Street

Many of the roadways in the South Council are residential streets with low traffic volumes, mainly controlled by stop signs. They have on-street parking and sidewalks, usually separated by a parkway with trees. These streets are pleasant for walking and riding bicycles, as the traffic speeds and volumes are low. There might be driveway access, or the streets will be served by alleys with no curb cuts. Streets with driveways will typically have lower utilization of the on-street parking, which can expand the effective road width and encourage speeding.

**Figure 24. Few driveway curb cuts exist on Marshfield Avenue in Harvey, where on-street parking is heavily utilized**

Source: Google Maps Streetview.

**Figure 25. Driveways connect to each residence on Imperial Drive in Richton Park**


Source: Google Maps Streetview.

## Residential Avenue

A residential avenue is a street with primarily residential uses, but a wider right-of-way than a residential street. This can encourage higher speeds, even if the posted speed limit is 25 mph. These streets usually allow on-street parking, but in most cases it is not heavily utilized because of the relatively low housing density and the driveway access. This gives drivers the impression that operating vehicles at speeds higher than posted limits is safe.

It can also lead to crashes with parked cars, since motorists may perceive the road as being a four-lane roadway, and are surprised by the occasional parked car. Such streets may or may not have a painted centerline.

The typically low traffic volumes along these streets mean that is it not particularly difficult for homeowners to pull out of driveways or cross-streets into traffic. Some cyclists may feel safe along these streets – in part because the added roadway width provides more space. Others, however, may not feel comfortable because of the higher speed of passing cars.

**Figure 26. Sections of the residential avenue E. 153rd Street in Phoenix do not have a painted centerline or parking lane**


Source: Google Maps Streetview.

**Figure 27. Lincoln Avenue in Dolton has a painted centerline, however may be perceived as a four-lane roadway**


Source: Google Maps Streetview.

## Residential Boulevard

A residential boulevard is a street that has been designed to handle large volumes of vehicular traffic at high speeds. Four and five lanes of traffic can make it difficult for homeowners to pull out of their driveways. Most bicycle riders would prefer to bicycle on the sidewalk along these streets, as the roadway feels unwelcoming and unsafe, due to the high speeds and/or high traffic volumes.

Riding on five-foot wide sidewalks, with many driveways and cross streets can be dangerous for the cyclists as well as potential pedestrians. Walking along these streets may also be uncomfortable–especially with limited or no buffer area between the sidewalk and travel lanes. Even more crucially, crossing these streets can be very difficult, and signals can be too far apart to serve the needs of pedestrians (and bicyclists).

**Figure 28. South Wood Street in Markham is a four-lane residential boulevard with numerous driveway curb cuts**

Source: Google Maps.

**Figure 29. East 183rd Street in Country Club Hills is a five-lane residential boulevard with a center turn lane and curb cuts**

Source: Google Maps.

**Figure 30. South Park Avenue in South Holland is a four-lane residential boulevard with a narrow planting strip**

Source: Google Maps.

## Business

Business roadways are primarily designed to accommodate business and commercial needs, though in some cases, uses may be mixed. Business streets and avenues may be most common in historic downtown context zones, while ex-urban zones are more likely to have larger business avenues and boulevards.

### Business Main Street

Business Main Streets are primarily found in older downtown cores throughout the SSMMA region. These streets typically have on-street parking, continuous building frontage with shorter setbacks, street furnishings, trees, and wider sidewalks. Walking along these streets is generally pleasant. Safe and convenient crossings are key element for walkability. Bicycling along them can be difficult for inexperienced cyclists. Bicycling conditions can be improved by the provision of on-street bicycle facilities.

**Figure 31. Ridge Road in Homewood features street furnishings that increase walkability and decrease traffic speeds**


Source: Google Maps Streetview.

**Figure 32. Main Street in Crete has a relatively narrow sidewalk, which provides for a wide roadway**


Source: Google Maps Streetview.

## Business Avenue

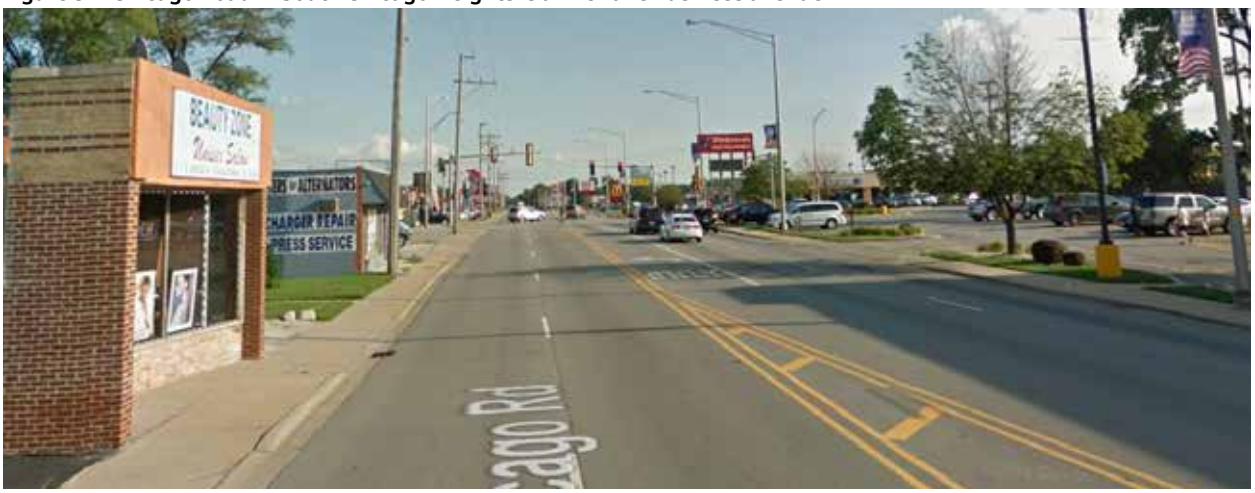
Business avenues consist of streets that may have once been "business main streets" but have been adapted to increase automobile access and mobility. Along these streets, elements that might slow traffic and add vitality have typically been removed and replaced with more and/or wider travel lanes. Such road widening often leads to building setbacks that are too narrow for the high traffic volumes and/or speeds on adjacent travel lanes. In other areas, older buildings are torn down and replaced with parking lots, resulting in deep setbacks and little or no connection between the buildings and the street and sidewalk.

Street trees are often lacking--having been removed in order to maximize the width of the road. Walking along the sidewalks is possible, but usually not comfortable. Four- and five-lane streets in this category with an Average Daily Traffic (ADT) count of 20,000 vehicles or less should be evaluated for right-size road reassessment (more details on right-size road assessment are found in the Right-Size Roadways chapter). They may prove good candidates for conversion to three lanes (one through travel lane in each direction and a two-way center-turn lane), with traffic-calming measures and/or bicycle lanes added.

**Figure 33. Park Avenue in Harvey is classified as a business avenue**

Source: Google Maps Streetview.

**Figure 34. Chicago Road in South Chicago Heights is a five-lane business avenue**




Source: Google Maps Streetview.

## Business Boulevard

These streets have been designed to carry large numbers of vehicles at high speeds, including trucks and other large vehicles, with commercial sites accessed via shared driveways. Sidewalks may or may not be present, but where they do exist, walking is usually not comfortable due to the adjacent high-volume, high-speed road and the large parcel size, which results in long walking distances between destinations. Truck traffic along these types of roads tends to be high. Bicycling along such roadways is dangerous and most cyclists will ride on the sidewalks, if they exist.

Because signalized intersections are often spaced very widely, pedestrians may attempt to cross these roadways at mid-block or other uncontrolled locations, in order to avoid walking up to a half-mile or more to a signalized crossing, and then back to reach their destination on the other side of the road. Dangerous crossings like this happen regularly at bus stop locations along these roadway types. The comfort of pedestrians walking along such roads can be increased by planted buffer areas.

**Figure 35. Business boulevards are designed to carry large volumes of vehicles, such as Sibley Boulevard in Calumet City**


Source: Google Maps Streetview.

**Figure 36. Halsted Street in Homewood is designed as a business boulevard with as many as seven roadway lanes**


Source: Google Maps Streetview.

## Community

Community roadways cater to civic uses such as schools, post offices, libraries, or small-scale retail and mixed uses. There is not typically a great deal of difference between the street and the avenue, except for traffic volumes and the presence of traffic control devices and measures. Community boulevards are not common because the nature of a boulevard does not support community and civic activity.

**Figure 37. Example of a community street: Broadway Avenue at 148th Street**


Source: Google Maps Streetview.

**Figure 38. Example of a community avenue: 155th Street at Center Avenue**

Source: Google Maps Streetview.

# Design elements by street type

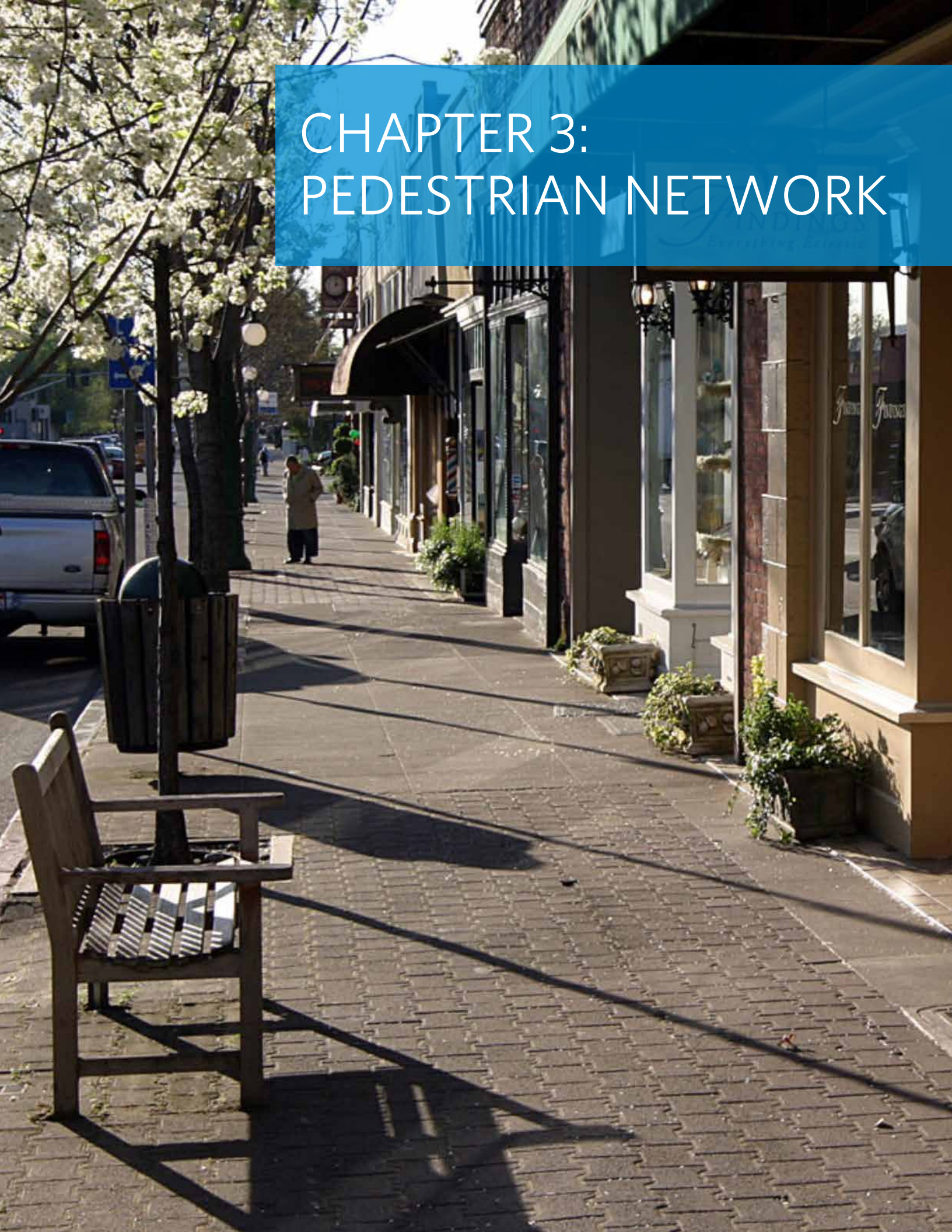
When considering a roadway design or redesign, or when planning other infrastructure within or connected to the public right-of-way, it is important to consider the context zone and all the travel modes that will be served by the facility. Not all street treatments are appropriate for all locations. And not every street type is set in stone. Some streets are on the border, or hybrids, of two types. Some contexts are an amalgam of different types. Changes in land use and new designs, facilities, and treatments can alter the roadway typology and change the context.

A Complete Streets approach emphasizes the need for context to direct and determine the design and operation of roadways and adjacent rights-of-way. Flexibility in roadway design is an important aspect of Complete Streets. By emphasizing surrounding context, as well as flexibility, Complete Streets will help increase the safety, comfort and convenience for all users of the road. The following table relates typical treatments, facilities, and amenities with major roadway types, indicating where specific treatments may be most useful and feasible, following appropriate engineering studies.

**Table 4. Recommended Complete Streets treatments by roadway type and context**

| | Street element | Residential Street | Residential Avenue | Residential Boulevard | Business Main Street | Business Avenue | Business Boulevard | Community Street | Community Avenue |
|---|---|---|---|---|---|---|---|---|---|
| Pedestrian Amenities | Curb extensions | 2 | 1 | 5 | 1 | 4 | 5 | 2 | 1 |
| | Gateway | 2 | 2 | 4 | 1 | 4 | 5 | 1 | 1 |
| | Pinchpoint | 2 | 1 | 4 | 1 | 4 | 5 | 2 | 2 |
| | Chicane | 2 | 1 | 5 | 2 | 4 | 5 | 1 | 2 |
| | Bus bulbs | 2 | 1 | 4 | 4 | 4 | 4 | 1 | 1 |
| | Furnishings | 3 | 3 | 3 | 1 | 4 | 5 | 3 | 1 |
| | Crosswalks | 1 | 4 | 4 | 1 | 1 | 4 | 1 | 1 |
| | Curb ramps | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Pedestrian signals | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 1 |
| | Sidewalks | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Median refuge | 3 | 1 | 1 | 4 | 2 | 1 | 3 | 2 |
| Bicycling Amenities | On-street bike lanes | 3 | 1 | 5 | 1 | 1 | 5 | 3 | 1 |
| | Barrier-protected bike lanes | 3 | 4 | 4 | 1 | 4 | 5 | 2 | 1 |
| | Sidepath | 3 | 1 | 1 | 3 | 1 | 1 | 3 | 3 |
| | Bicycle Boulevards | 1 | 4 | 5 | 5 | 5 | 5 | 2 | 2 |
| | Parking lane with bike route signage | 1 | 1 | 4 | 2 | 4 | 5 | 1 | 1 |
| | Bikeway signage | 1 | 3 | 4 | 1 | 3 | 5 | 1 | 2 |

1 Recommended, where space allows
2 Would enhance safety, but not necessary
3 Not necessary, would not be good investment
4 Recommended when trying to change the character of a street, or if further investigation calls for it
5 Not recommended without additional changes to the roadway; would be unsafe



# CHAPTER 3: PEDESTRIAN NETWORK

# Walking in the South Council

Walking is the most basic form of transportation, as well as the most common mode for accessing transit. For streets in urbanized areas which make up the majority of the South Council to be truly "complete," pedestrians must be safely and comfortably accommodated.

# Barriers to walking

The Chicago Southland and South Council member communities face many challenges to improved pedestrian access and walkability. The region is crisscrossed with rail lines, rail yards, intermodal freight facilities, rivers and canals, and multiple expressways. This makes travel across the region difficult by any mode; journeys on foot are particularly challenging or hazardous. Grade-separated crossings over these major barriers are relatively few and far-between. As a result, large volumes of traffic are funneled to these points, where priority is typically given to motor vehicles, including, in many cases, large trucks. This situation results in what may be called a "negative feedback loop," by which unsafe or uncomfortable conditions for walking and bicycling force people to drive, even for short trips that could easily be made on foot or by bicycle.

In addition to these linear traffic barriers, the South Council area also has large industrial areas and extensive forest preserve properties. While these land uses may constitute important destinations for pedestrians, transit riders, and cyclists, they can also be barriers to connectivity, lacking safe access for pedestrians and bicyclists. Like many suburban areas of the greater Chicago region, the south suburbs also have many large, high-speed, high-volume arterial roads, which can be additional barriers to walking and cycling. In the South Council, these large arterial roads are spaced approximately one mile apart, in a grid pattern across the Council area, with other major arterials running diagonally through some areas. This pattern creates relatively small 'islands' of local streets within which walking can be relatively comfortable, but where even comparatively short trips between 'islands' require traversing larger, pedestrian-unfriendly streets. Large, skewed intersections – formed by diagonal roads intersecting arterials – only increase the difficulties and safety concerns for pedestrians.

**Figure 39. Many intersections in the South Council create long crossings for pedestrians**

Source: Google Maps Streetview.

# Key findings

Key findings that emerged from analysis undertaken for the Existing Conditions Report and from the stakeholder engagement process, which relate to pedestrians and conditions for walking in the South Council of Mayors area, are as follows:

- Local challenges to a safe and connected walking network include: a large number of limited-access highways, a dense network of high-volume arterial roads, numerous rail lines, large industrial and manufacturing zones, high truck volumes, expansive forest preserve properties bordered by roads lacking sidewalks, and multiple waterways.
- While most communities in the South Council fall into the "car-dependent" category when evaluated by Walkscore.com, several downtown areas within the South Council either have historically more walkable cores, or have made strides to improve the walkability of their community by narrowing crossing distances, improving visibility of crosswalks, and improving the pedestrian experience with lighting, benches, and other amenities.
- The northern and central portions of the South Council area have the highest densities of intersections, which could indicate higher overall walkability in these areas. However, these areas also contain high pedestrian crash areas, which may indicate higher numbers of pedestrians and/or higher crash risks.
- There were 35 fatal pedestrian crashes in the South Council area between 2008 and 2012. Nearly 75 percent of these crashes occurred along roadways under IDOT's jurisdiction. Twenty-five percent of the fatal crashes occurred along County roads. High concentrations of pedestrian crashes occurred in Harvey, along Sibley Boulevard between Chicago/South Park and Torrence Avenues, and in Chicago Heights.

# Recommendations

## Improve pedestrian quality of service

Walking is a primary mode of transportation and requires safe, convenient, and accessible pedestrian ways. A majority of trips include walking for part of the way, whether it is from a parking lot to the entrance of a building or walking to and from public transit. Despite this fact, pedestrian facilities are not always provided where appropriate and needed. Some existing facilities may be poorly designed or improperly maintained, resulting in an unfriendly pedestrian environment. Barriers and hindrances to walking can limit mobility, require more expensive trips by car, and even prevent trips entirely – which in turn can have negative health, economic, and equity impacts for individuals and for society.

Specific facility design and appropriate pedestrian treatments will vary by context, but the basic goal for walkability in any area is to have a connected pedestrian network that provides dedicated space for pedestrians with separation from vehicles wherever possible, as well as access to destinations. The most common pedestrian facility is, of course, a sidewalk, and the characteristics that most influence its use are continuity and interconnectedness.[34] A well-designed sidewalk network is one that provides continuous paths to destinations. Individual facilities and the network as a whole should be maintained to avoid safety issues such as obstructions, cracks in the pavement, and design features that do not adhere to ADA requirements.

[34] City of Bridgeport Complete Streets Policy and Action Plan, 2011.

**Figure 40. Transit facilities are a key element of Complete Streets**


Source: Google Maps Streetview.

While sidewalks constitute the main facility or 'thoroughfare' for those traveling on foot, details of the sidewalk, as well as other features of the road and the roadside, can enhance the safety and attractiveness of an area for pedestrians and encourage people to walk more. Some typical facilities and treatments, like pedestrian countdown signals, high-visibility crosswalks, curb extensions, and pedestrian refuge islands, are described in the following section. Other influential features include:

1. High-visibility signage: In-street stop/yield signs and warning signs visually alert motorists of the potential for pedestrians, bicyclists, or other non-motorized users along or crossing the roadway, and encourage them to slow down and stop for pedestrians in a crosswalk.
2. Lighting improvements: Street lighting includes roadway and pedestrian-scale lighting in the public right-of-way near high pedestrian and bicycle activity locations, conflict areas, and transit stops. It should illuminate pedestrians, improve their safety and comfort, and enhance security by providing levels of lighting that are oriented toward pedestrian and bicyclist activity.
3. Landscaping: Plantings and landscaping elements in the public right-of-way can provide separation between motorists and pedestrians or bicycles, reduce vehicle speeds or volumes, and provide a more pleasant street environment. Landscaping can slow traffic by creating the appearance of a narrower roadway.
4. Shared streets and plazas: Shared streets and plazas can make streets and adjacent areas within public right-of-ways safe and conducive to public uses and activities beyond transportation alone. Shared streets are usually in commercial areas or residential neighborhoods where streets are relatively low volume and narrow. Shared streets typically do not have boundaries such as lanes, curbs, and sidewalks, and motorists are encouraged to travel at approximately 10-15 mph. Vehicles can be slowed by placing trees, planters, parking areas, and other obstacles in the street.

**Figure 41. Pedestrian enhancements**





Source: 1. Dan Burden, www.pedbikeimages.org; 2. Ron Bloomquist, www.pedbikeimages.org; 3. Flickr, NYC Department of Transportation; 4. Dan Burden, www.pedbikeimages.org.

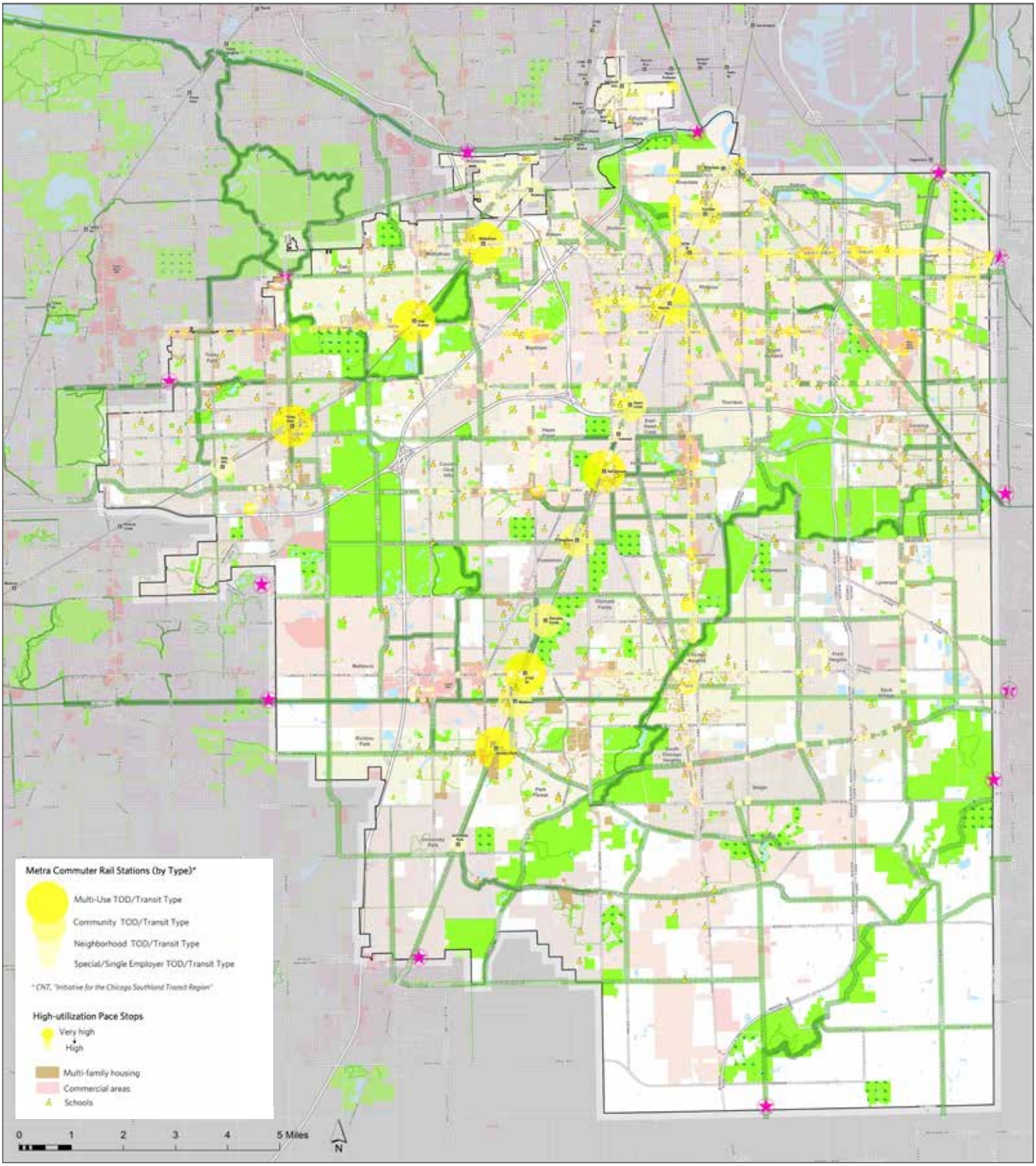
## Focus pedestrian improvements in high-priority locations

Local agencies should be encouraged to improve conditions for walking throughout their jurisdictions. Given the large geographic extent of the Council, it is necessary to prioritize improvements to create a complete, multimodal network. The plan identifies general high-priority areas for pedestrian improvements. SSMMA and the South Council of Mayors should target these areas for investments and programs to support walking as a safe and efficient transportation mode and a viable means of accessing transit. To help visualize high-priority pedestrian improvement locations, **Figure 42** highlights the areas around major transit stops (Metra stations and high-ridership Pace routes and stops), downtowns, and commercial or retail districts and corridors. Schools, multifamily housing, and major bikeway connection points are also indicated. Population and employment density and pedestrian crash data (though not visualized on the map) were also used in analysis to identify these high-priority areas. High-ridership transit stations and stops constitute key locations and highest priority for pedestrian improvements. Metra commuter rail stations were analyzed and are visualized by station type, according to a station typology developed by the Center for Neighborhood Technology in their study, "Initiative for the Chicago Southland Transit Region."[35] This 2001 study, commissioned by SSMMA, identified four station types to describe the character, scale, intensity, and (preferred) type of future development for the station areas: Multi-Use Transit Center, Community Transit Area, Neighborhood Transit Area, and Special Use/Employment District.

CMAP utilized these types, which broadly indicate the potential to support transit-oriented development, as a means of defining and prioritizing the need for pedestrian improvements around the stations. High ridership Pace bus routes (and stops) are also high priorities for pedestrian improvement. These include the 352-Halsted, the 350 Sibley Blvd., and the 364-150th/162nd Streets routes. These routes have not only the highest overall ridership but also have the majority of the highest ridership stops.

[35] SSMMA. January 2011. "Initiative for the Chicago Southland Transit Region." http://www.rtams.org/reportLibrary/1319.pdf.

**Figure 42. High-priority pedestrian improvement areas**




Source: Chicago Metropolitan Agency for Planning.

To view in high resolution visit http://cmap.is/2uCxqwK

## Cater to pedestrians of different ages and abilities

A Complete Streets approach to roadway design and operation calls for consideration and accommodation of all potential users, and of all ages and abilities – including children, seniors, and people with disabilities or mobility impairments. These groups have different needs in regards to the pedestrian realm and may benefit from, or may require, specific provisions or design treatments to overcome major barriers to pedestrian travel and ensure safety, comfort, and accessibility.

### Children

Children are often too small to be in the line of sight of drivers, so without proper designs, streets surrounding schools may not be safe for these young pedestrians. Children also walk slower than adults and may not be able to gauge the amount of time needed to cross an intersection. Accommodating children requires special facilities and treatments, including measures to reduce vehicle speeds and enhance street crossings around schools. Reduced speed zones near schools, with striping patterns and colors to communicate to drivers that they are within a school zone, and traffic calming measures can facilitate slower vehicle speeds. Additionally, reducing crossing lengths through bulb-outs, special crosswalk striping, and median refuges provide shorter crossings for children.

Technical assistance and funding to implement enhancements to sidewalks and other pedestrian improvements can be obtained through the Safe Routes to School (SRTS) program. Administered by the Illinois Department of Transportation, SRTS aims to improve conditions for students, grades K to 8, who walk or bike to school by providing funds for infrastructure improvements, such as the construction of new sidewalks, as well as non-infrastructure projects or programs, such as hosting Walk to School Days, pedestrian safety curricula, and other events and programs. Eligible project sponsors include schools and school districts, governmental entities, and nonprofit organizations.[36]

[36] Illinois Department of Transportation. n.d. Illinois Safe Routes to School (SRTS). http://www.idot.illinois.gov/transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/safe-routes-to-school/index.

## Seniors

Since they often cannot or do not drive, seniors' mobility and access to goods and services – including transit – depends heavily on pedestrian facilities such as well-designed and maintained sidewalks and safe crossing locations. Seniors typically have slower walking speeds and reaction times than younger adults, as well as other conditions or impairments that may restrict their movement, vision, and/or hearing. The design, construction, maintenance, and operation of sidewalks and street crossings should strive to accommodate the needs of seniors and avoid common impediments that disproportionately affect aging populations.

Opportunities to improve street design to provide better access and mobility for seniors include: minimizing street crossing distances and exposure by the construction of median refuges or sidewalk bulb-outs; ADA-compliant curb ramps and landings; the installation of sidewalk furniture, intended to provide seniors and others with comfortable, protected places to rest; and the adjustment of signal timing to account for slower walking speeds. Given their slower walking speeds, pedestrian refuge islands can be particularly effective in helping to ensure the safety of seniors at crossing locations, since these provide a safe place to wait, if they are unable to make the crossing during the available signal time.

## People with disabilities or mobility impairments

Designing a facility for pedestrians means designing it for people with disabilities or mobility impairments. The Illinois Compiled Statutes, in the Pedestrians with Disabilities Safety Act, defines a pedestrian with a disability as any person "who may require the use of a mobility device (support cane, walker, crutches, wheelchair, scooter, or other device), service animal, or white cane to travel on the streets, sidewalks, highways, and walkways of this State."[37] Under the 1990 Americans with Disabilities Act (ADA), any new or altered facilities must be made accessible, and any municipality with 50 or more employees is required to develop a Transition Plan, to bring their community into compliance.[38] Compliance with the ADA is inherent in the Complete Streets project development approach, which rests on the principle that transportation agencies and their partners should create roadway designs that serve all anticipated users.

One of the most common examples of ADA considerations in roadway design is the accessible curb ramp. To support access by people using wheelchairs and other assistive devices, a curb ramp's running slope should not exceed 8.33 percent. There should be a level landing at both the top and bottom of the ramp, which are large enough for a wheelchair to safely turn and maneuver. Tactile strips with truncated domes should be properly placed to alert people with vision impairments of their proximity to vehicle travel lanes and of the transition from pedestrian zone to motor vehicle travel way. Another best practice is to include accessible pedestrian signals (APS) which communicate information about crossings to pedestrians with visual impairments through audible tones and vibrating systems.

[37] Pedestrians with Disabilities Safety Act. 2010. Vehicles (625 ILCS 60/) (Illinois General Assembly, July 22). Retrieved from http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=3252&ChapterID=49.

[38] CMAP's Community Briefing Paper on ADA Transition Plans is available online. Chicago Metropolitan Agency for Planning. n.d. ADA Transition Plans. http://www.cmap.illinois.gov/programs-and-resources/local-ordinances-toolkits/ada-transition-plans.

## Promote a "culture" for walking

Complete Streets provide opportunities for increased physical activity by ensuring streets are designed for walking and other modes of active transportation. Once well-designed pedestrian facilities and roadway treatments are installed, communities can take additional steps to promote walking as a healthy and enjoyable way to travel, recreate, and exercise. SSMMA can encourage communities to cultivate a culture of walking through a number of community-driven approaches:

- Distribute walking maps. Neighborhood or business district walking maps are a good way to introduce residents to the idea of walking to local destinations. Walking maps can be used to build knowledge of local geography, encourage people to experience their community on foot rather than by car, and provide alternative routes for getting places by walking. Walking maps can show places of interest for shopping, dining, or other businesses in an area, and often include landmarks (schools, parks, and libraries), parking, preferred routes, travel distance, and location of traffic signals.
- Organize a neighborhood walk or other special events. One way to expose residents to the experience of walking in their neighborhood is to organize a neighborhood walk. Some examples include a walk to visit a new park, a fitness walk or fun-run, and a nighttime holiday walk to view decorations.
- Walk-at-work programs. Employers can design and publicize routes to walk to work, give time for walking during the day, or foster walking groups. The Berkeley Walks! Walking Group, for example, helps employees at UC Berkley fit fitness into the workday through designated walking routes.[39] Some employers also offer incentives for physical activity through their insurance provider.
- Walk-to-school programs. School principals, staff, parents, or other community groups can organize a Walk to School Day to encourage children and families to walk to school. These one-day events give visibility to the importance of safer and improved streets, healthier habits, and less traffic.[40]Offer incentives (mileage clubs). Numerous online and community-based programs encourage walking and provide incentives for reaching mileage goals either individually or in groups.

[39] UC Berkeley, University Health Services. n.d. Berkeley Walks. https://uhs.berkeley.edu/facstaff/wellness/active-work/berkeley-walks.

[40] UNC Highway Safety Research Center. n.d. Walk & Bike to School. http://www.walkbiketoschool.org/.

# Typical pedestrian facility types and intersection treatments

Choosing appropriate facility type(s) is a key aspect of project planning and engineering. A Complete Streets approach seeks to balance the needs and ensure the safety of all roadway users, including pedestrians of different ages and abilities. In addition to safety, good pedestrian facility design and the application of appropriate pedestrian treatments can also help increase the amount of people choosing this mode for short trips.

Well-designed pedestrian infrastructure helps maximize the impact of communities' transportation investments to provide access and mobility for all residents and visitors, and to ensure the cost-effectiveness of the infrastructure they build. However, good pedestrian design accomplishes more than transportation goals. It can contribute to the health of individuals and communities, and to communities' attractiveness, economic prosperity, and overall quality of life by creating places where people want to live and visit. This section describes some key typical facility types and intersection treatments to accommodate pedestrians along roadways and at intersections and crossing locations, and to calm traffic and manage motor vehicle speeds. The list provided is not meant to be all-inclusive, nor is the information on facilities and treatments intended to be exhaustive and definitive. Additional information and design guidance on pedestrian facilities and intersection treatments is available in various national and state standards, manuals, and guides.[41-47] The implementation of any particular treatment requires detailed engineering studies.

**Figure 43. Pedestrian-friendly sidewalk design**

Source: FHWA Office of Safety, US DOT..

[41] AASHTO. 2010. "Update of the AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities." http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP20-07(263)_FR.pdf.

[42] Active Transportation Alliance. n.d. "Complete Streets, Complete Networks." http://atpolicy.org/resources/design-guides/complete-streets-complete-networks-design-guide/.

[43] CMAP. n.d. Complete Streets Toolkit. http://www.cmap.illinois.gov/programs-and-resources/local-ordinances-toolkits/complete-streets.

[44] Institute of Transportation Engineers. 2010. "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach." Institute of Transportation Engineers, Washington DC. http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad.

[45] NACTO. n.d. "Urban Street Design Guide." https://nacto.org/publication/urban-street-design-guide/.

[46] PEDSAFE. n.d. Pedestrian Safety Guide and Countermeasure Selection System. http://www.pedbikesafe.org/pedsafe/.

[47] United States Access Board. n.d. Part 1190 - Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way. https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/part-1190-accessibility-guidelines-for-pedestrian-facilities-in-the-public-right-of-way.

## Sidewalk zone system

An important aspect of walkability is the utilization of the sidewalk zone system.[48] The sidewalk zone system is a tool that planners use to ensure that pedestrian ways provide safety, comfort, and convenience and meet basic ADA requirements for a continuous, smooth, and level sidewalk, free of obstructions. It is also a tool for urban design and creating attractive, functional, and vibrant places. The sidewalk zone system consists of four distinct zones:

- Curb zone: Curbed area between the sidewalk and the vehicle ways; usually includes drain inlets.
- Furniture zone: Area of the sidewalk where refuse receptacles, benches, utilities, and other objects are best placed. Also can include a narrow parkway providing access to/from cars parked along the curb.
- Pedestrian zone: Area of the sidewalk that should be clear for walking. The minimum continuous and unobstructed clear width of a pedestrian access route is four feet, exclusive of the width of the curb,[49] though additional width may be needed in specific contexts.
- Frontage zone: Area of the sidewalk that transitions to adjacent buildings and land uses; commonly used for quasi-public activities, such as outdoor cafes and sidewalk sales. The frontage zone also provides room for building access (opening doors) and window shopping, etc.

Dimensions and geometry for each zone will look different in residential areas versus commercial districts. Like Complete Streets in general, pedestrian zones are designed in conjunction with and in response to specific context and surrounding land use to meet the needs of all anticipated users and activities. Design manuals, guides, and other resources are provided in an Appendix.[50-51]

[48] National Association of City Transportation Officials. n.d. Urban Street Design Guide: Sidewalks. https://nacto.org/publication/urban-street-design-guide/street-design-elements/sidewalks/.

[49] United States Access Board. n.d. Chpater R3: Technical Provisions. https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/background/revised-draft-guidelines/chapter-3.

[50] Guidance on space allocations for sidewalk zones can be found in Chapter 3 of the Active Transportation Alliance's Complete Streets Complete Networks design manual: http://atpolicy.org/resources/design-guides/complete-streets-complete-networks-design-guide/.

[51] The Public Rights-of Way Accessibility Guidelines (PROWAG), proposed by the U.S. Access Board for adoption by the Department of Justice, and recommended by U.S. DOT and FHWA, offers guidance on selecting the practices for accessibility: http://www.access-board.gov/guidelines-andstandards/streets-sidewalks/public-rights-of-way.

**Figure 44. Examples of pedestrian zones in design guides and manuals**


Source: DVRPC (right) and FHWA *"Designing Sidewalks and Trails for Access"* (left).

## Pedestrian countdown signals

Pedestrian countdown signals are intended to provide information to pedestrians about the amount of time remaining to safely cross the street at signalized intersections. In conjunction with the traffic signal, the pedestrian countdown signal provides either an exclusive crossing phase when all traffic is stopped or a concurrent phase. The concurrent phase allows pedestrians to cross while the opposing vehicle traffic has a green light and intersecting traffic is stopped by a light. The pedestrian phase is timed to allow sufficient time for pedestrians to cross the street.

Additional signal timing adjustments – such as the Leading Pedestrian Interval, or regulations such as 'No Turn on Red' – can be combined with countdown signals to improve safety.

Countdown signals consist of a standard pedestrian signal head, with an added display showing a countdown of the remaining crossing time. This treatment is required by the Manual on Uniform Traffic Control Devices (MUTCD) to be installed whenever pedestrian signal heads are warranted as part of intersection signalization or reconstruction. Signals may be supplemented with audible, vibrotactile or other indications, to make crossing information accessible for pedestrians with vision and/or hearing impairments.

Countdown signals are easily understood by most people and are especially helpful to mobility-challenged, elderly pedestrian, and adults accompanying small children. But while there are many advantages to this treatment, this option does not benefit vision-impaired pedestrians. In addition, countdown signal technology will not currently work for railroad-preempted traffic signals (i.e. at signalized crossings near rail lines).

**Figure 45. Countdown signals are especially helpful to mobility-challenged pedestrians**


Source: Deleware DOT Burden, www.pedbikeimages.org.

## Curb extensions

Curb extensions or 'bulb outs' extend the sidewalk or curb line out into the parking lane and reduce the effective street width. They significantly improve pedestrian crossings by reducing crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street. Curb extensions also have significant traffic-calming effects and potential for streetscaping and streets beautification projects.

**Figure 46. Curb extensions reduce crossing distances and make pedestrians more visible**

Source: Dan Burden, www.pedbikeimages.org.

## High-visibility crosswalks

Marked crosswalks are an effective method for improving safety and reducing accidents. Crosswalks indicate the preferred locations for pedestrians to cross a street and provide warning to motorists to expect pedestrians. High visibility crosswalks typically make use of longitudinal or "continental," or "ladder" style pavement markings, which are highly visible to approaching traffic. Typically, crosswalk installations should be done in conjunction with other enhancements that physically reinforce the crosswalks and reduce vehicle speeds (signage, curb bump outs, medians, flashing beacons, stop- or signal control, lighting, etc.). In certain contexts, in-street 'State Law: Stop for Pedestrians in Crosswalk' signs can be used to improve compliance and enhance safety at uncontrolled crossing locations.

**Figure 47. Visible crosswalks can indicate that motorists should expect pedestrians**

Source: Dan Burden, www.pedbikeimages.org.

## Pedestrian refuge island

Raised islands or medians are placed in the center of the street at intersections or mid-block to help protect crossing pedestrians from motor vehicles and to allow pedestrians to deal with only one direction of traffic at a time by enabling them to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street. Right-turn, channelizing islands ("pork chop" islands), when properly designed, can also function as pedestrian refuge areas.[52] Advanced warning and regulatory signage and, in some cases, flashing beacons (at uncontrolled crossing locations) are installed in conjunction with raised refuge islands. Landscaping in the median provides aesthetic and environmental benefits, but should not restrict key sight lines to ensure safety.

[52] See ITE's manual, "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach,"Chapter10, p. 187ff, at http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad. See also the article, "Safety evaluation of right-turn smart channels using automated traffic conflict analysis" (2012) in the journal, Accident Analysis & Prevention, at http://www.sciencedirect.com/science/article/pii/S0001457511003204.

**Figure 48. Examples of pedestrian refuge islands that improve safety**

Source: Dan Burden, www.pedbikeimages.org.

## Raised crosswalks and intersections

A raised pedestrian crossing is essentially a speed table (a wide speed hump) with a flat portion the width of a crosswalk, usually 10-to-15 feet. Gently sloping ramps approximately 6-10 feet wide are placed on either side of the raised crossing, allowing traffic to comfortably cross at 20-25 mph. The raised crossing elevates the crosswalk to the height of the sidewalk and is designed to encourage motorists to yield to pedestrians and to slow travel speeds. A raised intersection is essentially a raised pedestrian crossing area extending across, or forming, the entire intersection. Construction includes ramps on each vehicle approach, which elevates the entire intersection – including all crosswalks – to the level of surrounding sidewalk.

**Figure 49. Examples of raised crosswalks that can slow traffic and make pedestrians more visible**

Source: Dan Burden, www.pedbikeimages.org.

# CHAPTER 4: BICYCLE NETWORK

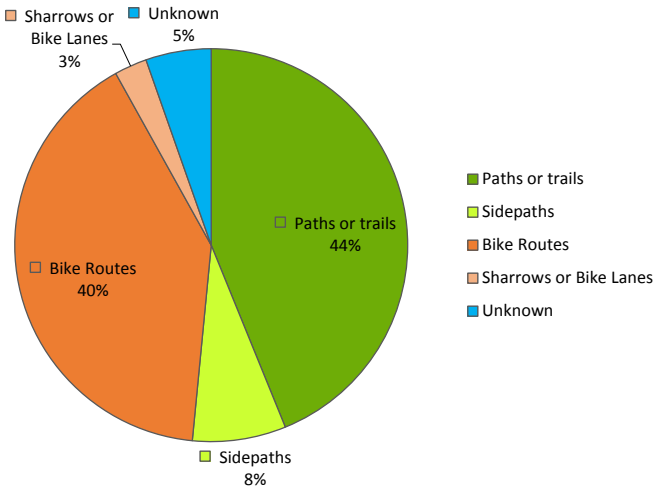
# Bicycling in the South Council

The percentage of bicycle commuters in the South Council area is estimated to be lower than Cook County and the region as a whole.[53] In addition, crowd-sourced ride data reveals large areas within the South Council area with relatively low levels of cycling.[54] Many of features that make walking difficult lead to challenges for people riding bikes as well, especially major physical barriers such as expressways, large arterial roads, rail lines, rivers, and large intermodal freight facilities.

[53] The total counts of persons bicycling to work at the municipal or sub-County level are so low – even for 5-year ACS data – that the margins of errors are often greater than the counts themselves. When we combine bicycling and walking as the primary mode for work commute, estimates are 1.52 percent for the South Council of Mayors area, 5.56 percent for Cook County, and 4.16 percent for the region. For more information, see the Supplementary Background Information, p. 11.

[54] Strava Labs' Global Heat Map. For more information on this data source, see the Existing Conditions Report, p. 38.

**Figure 50. Existing bikeways by type in South Council Area.**



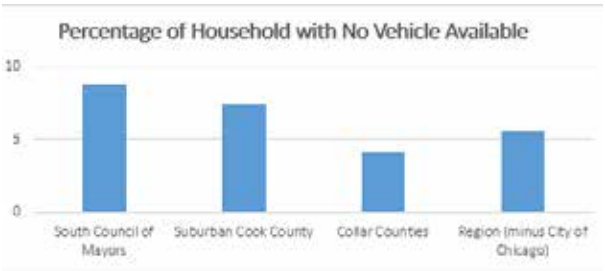

Source: CMAP Data Hub.

# Key findings

Key findings that emerged from analysis undertaken for the Existing Conditions Report and from the stakeholder engagement process, which relate to or have a bearing on bicycling and conditions for bicycling in the South Council of Mayors area, are as follows:

- Since the 2008 SSMMA Bicycle Plan was published, significant progress has been made in completing the regional trail network. The majority of this "backbone" trail network is located on Forest Preserve properties, and within former rail lines or utility ROWs. Despite this progress, important connections remain to be made.
- East-west bicycling routes connecting communities – with the exception of the Old Plank Road Trail – are lacking in most parts of the South Council area.
- The Southland is fortunate to have several active bicycle clubs and riding groups that organize and promote bicycling through rides and other events, as well as educational and encouragement programs. Active Transportation Alliance has worked with many south suburban communities and created a foundation for increased cycling, walking, and transit usage.
- Most member communities are classified as "car-dependent" by Walkscore.com. Local challenges to a safe and connected walking and bicycling network include: a large number of limited-access highways, a dense network of high-volume arterial roads, numerous rail lines, large industrial and manufacturing zones, high truck volumes, expansive forest preserve properties bordered by roads lacking sidewalks, and multiple waterways.
- The percentage of households with no vehicle available in the South Council is 8.8 percent – higher than suburban Cook County (7.4 percent), the collar counties (4.1 percent), and the region as a whole, minus the City of Chicago (5.6 percent). In 10 South Council communities, 10 percent or more of the households do not have access to an automobile, and in three communities (Ford Heights, Harvey, and Robbins), over 20 percent of the households do not own a car.
- Poverty and obesity rates, as well as other health indicators that could be positively impacted by more active transportation and lifestyles, appear to be significantly higher in many South Council communities than in suburban Cook County and the region as a whole.

**Figure 51. The South Council has a higher rate of homes with no vehicle available, as compared to the region**




Source: CMAP Data Hub.

# Recommendations

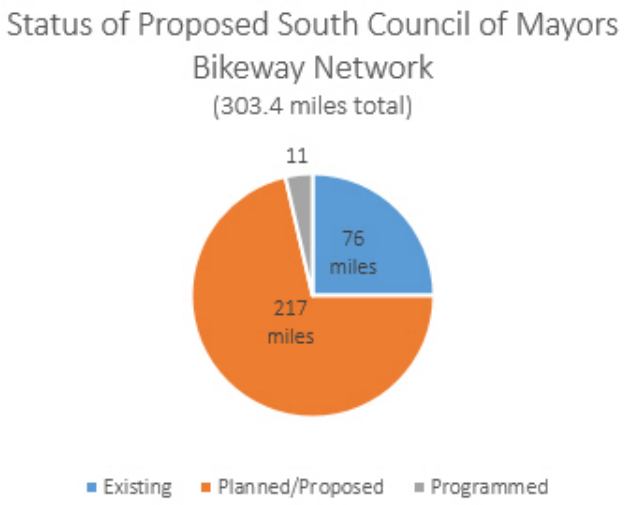
## Develop Council-Wide Bikeway Network

One of the primary outcomes of this plan is a recommended South Council bikeway network. The proposed network was developed through a planning process that included community input and detailed analysis of existing conditions. Data and information related to existing and planned bikeways, roadway and traffic conditions and characteristics, key destinations, barriers, and current and desired bicycle routes were used to develop the network. The starting point for the network was the 2008 SSMMA Bicycle Plan. Through investigation and communications with South Council member communities, SSMMA staff, representatives of Cook and Will counties, and county Forest Preserve districts, changes to the existing and planned bikeway and trail network in the South Council area since 2008 were identified and incorporated. This more accurate, updated data on Council-area bikeways provided the foundation for the development of the proposed network.

The vision of the South Council bikeway network is one of an interconnected network of on- and off-street bicycle facilities that provide for Council-wide travel across jurisdictions and the many physical barriers that are present throughout the area. Given the large geographic extent of the area and the long-term nature of the plan, individual corridors are conceptual and will require further study to determine exact alignments and preferred facility types. The proposed network corridors identify the need to establish a bikeway link, with precise routing details to be established during more detailed local planning and engineering phases. The recommended network identifies what planning-level analysis reveals as the most feasible and practical routes at the geographic scale of the South Council. The following guidelines were used to develop the bikeway network:

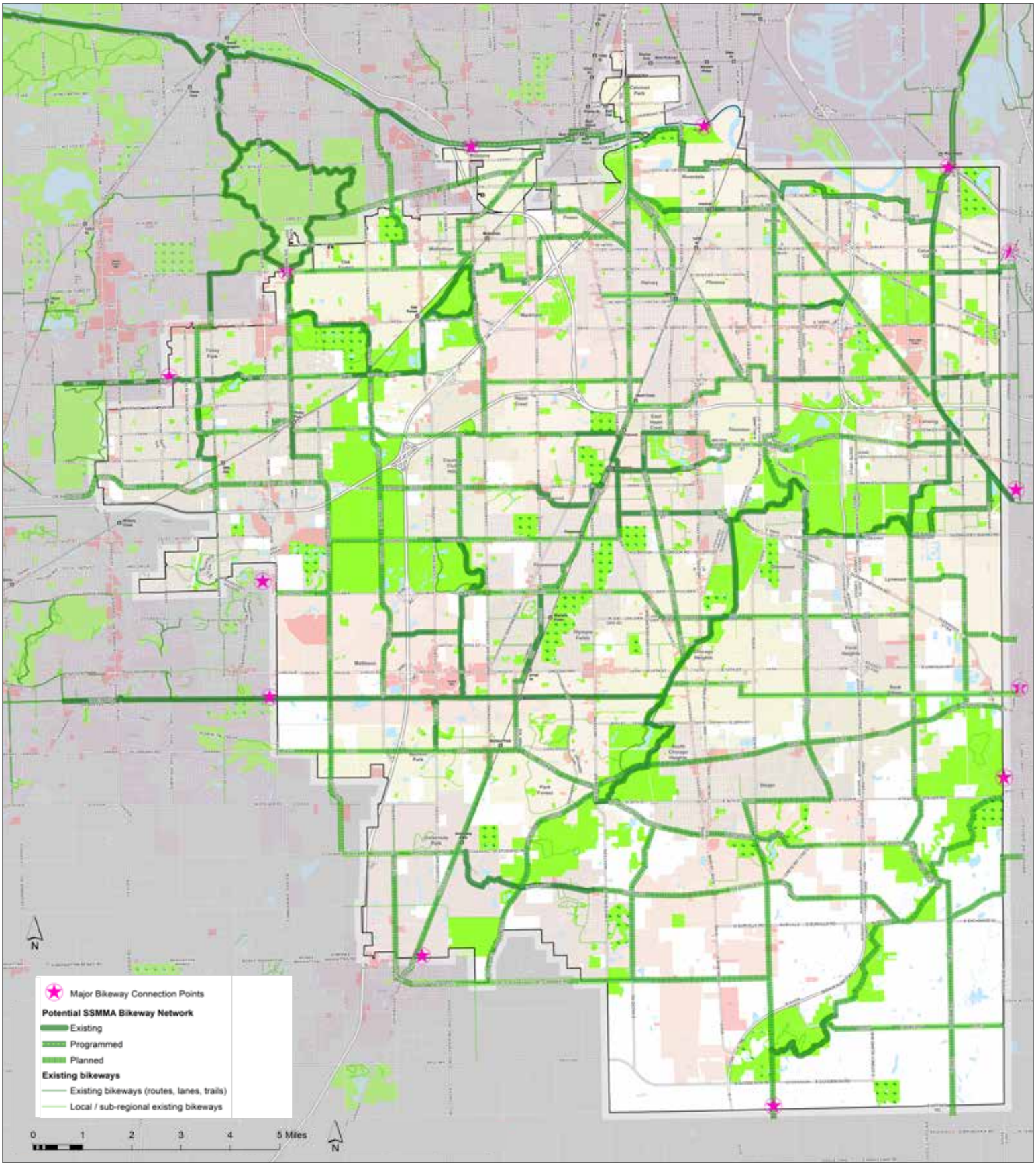
- The existing regional trails and other bikeways within and near the South Council area provide core routes, which the recommended bikeway network should recognize, utilize, and complement.
- Planned routes should make strategic connections between key destinations/areas, including existing regional trails and trail amenities, Metra stations, high-ridership Pace routes/stops, downtown and commercial districts, multifamily housing, Forest Preserves, parks and open space, and schools.
- An approximate spacing of 1-2 miles between proposed South Council bikeways should generally be maintained, although unique opportunities and the proximity of key destinations – as well as the presence of major barriers – in some areas of the Council may alter spacing.
- Proposed routes should follow, for the most part, existing streets since it is assumed that the public right-of-way, at the scale of the plan, affords the most viable corridors for bikeways to connect key destinations and cross major barriers. However, to connect and build upon existing regional trails, a limited number of proposed routes are located in Forest Preserves, utility rights-of-way, abandoned or potentially abandoned rail lines, and other open spaces.
- Proposed routes should, to the extent possible, follow alignments identified in local, Forest Preserve District, or park district planning documents. However, it should be noted that many municipalities within the plan area do not have a bikeway plan. And so, the project team – relying on existing conditions analysis, stakeholder input, and bicycle ridership data – identified opportunities for connections.In total, the proposed South Council of Mayors bikeway network includes (within Council boundaries) 303.4 miles of bikeways. Of this, approximately 76 miles are existing – mostly trails in forest preserves – 217 are planned, and 11 are programmed (the eastern segment of the Cal-Sag Trail and the Lansing Connector).

**Figure 52. Total mileage of South Council bikeway network.**




Source: CMAP Data Hub.

**Figure 53. Proposed Bikeway Network**




Source: Chicago Metropolitan Agency for Planning.

To view in high resolution visit http://cmap.is/2vwYSL6

## Address missing regional trail connections

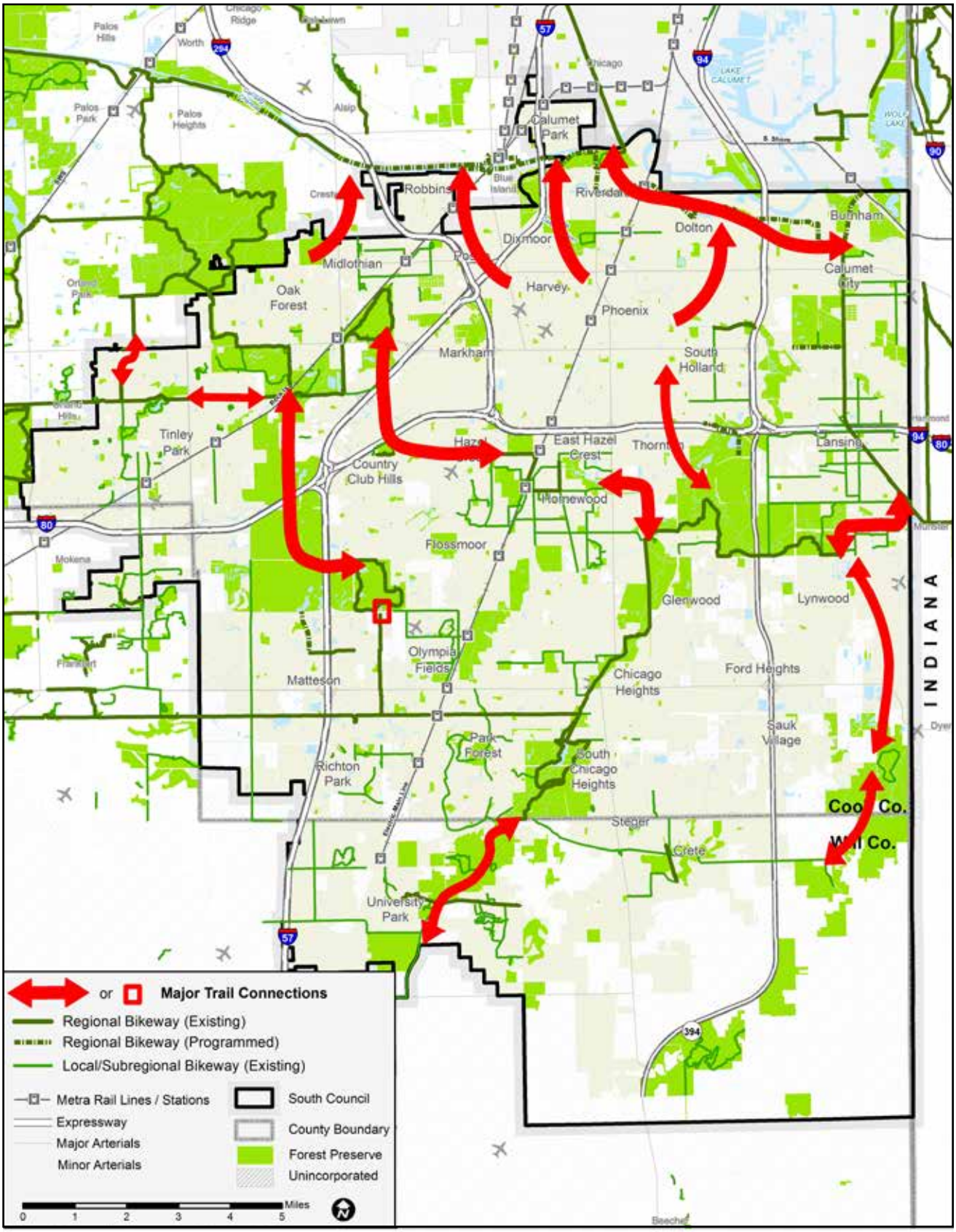
The South Council area is home, or near neighbor, to a significant number of major regional trails[55] – located primarily in Forest Preserves and along former rail lines. Several recent projects have expanded and improved the regional trail network– including the completion of the western segment of the Cal-Sag Trail and engineering and construction funding for the completion of the eastern segment, the Palos Heights Bike Trail, trails in the Thorn Creek system, the eastern extension of the Old Plank Road Trail, and portions of the Burnham/Pennsy Greenway. In addition to these regional trails, several South Council communities have, over the past several years, constructed on- and off-street bikeway facilities. These facilities include simple designated or signed bike routes, marked shared lanes (sharrows), and traditional bike lanes. In at least two instances, new on-street bicycle facilities were part of roadway reconfigurations to improve safety.[56] Buffered bike lanes, barrier-protected (separated) bike lanes, and green coloring to mark bicycle facilities have not yet been implemented by any Southland communities.

Despite the solid framework of existing and programmed regional trails and ongoing local efforts to improve conditions for cycling, there are important regional connections that are lacking that must be made to complete this network and provide Council-wide bicycle mobility and access. It is recommended that the South Council work with local, regional, and state agencies – including municipal governments, Cook County Department of Transportation and Highways, Forest Preserve District of Cook County, Will County Division of Transportation, Forest Preserve District of Will County, and IDOT– to create these key regional connections. SSMMA and the South Council of Mayors should recognize and promote the Surface Transportation Program as a vital funding source to help achieve these connections.

[55] For transportation planning purposes, these are better referred to as shared use paths. They are either paved or surfaced with limestone screenings and are used by bicyclists, pedestrians (of all types), and equestrians.

[56] See the chapter "Right-sizing Roadways," which provides more information on right-size road assessments, including a map of potential candidates for this treatment in the South Council area.

**Figure 54. Missing Trail/Bikeway Connections**




Source: Chicago Metropolitan Agency for Planning.

To view in high resolution visit http://cmap.is/2uUFqEA

## Promote bicycling as a viable mode of transportation

Bicycling is a form of recreation and exercise and also a mode of transportation. As transportation and as recreation, bicycling uses the roadway network and therefore requires that roads be designed to safely and conveniently accommodate bicyclists of all kinds. Complete Streets networks help communities create roads that achieve this important objective. Bicycling for transportation (sometimes called "utility cycling") requires a different approach to facility and network design than bicycling for recreation. There often is overlap in the facilities, design, and in their use by various types of cyclists with a range of trip purposes. Common reasons that people choose bicycling – for recreation and for transportation – and which are not mutually exclusive, include:

- Pleasure/recreation
- Physical exercise
- Transportation cost savings
- Travel-time reliability
- Convenience
- Positive environmental impact
- Social interaction and group identity
- Congestion relief

According to national surveys, the number one reason for not bicycling is a lack of access to a bicycle (28 percent). Lack of access is most common among the lowest-income groups (annual household income is $29,000 or less) at about 68 percent.[57] Low-income populations, as well as populations that cannot or choose not to drive (youth, seniors, people with disabilities, people without a driver's license) may bicycle out of necessity. In areas where public transportation is not available or convenient, bicycling may serve as a primary, and therefore, vital form of transportation. In urbanized areas, it is estimated that approximately one-third of the total population cannot or does not drive a car. For these people, bicycling, walking, transit, taxis, and various forms of shared mobility (car sharing, ride sharing, etc.) may be their only means of transportation.

[57] Royal, D., and D. Miller-Steiger (2008), National Survey of Bicyclist and Pedestrian Attitudes and Behavior, National Highway Traffic Safety Administration.

According to the National Household Travel Survey, about one-half of all trips in the U.S. are 4 miles or less in length and 40 percent are 3 miles or less. Twenty-eight percent are 2 miles or less, and nearly 17 percent are 1 mile or less in length. These statistics demonstrate the potential for bicycling to become a more commonplace means of transportation. For this to happen, however, communities must design, build, operate, and maintain safer, more comfortable and convenient bicycle facilities and bicycle parking, as well as find ways to overcome barriers related to bicycle access. In addition to infrastructure improvements, enforcement and encouragement programs, as well as policies intended to promote walking, bicycling, and Complete Streets are needed.

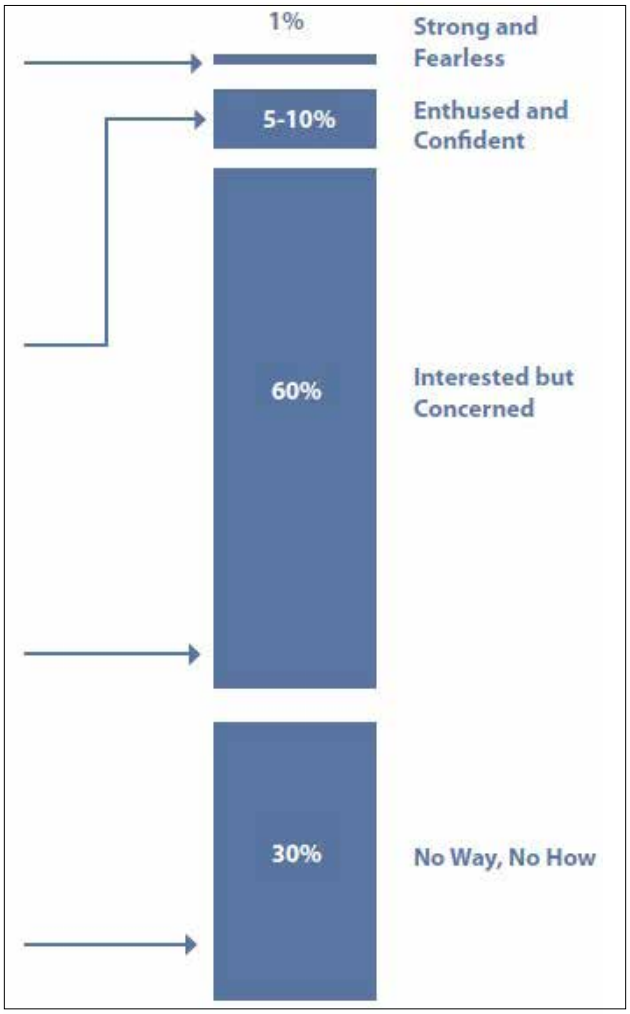
Bike share systems, which have exploded over the last several years around the country and the world, address the issue of access to a bicycle – at least for those who live and travel within the service area of a system. Bike sharing systems are relatively low-cost (for both the agencies who implement them and for individuals to join/use the systems) and they can be leveraged, through targeted programs and policies, to become even more affordable and accessible to low-income and other specific groups.[58] Bike share systems are essentially a new form of public transportation, which offer many of the benefits of other forms of public transportation, but do not require investment on the same scale as bus or rail service.

[58] Examples include Chicago's Divvy Bike Share "Divvy for Everyone" program and Boston's Hubway Bike Share "Prescribe-a-Bike" program (sponsored by Boston Medical Center).

## Cater to a range of bicyclist needs and types

Approximately a decade ago, Roger Geller, Bicycle Coordinator for the Portland Office of Transportation, developed a typology for bicyclists. He identified four types of cyclists and estimated their relative share among Portland's population. The labels that he created for the four groups, his brief descriptions, and their estimated share of the population, are as follows:

**Figure 55. Four types of cyclists.**




Source: *Cleveland Complete and Green Streets: Typology Plan.*

*Strong and fearless:* 0.5-1.0 percent
People who will ride regardless of roadway conditions; who identify as "bicyclists;" and who will travel by bicycle regardless of the type and quality of roadway infrastructure or traffic conditions.

*Enthused and confident:* 5-10 percent
People who are attracted to and take up cycling as a result of significant investment and realization of a high-quality bikeway network and supporting infrastructure. They are comfortable sharing the roadway with automobile traffic, but nonetheless prefer separated facilities. They are attracted to riding on streets that have been purposely redesigned to accommodate bicycling, whether by means of bicycle lanes or bicycle boulevard treatments.

*Interested but concerned:* 55-65 percent
This group comprises the majority of people. They are aware of the benefits and potential attractiveness of bicycling and are typically curious about trying it or doing it more often. They report that they "like" to bicycle but are afraid to do so in traffic, sharing the roadway with cars. They bicycle primarily as recreation, on trails or on local streets in their own neighborhoods. They report that they would ride more if they felt safer on the roadways—if cars drove slower and were less numerous, if there were more quiet streets with fewer cars or paths with no cars at all.

*No way, no how:* 25-35 percent
This group currently comprises approximately one-third of people in most U.S. cities. They represent individuals who are not interested in bicycling, for any number of reasons – inability, perceived dangers (traffic and crime), travel distances, topography, weather, or simply having no interest.

These groups and their relative shares in most U.S. communities has been supported by further, more detailed studies.[59] Other typologies for cyclists have been proposed, such as "Advanced—Basic—Children," but all recognize the fact that bicyclists' skills, confidence, and preferences vary significantly.

A Complete Streets approach to road design and operations calls for consideration and accommodation of all potential users, including bicyclists with less experience or skill. Designers strive to provide safety and comfort for the widest possible range of bicyclist types. This typically is achieved by providing dedicated space for bicycles in the street or on off-street, shared-use paths. To function as individual routes and as part of a larger network, such facilities must be combined with intersection designs aimed at providing maximum safety for bicyclists at unavoidable conflict points, as well as traffic calming treatments intended to manage vehicle speed. Bicycle boulevards combine these strategies to create streets that prioritize bicycling, optimizing the road for travel by bicycle by slowing and diverting motor vehicle traffic and providing clear, consistent wayfinding with branded signage, pavement markings, and other traffic control devices.

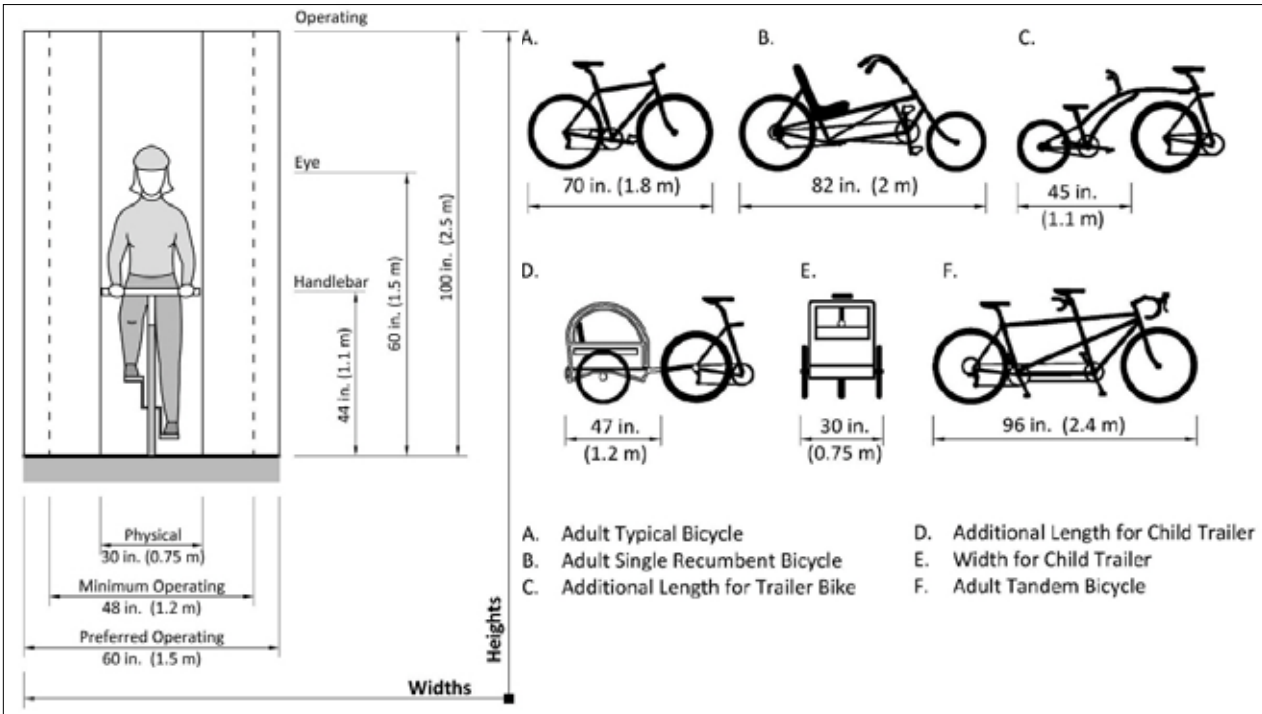
To provide safe and comfortable facilities for bicyclists, designers need to have a basic understanding of how bicyclists operate and how their vehicle influences that operation. The physical dimensions and operating characteristics of bicyclists vary considerably. This variation may be due to differences in types or quality of bicycles, and to the differing abilities of bicyclists. More information on the concept of "design vehicle," critical dimensions, traffic principles for bicyclists can be found in bicycle facility design manuals, including AASHTO's Guide for the Development of Bicycle Facilities, 4th Edition (2012).[60]

Generally, the minimum operating width for a bicyclist is 4 feet and the preferred width is 5 feet. Eye level of an upright cyclist is approximately 5 feet. Handlebar height varies from 3 to nearly 4 feet. Overall operating height is 8.35 feet. Lengths of bicycles depend on bicycle type and accessories such as trailers. A typical adult bicycle is approximately 5.85 feet long, and a child or cargo trailer may add up to 4 feet. Generally, design dimensions for bikeways are based on a design vehicle's critical dimensions, the characteristics of different bicycle and bicyclist types. Knowledge of these elements is essential to design safe and appropriate bicycle facilities. Due to bicyclist operators' physical exposure and vehicle characteristics, bicyclists (like pedestrians) are at risk for severe injury in even minor crashes.

[59] J. Dill, N. McNeil, Revisiting the Four Types of Cyclists: Findings from a National Survey, presentation at the Transportation Research Board's 95th Annual Meeting (2016).

[60] https://bookstore.transportation.org/item_details.aspx?ID=1943

**Figure 56. Bicycle facilities design should keep in mind the different shapes and sizes of bikes**




Source: AASHTO, *Guide for the Development of Bicycle Facilities, 4th Edition* (2012).

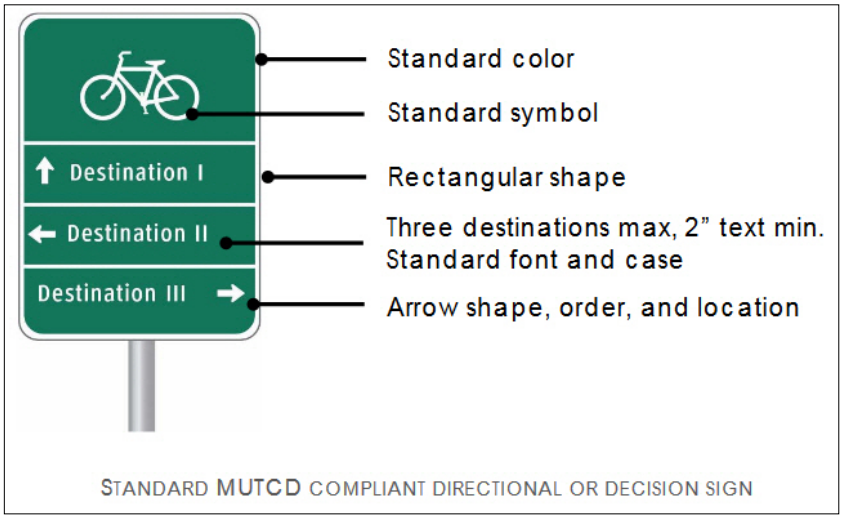
## Develop complementary bikeway infrastructure where feasible

In addition to safe, convenient, and connected bikeways, ancillary infrastructure improvements, including bike route signage and bicycle parking, are necessary to promote bicycling and encourage more people to choose bicycling as a travel mode. If bicyclists are not able to navigate smoothly and efficiently to their destinations or are unable to find parking that is secure and convenient once they arrive, they will be unlikely to choose bicycling as their preferred mode.

## Bicycle route and wayfinding signage

It is recommended that SSMMA and the South Council of Mayors develop and adopt a Council- wide, integrated approach to bicycle route and wayfinding signage. Using national standards[61-65] for bicycle signage as a foundation, SSMMA and the South Council, in collaboration with member communities, should develop and promote criteria and guidelines for bikeway route and wayfinding signage -- sign designs, sign types, and placement details. Local agencies could then refer to these criteria and guidelines when implementing signage along Council and local bikeway corridors within their boundaries. Options for individual community branding or inclusion of specific community logos should be included and clearly defined.[66]

**Figure 57. Example of wayfinding signage**




Source: Alta Planning + Design

[61] AASHTO. n.d. "Guide for the Development of Bicycle Facilities, 4th Edition." Chap. Sections 2.5.3 and 4.11. https://bookstore.transportation.org/item_details.aspx?ID=1943.

[62] MUTCD. n.d. Section 9B.01 Application and Placement of Signs. https://mutcd.fhwa.dot.gov/htm/2009/part9/part9b.htm.

[63] NACTO. n.d. " Urban Bikeway Design Guide." Bike Route Wayfinding Signage and Markings System. http://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/.

[64] PBIC. n.d. Bicycle Wayfinding. http://www.pedbikeinfo.org/planning/facilities_bike_wayfinding.cfm.

[65] United States Access Board. n.d. ADA Accessibility Guidelines (ADAAG). https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/background/adaag.

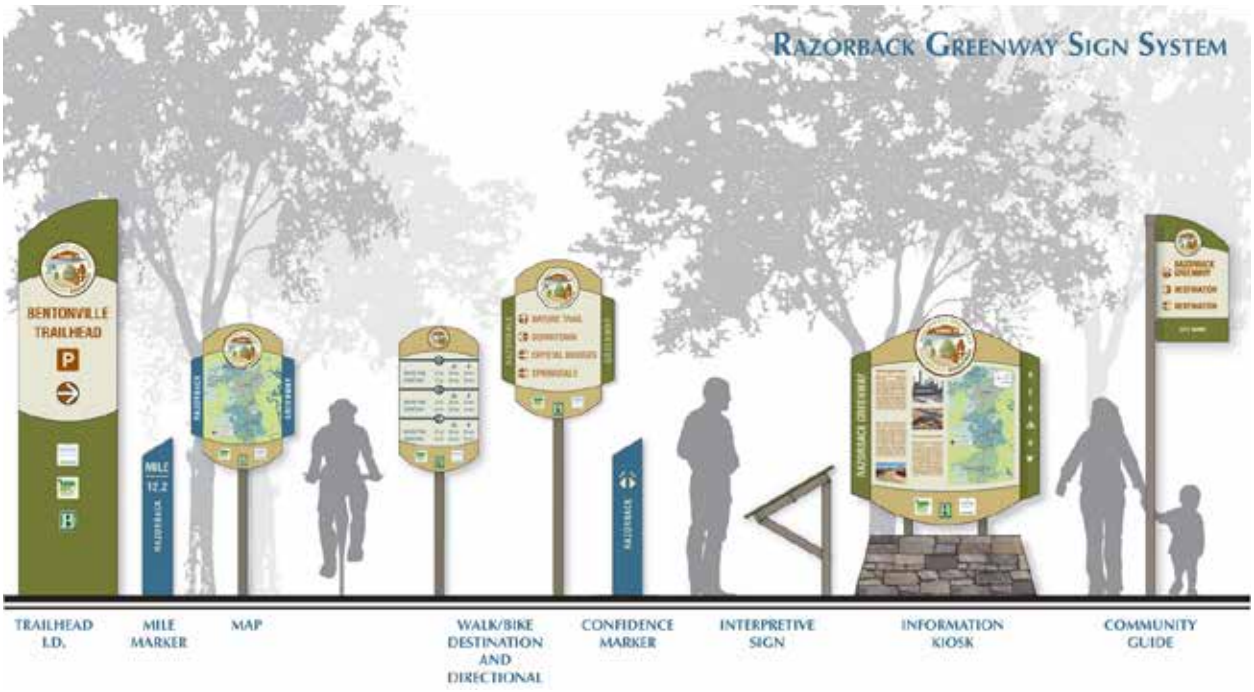
[66] In 2011-12, the Northwest Municipal Conference (North and Northwest Councils of Mayors) developed and adopted a sub-regional Bicycle Signage Plan, which "recommends a network of wayfinding and destination signs in the Conference's regional bicycle corridors and can be used by municipalities when implementing segments of these routes." SSMMA and the South Council of Mayors should consult this plan as a model for developing a sub-regional bicycle signage program.

## Best Practice

Bicycle wayfinding systems consist of comprehensive signing and pavement markings to guide bicyclists to key destinations along preferred bicycle routes. Basic elements include route directional and destination signs and, in some cases, on-pavement markings. Warning and regulatory signage along routes is aimed at increasing bicyclist safety, rather than navigation. Additional wayfinding elements include trailhead markers, interpretive information panels, mile posts, information kiosks, "branded" pavement markings, community information signs, and other elements. Beyond the core functions of route designation and navigation, bikeway signage and wayfinding elements can also help to increase awareness of bicycling as a mode of travel, encourage more people to bicycle, and communicate the need for motorists to be alert to the presence of bicyclists. Wayfinding intended primarily for bicyclists may also serve pedestrians and motorists.

Effective bicycle route and wayfinding systems assist community residents and visitors not only in traveling between known destinations, but also in discovering new destinations and services that are accessible by bicycle. Wayfinding elements can communicate and enhance the identity of a region, community, or open space by creating a deeper connection to place and cultivating a sense of pride in a location, an amenity, or a community and its values.

**Figure 58. An comprehensive wayfinding signage system for a Trial, which includes bicycle route signs and maps**




Source: Alta Planning + Design, *Razorback Regional Greenway Plan*

To maximize the usefulness of bicycle route signage, destinations, distances, and directional arrows should be included wherever needed. Bike route signage consists of three main sign types, which can be combined on single posts:

- *Confirmation signs:* The purpose of confirmation signage is to indicate to cyclists and drivers that the roadway is a designated bikeway. Confirmation signs are usually located mid-block or on the far-side of intersections. Placement should be every block or two, unless another type of sign is used. Often, other types of signs (turn or destination) can serve as confirmation signs in addition to their other functions. Confirmation signs may be as simple as a standard Bike Route Guide Sign (MUTCD, D11-1) or they may include a trail, municipal, or program brand or graphic.
- *Action (turn) signs:* These signs indicate that a bikeway turns from one street to another. Turn signs are typically located on the near side of intersections, and include a Bike Route Guide Sign (D11-1) and the appropriate directional arrow supplemental sign. Turn signs should not be used at the junction of intersection bikeways.
- *Decision signs:* These signs mark the junction of two or more bikeways, where a decision is made by the cyclist as to which route they will follow. They are intended to clarify route options for reaching certain destinations and are comprised of a Bicycle Route Guide Sign (D11-1) and plaques with important destinations, directional arrows, and mileage to those destinations. Decision signs are typically located on the nearside of intersections, in advance of the junction with another bikeway(s).

**Figure 59. Bicycle route signage**


Source: Alta Planning + Design

## Bicycle parking

It is recommended that SSMMA/South Council of Mayors develop and publicize a Council- wide bicycle parking program, which would be open to all member communities. Such a program could take the form of a competitive grant program funded, for example, with a set-aside of STP funds and to which local agencies would apply for reimbursement of some or all costs associated with bicycle parking equipment and/or installation. Alternatively, a bicycle parking program could take the form of a discount program established and managed by SSMMA/South Council, to which local agencies subscribe or register to become eligible for discount pricing on certain types or brands of bicycle parking. SSMMA/South Council's management role would consist primarily of obtaining discount prices from one or more bicycle rack manufactures and of pre-approving all orders placed by participating member communities. A third approach would be to combine the two program types described above to create a reimbursement discount program.[67-69] For this type of program – as with a grant program – identification of a funding source (for reimbursement costs) would be necessary. In addition, a procedure for verifying facility installation would be required.

Regardless of the type of program, SSMMA and the South Council of Mayors should require participants' adherence to best planning, design, and construction practices in the choice of bicycle rack and structure types and for facility siting, installation, and maintenance.[70-75] As part of a bicycle parking program, SSMMA/South Council should encourage local agencies to adopt bicycle-parking ordinances and, more broadly, bicycle-friendly development regulations.

[67] MAPC. n.d. Regional Bike Parking Program - 2017. http://www.mapc.org/resources/regional-bike-parking (an example of a bicycle parking reimbursement discount program is Massachusetts Metropolitan Area Planning Council's Regional Bike Parking Program, which has been in existence since 2007).

[68] APBP. n.d. "Bicycle Parking Guidelines: Bicycle Parking." Pages 19-23. http://c.ymcdn.com/sites/www.apbp.org/resource/resmgr/bicycle_parking/bp_session_2_handouts.pdf.

[69] City of Worcester, MA. n.d. "Bike Rack Project." http://www.worcesterma.gov/dpw/engineering/bike-rack-project.

[70] Association of Pedestrian and Bicycle Professionals (APBP). 2010. "Bicycle Parking Guidelines, 2nd Edition." http://www.apbp.org/?page=publications.

[71] Association of Pedestrian and Bicycle Professionals (APBP). 2015. "Essentials of Bike Parking: Selecting and Installing Bike Parking that Works." http://www.apbp.org/?page=publications.

[72] AASHTO. n.d. "Guide for the Development of Bicycle Facilities, 4th Edition." https://bookstore.transportation.org/item_details.aspx?ID=1943.

[73] FHWA. 2006. "Federal Highway Administration University Course on Bicycle and Pedestrian Transportation." https://www.fhwa.dot.gov/publications/research/safety/pedbike/05085/pdf/lesson17lo.pdf.

[74] Victoria Transport Policy Institute. n.d. Bicycle Parking: Bicycle Parking, Storage and Changing Facilities. TDM Encyclopedia. http://www.vtpi.org/tdm/tdm85.htm.

[75] NACTO. n.d. "Transit Street Design Guide: Bike Parking." https://nacto.org/publication/transit-street-design-guide/station-stop-elements/stop-elements/bike-parking/.

**Figure 60. Bicycle parking racks installed on the roadway**

Source: *Brooklyn Spoke,* via Patch www.pedbikeimages.org.

## Best Practice

Bicycle parking and storage ("end-of-trip facilities") are a crucial part of bicycling infrastructure, and an essential element of bicycle-friendly places and communities. Without safe and convenient places to park or store bicycles, many trips that could be made by bike become impossible. Inadequate or poorly designed bicycle parking and fear of theft are also major deterrents to bicycling for transportation purposes. Inferior racks or poor site planning can expose bikes to theft, vandalism, or damage and discourage cycling. Functional bicycle parking requires properly designed racks, conveniently located and in sufficient quantity to meet the demands of the number and the types of cyclists anticipated.

Bicycle parking can be divided into short-term and long-term installations. These two kinds of parking serve different needs, though there can be overlap.

Short-term parking is intended to meet the needs of cyclists who are visiting a location (businesses, institutions, residences, etc.) for a period lasting up to two hours. Key factors for successful short-term parking include:

- Visibility
- Proximity to destination (generally, 50 feet or less)
- Ease of use

In addition, weather protection and area lighting will help make travel by bicycle more viable, attractive, and safer, year-round and at all times of day. Security is an important factor that is achieved not only by sturdy, well-installed racks but also by installation location or siting. Racks should be placed in highly visible locations. Quantity is a factor that may be governed by ordinance or determined on an individual, project basis. In either case, adjustments may be needed since demand can change over time.

Planning for bicycling and walking involves more than just constructing bikeways and sidewalks. Many surveys have shown that the lack of adequate bicycle parking and change and shower facilities are second only to unsafe road conditions as the most common reasons why people do not bicycle. Providing ancillary facilities encourages people to use existing and proposed facilities.

*Bicycle and Pedestrian Planning Under the ISTEA: A Synthesis of the State of Practice*
*US DOT/FHWA*

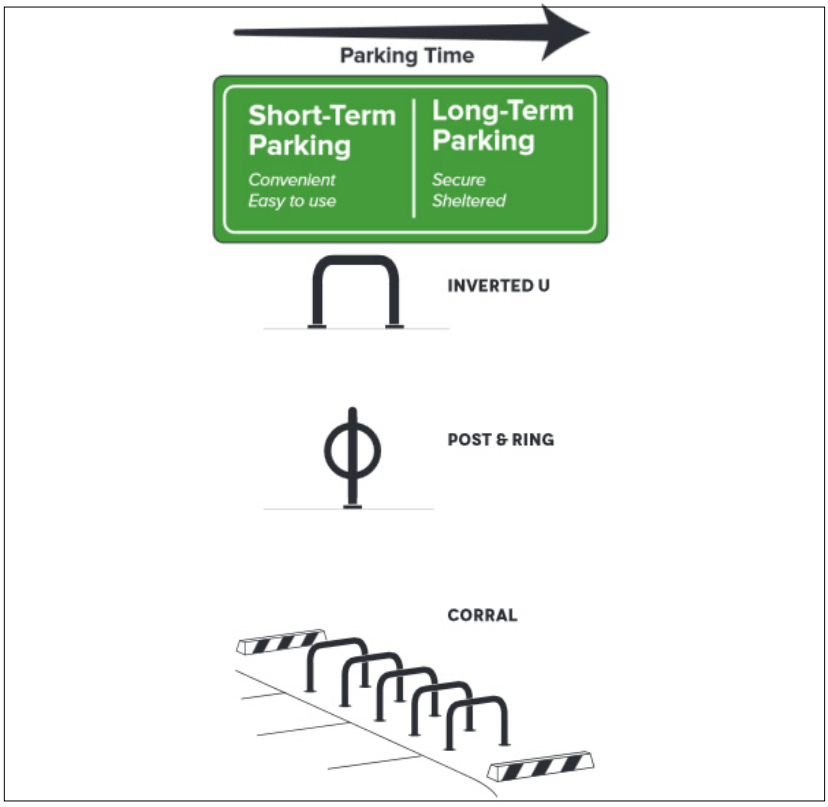
Two types of racks are recommended for their functionality, ease of use, and ease of installation: the "Inverted U" and the "Post & Ring." These racks can be installed on sidewalks or within the roadway as a "bike corral." They can also be placed in other areas that bicyclist have (or should have) access to. Principles of good rack design[76] include:

- Simple design and obvious function
- Two points of contact for stability
- Compatible with standard locking devices
- Located for easy access
- Secured with tamper-proof bolts
- Compact and attractive

Long-term parking is intended to meet the needs of employees, residents, public transit users, and others who leave their bicycles parked for several hours or longer. Key factors for long-term parking are security and weather protection.

[76] From "Bicycles at Rest: A Bicycle Parking Best Practices Resource" (www. bicycleparkingonline.org).

**Figure 61. Common on-street bicycle parking racks**




Source: APBP, *Essentials of Bike Parking.*

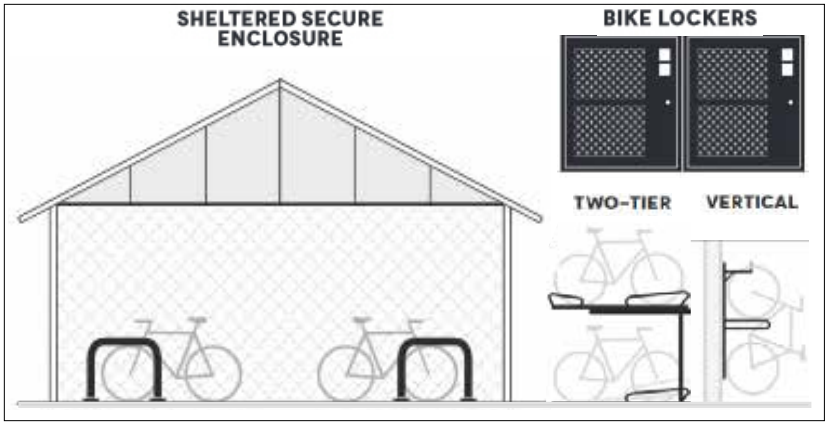
Long-term parking can take a variety of forms. Siting varies with context. Typically, convenience (ease-of-access) and visibility are less important to users than security and protection from the weather. Common forms of long-term parking include: a bike parking room within a residential building or workplace, a secure enclosure within a parking garage, and weather-protected racks or bike lockers at a transit station. In addition, some cities and agencies have constructed "bike stations," which consists typically of a stand-alone, branded building offering commuting cyclists a secure place to leave their bicycles. Bike stations are usually staffed and often include shower and change facilities, food and beverage service, bicycle repair shops, tourist information, and bicycle rental concession.[77]

Long-term parking may be in the public right-of-way and available for public use (for example, at transit stations) or on private property with access limited to specific groups or individuals (residents, employees, etc.). Access is typically controlled by keys/locks, ID, and/or surveillance technologies. Long-term parking often requires high-density installations, in which the maximum number of bicycles can be stored in a minimum amount of space.

All types of parking should consider the range of bicycle and bicyclist types to be accommodated, including – depending on context – cargo bikes, e-bikes, bikes with trailers, recumbents, tandems, children's bikes, etc.

A growing number of communities include bicycle parking requirements in their development regulations. By so doing, these communities help ensure that sufficient and effective bicycle parking is provided through the normal course of development. Numerous bicycle parking ordinances can be found online.[78-83]

**Figure 62. Long-term bicycle parking facilities**




Source: APBP, *Essentials of Bike Parking.*

[77] The City of Chicago's McDonald's Cycle Center in Millennium Park is a good example of a bike station. City of Chicago. n.d. Millennium Park - McDonald's Cycle Center Facts & Figures. https://www.cityofchicago.org/city/en/depts/dca/supp_info/millennium_park_-mcdonaldscyclecenternamefactsfigures.htm.

[78] ChangeLab Solutions. n.d. Making a Place for Bicycles: A Bicycle Parking Model Ordinance. http://www.changelabsolutions.org/publications/bike-parking.

[79] City of Cambridge. n.d. "Zoning Ordinance Article 6. Off Street Parking and Loading Requirements and Nighttime Curfew on Large Commercial Through Trucks." http://www.cambridgema.gov/~/media/Files/CDD/ZoningDevel/Ordinance/zo_article6_1382.ashx.

[80] City of Cambridge. n.d. "Bicycle Parking Guide." http://www.cambridgema.gov/~/media/Files/CDD/Transportation/Bike/Bicycle_Parking_Guide_20130926.ashx.

[81] City and County of San Francisco. n.d. "Bicycle Parking Requirements." http://sf-planning.org/bicycle-parking-requirements.

[82] District Department of Transportation, Washington DC. n.d. "Bicycle Parking Regulations." https://ddot.dc.gov/page/bicycle-parking-regulations.

[83] Township of Meridian. n.d. "Article VIII: Off-Street parking and Loading." http://ecode360.com/28784097.

## Bike sharing

It is recommended that SSMMA and the South Council of Mayors work to increase awareness and knowledge of bike share – and the various system types – among member communities and to look for opportunities to work with communities to evaluate the feasibility of implementing bike share programs.

Systems such as Zagster, which offers a full-service model (system planning, software/app development, hardware/equipment, and program management), may provide easier entry and lower start-up costs for smaller communities. SSMMA and the South Council should also act as a clearinghouse for information and resources on bike share as well as a partner in seeking grant funding and private sector sponsorship.

**Figure 63. Map of bike share systems throughout the U.S. and North America**


Source: *Bike Share Systems World Map,* www.bikeshare.com.

## Best Practice

Over approximately the last decade, bike share has emerged as a major new form of public transportation. Making use of advances in communications and other technologies, modern (distributed) bike share systems consist of fleets of custom bicycles and matching docking stations deployed in the public realm across a city or service area. The automated nature of the system allows people to pick up a bike in one place and return it to another. Users pay for a given period of time, such as a day, a week, a month, or a year. They also pay additional usage or ridership fees when they keep an individual bike out longer than a specified period of "free time." The hourly or half-hourly usage fees increase steeply for each additional hour or half-hour that the user keeps the bike, which discourages users from keeping a bike out for long periods. Bike share systems are intended to provide an efficient, healthy means of travel for relatively short, point-to-point trips, such as the first or last mile of a transit commute trip or to a nearby destination.

Bike share programs are growing rapidly, increasing in number and size across the U.S. and around the world. While individual systems are developed and managed with different equipment, technology, business models, as well as visions of the role they will play in the community, all bike share programs help to promote bicycling as a viable and valued transportation option.

Two basic types of bicycle share systems currently exist: the bicycle library and distributed bike sharing. The former is a central, staffed location where bikes are stored and checked out to users. Bike libraries can offer different types of bicycles and can allow short or longer term rentals. They are typically not-for-profit and very affordable, or even free. Since bike libraries are staffed and physically located in one place, they cannot offer 24/7 access nor provide on-demand local transportation in the way that distributed bike share systems do. Distributed bike share systems offer bikes at multiple locations in a community, on-demand, 24/7. This allows riders to make on-demand, local, one-way trips. Distributed systems are divided into three sub-types: 1) ad-hoc, 2) kiosk, and 3) tech-on-bike.[84]

[84] Zagster. n.d. Bike sharing basics: Guide to bike share program types. https://www.zagster.com/blog/the-different-types-of-bike-sharing-programs/?utm_source=res-cntr.

"Ad-hoc" systems simply provide bikes painted to indicate that they are bike share bikes, without tracking or locking mechanisms. This type of system is used primarily on corporate and college campuses.

Kiosk systems, which are the dominant type in large cities around the world, utilize technology-enabled docking stations. Tech-enabled kiosk systems help to control access, streamline maintenance, and reduce theft. They also provide opportunities for civic "branding" and advertising/sponsorship. The major disadvantage is the high acquisition, installation, and operating costs. Additionally, they require continuous rebalancing of the bikes to ensure availability of both bikes and docking spots.

Tech-on-bike systems use bicycles that have the locking and rental technology built into the bikes. The stations where you pick up and return bikes – as well as the bikes themselves – are relatively simple and inexpensive, compared to kiosk system docking stations and bikes. Operating costs, however, do not appear to be substantially lower than kiosk systems, and the theft of tech-on-bike bicycles may, in some contexts, be more of an issue. Tech-on-bike systems, with bikes that include standard bike locks allow for stopover trips.

When considering a bike share program, it is important that communities ask themselves some basic questions, such as: Why do we want a bike share program? Who are our potential riders? Why would these riders want to use bike share? How do our reasons for wanting bike share align with the reasons that potential riders would use it? Do the goals and objectives we've identified align with what our potential riders are looking for from a bike share? How can we tweak a bike share program to achieve our goals and be successful in terms of membership and ridership?

**Figure 64. Different types of bike-share systems**

Source: 1. Dan Burden, www.financesonline.com; 2. Pam Broylak, *Flickr;* 3. Lindsay Bayley, CMAP.

The last question leads into planning. The process of planning for a bike share system can be divided into three primary steps, which are given below:

1. Conducting a feasibility study – This is a high-level analysis of the possibility of bike-share, defining key parameters for planning and developing an initial institutional and financial analysis, the foundation needed to take the next steps.
2. Detailed planning and design – This defines the exact locations of the stations, the size of the stations, and the type of hardware and software needed.
3. Creating business and financial plans – This defines the institutional and revenue models, including contracting and procurement.

Key elements or issues that must be addressed when planning and implementing bike share include: selecting a service area, station siting and density, choosing a business model, identifying and securing funding, equipment selection and procurement, bikeway network and associated infrastructure improvements in and near the service area, addressing issues of equity, service hours and operating season, program marketing and long-term financial viability, considerations of safety and liability, redistribution of bicycles, and theft and vandalism. After assessing potential issues and characteristics of a bike share system, municipal planners or other agencies can determine if it would work in their community.[85]

[85] See Appendix: Resources for more information on bike share planning and guides.

**Figure 65. Recommended bike-share planning guides.**

## Bicycle parking

It is recommended that SSMMA/South Council of Mayors work with local agencies to ensure safe and convenient connections between local and sub-regional bikeway networks and transit service, including Metra rail stations and high ridership Pace bus routes and stops. Local bikeway networks should be designed to integrate with and connect to the proposed Council-wide network and to regional trails. They should incorporate larger jurisdictions' systems to provide municipal and inter-municipal connections to major transit stations and other regional destinations.

Regardless of the type of program, SSMMA and the South Council of Mayors should require participants' adherence to best planning, design, and construction practices in the choice of bicycle rack and structure types and for facility siting, installation, and maintenance.[59] As part of a bicycle parking program, SSMMA/South Council should encourage local agencies to adopt bicycle-parking ordinances and, more broadly, bicycle-friendly development regulations.

**Figure 66. Connecting bikeways with transit service encourages a complete network**


Source: Bikelife Cities (Colorado Catalyst Communication).

## Best Practice

Bicycle and transit systems gain significant value when integrated and planned as complementary modes. While transit is most effective for moderate to longer-distance trips along major, busy corridors, bicycling is efficient for shorter trips with multiple stops along lower volume, lower speed streets. This makes bicycling especially useful for the first or last mile of transit trips. Bicycling extends the reach of transit by providing a catchment area approximately 10 times larger than that of walking around transit stations.[86] Integrating bike share and personally owned bicycles with transit, therefore, can be seen as a key step in creating a mobility system that covers an entire city or urban area.

Bicycle access routes, bicycle storage facilities, and equipment for transporting bicycles on public transportation vehicles are the primary forms of infrastructure for integrating bicycling and transit. Bike share systems, discussed previously, create new opportunities for the integration of bicycling and transit.

Providing secure 24/7 access to sheltered bicycle parking at major transit stations increases the feasibility and appeal of combining bicycle and public transportation. On-site bike shops, locker rooms, showers, and bicycle rental services further enhance the attractiveness of such facilities and increase integration. Key, high-ridership bus stops may include secure bicycle racks adjacent to or within the bus shelter. Self-service bicycle repair stations or vending machines selling common spare parts may also, in some contexts, help to increase the integration of bicycling and transit. Rail systems that provide special areas and equipment for storing bicycles on board, and buses that include racks or other opportunities for transporting bicycles represent another important strategy in the integration of bicycling and transit. Storage of bicycles on transit vehicles should be easy, convenient, quick, and ideally include dedicated space and equipment for this purpose.

In addition to secure bicycle parking and on-vehicle accommodation of bicycles, providing well-designed, well-sited, multi-modal wayfinding signage at all transit stations – including bike route maps, options and rules for bringing bicycles on transit, as well as community maps and guides, together with standard transit maps, schedules, and other information – will increase the feasibility and ease of combining bicycle and transit modes.

[86] This is based upon a moderately paced bicycle trip lasting approximately 10 minutes. Such a trip would typically cover a distance of 1.5 to 2.0 miles, as opposed to a walking trip of 0.5 miles. The Federal Transit Administration defines the walking and bicycle transit catchment area as 0.5 and 3.0 miles, respectively, for walking and bicycling. See Federal Register, https://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf.

Bicycle access to transit is improved by providing bicycle facilities and road or intersection improvements that make it easier and safer to bicycle to transit stations and terminals. Such bikeways – in addition to paths, bike lanes, and other bikeway types – may also include elements to allow or assist bicyclists in navigating features at stations such as stairs, ramps, turnstiles, gates, elevators, etc.

Control, access, or pinch points should be evaluated and designed or retrofitted to accommodate bicyclists. Stairways may be constructed or retrofitted with wheel groove ramps or channels, which allow bicycles to be rolled up or down stairs. Channels can be designed and built-in to newly constructed stairs or added to existing stairs. Waiting or queuing areas for transit riders should also include space to accommodate people with bicycles. Signage and markings to indicate positioning for riders with bicycles may be necessary to minimize conflict with other users.[87]

[87] See Appendix: Resources for more information and guides to integrating transit and bicycling.

**Figure 67. Ramps for bicycles to enter a transit station**

Source: Wikimedia Commons, Ninostar.

**Figure 68. Ramps for bicycles to enter a transit station**

Source: ArchiExpo, Kaba Gallenshuetz.

## Typical bikeway facility types and intersection treatments

Bikeway facility types are evolving rapidly. Facilities that were not part of the standard toolkit just several years ago are now commonly being installed. There are several comprehensive bicycle facility design guides, as well as specialized design resources developed by individual cities, counties, states, and federal agencies that have appeared with increasing frequency over the last several years. Bicycle facility types[88] are often classified by the degree of separation or protection from motor vehicle traffic. In general, the wider the roadway, the higher the traffic volume and the greater the traffic speed, the more separation is necessary to provide safe and comfortable riding conditions for bicyclists.

On-street bikeways can be divided into those which bicyclists and motor vehicles operate within the same travel lane, those in which pavement markings and signage are used to delineate dedicated space on the roadway for bicyclists, and those in which a vertical element is used to separate the bikeway from adjacent motor vehicle traffic. All of these on-street facility types can be further subdivided into a variety of different forms or "sub-types," which context, safety concerns, roadway and traffic characteristics, community preferences and goals, aesthetics, and costs might dictate.

[88] See Appendix: Resources for more guides and information on typical bikeway facility types and intersection treatments.

**Figure 69. Ramps for bicycles to enter a transit station**

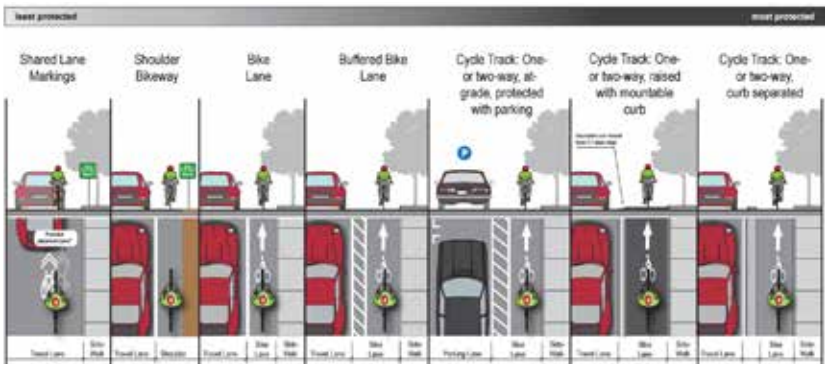



**Table 5. Delineation of on-street bikeways.**

| Shared travel lane | Dedicated roadway space | Protected roadway space |
|---|---|---|
| Local residential street, signed bike route, shared lane marking, neighborhood greenway | Traditional bike lane, buffered bike lane, shoulder bikeways | Cycle track, bollard-protected bikeway, parking-protected bikeway, curb-protected bikeway |

Source: Washington County, Oregon *"Bicycle Facility Design Toolkit."*

In addition to on-street facilities, off-street bikeways are also common. These are typically shared by bicyclists, pedestrians, and other users and include, 1) side paths and 2) trails, which are typically associated with open space and recreational use, and are intended to bring users into contact with nature.

Control, access, or pinch points should be evaluated and designed or retrofitted to accommodate bicyclists. Stairways may be constructed or retrofitted with wheel groove ramps or channels, which allow bicycles to be rolled up or down stairs. Channels can be designed and built-in to newly constructed stairs or added to existing stairs. Waiting or queuing areas for transit riders should also include space to accommodate people with bicycles. Signage and markings to indicate positioning for riders with bicycles may be necessary to minimize conflict with other users.

Bicycles are, by law, allowed on all roadways other than limited-access highways. Typically, on smaller, low-volume, low-speed neighborhood streets, no special bikeway treatment is needed to make them "bike friendly." When such streets are part of a community's designated bicycle network, however, bike route signage should be installed for wayfinding purposes. Traffic calming treatment may also be desirable to maintain comfortable conditions for bicycling. On larger, busier roads, bicycle-specific facilities should be installed. Traffic calming treatments may also be necessary. Key bikeway facility types are described below.[89]

[89] See Appendix: Resources for more guides and information on typical bikeway facility types and intersection treatments.

**Figure 70. Two typical off-street bikeways are sidepaths and trails**

**SIDEPATH** **TRAIL**

Source: Wikimedia Commons, Ninostar.

## Shared Lane Markings

Shared lane markings (SLMs), also known as "sharrows", are often used on streets where bicycle facilities are desirable but motor vehicle speeds and volumes do not necessitate a separated bikeway, or roadway space for a bike lane is not available. Such markings indicate the position in the travel lane where bicyclists should ride. Green color behind the SLM stencil can increase visibility, but currently requires FHWA permission to experiment. SLMs are not typically recommended for use on high-speed or high-volume roadways (≥ 30 mph, ≥ 3,000 ADT).

Some benefits of SLMs include the following:

- Where on-street parking exists, properly placed SLMs encourage bicyclists to ride outside the door zone.[90]
- Indicates the legitimacy of bicycling and alerts motorists to expect the presence of bicyclists.
- Can be used as bicycle wayfinding to direct bicyclists along designated routes.

[90] The 'door zone' is the area next to a parallel parking lane, in which a bicyclist can collide with the door of car when opened by the driver or a passenger.

**Figure 71. Shared-lane marking**


Source: Lyubov Zuyeva, www.pedbikeimages.org.

## Wide Paved Shoulder

On roads that have a rural cross-section, wide paved shoulders can provide adequate accommodation for bicycle travel. Shoulder bikeways are generally used by commuter and long-distance recreational riders, rather than families with children or less experienced riders. Shoulder bikeways can be considered for corridors that cannot accommodate adequate-width bike lanes or as an interim step for corridors where funding has not yet been secured to add bike lane markings and signs.

**Figure 72. Wide paved shoulder can accommodate bicycle travel in rural areas**


Source: Peter Speer, www.pedbikeimages.org.

## Conventional Bike Lane

On-street, conventional bike lanes are designated for bicycle travel. They are indicated and distinguished from motor vehicle travel lanes by means of striping and pavement stencils, and (optional) signage. Bike lanes are most appropriate on arterial and collector streets where higher traffic volumes and speeds warrant greater separation. Bike lanes also increase safety and reduce wrong-way riding. Green pavement color can enhance visibility of bike lanes.

Some benefits of conventional bike lanes include the following:

- Define road space for bicyclists and motorists, reducing the possibility that motorists will stray into cyclists' path
- Discourage bicyclists from riding on the sidewalk
- Remind motorists that bicyclists have a right to the road and, in the bike lane, the right-of-way.

**Figure 73. Conventional bike lanes are typically placed at the right side of the roadway**

Source: Dan Burden, www.pedbikeimages.org.

## Buffered Bike Lane

Conventional bike lanes on higher-volume or high-speed roadways can be dangerous or uncomfortable, since moving and/or parked motor vehicles are often positioned very close to bicyclists. Buffered bike lanes are designed to increase the space between the bike lanes and the travel lane or parked cars by adding a painted (striped) buffer area to separate the vehicle travel or parking lane from the bike lane.

Some benefits of buffered bike lanes include the following:

- Allows greater separation between motorists and bicyclists, which helps increase safety and comfort of bicyclists
- Increases visibility and awareness of bikeway and potential bike traffic, and the need for motorists to maintain safe, proper distance when passing
- Provides space for cyclists to pass one another without encroaching into the travel lane.

**Figure 74. Buffered bike lanes provide extra space**

Source: Active Transportation Alliance.

## Separated Bikeway (Cycle Track)

On-street, barrier-protected or separated bikeways provide increased safety and comfort, similar to multi-use paths, but within the roadway, adjacent to a travel or parking lane. Separation is typically accomplished by combining a painted buffer area with a physical barrier such as bollards, curb, landscaped buffer, or a parking lane. The added separation between motor vehicles and bicyclists is an important feature where travel speeds or motor vehicle traffic volumes are higher, or where attracting a wider range of bicyclists is an important goal, because separated bikeways appeal to less skilled, less experienced, or younger bicyclists. Green pavement color can enhance visibility of separated bikeways. Separated bikeways may be one-way or two-way. A variation, called a "raised cycle track," raises the bikeway above the level of the roadway.

Some benefits of separated bikeways include the following:

- Dedicates and protects space for bicyclists and improves perceived comfort and safety
- Reduces risk of 'dooring' compared to a bike lane, and eliminates the risk of a doored cyclist being run over by a motor vehicle (if adjacent to a parking lane).

**Figure 75. Separated bikeways reduce 'dooring' incidents**

Source: NACTO, Urban Bikeway Design Guide.

## Sidepath

Sidepaths are off-street facilities, closely connected with a roadway corridor and shared by bicyclists, pedestrians, and other users. They look and function like a sidewalk but are wide enough to accommodate bicyclists and other users simultaneously (typically 10' in width, though 12' to 14' is preferred). Sidepaths are an option for large, high-speed, high-volume corridors with wide block spacing and few driveways. In these situations, sidepaths provide access for users who are not comfortable bicycling in heavy traffic. Special care should be taken to design driveway and intersection crossings to reduce potential conflicts with sidepath users.

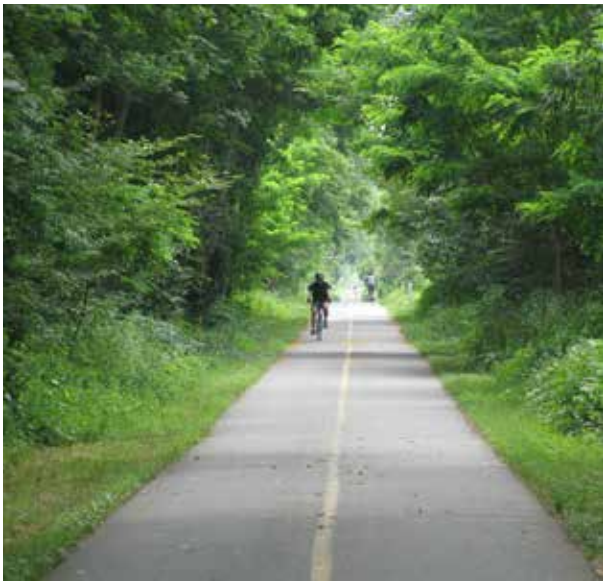
**Figure 76. Off-street sidepaths are typically 10' or wider.**

Source: Aaron Renn, *Urbanophile.*

## Trail

Trails are off-street facilities that are shared by various users. Trails can enhance bikeway network connectivity by filling in gaps where the street network is incomplete or cannot accommodate bike facilities. Trails are often located in preserved open spaces and are associated with recreational use, though they can also serve transportation purposes. Trails typically have fewer at-grade road and driveway crossings than sidepaths. Generally, trails function best on exclusive rights-of-way and over significant distances – such as along waterways, utility corridors, or railroad corridors, or within large, open land preserves. Although trails are often more expensive to build than on-street facilities, they can provide important connections to regional bikeway systems.

**Figure 77. Trails can enhance bike networks.**



Source: Laura Sandt, www.pedbikeimages.org.

## Bicycle Boulevard

Bicycle boulevards, also known as neighborhood greenways or bicycle priority streets, are created by modifying a local street. This can be done with pavement markings, signage, and traffic calming/ diverting features to give priority to bicyclists while maintaining local access for automobiles. Since bicyclists and motorists share the same space, bicycle boulevards are typically implemented along low-volume streets where, once the bicycle boulevard is in place, bicycle and motor vehicle traffic travel at the same, or nearly the same, speed. To this end, bicycle boulevards often include traffic calming and traffic diversion treatments, such as speed humps, bump-outs, and mini traffic-circles (instead of stop signs, etc.
In order to effectively serve community-wide destinations, bicycle boulevards must include provisions/treatments for safely crossing large arterial corridors that intersect the bicycle boulevard.

Some benefits of bicycle boulevards include:

- Can be cost-effective and less physically-intrusive than other bikeway facilities
- Improve user comfort by serving as alternate parallel facilities that allow cyclists to avoid major streets
- Residents living on bicycle boulevards benefit from reduced vehicle speeds and thru-traffic, creating a safer and more-attractive environment.

**Figure 78. Shared-lane marking.**


Source: Payton Chang, *Flickr Creative.*

## Other treatments

In addition to these primary bikeway facility types, there are other special-purpose bikeways intended to help cope with difficult or unique contexts/locations, improve network connectivity, and enhance the overall safety, comfort, and convenience of bicycling for transportation. These facilities are evolving and the most up-to-date information and guidance should be consulted and utilized when planning and constructing bikeway facilities.

Some benefits of separated bikeways include the following:

- Colored bike lanes / bike lane segments
- Contraflow bike lanes
- Left-side bike lanes
- Double bike lanes
- Floating bike lanes
- Advisory bike lanes
- Bus-bicycle lanes

## Intersection treatments

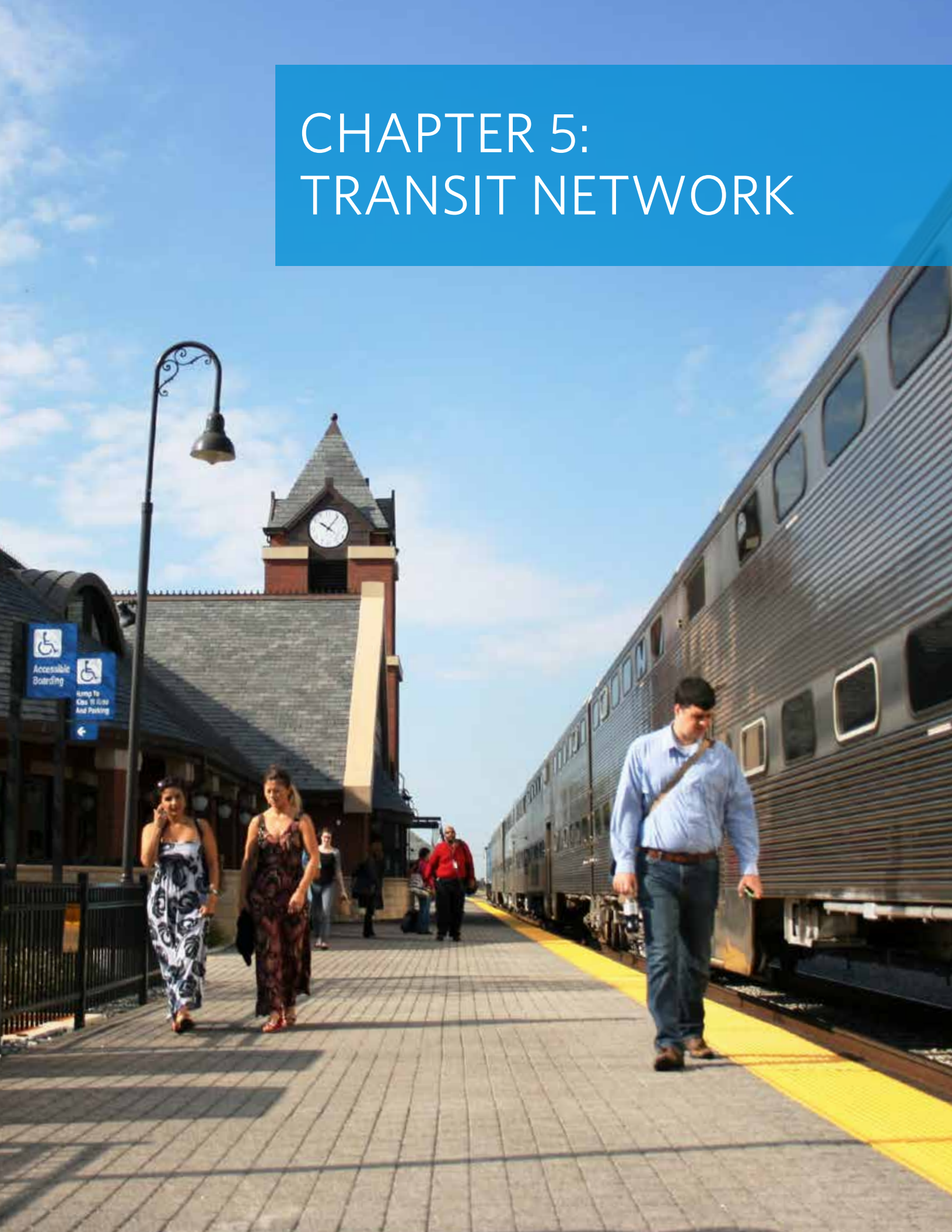
In addition to linear bikeway facilities, special treatments at intersections and other crossing locations play an important role in bikeway design and the creation of a bicycle friendly transportation network. These treatments, like linear bikeway types, are constantly evolving. Bicycle boxes, for example, received interim approval from FHWA in October 2016. Construction of protected intersections in the U.S. began only in 2015.[91]

[91] For additional information on each of these intersection treatments, see Appendix: Resources.

- ***Bicycle signal heads:*** Bicycle signals have received interim approval from FHWA/MUTCD as a traffic control device. They are used to improve safety and operations at intersections where bicyclist movements must be separated or more clearly defined in relation to other signal phases and vehicular movements. They are similar to a normal traffic signal – using standard three-lens signal heads in green, yellow, and red lenses – with the addition of a bicycle stencil on the lenses.
- ***Through-intersection bikeway markings:*** Through-intersection bikeway markings ("bicycle crossings") indicate the intended path of bicyclists, delineating a safe and direct path through intersections or across driveways and other vehicular ways. Design options include the use of green pavement, "elephant's feet" markings, shared lane markings, dotted line extensions, and other forms/configurations.
- ***Mixing zones/intersection approaches:*** For bicyclists traveling in a conventional or barrier-protected bike lane, the approach to an intersection presents significant challenges – especially with right-turning vehicles. It is vital, therefore, that bicyclists are provided with an opportunity to correctly position themselves to avoid conflicts with turning vehicles. Designs for "mixing zones" clarify relative positioning, establish right-of-way/yielding obligations, and increase visibility and caution.
- ***Bike box:*** Bicycle boxes have received interim approval from FHWA/MUTCD as a traffic control device. A bike box is a designated area at the head of one or more traffic lanes at a signalized intersection, created by moving the stop bar back for motor vehicles. Bicyclists wait in this designated area (typically marked by green pavement and bicycle symbols) during the red signal phase. Bike boxes provide more visibility, safety, and comfort for cyclists ahead of motor vehicle queues.

- ***Two-stage left turn box:*** Left-turns are often difficult for bicyclists to maneuver, especially when cyclists must merge from a bike facility into heavy or higher-speed vehicle traffic. Two-stage left turn boxes provide an option for bicyclists to safely make left turns at signalized or un-signalized intersections. In a two-stage left turn, cyclists proceed straight through the intersection with the green signal and wait in a marked queue box on the cross street to proceed through the intersection with the green signal of the cross street.
- ***Protected intersection:*** A protected (or "Dutch-style") intersection is an at-grade road intersection in which separation of cyclists and pedestrians from motor vehicles is maximized. Raised corner islands, one-car length deep, separate right-turning vehicles from crossing bicyclists and pedestrians, which allows for increased visibility and reaction times/yielding behavior.
- ***Medians/Refuge islands:*** Refuge islands are raised protected spaces placed in the center (median) or at corners ("pork chop") of a street, which facilitate bicycle and pedestrian crossings, while channelizing traffic and controlling access. Crossings of two-way streets are facilitated by center medians by allowing bicyclists and pedestrians to navigate only one direction of traffic at a time.
- ***Hybrid beacons:*** A hybrid beacon, also known as a Pedestrian Hybrid Beacon or a High-intensity Activated CrosswalK (HAWK), consists of a signal-head with two red lenses over a single yellow lens on the major street, and pedestrian and/or bicycle signal heads for the minor street. There are no signal indications for motor vehicles on the minor street approaches. Hybrid beacons were developed to enhance pedestrian crossings of major streets, however, they can assist bicyclists too and (modified) hybrid beacons that explicitly incorporate bicycle movements have been developed and installed in some U.S. cities.

# CHAPTER 5: TRANSIT NETWORK



# Transit in the South Council

A Complete Streets approach to designing, building, and operating roads and public rights-of-way requires that municipalities provide safe, comfortable, and convenient pedestrian and bicycle access to public transportation, wherever service exists or is planned.

Accessible sidewalks, safe crossings, and designated bikeways leading to ADA-compliant bus shelters and train stations are key elements in providing non-motorized access and in improving the overall experience of transit riders. Additional pedestrian amenities, including pedestrian-oriented wayfinding signage, real-time travel information, secure bicycle parking, lighting, landscaping, and furnishings can also improve the safety and comfort of transit stops. Transit vehicles (buses and trains) that accommodate people in wheelchairs and individuals with vision or hearing impairments and other disabilities, as well as those who need to transport bicycles on board are crucial aspects of an accessible, multimodal transportation system. Regional public transportation options that currently serve the South Council of Mayors include Metra commuter rail service and Pace suburban bus service.

## Recommendations

While Metra primarily serves the western half of the South Council, Pace buses operate throughout a larger portion of the area, providing north-south and east-west connections outside of the Metra service area. The majority of South Council Metra stations are fully accessible. Three stations on the Metra Electric Mainline (Hazel Crest, Matteson, and Olympia Fields) are inaccessible.[92] Metra allows bicycles on trains at non rush-hours and all but two South Council Metra stations (Robbins and 147th St./Sibley Blvd) provide some bicycle parking.[93] All fixed-route, suburban Pace buses are equipped with two-bike bicycle racks. In addition to fixed routes, Pace provides a Call-n-Ride service, which offers reservation-based, curb-to-curb van transit within the designated service area. Pace also offers curb-to-curb paratransit service to seniors and people with mobility impairments through its Dial-a-Ride program in several townships and villages within the South Council.

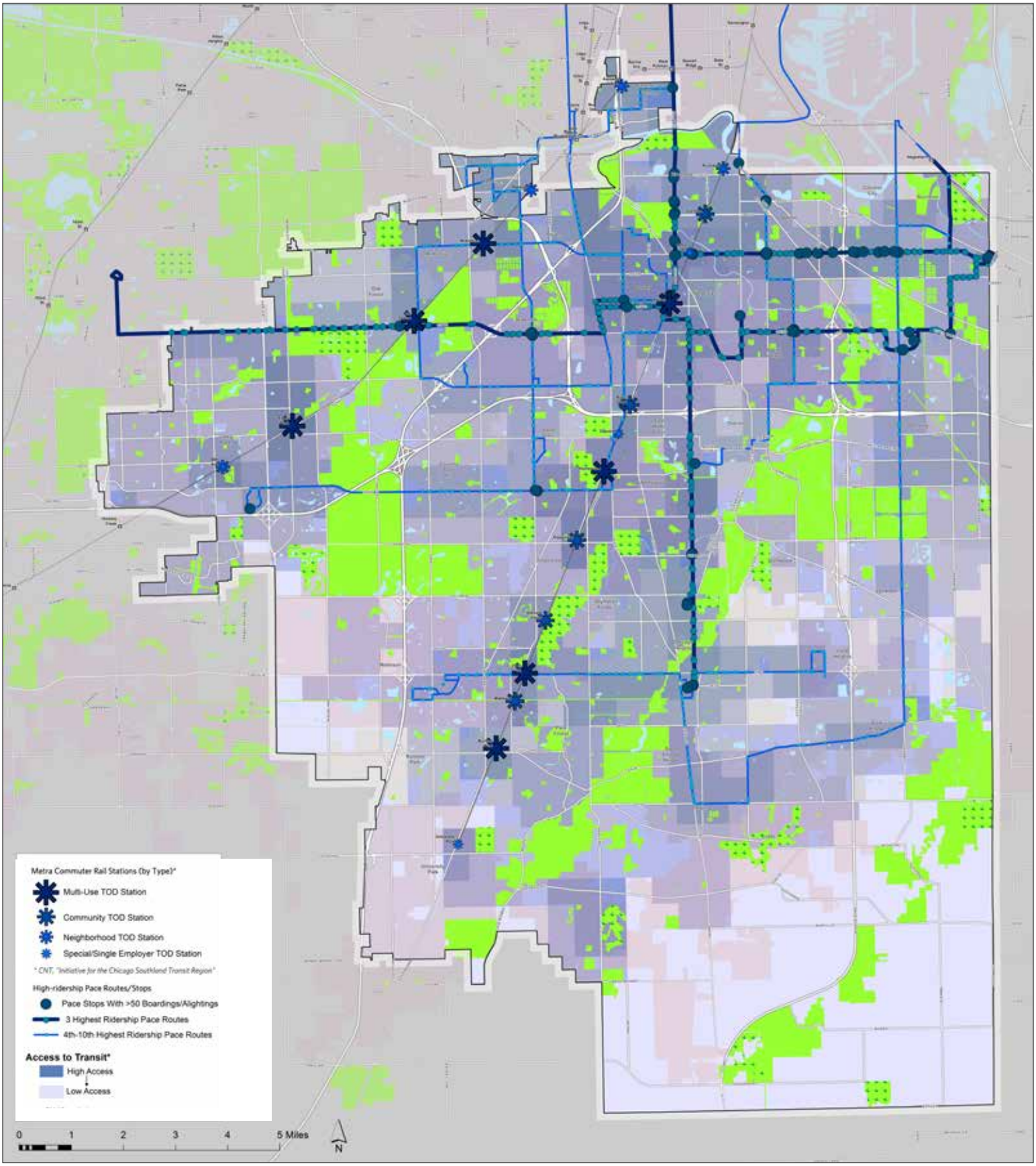
[92] Metra. n.d. "Summary of Station Accessibility." Tables. https://metrarail.com/sites/default/files/assets/riding-metra/current_ada_system_accessibility_status.pdf.

[93] Metra. n.d. "Bike Parking Availability at Metra Stations." Tables. https://metrarail.com/sites/default/files/assets/riding-metra/2008_bike_data.pdf.

**Figure 79. Pace operates throughout the South Council.**


Source: Pace Suburban.

**Figure 80. High priority transit and access to transit**




Source: Chicago Metropolitan Agency for Planning.

To view in high resolution visit http://cmap.is/2vUs3ca

# Key findings

Key findings that emerged from analysis undertaken for the Existing Conditions Report and from the stakeholder engagement process, which relate to transit in the South Council of Mayors area, are as follows:

- According to the Regional Transportation Authority's Regional Transit Demand Index,[94]the South Council has a range of nominal to high transit demand overall. The distribution of these expected levels of transit ridership generally follows the existing access to transit. While the index confirms that the transit options within the South Council are well-positioned relative to the expected need, the tool also helps illustrate the many gaps in access to transit which exist primarily on the south and east sides.
- About 29 percent of residents living within the South Council work in Chicago. This is similar to the percentage for the seven-county region (31.8 percent), but lower than the estimated percentage for Cook County (45 percent). Despite the similarity in employment location, only 9.4 percent of residents in the South Council take public transit to work. This is nearly half of the percentage for Cook County (18.5 percent), and also well below the average for the region (13 percent).
- Stations within the South Council are generally difficult to access by biking and walking due to the lack of pedestrian and bicycle network connectivity with surrounding residential neighborhoods and other nearby land uses.

[94] See Regional Transit Demand Index map on RTAMS website, at http://rtagis.maps.arcgis.com/apps/Viewer/indexhtml?appid=2064a070ce4643d7bda48fc66920.

# Recommendations

## Integrate the transit system with the road network

Road design not only affects residents' perceptions of the roadway environment and their willingness to walk or ride a bicycle, but it is also a crucial part of the transit system. Roads that are well designed for transit service and the full range of transit users can encourage more people to use trains, buses, and other non-private automobile modes by ensuring safe and convenient access, creating comfortable stop or station environments, and generating smooth, predictable trips. For example, elements such as bus pullout lanes allow buses to stop without blocking traffic and provide safer, more efficient boarding. Other transit design guidelines include:

- Locating bus stops to discourage transit riders and other pedestrians from crossing streets at unsafe or undesirable locations;
- Working with roadway agencies to ensure that safe marked crossings are provided where needed along transit service routes, near stops and stations, both at controlled and uncontrolled locations;
- Providing separate, distinct spaces for those waiting, passing through, transferring between buses, standing in line to board, and de-boarding can improve pedestrian mobility and transit function; and
- Keeping pedestrian signals and other traffic control devices operational and set with timings that allow pedestrians to comfortably cross streets to reach transit stations and bus stops.

## Improve access to transit for pedestrian and bicyclists

Every transit user is also a pedestrian or bicyclist at the beginning or end of a trip, and connections to transit are therefore essential elements in a complete transportation network. Sidewalks, pedestrian crossing treatments, as well as bicycle facilities should connect transit to the surrounding community. Those facilities should be well marked, kept clear of obstacles, and include wayfinding and signage. Station area design is also integral to ensuring pedestrian and bicycle accessibility and function. Physical elements, such as bus shelters, seating, lighting, signage, landscaping, and bicycle parking can help enhance the visibility, safety, and comfort of a transit stop and make transit itself – as well as non-motorized access – a more attractive and pleasant transportation option.

**Figure 81. Pace Suburban Bus PULSE station concept.**

Source: Pace Suburban Bus.

## Pedestrian access

Improved circulation patterns and facilities have the potential to increase pedestrian access to transit. The following factors should be considered in station area design:

- **Directness of route and travel time.** Distance is a major factor affecting pedestrian access. Pedestrians want direct walking routes with minimal delays or detours when traveling along or across streets. Routes to transit stations should be designed to minimize conflicts and out-of-route travel. Pedestrian ways should be kept clear of structural elements such as pillars. Multiple access routes should be provided wherever possible to increase accessibility from all directions and to help distribute the flow of people during peak travel periods.
- **Safety and security.** Pedestrians need to perceive that their route is secure and visible to other roads users, particularly in the evening hours and near busy roads. Ensure that landscaping or other facility features do not block visibility of pedestrians. Ensure that crossing locations are either controlled (stop or signal) or improved for pedestrian safety.
- **Pedestrian-friendly design.** Connected sidewalks, pedestrian-scale lighting, buildings oriented toward the street with shorter setbacks and parking in the rear, landscaping, amenities such as seating, pedestrian-specific areas (plazas, concourses), mixed land use, and density are all highly influential on overall walkability and whether pedestrians feel comfortable and perceive that the street is designed to meet their needs.
- **Information.** New or visiting transit users need pedestrian-focused wayfinding signage and information in order to orient themselves quickly and easily and take full and efficient advantage of the service. Schedules and routes, with information on the overall network, transfers, timetables, and service advisories, should be posted or displayed electronically.

## Bicyclist access

Similar to walking, the decision to bicycle to transit stations depends on safety (both perceptions of safety and actual safety), station characteristics and amenities, network connectivity, transit agency policies, transit vehicle design, and surrounding land use. The following primary factors should be considered in order to encourage bicycling to transit:

- **High-quality bicycle access routes.** Safe and comfortable bicycle facilities on routes leading to and from transit stations are critical components for increasing bicycle access to transit stations. Appropriate bicycle facilities should follow national guidance and accepted best practice for bikeway design and maintenance. Bikeway networks should include wayfinding signage directing cyclists to important destinations, including transit stations. Transit stations and high-ridership bus stops should include station area maps showing transit service, existing bikeways, and key destinations.

**Figure 82. Bicycle access on a Pace suburban bus**


Source: Active Transportation Alliance

- Secure bicycle parking and on-board accommodation. Policies, programs, and infrastructure aimed at improving bicycle access to transit should address the need for bicycle parking at stations and the need to take bicycles on board trains and buses. On-board policies can affect the need for bicycle parking at stations and vice-versa. For example, if bicycles are permitted during rush hours, fewer riders may want or need to park their bicycles at the station. And if secure parking is provided at stations, individuals may forego bringing their bikes on board. Bike share systems can also influence the details of bike parking and bikes-on-board policies and infrastructure. Bicycles can be accommodated on board using exterior racks on buses and/or bicycle hooks, racks, and holding areas inside buses and other transit vehicles. Equipment and policies should strive to minimize the difficulty/time needed for loading bikes. There is a wide variety of options for bicycle parking and storage at stations and stops, providing various levels of security and protection from weather including:
    - Standard outdoor bicycle racks (the most common method of bicycle parking)
    - Bicycle lockers (typically rented on a long-term basis, but also provided on first-come, first-serve basis)
    - Self-service indoor parking – increasingly automated – and indoor parking at staffed "bicycle stations."

Additional elements that can help to increase integration of bicycling and transit range from bike sharing systems with docking stations placed near transit to minor infrastructure improvements such as bicycle wheel channels built into or retrofitted on stairways (both discussed in more detail in the Bicycle Network section).

**Figure 83. Ramps to transit stations improve accessibility**
Source: www.flickr.com/fletsberaad.

## Cater to a range of transit users

People with disabilities, including people who use wheelchairs or who are visually impaired, often rely on transit as their primary means of transportation. Transit facilities, as well as surrounding streets, need to be designed to meet all users' needs. ADA-compliant sidewalks, walkways, and paths should be provided on streets with bus service, as well as those that serve as routes to and from bus stops or rail stations. These facilities should meet ADA requirements related to width, running slope, cross-slope, clearances, visibility, and other aspects or elements (such as detectable warning tiles at transition points or accessible pedestrian signals) in order to allow the safe, efficient, and comfortable movement of all transit users, including those with permanent or temporary mobility disabilities.

Consideration of the placement of street furnishings, parking meters, and sign posts is important for creating accessible routes to and at transit stations. Providing a sufficiently large, flat, and stable landing pad for wheelchair users and others with mobility challenges, as well as convenient, safe crossing locations near bus stops or train stations are two key strategies of a Complete Streets approach to transit and transit access.

# Typical transit facilities to promote multimodality

Transit systems make use of streets and public rights-of-way both to operate transit vehicles and to provide access for transit users to and from these vehicles. This section describes some key facilities, facility types, and treatments that can enhance the function and performance of suburban bus service, and improve the rider's experience of transit, regardless of their age or abilities. The list provided is not meant to be all-inclusive, nor is the information on facilities and treatments intended to be exhaustive and definitive.[95]

[95] For additional information on transit facilities and treatments, see Appendix: Resources.

## Transit shelters

Bus shelters should be provided along high-ridership bus routes and in areas where improved transit and transit access have been identified as a high-priority (areas with key regional destinations, high populations of seniors, significant amount of multifamily housing, low-income populations, and major employment centers). Transit shelters should be designed to fully shield waiting passengers from inclement weather. While custom shelter designs may be developed, all shelters should be compliant with the ADA and the proposed standards in the Public Rights-of-Way Accessibility Guidelines (PROWAG) and specifications of the transit agency who owns and maintains them. Shelters should be a minimum of 5 feet deep and long enough to provide space for a minimum of three seats, plus wheelchair accessibility. Transit shelter placement should never reduce usable sidewalk width to less than 5 feet. Shelters, in certain contexts, may include adjacent bicycle parking and bicycle repair stations, in addition to transit service information and maps that include bikeways and major destinations. Digital signs can provide real-time information. Amenities such as landscaping, lighting, electrical heat, water fountains, vending machines, interactive touch screen computers, WiFi, charging stations, solar panels, restrooms, mini libraries, etc. – while not common now – could greatly improve the comfort, attractiveness, and function of high-ridership bus transit stops/centers.

**Figure 84. Transit shelters with various amenities**





Source: 1. Austin Brown, www.pedbikeimages.org; 2. Oran Viriyincy, Flickr; 3. Jarret Walker www.humantransit.org; 4. www.jasonsigns.com/au.

**Figure 85. Dedicated bus lanes can improve travel times**


Source: Top- Flickr; Bottom- Chicago Tribune.

**Figure 86. Protected bus lanes improve transit travel times**

Source: Top- Live Streets, Flickr; Bottom- Rob Wrenn, Flickr.

## Dedicated bus lanes

Dedicated bus lanes are travelways reserved for bus transit; no other vehicles (except in some cases, bicycles) may use these lanes. Signal prioritization can be implemented to improve travel times. Effective enforcement of unauthorized lane use may be carried out with cameras mounted on the buses.

## Protected bus lanes

Protected bus lanes use curbed buffers or bollards to separate the bus network from the other travel lanes. These lanes are often placed in the center of the street. Separated lanes are typically combined with transit vehicle signal priority. In some cases, they are shared with bicyclists. Center-located bus lanes typically have faster speeds, as they are not slowed by right-turning traffic, but they usually require limiting left turns.

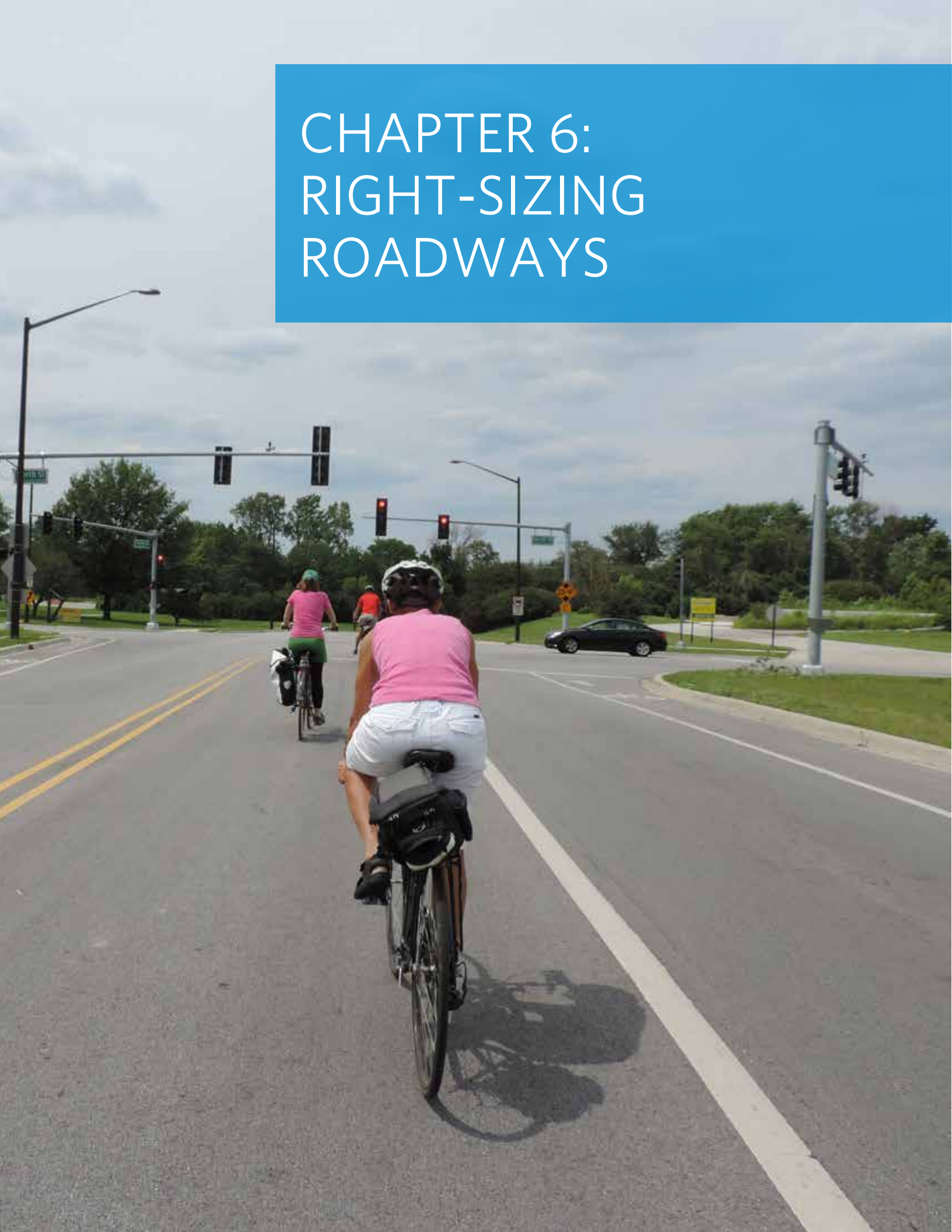
## Bus rapid transit (BRT)

BRT systems typically combine separated or dedicated lane configurations with signal prioritization and improved vehicles and stations, often with a visually "branded" identity that distinguishes it from regular bus service and advertises it as a form of mass rapid transit. BRT vehicles typically have increased capacity, modernized seating configurations, and high capacity doors for loading and unloading. BRT service stops or stations resemble rail-transit stations, with level boarding platforms and the provision for the prepayment of fares in order to speed loading times.

**Figure 87. BRT systems enable buses to move at the pace of mass rapid transit.**

Source: 1. Ron Burke; 2. EcoMobility, Flickr.

# CHAPTER 6: RIGHT-SIZING ROADWAYS



# What do we mean by Complete Streets?

Roadway designers typically decide the number of lanes for a given segment of roadway primarily on the basis of functional classification, current and future traffic volumes, and a desired level of motor vehicle service. A Complete Streets approach calls for designers to also consider the effects of roadway width and design on the pedestrians and bicyclists, of different ages and abilities who will be using the road. Wider roadways create greater pedestrian crossing distances and can encourage higher vehicular speeds. Such roads are more difficult and less safe for pedestrians and bicyclists to cross or travel. The problem is exacerbated when signalized intersections are spaced far apart or do not include treatments aimed at mitigating the difficulties and dangers faced by non-motorized users. Even narrower or less busy roads near schools, transit service, and other land uses that are likely to generate significant numbers of pedestrians and bicyclists, should be designed or retrofitted to accommodate and minimize risk to people traveling on foot or by bicycle.

## Right-Sizing

One approach to achieving a balance in the safe accommodation of all anticipated roadway users is "right-sizing," a process of reconfiguring the space of a street to better serve all users, whether they're driving, walking, or bicycling. Right-sizing recognizes that communities change over time and that the transportation corridors serving these communities may need to be altered to meet the diverse needs and goals of the community. At the heart of right-sizing is the idea that streets and public rights-of-way in urbanized areas should be designed or re-designed to better serve all the people who use them and to fulfill all the functions that a street has, including that of being a "place" where people shop, gather, socialize, and recreate. Modern, well-designed and high-functioning streets accomplish all these purposes, in addition to providing efficient and safe mobility for all travel modes. In the appropriate location, a roadway with fewer travel lanes for cars has the potential to move a greater number of people within the same space.

**Figure 88. Roadway design accommodating all potential users.**


Source: Dan Buden, www.pedbikeimages.org.

While right-sizing may involve a range of strategies, one of the most common strategies is a reduction of the number of travel lanes, typically from four undivided lanes (two in each direction) to three (one in each direction, plus a center two-way, left-turn lane). This strategy is also known as a lane reconfiguration, lane conversion, a road diet, or lane reduction. This, and other types of reconfigurations, allow for the reallocation of space for other roadway users and travel modes, such as bike lanes, pedestrian refuge islands, and/or transit stops. Other strategies for right-sizing include narrowed travel lanes, improvements to pedestrian infrastructure, bicycle facilities, transit improvements, changes to parking configurations and regulations, construction of medians and roundabouts.

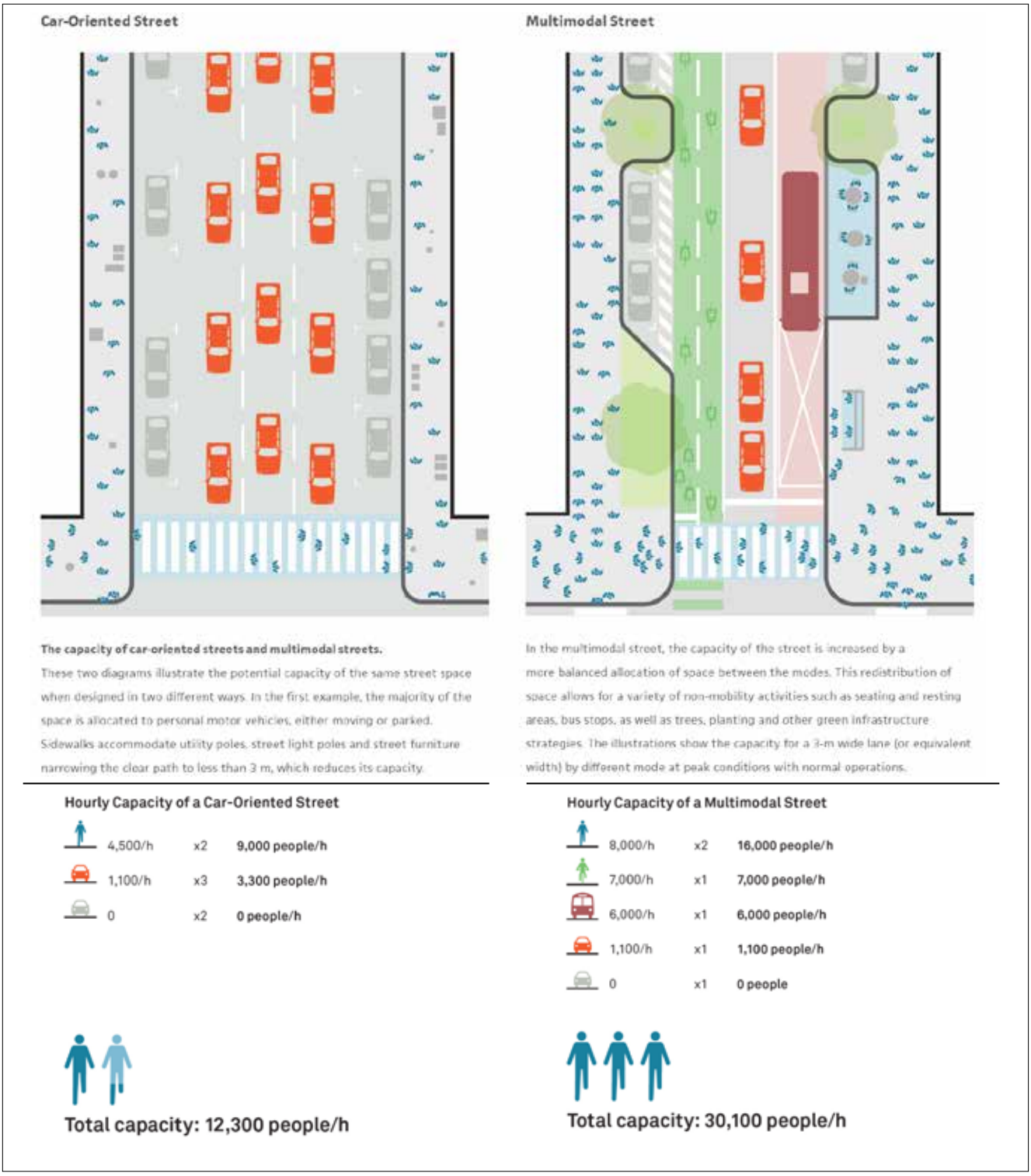
This classic form of road right-sizing is one of nine proven safety countermeasures approved and promoted by Federal Highway Administration's (FHWA) Office of Safety.[96] Safety studies indicate that a 4-to-3 lane conversion can lead to an expected crash reduction of 19 to 47 percent, a significant safety benefit achieved in large part by the reduction in rear-end, left-turn, and side-swipe motor vehicle crashes through the introduction of the two-way left-turn lane (TWLTL). Lower incidence of speeding, reduced speed differentials, shorter crossing distances, and simplification/delineation of roadway space and proper positioning further increase safety. The addition of a TWLTL also allows for the creation of center pedestrian refuge islands – either continuously in the form of a median, or at specific crossing locations. Medians and pedestrian crossing islands in urban and suburban locations constitute another of FHWA's nine proven safety countermeasures, with an estimated pedestrian crash reduction factor of 39 to 46 percent.[97] These substantial safety and operational benefits, along with the valuable opportunity to repurpose space on the road to better accommodate non-motorized users, represent the primary reasons communities undertake right-size road assessment and implementation projects.[98]

[96] USDOT FHWA. n.d. "Promoting the Implementation of Proven Safety Countermeasures." Memorandum. https://safety.fhwa.dot.gov/provencountermeasures/pc_memo.pdf.

[97] USDOT FHWA. n.d. "Medians and pedestrian Crossing Islands in Urban and Suburban Areas." Report. https://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_011.pdf.

[98] USDOT FHWA. n.d. "Road Diet." Desk Reference. https://safety.fhwa.dot.gov/road_diets/desk_ref/sa_15_046.pdf.

**Figure 89. A multimodal street can increase hourly capacity with a more balanced allocation of space**




Source: NACTO, *Global Street Design Guide.*

While right-size lane reconfigurations can improve safety and allow for better accommodation and operations of both motorized and non-motorized transportation along a corridor, they may not be appropriate or feasible in all locations. There are many factors to consider before implementation, including the objective of the project. Potential objectives for right-size road conversions include one or more of the following:

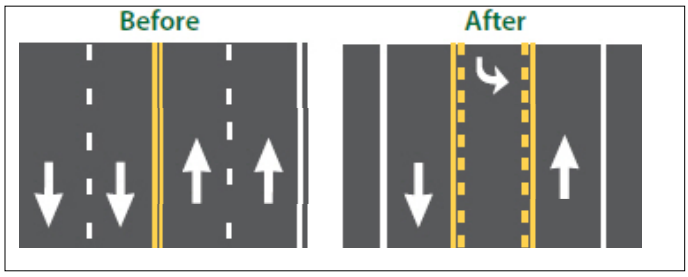
Other transit design guidelines include:

- Improve safety
- Reduce motor vehicle speeds
- Mitigate queues associated with left-turning traffic
- Improve the pedestrian environment and streetscape
- Improve bicyclist access and mobility
- Enhance transit service and stops
- Foster active transportation and healthy lifestyles
- Support overall livability and economic development along corridor
- Create "green streets" and implement sustainable practices in storm water management.

Although multiple factors must be considered by engineers when evaluating feasibility for right-sizing, one of the most important is the current and anticipated volume of motor vehicle traffic traveling along a corridor. The FHWA, in the Road Diet Informational Guide (2014), advises that roadways with Average Daily Traffic (ADT) of 20,000 or less may be good candidates for 4-to-3 lane conversions and should be evaluated for feasibility, although they note that successful conversions have been implemented on roads with ADT as high as 24,000. Higher ADTs require more detailed analysis. Using peak hour volumes, FHWA specifies that 4-to-3 lane conversions are likely feasible at or below 750 vehicles per hour per direction (VPHPD) during the peak hour. With VPHPD of 750-875, more caution and further study is recommended.[99]

[99] USDOT FHWA. n.d. "Road Diet Informational Guide." https://safety.fhwa.dot.gov/road_diets/guidance/info_guide/rdig.pdf.

**Figure 90. Reconfiguration of a roadway after right-sizing.**




Source: FHWA, *Road Diet Informational Guide.*

In addition to ADT – especially when evaluating roads with traffic volumes at the upper limits – turning movements, signal spacing, queuing patterns, as well as truck traffic along a corridor should also be considered. FHWA says 4-to-3 lane conversions "can appropriately accommodate freight movements while also serving other transportation users if some key factors [such as surrounding land use, truck size, delivery parking areas, and intersection design] are considered during the planning process." Generally, roads that were designed and constructed for higher numbers of vehicles than they currently carry are good candidates for right-sizing. For example, a road built to accommodate 30,000 vehicles a day that's only carrying 15,000 cars would be a good candidate.

One of the most compelling reasons for undertaking right-size road conversions is the relatively low cost of implementation, especially when done as part of a road resurfacing project. FHWA, in the recently published workbook, Incorporating On-Road Bicycle Networks into Resurfacing Projects (March 2016), estimates costs for a typical right-size road conversion project that reduces four travel lanes to three and adds conventional bicycle lanes, as a stand-alone project and as part of a resurfacing project. While costs are planning-level estimates of materials only and include many assumptions, they indicate that implementing a project as part of resurfacing costs about 40 percent of doing so as a standalone project. The report notes that many communities contacted as part of the research on right-sizing costs indicated that the average cost to add bike lanes during a resurfacing project is approximately $20,000 (2015 dollars) per mile, which is even lower than the sample cost figures included in FHWA's table.

**Figure 91. Lane reconfigurations can improve safety**

Credit: FHWA / City of Charlotte, NC.

**Table 6. Estimated cost to add bike lanes to a road by reducing four travel lanes to three as a standalone project**

| Add Bike Lanes (4-3 Road Diet, No Resurfacing) | | | | | |
|---|---|---|---|---|---|
| **Item** | **Unit** | **Quant.** | **2015 Est. Unit Cost** | **Total Cost per Mile** | **Comment** |
| Eradication | LF | 15,000 | $1.50 | $22,500 | Assume 3 lines entire length |
| Bike Lane Lines: Thermoplastic (6") | LF | 10,000 | $1.50 | $15,000 | Assume 2 solid lines entire length |
| Travel Lane Lines: Thermoplastic (4") | LF | 15,000 | $1.00 | $15,000 | Assume two solid lines entire length and two striped lines at 50% coverage entire length |
| Bike Lane Thermoplastic Pavement Marking Symbol | EA | 40 | $300.00 | $12,000 | Assume 1 Symbol every 250' each side of road (bike lane) |
| Bike Lane Sign | EA | 20 | $250.00 | $5,000 | Assume 1 Sign every 500' |
| Left-Turn Thermoplastic Pavement Marking Symbol | EA | 20 | $300.00 | $6,000 | Assume 1 symbol every 250' (Left-Turn arrows) |
| **Lump Sum Items** | | | | | |
| Maintenance of Traffic (10%) | LS | 1.00 | $7,500 | $7,500 | |
| | | | **Subtotal** | **$83,000** | |
| | | | 20% Contingency | $17,000 | |
| | | | **Total Estimated Cost** | **$100,000** | |

| Add Bike Lanes (4-3 Road Diet, Full Resurfacing) | | | | | |
|---|---|---|---|---|---|
| **Item** | **Unit** | **Quant.** | **2015 Est. Unit Cost** | **Total Cost per Mile** | **Comment** |
| Eradication | LF | 15,000 | $1.50 | $0 | Not necessary with resurfacing |
| Bike Lane Lines: Thermoplastic (6") | LF | 10,000 | $1.50 | $15,000 | Assume 2 solid lines entire length |
| Travel Lane Lines: Thermoplastic (4") | LF | 15,000 | $1.00 | $0 | Included with resurfacing project |
| Bike Lane Thermoplastic Pavement Marking Symbol | EA | 40 | $300.00 | $12,000 | Assume 1 Symbol every 250' each side of road (bike lane) |
| Bike Lane Sign | EA | 20 | $250.00 | $5,000 | Assume 1 Sign every 500' |
| Left-Turn Thermoplastic Pavement Marking Symbol | EA | 20 | $300.00 | $0 | Included with resurfacing project |
| **Lump Sum Items** | | | | | |
| Maintenance of Traffic (10%) | LS | 1.00 | $3,922 | $0 | Included with resurfacing project |
| | | | **Subtotal** | **$32,000** | |
| | | | 20% Contingency | $6,400 | |
| | | | **Total Estimated Cost** | **$38,400** | |

Source: FHWA, *Incorporating On-Road Bicycle Networks into Resurfacing Projects.*

For additional resources and information on right-sizing of roadways, see Appendix: Resources.

## South Council roads

Analysis indicates that the South Council of Mayors area has numerous roads that can be described as having excess capacity, carrying less traffic than they were designed for. While most of the roadways had ADT below 16,000, two proposed segments have ADTs as high as 18,000, which is still lower than the federal guidance for ADT on roads being considered for road diets (20,000). This may be due to changes in population, employment, travel habits, or high traffic forecasts that did not materialize.

This situation is not unusual for older, industrial cities and regions, which have, in many cases, lost population and employment (especially in manufacturing) since the 1960s and 1970s. The decline in population and jobs – along with large-scale changes in transportation and land use – has led to lower traffic volumes on many roads. South Council roads that have excess capacity provide a unique opportunity to expand and improve local and regional bikeway networks, to increase pedestrian access, and to enhance livability through the implementation of right-size road reconfigurations, without significantly impacting motor vehicle throughput.

## Assess and pursue opportunities for right-size road reconfigurations

**Figure 91** shows the identified roadway segments or corridors that should be assessed for right-sizing. The planning-level analysis used to identify candidate segments was limited by the quality of the data available. The primary GIS data source was IDOT's Illinois Highway Information System, which contains information on ADT and lane configuration, but is not always up-to-date. Roads in the database with ADT of 18,000 or less[81] and which were indicated as having four or five travel lanes were selected. The selection of potential road segments was further narrowed by consulting additional information, including aerial photography, Strava user data, and input from key stakeholders, including SSMMA staff, Active Transportation Alliance staff, representatives from South Council member communities, and bicycling groups active in the Southland.

The proposed Council-wide bikeway network developed as part of this plan was also used to help identify potential corridors for right-size reconfigurations, though not all identified corridors would necessarily include designated bicycle facilities. Given data limitations, the large geographic scale of the study area, and the need for further engineering study, candidate corridors should be understood as conceptual in nature. The quality of the analysis is limited by the quality of the data. IDOT data may not be accurate, aerial photography may not be current, and Strava data is limited to Strava users and may exclude travel by certain populations. Nonetheless, they provide useful starting points for further investigation by the South Council and member communities. In communities where population and employment losses or other factors have led to roads with excess capacity, right-sizing constitutes an effective and recommended strategy for improving overall livability and multimodal transportation options.

**Figure 92. Lane reconfigurations can improve safety.**


Source: NACTO.

The total miles of roadway proposed for right-size reassessment is 108.64. Of this, 52.66 miles are under IDOT jurisdiction; 4.37 miles are under IDOT jurisdiction, but maintained by other agencies; 31.23 miles are under Cook Co. DOTH jurisdiction; 18.66 miles are under local jurisdiction; and 1.72 miles are under Will Co. DOT jurisdiction. Some corridors/segments alternate between different jurisdictions, which will require coordination and partnerships to advance right-sizing feasibility studies and implementation.

**Figure 93. Some Sought Council roads could benefit from right-sizing.**

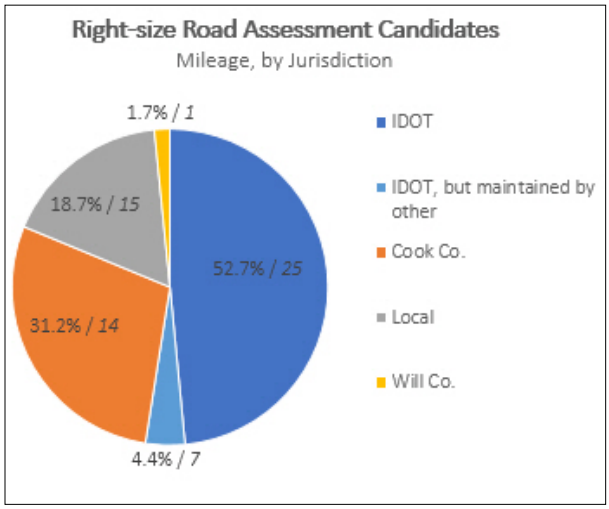
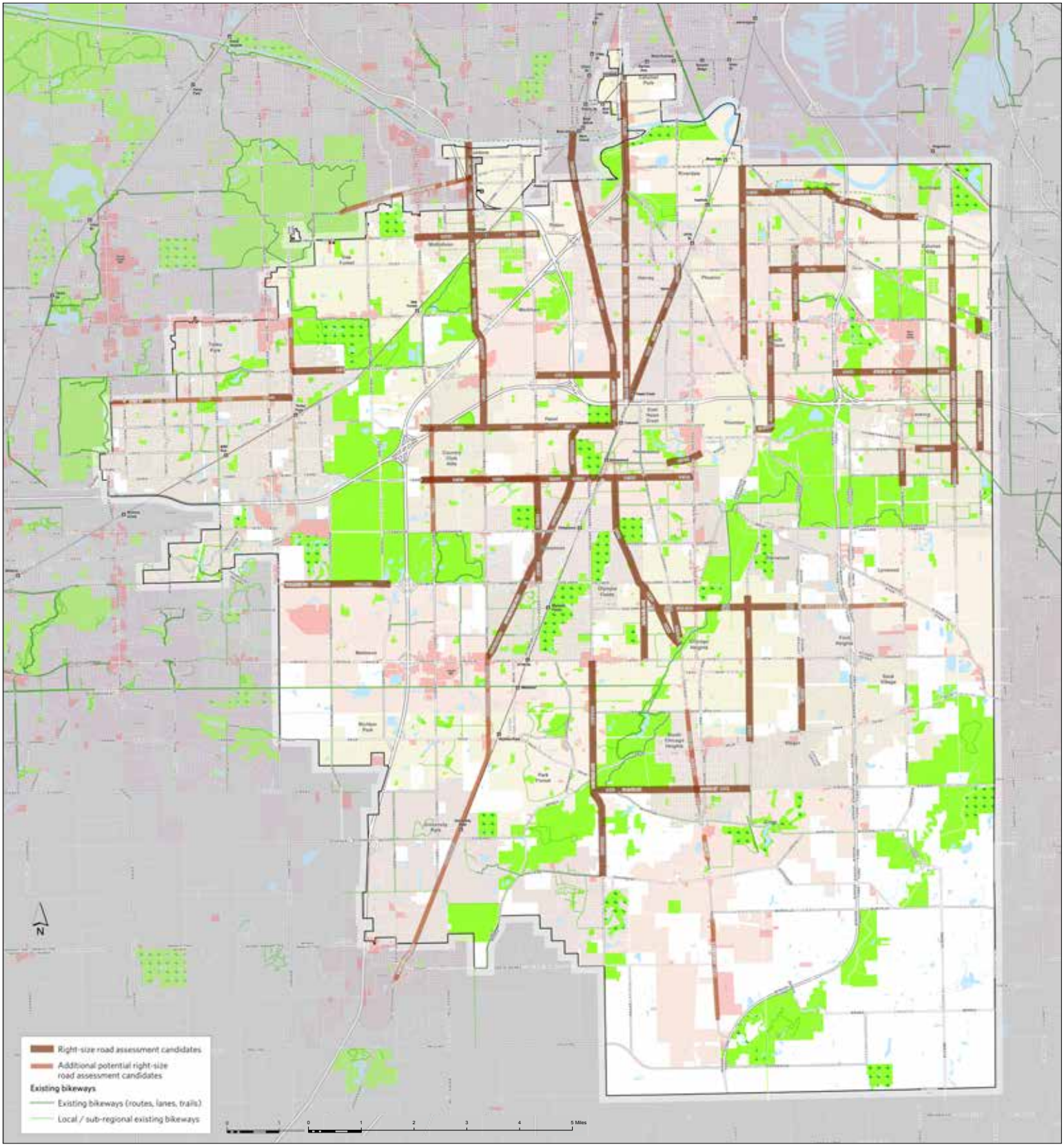


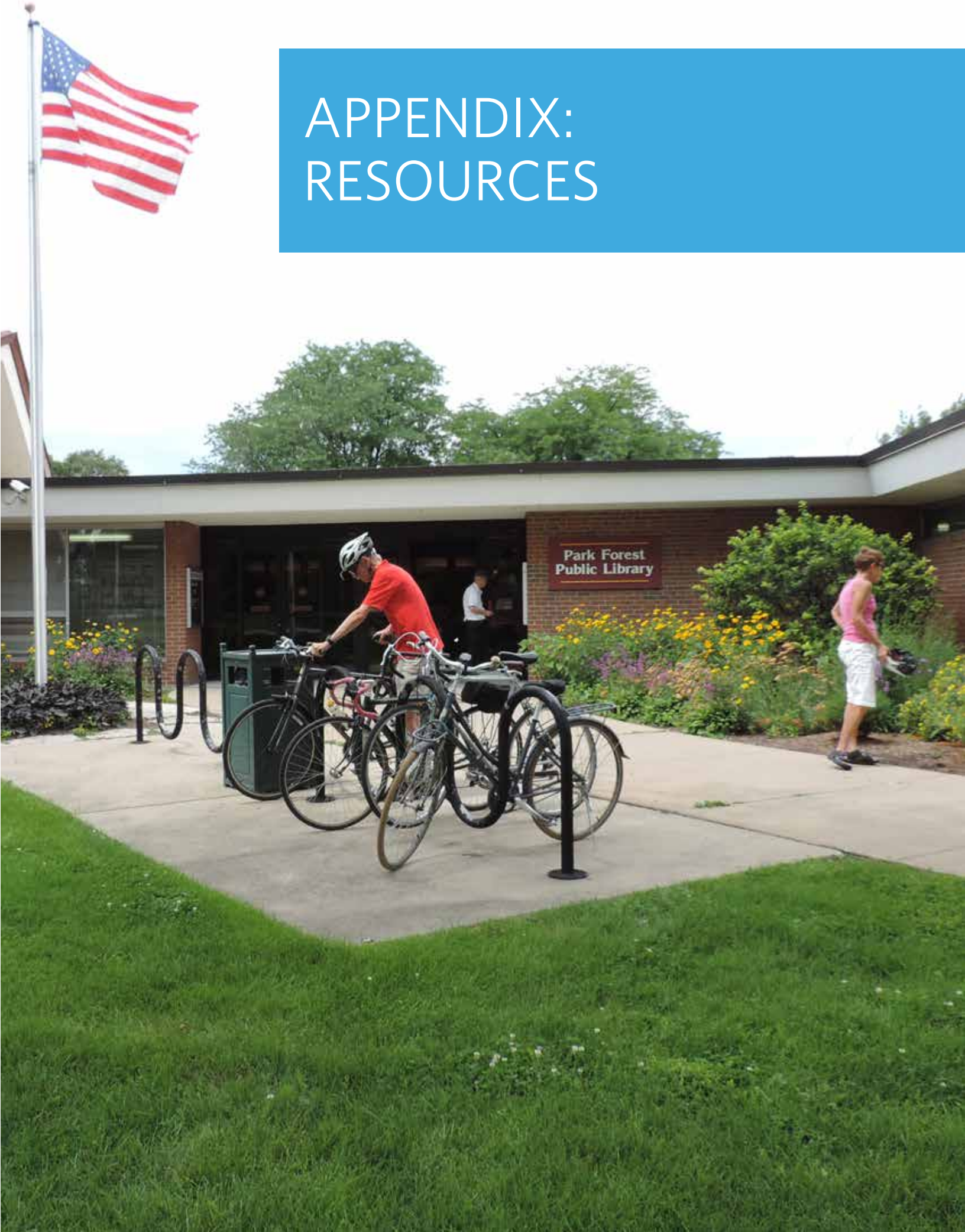
**Figure 94. Candidates for Right-Size Roadway Assessments**




Source: Chicago Metropolitan Agency for Planning.

To view in high resolution visit http://cmap.is/2uUDMTw

# APPENDIX: RESOURCES



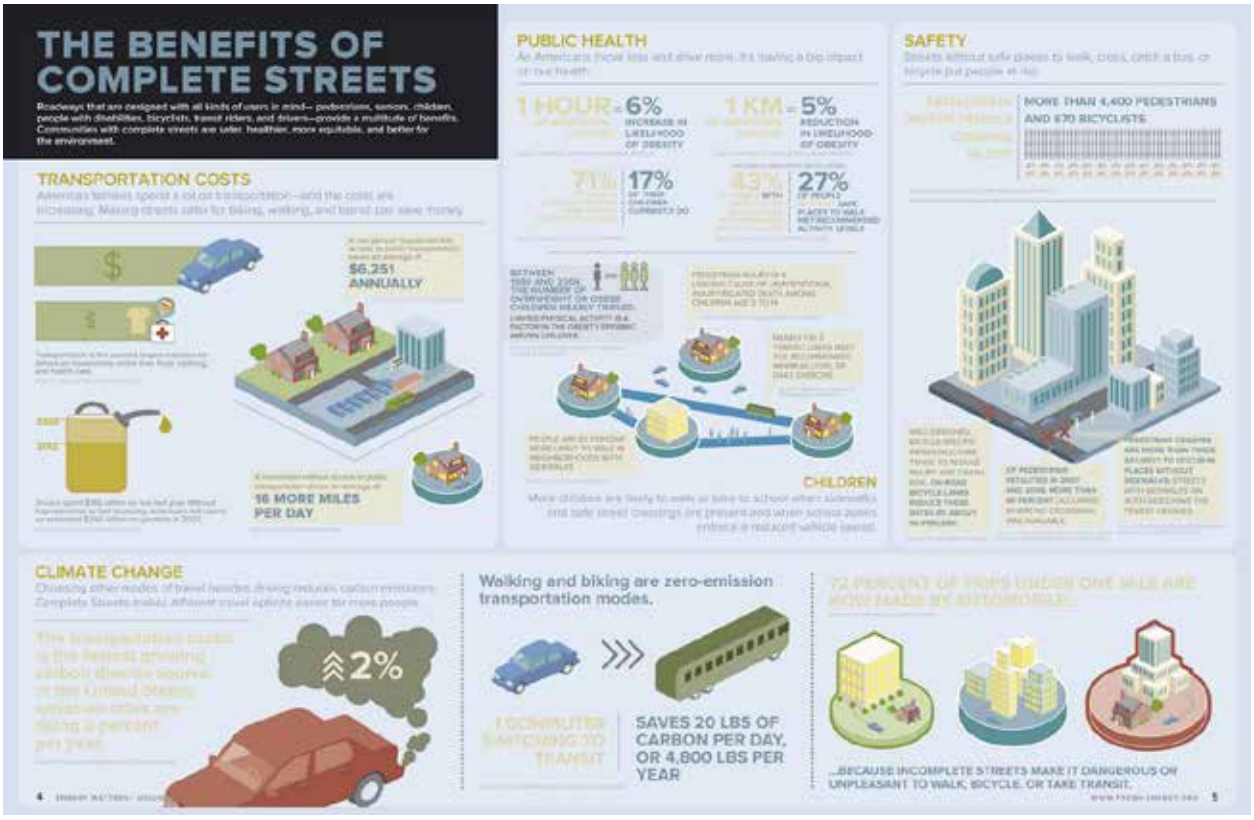
# Appendix

The following section contains links to reports, guides, and additional information about topics covered in the SSMMA Complete Streets and Trails Plan.

# Benefits of Complete Streets

Fresh Energy, an independent non-profit dedicated to advancing the transition to a clean energy economy, has created an infographic on the benefits of Complete Streets: http://fresh-energy.org/2014/01/the-benefits-of-complete-streets/.

**Figure 95. The benefits of Complete Streets include public health and safety.**




Source: Fresh Energy, *Complete Streets Benefits* infographic.

# Integration of bicycling and transit

See Cycle-Works Ltd. "Wheeling Ramps" at http://cycle-works.com/product/wheeling-ramps/, as well as Cycling England's design guidance at http://www.cycling-embassy.org.uk/sites/cycling-embassy.org.uk/files/documents/cyclingengland/2011/01/b10_wheeling_channels.pdf, and the Wikipedia page on "Bicycle Stairway" at https://en.wikipedia.org/wiki/Bicycle_stairwayeets.[1]

*FTA bicycle-related funding opportunities:* https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/livable-sustainable-communities/fta-program-bicycle.

[1] Additional information on the integration of bicycling and transit can be found in the TRB "Synthesis Report 62: Integration of Bicycles and Transit": http://www.trb.org/Publications/Blurbs/156477.aspx. See also, the Mineta Institute report, "Bicycling Access and Egress to Transit: Informing the Possibilities": http://transweb.sjsu.edu/project/2825.html.

# Bike Share Planning

Information on bike share planning is taken from the Institute for Transportation & Development Policy guidebook, "The Bike-Share Planning Guide" (2014), available at https://www.itdp.org/wp-content/uploads/2014/07/ITDP_Bike_Share_Planning_Guide.pdf. This guide provides a comprehensive overview of bike share, planning, design, business models, financial information and models, and implementation.

USDOT/FHWA contracted with Toole Design Group and PBIC to produce the report, "Bike Sharing in the United States: State of the Practice and Guide to Implementation" (2012), available at http://www.pedbikeinfo.org/pdf/Programs_Promote_bikeshareintheus.pdf.

The Mineta Transportation Institute published a report, "Public Bikesharing in North America During a Period of Rapid Expansion: Understanding Business Models, Industry Trends and User Impacts, available at http://transweb.sjsu.edu/PDFs/research/1131-public-bikesharing-business-models-trends-impacts.pdf.

On Bike Share has produced a white paper entitled, "Bike Share Implementation Strategies: A Comparative Guide" (2016), at http://www.onbikeshare.com/PDF/Bike%20Share%20Implementation%20Strategies.pdf.

# Typical bikeway facility types and intersection treatments

The three primary bikeway design resources, the National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide, 2nd Edition* (2014), the American Association of State Highway and Transportation Officials' (AASHTO) *Guide to the Development of Bicycle Facilities, 4th Edition* (2012), and the Federal Highway Administration's (FHWA) *Manual on Uniform Traffic Control Devices, 2009 Edition* (MUTCD) all have updates planned in the next few years.

Other resources include FHWA's Separated Bike Lane Planning and Design Guide (2015), Incorporating On-Road Bicycle Networks into Resurfacing Projects (2015), Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts (2016), Case Studies in Delivering Safe, Comfortable and Connected Pedestrian and Bicycle Networks (2015), Road Diet Informational Guide (2014), Massachusetts DOT's Separated Bike Lane Planning & Design Guide (2015), Minnesota DOT Bikeway Facility Design Manual (2007), City of Redmond, CA Bicycle Facilities Design Manual (2012), Washington County, OR Bicycle Facility Design Toolkit (2007), City of Oakland Bicycle Facility Design Guidelines (updated 2016), among many others.

More information on bicycle facility types and treatments can be found in CMAP's "Complete Streets Toolkit." See the "Select Treatments" section (especially "Traffic Calming and Speed Management") of CMAP's Complete Streets Toolkit at http://www.cmap.illinois.gov/programs-and-resources/local-ordinances-toolkits/complete-streets/treatments-types-gallery#selecttreatments.

## Benefits of Complete Streets

### Shared lane marking

Design and installation guidance can be found in the MUTCD, Chapter 9. See especially Section 9C.07. Additional guidance can be found in NACTO *Urban Bikeway Design Guide and AASHTO, Guide for the Development of Bicycle Facilities, 4th Edition.*

### Wide Paved Shoulder

Guidance for the installation of rumble-strips on roadway shoulders that are intended as bikeways is available from AASHTO, FHWA, and other sources. See the League of American Bicyclists and the Alliance for Biking and Walking report, "Bicycling and Rumble Strips" at http://www.advocacyadvance.org/docs/rumble_strips.pdf.

### Conventional Bike Lane

Design and installation guidance can be found in the MUTCD, Chapter 9. See especially Sections 9B.04 and 9C.04. Additional guidance can be found in NACTO Urban Bikeway Design Guide and AASHTO, *Guide for the Development of Bicycle Facilities, 4th Edition.*

### Buffered Bike Lane

Design and installation guidance can be found in NACTO Urban Bikeway Design Guide and AASHTO, *Guide for the Development of Bicycle Facilities, 4th Edition*.

### Separated Bikeway (Cycle Track)

Design and installation guidance can be found in FHWA, *Separated Bike Lane Planning and Design Guide*, Massachusetts DOT, *Separated Bike Lane Planning & Design Guide*, NACTO, *Urban Bikeway Design Guide and AASHTO, Guide for the Development of Bicycle Facilities, 4th Edition*.

### Sidepath

Design and installation guidance can be found in AASHTO, Guide for the Development of Bicycle Facilities, 4th Edition (Chapter 5), FHWA, Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts, and FHWA, Designing Sidewalks and Trails for Access.

### Trail

Design and installation guidance can be found in AASHTO, *Guide for the Development of Bicycle Facilities, 4th Edition* (Chapter 5), FHWA, *Designing Sidewalks and Trails for Access, Parts I and II*, Minnesota DNR, *Trail Planning, Design, and Development Guidelines*. Additional resources can be found at http://www.fhwa.dot.gov/environment/recreational_trails/guidance/manuals.cfm.

### Bicycle Boulevard

Design and installation guidance can be found in NACTO Urban Bikeway Design Guide, AASHTO, *Guide for the Development of Bicycle Facilities, 4th Edition*, Portland State University, Initiative for Bicycle and Pedestrian Innovation, *Fundamentals of Bicycle Boulevard Planning & Design*, City of Berkeley, CA, Bicycle Boulevard: Design Tools and Guidelines, City of Minneapolis, MN, *Design Guidelines for Bicycle Boulevards*.

# Recommended Bike-Share Planning Guides

Key resources for planning a bike-share include the following:

- ITDP, The Bike-Share Planning Guide (2014) https://www.itdp.org/wp-content/uploads/2014/07/ITDP_Bike_Share_Planning_Guide.pdf.
- FHA, Bike Sharing in the United State: State of the Practice and Guide to Implementation (2013) http://safety.fhwa.dot.gov/road_diets/resources/.
- MTI, Public Bikesharing in North America During a Period of Rapid Expansion: Understanding Business Models, Industry Trends and User Impacts (2014) http://transweb.sjsu.edu/PDFs/research/1131-public-bikesharing-business-models-trends-impacts.pdf.
- On Bike Share, Bike Share Implementation Strategies: A Comparative Guide (2016) http://www.onbikeshare.com/PDF/Bike%20Share%20Implementation%20Strategies.pdf.

# Intersection treatments

## Bicycle signal heads

See additional information in NACTO's Urban Bikeway Design Guide. http://nacto.org/publication/urban-bikeway-design-guide/bicycle-signals/bicycle-signal-heads/

## Through intersection bikeway markings

Through-intersection markings channelize the movements of bicyclists and increase visibility and motorist awareness of cyclists. See additional information in NACTO's Urban Bikeway Design Guide: http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/intersection-crossing-markings/ and http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/cycle-track-intersection-approach/ and CMAP's "Complete Streets Toolkit:" http://www.cmap.illinois.gov/documents/10180/371767/complete+streets+facility+types+20+-+through+intersection+bike+lane+markings.pdf/ea619729-7b30-4a79-bde3-1edd1c969d83

## Mixing zones

See additional information in NACTO's Urban Bikeway Design Guide: http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/through-bike-lanes/ and CMAP's "Complete Streets Toolkit:" http://www.cmap.illinois.gov/documents/10180/371767/complete+streets+facility+types+19+-+mixing+zones.pdf/5be4d59c-81cd-4fc7-b229-67da418d0956 and http://www.cmap.illinois.gov/documents/10180/371767/complete+streets+facility+types+21.pdf/b22bfcaa-29fa-4c60-b03d-6ed0eb589f59.

## Bike Box

See additional information in NACTO's *Urban Bikeway Design Guide*: http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/bike-boxes/ and CMAP's "Complete Streets Toolkit:" http://www.cmap.illinois.gov/documents/10180/371767/complete+streets+facility+types+22+-+bike+boxes.pdf/7739b210-4624-44cc-ab41-35f58d0fc6e8

## Two-stage left turn box

See additional information in NACTO's *Urban Bikeway Design Guide*: http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/two-stage-turn-queue-boxes/

## Protected intersection

See additional information, see the website, www.protectedintersection.com and "Chapter 4: Intersections" of the Massachusetts DOT *Separated Bike Lane Planning & Design Guide*: https://www.massdot.state.ma.us/Portals/8/docs/SBLG/Chapter4_Intersections.pdf

## Median/ Refuge Island

See additional information in NACTO's *Urban Bikeway Design Guide*: http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/median-refuge-island/ See also "Chapter 10. Intersection Design Guidelines: Channelized Right-Turns" (p. 187 ff.) in ITE's *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*: http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad and CMAP's "Complete Streets Toolkit:" http://www.cmap.illinois.gov/documents/10180/371771/complete+street+select+treatments+8+-+raised+pork+chop+ped+refuge+island.pdf/ba1ecc21-a24a-47af-95ca-aa4abae440bc

## Hybrid beacons

See additional information in NACTO's *Urban Bikeway Design Guide*: http://nacto.org/publication/urban-bikeway-design-guide/bicycle-signals/hybrid-beacon-for-bike-route-crossing-of-major-street/ and CMAP's "Complete Streets Toolkit:" http://www.cmap.illinois.gov/documents/10180/371771/complete+street+select+treatments+10+-+ped+crossing+beacons+HAWK.pdf/8e826b2e-35db-40ea-bf1e-4d28ebe21ab1

# Transit facilities and treatments

Additional information and design guidance on transit facilities, access to transit, and ADA requirements can be found in various national standards, manuals, and guides, including Pace Suburban Bus' recently released *Transit Supportive Guidelines*: http://pacebus.com/guidelines/index.asp and NACTO's *Transit Street Design Guide*: http://nacto.org/publication/transit-street-design-guide/

More information on BRT systems, including "The BRT Planning Guide" and "The BRT Standard" can be found on the Institute for Transportation and Development Policy website http://www.itdp.org/library/ standards-and-guides/

# Right-Sizing Roadways

See the recent article on Milwaukee, WI and that city's efforts to leverage excess road capacity for right-sizing roads and adding bicycle lanes, at http://www.streetsblog.net/2016/11/07/milwaukee-is-claiming-its-excess-street-space-for-bicycling/.

Key resources for right-sizing include the following:

- FHWA, Office of Safety Road Diet Informational Guide (2014) http://safety.fhwa.dot.gov/road_diets/info_guide/
- FHWA, Office of Safety, Road Diet Resources Webpage http://safety.fhwa.dot.gov/road_diets/resources/
- FHWA, Office of Safety, Road Diet Case Studies (2015) http://safety.fhwa.dot.gov/road_diets/case_studies/
- Project for Public Spaces, Rightsizing Streets Guide http://www.pps.org/reference/rightsizing/
- Project for Public Spaces, Rightsizing Best Practices: Street Selection and Before-After Measurements http://www.pps.org/reference/rightsizing-best-practices-street-selection-and-before-after-measurements/
- Pedestrian and Bicycle Information Center, "Traffic Lane Narrowing or Reduction" webpage http://www.pedbikeinfo.org/planning/facilities_calming_lanereduction.cfm
- AASHTO, *Guide for the Development of Bicycle Facilities, 4th Edition* (2012), Section 4.9 Retrofitting Bicycle Facilities on Existing Streets and Highways (See especially Section 4.9.2 Retrofitting Bicycle Facilities Without Roadway Widening.) https://bookstore.transportation.org/item_details.aspx?ID=1943

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# MEMORANDUM

To: SSMMA, CMAP

**From:** Active Transportation Alliance

**Date:** July 8, 2016

**Re:** SSMMA/South Council of Mayors Complete Streets and Trails Plan
Local Complete Streets Policies – Community Engagement and Technical Assistance

## Background

In early 2016, the Cook County Department of Public Health (CCDPH), together with program managers at the Chicago Metropolitan Agency for Planning (CMAP) and the Active Transportation Alliance (Active Trans), agreed to support two major initiatives related to Complete Streets occurring in the south suburbs. Through the Partnerships to Improve Community Health (PICH) grant, Active Transportation Alliance (Active Trans) would be providing technical assistance to suburban Cook County communities on developing and implementing a Complete Streets policy. Additionally, CMAP was providing technical assistance to the South Suburban Mayors and Managers Association (SSMMA) to develop a South Council of Mayors Complete Streets and Trails Plan through its Local Technical Assistance program.

At the suggestion of CCDPH, the two organizations agreed to work together on these initiatives to coordinate technical assistance and planning efforts and build capacity for Complete Streets in suburban Cook County. Active Trans' Healthy HotSpot Complete Streets Technical Assistance program was able to provide technical assistance to suburban Cook County municipalities without a local match, a rare opportunity for much-needed planning and policy assistance in underserved communities. And by working together with CMAP, and issuing a joint Request for Proposals (RFP), Active Trans was able to share the RFP with a broader audience of stakeholders and potential partner communities and to fold the policy development work into a larger planning and programming efforts. In addition, through the grant funding from CCDPH, Active Trans' suburban outreach manager, who has extensive experience and knowledge of SSMMA communities, as well as Active Trans senior transportation planning staff, were able to provide extensive feedback to CMAP on the SSMMA/South Council Complete Streets and Trails Plan.

For more information about CMAP's Local Technical Assistance Program, please visit: http://www.cmap.illinois.gov/programs-and-resources/lta. Additional information on the CDC funding that supports Active Trans' work on this project and others in suburban Cook County is provided below.

**Healthy HotSpot and Partnerships to Improve Community Health (PICH)**

The Partnerships to Improve Community Health (PICH) grant is part of the Healthy HotSpot initiative led by CCDPH and supported with funding from the Centers for Disease Control and Prevention (CDC). The PICH grant supports a broad portfolio of partnerships to prevent chronic disease in suburban Cook County communities. Those programs include smoke-free multi-unit housing, healthy food options at corner stores, enhanced physical education (P.E.) in schools, healthcare management of chronic diseases, establishing gateway signage at Cook County Forest Preserves sites, and Active Transportation Alliance's technical assistance work with Complete Streets policy development and implementation and the creation of local Active Transportation Plans.

The PICH grant program is the third in a series of innovative, federally-funded public health grant programs that leverage policy, systems, and environmental changes, as well as multi-sector partnerships, to create long-term changes for community health. Many people believe that simply providing information about healthy food, tobacco use, or physical activity is enough to create healthy lifestyles. However, creating communities where there is easy access to fresh produce or where it's possible to walk or bicycle on the way to work or to run errands has a stronger and longer-lasting impact on human health. One third of people who use public transit to commute to work, for instance, meet the minimum recommendation for physical activity. People who live in a neighborhood with sidewalks are 50% more likely to meet physical activity guidelines, which helps reduce their risk of heart disease, type 2 diabetes, depression, and some types of cancer.

In addition to Active Trans' Complete Streets technical assistance with SSMMA/South Council communities, the PICH grant and the Healthy HotSpot initiative also support Active Trans work with two more suburban Cook County municipalities, the Villages of Willow Springs and Skokie, to develop Complete Streets policies. Active Trans is also helping develop Active Transportation Plans for six communities in suburban Cook County, including the South Council communities, Calumet Park and Lynwood. Active Trans' Complete Streets technical assistance program will continue until September 30, 2017.

For more information about Healthy HotSpot, please visit: www.cookcountypublichealth.org/healthy-hotspot.

**Technical Assistance Process**

Policy Development

Active Trans released an RFP for the Healthy HotSpot Complete Streets Technical Assistance Program in May 2015 in conjunction with CMAP's LTA Program. Under Active Trans' program, higher scores were given to municipalities that had been designated by CCDPH as

Healthy HotSpot priority communities. Healthy HotSpot priority communities are 33 suburban Cook County municipalities identified by CCDPH as being underserved. At least 25% of the census tracts in the priority communities have at least one of the two following criteria: 1) 20% of their population living in poverty or 2) at least 10% living below the federal poverty level (FPL) and at least 20% with no high school diploma by age 25.

In order to help ensure that as many Healthy HotSpot priority communities as possible heard about the opportunity for Complete Streets technical assistance, Active Trans' suburban outreach managers and CMAP LTA staff working in the South Council area, reached out directly to officials and staff in municipalities designated as Healthy HotSpot priority communities by CCDPH. Once applications were received and the successful municipalities were selected for the Complete Streets technical assistance program, the following process was undertaken with each municipality:

1. **Held a kick-off meeting with the grant lead or leads at the municipality**. After introductions and an overview of the grant timeline, municipality staff and Active Trans discussed the make-up of a Complete Streets Steering Committee. Each Complete Streets Steering Committee would be responsible for drafting the Complete Streets policy, and ensuring that it met the needs of each municipality. A worksheet developed by Active Trans helped guide this discussion. Complete Streets is by its nature a multi-disciplinary approach, and the grant lead in each municipality identified key staff from departments such as planning, community development, public works, law enforcement, parks, and others that should participate in a steering committee. Community stakeholders, such as school district representatives or high school students were also considered as steering committee members in some municipalities. After the meeting, the municipality lead reached out to their contacts to invite them to participate in the steering committee.

2. **Held a kick-off meeting with the Complete Streets Steering Committee**. In the first Complete Streets Steering Committee meeting, Active Trans gave a basic introduction to Complete Streets using images of a variety of facilities and contexts, and addressed some common misperceptions about a Complete Streets approach. Active Trans staff then facilitated a discussion with the Steering Committee members about how Complete Streets approaches connect to the municipality's past and current planning efforts and long-term goals. This discussion would help inform the Vision statement in the Complete Streets policy in Step 3, at the Complete Streets conference.

3. **Held a two-day conference with national speakers on Complete Streets**. In September of 2015, Active Trans, with assistance from CMAP and other partners, hosted a local Complete Streets conference in the Village of Orland Park with Mark Fenton, a national speaker on the built environment and public health, and two expert trainers from the National Complete Streets Coalition. The first day of the conference was open to anyone interested in learning about Complete Streets, and included a robust discussion of the benefits and challenges of creating Complete Streets, as well as a walk audit led by Mark Fenton. This overview of Complete Streets helped expand upon and deepen the initial

discussions of Complete Streets and its benefits, which occurred in the steering committee kick-off meeting.

The second day of the conference was exclusively for staff and steering committee members from the communities participating in the Healthy HotSpot Technical Assistance Program. During the second day, steering committee members reviewed notes on their discussion concerning community goals and planning efforts that took place at the kick-off meetings. These notes and review discussion comments were then used to write a vision statement for their Complete Streets policy. Steering Committee members also developed a workplan for writing their policy.

4. **In several municipalities requesting assistance, the suburban outreach manager gave an introductory presentation to the municipality's governing board**. This presentation was designed to inform board members and trustees about the effort by the municipality to develop a Complete Streets policy, as well as introduce Complete Streets approaches and benefits to elected officials and community members in attendance.

5. **In the next three to five Steering Committee meetings, Steering Committee members drafted their policy**. Active Trans presented on the 10 Elements of a Complete Streets policy based on the framework developed by the National Complete Street Coalition. Active Trans also shared model policies using both national and local examples. The Steering Committee used the slides and model policies to finalize their draft Complete Streets policies.

   In order to inform and strengthen the implementation element of their Complete Streets policies, Active Trans asked Steering Committee members to walk through the project delivery process for each kind of project that might impact the right-of-way, whether that was resurfacing project or approval for a new development. Steering Committee members were then asked to outline a new process for how Complete Streets design approaches could be incorporated into each type of project.

6. **Once each of the 10 Elements were written, Steering Committee members reviewed the draft policy in its entirety**. In some communities, the policy was also reviewed by a legal department, consulting engineers, or other key stakeholders that were not able to participate in the regular Steering Committee meetings.

7. **Once the draft policy was finalized, the grant lead from the municipality asked for the policy to be added to the agenda for an upcoming board meeting**. In some cases, the Active Trans suburban outreach manager was in attendance at these meetings and for presentations of the policies at South Council of Mayors meetings to help answer any questions about the policies.

8. **The governing board for each municipality then voted on the adoption or approval of the policy**. As of June 2016, five the six SSMMA municipalities have officially adopted

Complete Streets policies: Calumet Park, Midlothian, Richton Park, South Chicago Heights, and Steger.

Implementation

While a Complete Streets policy is an important starting point for institutionalizing a Complete Streets approach, the implementation process is critical for ensuring that any type of project that touches the public right-of-way is considered for its possible benefit to a multi-modal transportation network.

Active Trans will continue to provide assistance with implementation to the South Council municipalities in the Healthy HotSpot Complete Streets Technical Assistance Program until September of 2017. The key implementation activities will include:

1. Align existing community plans, such as Comprehensive Plans, with the newly adopted Complete Streets policy
2. Develop a Complete Streets project delivery checklist that's tailored to each municipality
3. Share best practices for pedestrian and bicycle accommodations in new development
4. Share best practices for prioritizing projects with Complete Streets facilities
5. Develop a Corridor Plan for a short street segment in each municipality that can be used for future grant applications
6. In communities that are successful in their application to the second round of the Healthy HotSpot Active Transportation Plan Technical Assistance Program, develop an Active Transportation Plan.

Each municipality is also embarking on unique initiatives in response to community needs. For example:

1. In Calumet Park and Richton Park, the Complete Streets policy development process identified the creation of an Active Transportation Plan as a logical and important next step. Through the PICH grant, Active Trans will be working with Calumet Park to develop an Active Transportation Plan, which will prioritize certain streets for bicycle and pedestrian accommodations. Richton Park will be applying for technical assistance in the second round of Active Transportation Plan program.
2. During the summer and early fall of 2016, Active Trans and the Villages of Midlothian, Richton Park, Steger, and South Chicago Heights are hosting Complete Streets pop-up events. Temporary materials, such as cones, potted plants, duct tape, house paint, and tar paper are used to simulate Complete Streets infrastructure such as bicycle lanes, pedestrian medians, and high-visibility crosswalks. These events are being organized in order to demonstrate Complete Streets concepts to a wider audience of community members and to build broad support for Complete Streets approaches.
3. In Midlothian, the Village was successful in securing an Access to Transit/LTA grant from the RTA and CMAP to develop a corridor plan for 147th Street. Flooding has been a persistent issue in the community, and the Village, in partnership with key stakeholders, has collaborated with the Center for Neighborhood Technology (CNT) to develop a stormwater management plan. CMAP, Active Trans, and CNT are currently working with the Village to identify ways that each of these initiatives can be consolidated to advance common goals and leverage shared resources. As part of this partnership,

stormwater experts at CMAP and CNT have been assisting Active Trans in designing facilities that include stormwater management elements, such as rain gardens, vegetated curb bulb-outs, and permeable pavement areas, for the pop-up Complete Streets demonstration. An open house for the Complete Streets pop-up event was co-hosted by the three organizations to communicate common goals and connections between the three initiatives to Midlothian residents.

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