



APPENDIX A: STATE OF WALKABILITY

A COMPANION PIECE TO THE
INDIANAPOLIS/MARION COUNTY
PEDESTRIAN PLAN
FINAL



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PREFACE

WalkWays is an initiative to make Indianapolis more walkable and to get more people walking. The City of Indianapolis, Marion County Public Health Department, and Health by Design partners are working to develop the community's first pedestrian plan, with a long-term vision for a more walkable and healthy Indianapolis. The plan will establish clear, equitable, data-driven priorities for future investments in pedestrian infrastructure and programs, making our community safer and more accessible for people who travel by foot.

The State of Walkability report is a benchmarking account, providing a snapshot of Indianapolis' walkability and the physical, social, and health implications of living in a neighborhood unsupported by safe walking infrastructure and comfortable walking environments. While the factors that influence whether people will walk vary by neighborhood, the principles of walkable communities are clearly laid out in this report.

Many neighborhoods in Indianapolis still need basic pedestrian infrastructure—such as sidewalks and crosswalks—to make it easy for people to walk to work, transit, home, school, and recreation. Limited funding means it's impossible to take care of every need at once. Indianapolis must prioritize limited funds and target pedestrian improvements in the places of greatest need.

The State of Walkability report is the initial step to creating priorities. By looking at differences in how comfortable it is to walk, where different populations live, and where walking infrastructure is needed, it's possible to develop a picture of the areas where supports for walking will have the greatest impact.





1 SETTING THE STAGE

Walking is the oldest and most efficient, affordable, and environmentally friendly form of transportation. It's how transit riders eventually reach their destinations, how drivers get from the parking lot to the front door, and how people riding bicycles get from the bicycle rack to the business. And walking is about more than transportation. Walking helps to build strong communities, is a simple and affordable way to meet physical activity goals, and is the primary way that neighbors get to know one another. After all, everyone, at least for a portion of their day, is a pedestrian.

Like many cities across the country, Indianapolis’ transportation investments over the past 60 years have focused on motor vehicles and connecting the region through high speed and high volume roads. Thinking more about cars than people has resulted in places with narrow or missing sidewalks, uncomfortable places to walk, and dangerous intersections. To become a more walkable city, Indianapolis must provide people with transportation options that are safe, comfortable, accessible, and available to people of all ages and abilities, regardless of mode.

Indianapolis has experienced significant physical (i.e., new development), cultural, and demographic change over the past decade, a trend that has intensified recently. According to the Indiana Business Research Center, Indianapolis added an average of 7,200 residents annually from 2010 to 2013, nearly twice its pace from 2000 to 2010. As Indianapolis has grown, so has poverty. One in five residents live in poverty in Marion County, and between 2000 and 2012 the poverty rate increased 89 percent.¹ This is staggering. This is occurring while Indianapolis is witnessing a sharp increase in Millennials—the age cohort born between 1980 and 2000 that is rapidly shaping the culture, opportunities, and future of Indianapolis.

Indianapolis is also facing regional, national, and international economic competition that requires strategic investments to make it an attractive place to live and do business. Developing walkable communities is critical to attracting and retaining the workforce of today and tomorrow and ensuring shared prosperity for all neighborhoods.



¹ Trends in Poverty: Marion County, Indiana, 2000 to 2012 (2013). The Polis Center and the Fairbanks School of Public Health.

The city’s residents understand that a multimodal transportation system that prioritizes moving people and goods is essential to accommodate growth and to create an accessible network that meets community objectives. There is a public desire for walkable streets and transit options that support healthy living, vibrant, safe, and equitable neighborhoods and business districts.

This State of Walkability report identifies the current status of pedestrian infrastructure, programs, policies, projects, and processes in Indianapolis. It reviews the challenges to walking in Indianapolis and highlights opportunities to create a great city for walking. The State of Walkability report helps to frame the ways that pedestrian demand, community health, and social justice can inform a new approach to prioritizing pedestrian projects with the aim to build a stronger, more walkable Indianapolis.

POLICY AND PLANNING CONTEXT

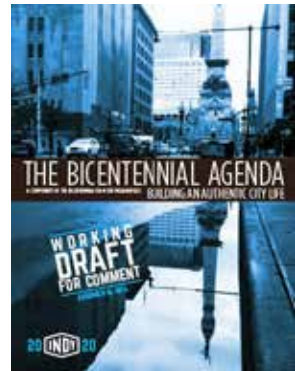
Recent land use, transportation, and parks and open space planning efforts in Indianapolis and Marion County help to set the stage for the Pedestrian Plan. The plan builds on work underway and already completed to direct Indianapolis toward a more walkable future. The following excerpts provide brief descriptions of select city and county planning efforts, focused on the ways each addresses walking or connections to Indianapolis’ walking network.





Plan 2020

- Strategic and visionary planning effort to make Indianapolis a more competitive city.
- Coordinated update to city policy documents and a Bicentennial Plan led by the Greater Indianapolis Progress Committee in partnership with the Department of Metropolitan Development.



Bicentennial Plan

- Represents the values, goals, and vision established for Plan 2020.
- Provides a series of action items with identified partners to carry out implementation prior to Indianapolis Bicentennial in 2021.
- Themes include: Choose Indy, a focus on livability; Connect Indy, a focus on access; Love Indy, a focus on placemaking; Serve Indy, a focus on civic engagement; and Work Indy, a focus on economic opportunity.



Indy Rezone

- New citywide zoning code approved in 2015.
- Developed to encourage a different type of growth for the next 50 years, including more housing options near transit, reduced parking requirements for retail development, requirements for bike facilities and parking, and incentives for transit stops and shelters.
- Incorporates standards for inclusion and design of pedestrian facilities.



Comprehensive Land Use Plan

- Establishes policies about the use, preservation, development, and redevelopment of all land in Marion County.
- Influences where people will walk.



Comprehensive Economic Development Strategy

- Positions a competitive Central Indiana in the global economy.
- Underscores the importance of creating walkable neighborhoods to attract employment/talent and provide access to jobs.



Thoroughfare Plan

- Establishes policies regarding the development of a multimodal transportation network for all major streets in Marion County.
- Guides where and how people move, including likely pathways for people that walk.



Regional Center Plan

- Promotes the sustained growth of Indiana's economic engine, the downtown core.
- Reinforces the importance of a walkable regional center and accessible routes to transit that connect to the core.



Parks, Recreation, and Open Space Plan

- Guides development of the park system.
- Lays the framework for a county-wide trail and greenway network. Being revised in 2015-2016.



Housing and Urban Development (HUD) Comprehensive Plan

- Outlines community development strategies that promote prosperous neighborhoods.
- Aligns housing and community development needs with areas in need of pedestrian enhancements.



Greenways Master Plan

- Updated in 2014 to guide development of Indianapolis greenways system.
- Establishes design guidelines for how greenways should be constructed, identifies potential economic benefits of greenway development, and includes both policy and implementation recommendations.



Indy Connect

- Collaboration to better integrate all modes of transportation in Central Indiana, while guiding the way for new and improved alternatives to driving.
- Studies and recommendations include: analyses of potential Red, Green, Purple, and Blue Line rapid transit corridors; IndyGo Forward, a transit system operations analysis; and Transit Oriented Development Strategic Plan.

IndyGo Forward Comprehensive Operational Analysis



- Analysis of how the IndyGo system operates today and how best to plan for the future of transit in Indianapolis.
- Alters 27 of 31 routes and consolidates parallel routes onto fewer main streets and, in turn, makes the wait time between buses shorter.
- Key service changes proposed in IndyGo Forward include service modifications to support the new Downtown Transit Center and planned rapid transit lines.



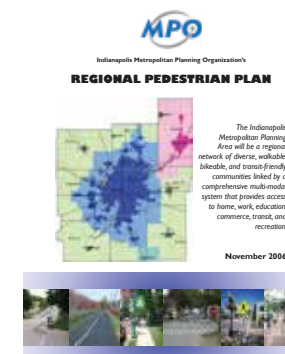
Transit-Oriented Development Strategic Plan

- Framework to guide land use and development around four planned rapid transit corridors in Central Indiana.
- Assesses characteristics of each corridor individually to determine the potential for transit oriented development and will inform corridor routing, station locations, and future phases.
- Discusses station area planning and design, briefly addressing pedestrian issues in terms of connectivity and sidewalk availability.



Quality of Life Plans

- Developed for nine Indianapolis neighborhoods: Binford Area, Crooked Creek, Northwest Area, Mid-North Neighborhood, Northeast Corridor, Near Eastside, Near Westside, Southeast, and West Indianapolis.
- Engaged residents in a community building and visioning process to create a living guide for decision making.
- Identified neighborhood-specific assets and opportunities, goals and objectives, and work plans with action items to guide implementation, including needed pedestrian infrastructure improvements.



Regional Pedestrian Plan

- Completed in 2006 by Indianapolis MPO to establish framework for creating a comprehensive and regional pedestrian network.
- Defined goals and objectives, recommendations, and funding opportunities, leaving adoption and implementation to local jurisdictions.
- Serves as a reference document for communities as opportunities arise for pedestrian improvements.



Complete Streets Policy

- Passed by Council in 2012, the Indianapolis ordinance was the strongest in the nation, viewing Complete Streets as “integral to everyday transportation decision making.”
- Requires “all city-owned transportation facilities in the public right-of-way” and “privately constructed streets and parking lots” to adhere to the policy.
- City to use best design standards available and measure success regularly.

WHAT MAKES A CITY WALKABLE?

Almost everyone has a favorite place to walk. Though if you ask people what makes their favorite place so great, you’re likely to get a range of answers. For some people, walkability means that there are shops and restaurants to visit. For others, it means that there are nice sidewalks and shade trees. Still others will tell you that it’s all about getting from one place to another as efficiently as possible. The truth of the matter is that they’re all valid!

At its core, a walkable city is one where pedestrian transportation is convenient, safe, and enjoyable. Walkable places are the result of partnerships between city departments, the private sector, and individual residents, all of whom have some role in creating great places for people to walk. Most of the policy-level impacts to walkability are controlled by the City of Indianapolis; think about these as the “levers” that the city can use to help make a place more walkable.

Six levers of walkability in Indianapolis are described below and can be used to assess a neighborhood’s ability to support walking. Although applying these levers in an area won’t automatically create a walkable community, a place that is missing many of these elements is unlikely to support much walking. Until these levers are embraced, walking won’t be seen as a routine and expected part of life across Indianapolis.

Each lever is important and works in concert with the others to shape walkability. Just because one of these elements is missing in a neighborhood doesn’t automatically mean the area is unwalkable. Rather, Indianapolis’ streets, cultural districts, and neighborhoods lie along a spectrum of walkability. As the levers are adjusted, these places move along the spectrum, hopefully toward becoming more walkable.



Lever #1: Pedestrian-oriented design. Streets in a walkable community need to be designed first and foremost for people who are walking, both along streets (sidewalks and paths) and across it (at intersections or at midblock locations). Many streets in Indianapolis accommodate people walking at the most basic level—for example, they may have a sidewalk—but they are not designed for comfort and are not likely to encourage walking for transportation or recreation. Streets should not treat people

walking as an afterthought; rather, they must be designed for people of all ages and abilities. For those that walk or roll using a mobility device, a street should offer a well maintained sidewalk of comfortable width, high visibility marked crossings with walk-friendly signal timing, refuge islands

at major crossings, street trees and other buffers from traffic, lighting, and features that make walking pleasant. Shelby Street in Fountain Square and many streets in downtown Indianapolis provide these features.

While sidewalks and intersections should not be designed the same, Figure 1 demonstrates the sidewalk zones that should be considered when designing a sidewalk corridor and Figure 2 illustrates key design elements of safe and comfortable intersections. These are the types of improvements and designs that make people feel safe and comfortable while walking.

Figure 1 Sidewalk Zones

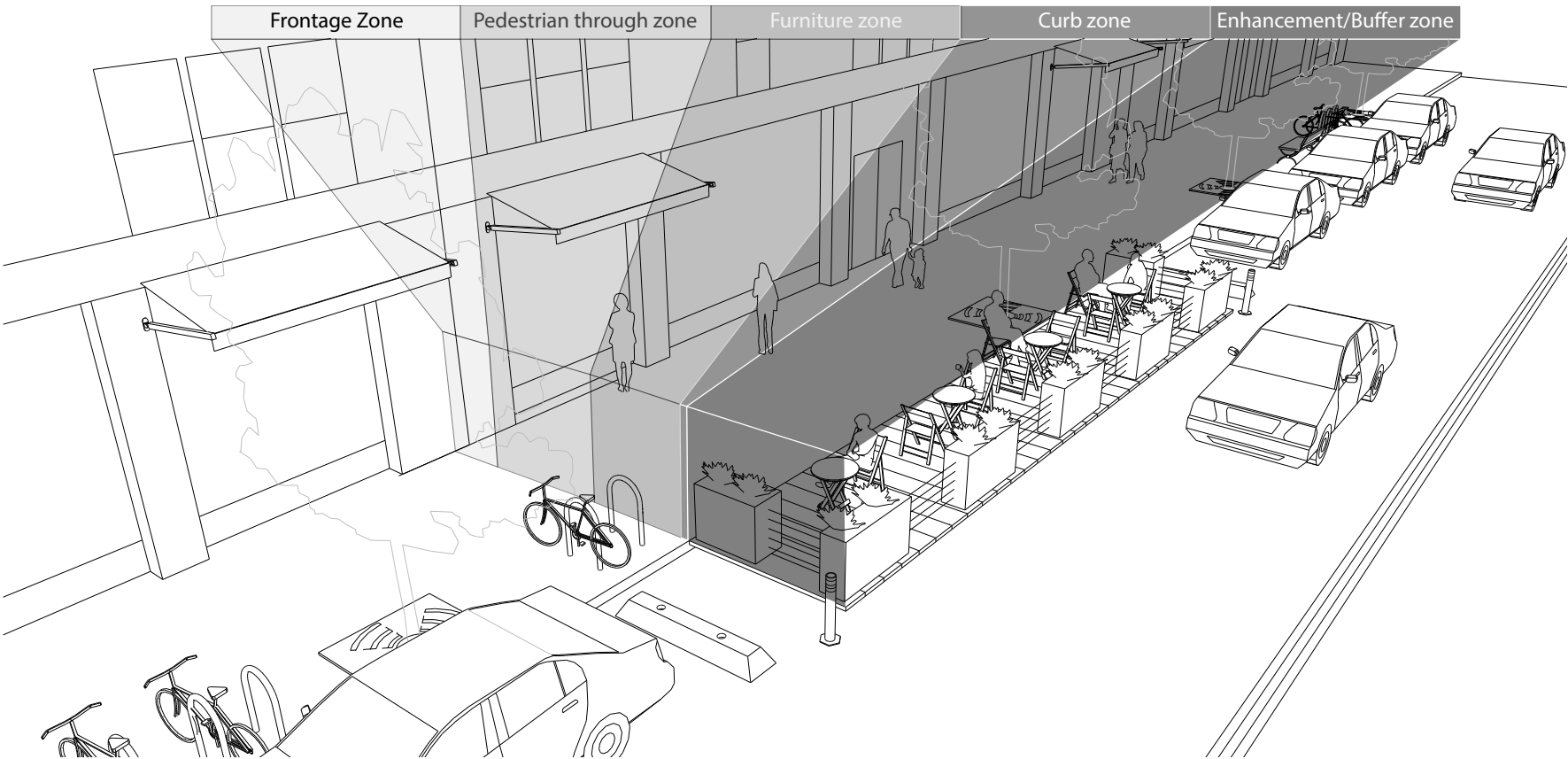
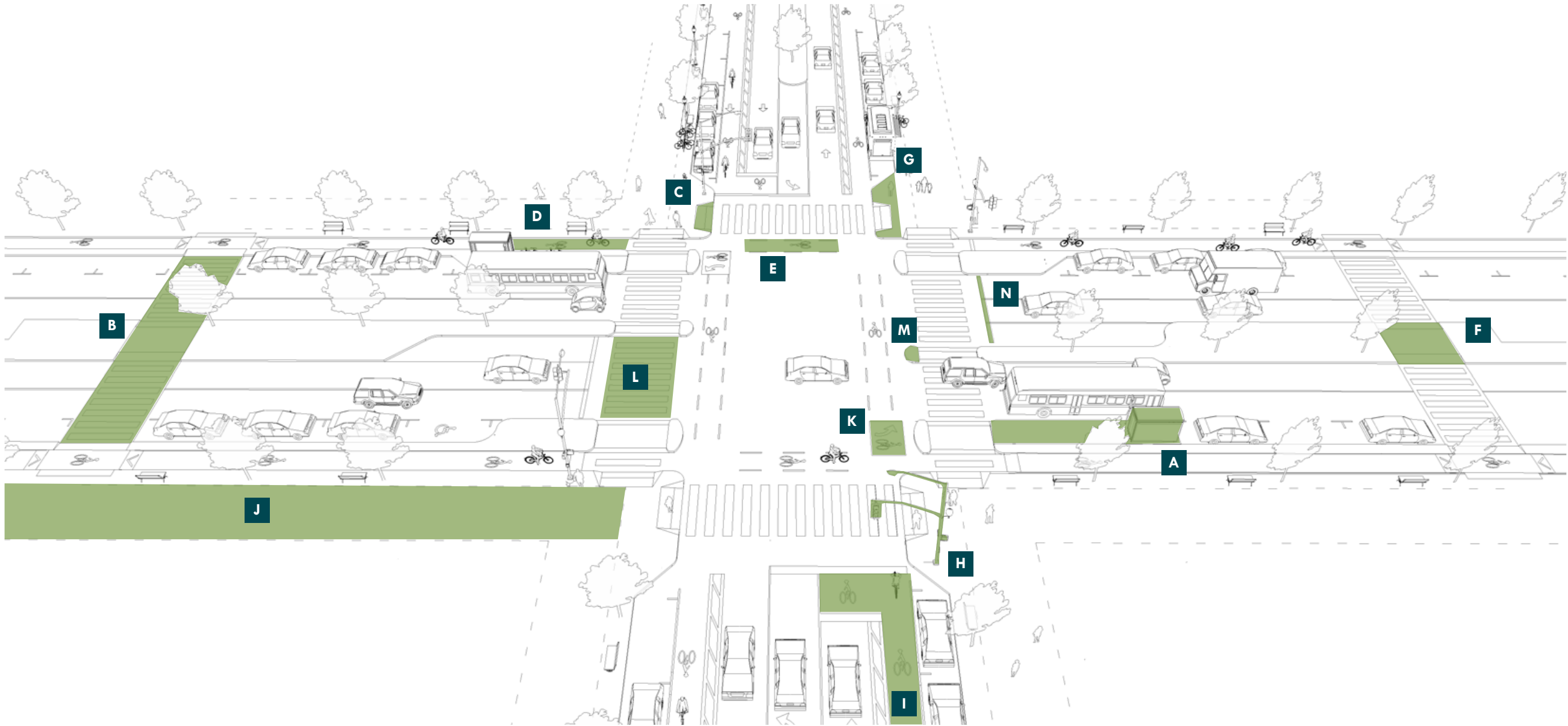


Figure 2 Complete Intersections

- A** **Far-side stops/Bus bulbouts**
Far-side stops minimize operational delay and allow buses to move out of the intersection, so that turn movements behind them can continue to occur. Bus bulbouts move passenger shelters or queuing areas away from the pedestrian zone and reduce pedestrian crossing distances.
- B** **Mid-block crossing**
Mid-block crossings provide direct walking routes and reduce the effective length of the block.
- C** **Accessible curb ramps**
Curb ramps safely and seamlessly connect individuals with limited mobility between the sidewalk and street. Curb ramps are tactile to ensure legibility for sight-impaired users.
- D** **Bike-transit integration**
Bicycle and transit facilities are designed to reduce conflicts between bikes, transit vehicles, and pedestrians.
- E** **Intersection bicycle crossing**
Intersection markings indicate the safe, direct, and visible path of bicyclists traveling through an intersection or driveway conflict zone.
- F** **Pedestrian refuge islands**
Refuge islands reduce crossing distances, improve pedestrian visibility, and facilitate crossings across longer crosswalks.
- G** **Curb extensions**
Curb extensions continue the sidewalk into the parking lane at intersections or mid-block locations to improve visibility of pedestrians waiting to cross, reduce crossing distances, and provide additional space for placemaking features.
- H** **Signalization**
Traffic signals control vehicle and pedestrian movement at intersections or mid-block crossings.
- I** **Colored bike boxes**
Designated priority queuing areas for bicycles that help clear an intersection quickly and help reduce right-hook collisions.
- J** **Sidewalks**
Spacious, clearly defined, and continuous sidewalks are requisites for Complete Streets and transit-oriented neighborhoods.
- K** **Two-stage turn queue boxes**
Turn facility allowing cyclists to safely and comfortably exit cycle tracks or bike lanes that require bicyclists to negotiate difficult lane merges.
- L** **Crosswalks**
Highly visible and defined crosswalk facilities ensure safe and comfortable crossings.
- M** **Median nose**
Median noses provide additional protection for crossing pedestrians and slow left turn movements.
- N** **Advanced stop bars**
Stop bars increase automobile stopping distances from crosswalks, thereby improving crossing comfort.



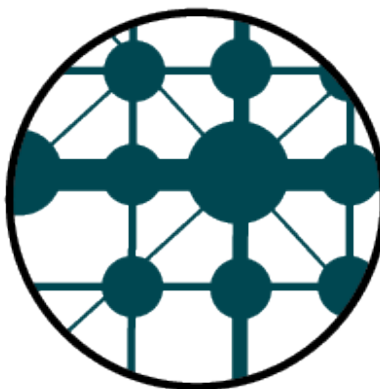


Lever #2: Dense networks of streets, trails, and greenways. The network of streets, trails, and greenways must be designed to focus on people walking rather than simply on moving vehicles. A dense pedestrian network, as seen in the neighborhoods immediately north and east of downtown, will reduce walking distances and provide people with a variety of routes they can use to get from one point to another. While major arterials like Washington Street might be on a half-mile to one-mile grid, walkways and crossings need to be on a much tighter grid, ideally no more than every 300 feet.



Lever #3: Mixed-use environments. A good environment for walking is one that has a mix of land uses, including those that are supportive of transit. Single-use environments—for example, a residential neighborhood with no shops or restaurants—make it difficult for people to walk to places that help meet their daily needs and make it nearly impossible for people to make multiple stops as part of a single trip. In contrast, a neighborhood with a diverse mix of land uses—like Cottage Homes, Fall Creek Place, Fountain

Square, and Old Northside—allows people to live, work, and play in one area, which translates to convenient and shorter trips that can often be made on foot. Indy Rezone aims to create more mixed-use environments, connected by frequent transit services like the Red Line bus rapid transit corridor.



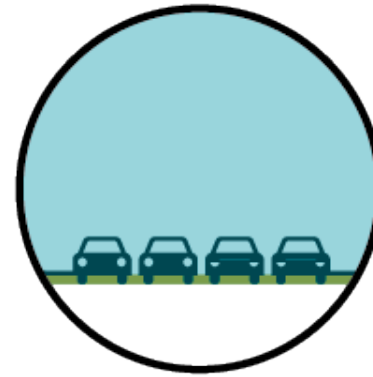
Lever #4: Understandable and organized around centers. The most walkable places are the ones where people intuitively can find their way around (understable) and where the main destinations are organized around a central spine or series of nodes (central). A grid system with numbered streets is typically very easy for people to understand, and wayfinding can help to make a place more legible. Centrality is achieved when people consistently travel along the same route (a highly travelled corridor

like Meridian Street or Massachusetts Avenue) or to the same location (a square or plaza like Monument Circle or Fountain Square) for various reasons throughout the day (to school, to work, to catch the bus, to play, to shop). The overlap of travel patterns and destinations creates interesting and desirable places to walk, provides an economic boost to corridors and centers, supports transit, and encourages informal interactions that increase people's sense of comfort, security, and community.



Lever #5: Direct and comfortable connections to frequent transit. Transit-oriented communities are walkable communities. Indianapolis currently has what might be described as “islands” of walkable places. These include new development nodes near downtown and established neighborhood centers like Broad Ripple. While the islands themselves support transit use, this type of patchwork development can incentivize more driving because of the lack of connections between places. Neighborhoods designed to encourage

driving counters broader efforts to improve walkability throughout the city. The ability to walk directly and comfortably to transit is important in creating walkable places.



Lever #6: Managed parking and right-of-way. It may seem that parking and driving are not related to walking at all. Yet, the way a city designs and manages both parking and the public right-of-way overall is integral to creating walkable places. If roadways support the movement of vehicles over the movement of people and there are few disincentives to driving, then everyone will drive. This is largely the case in Indianapolis—a place that has a long history of driving culture

and automobile-oriented policy and investment decisions. Managing transportation demand and parking through pricing and incentives can help to change behavior. Balancing the design of Indianapolis' roadways to match Plan 2020 and Indy Rezone goals will promote walking and more active transportation. This balance has been achieved on many streets in Indianapolis, including Pennsylvania Street between St. Clair and Michigan streets, Broad Ripple Avenue, and the entire Indianapolis Cultural Trail alignment.

INDIANAPOLIS' PEDESTRIAN LAND USE TYPOLOGY

The walking environment varies across Indianapolis. After all, many years ago, what is now Indianapolis was a number of separate communities and unincorporated areas. Post-consolidation, the city's neighborhoods, corridors, and streets have distinct characteristics and adhere to the six principles of walkable places to varying degrees. Most neighborhoods have at least some features of walkable places, but what we consider to be walkable in one part of the city may not meet our definition of walkability for another part.



What is a Typology?

Creating well-designed, walkable streets starts with an understanding of the street context. Each street has a different condition that merits context-specific designs and features. A typology classifies streets by their common characteristics and land use conditions, helping a city choose appropriate designs for different streets and public spaces.

This is because Indianapolis’ diverse land uses create environments for which people have different expectations. For example, in the more rural areas of the city near the edges of the county line—particularly to the east and south of downtown—most people wouldn’t expect to see sidewalks on both sides of the street. In fact, it might even seem strange to have a sidewalk next to a corn field. But in Broad Ripple—a mixed-use neighborhood that has shops and restaurants within walking distance of many homes—people might feel that streets without sidewalks and well-marked crossings are in need of improvement. Walkability is important in all contexts, although it looks different in different parts of the city.

Land uses and the streets that connect people between destinations are the two most important factors linking the six levers of walkability to reality. Because of the land use diversity in Indianapolis described above, walkability improvements are not “one size fits all.”

New land use types were recently adopted for the city based, in part, on Indy Rezone and the near-complete Comprehensive Plan.. Building upon this, the Pedestrian Plan will include a pedestrian land use typology that establishes a continuum of land use diversity, density, and transportation connectivity. This pedestrian land use typology builds on that work with modified land use types that tie the land uses directly to the unique conditions encountered by people walking through the city. Many neighborhoods and corridors have characteristics described in these six pedestrian land use types:



Central Business District (CBD): Focused around downtown land uses, the CBD typically has wide sidewalks with some landscaping as well as safe, highly visible pedestrian crossings. Streets with medium-density housing just blocks from this district, however, may have missing sidewalks. Sustaining a dense network

of safe streets in the neighborhoods around the CBD can be a challenge, as there can be frequent conflicts between motorized traffic and people walking. Peripheral areas may have aging sidewalks in poor condition, making walking especially difficult for people who use mobility devices.



Maturing Village (MV): Inner ring development nodes adjacent to downtown, like Lockerbie Square and Fountain Square, have concentrated and mixed land uses and are generally well connected to adjacent single-family residential neighborhoods. However, high volume urban streets can encourage speeding by drivers and increase conflicts

at intersections. Crosswalks are not consistently well marked, and some pedestrian countdown signals may not allow enough time for older adults or people with disabilities to cross comfortably. At times, competition for sidewalk space by pedestrian-friendly uses, such as sidewalk cafes, can force trade-offs in the types of features available.



Village Access Corridor (VC): These multimodal corridors are largely found in inner ring neighborhoods, mostly adjacent to downtown, and connect people between villages. Massachusetts, Virginia, and Indiana Avenues are examples of this type of corridor. As in the Maturing Village typology, high volume urban streets can present turning conflicts at

intersections and encourage speeding. Crosswalks may be well marked, but signals are typically widely spaced, making street crossings a challenge. At times, competition for right-of-way space, such as between sidewalks and utilities, forces trade-offs that may not favor people walking.



Growth Village (GV): Focused on outer ring commercial village centers, like Irvington, Castleton, and Devonshire, Growth Villages are not within walking distance of downtown. Land uses are often segregated, which reduces the number of destinations within walking distance. Additionally, limited street connectivity forces people to walk long distances to

connect between destinations, transit stops, and neighborhood streets, which is particularly challenging for people using mobility devices. Street lighting may be lacking on neighborhood streets, and missing sidewalks and curb ramps can make walking particularly challenging.



Mobility Corridor (MC): Connections between Growth Villages and between Growth Villages and the CBD are often made by these auto- and transit-oriented corridors focused along outer ring and radial corridors. Typically beyond a walkable distance of downtown, Mobility Corridors are characterized by wide, high-speed

arterial streets that create barriers between neighborhoods and force long crossing distances at intersections. In many cases, pedestrian comfort and safety at intersections may be compromised by a lack of marked crossings, pedestrian signals, or curb ramps. In general, Mobility Corridors prioritize vehicle capacity over walkability.



Rural (R): In primarily agricultural production lands or areas experiencing suburban development patterns, sidewalks and crosswalks are largely unavailable. Limited supports for walking create challenges for those accessing transit and those who choose not to or are unable to drive. Destinations are typically too far apart for walking to be a viable option.

Figure 3 illustrates key features of each pedestrian land use type, recognizing that there will be exceptions within them. The general level of sidewalk coverage and transit access is defined by the land use types. Additionally, the quality of the pedestrian environment may be impacted by factors beyond those described in the typology.

Figure 4 presents the pedestrian land use types as they relate to the Indianapolis’ base Comprehensive Plan land use types. The pedestrian land use typology reinforces the Comprehensive Plan land use types and does not supersede them. Figure 5 shows the locations of land use types throughout Marion County.

Figure 3 Indianapolis’ Pedestrian Land Use Typology and General Characteristics

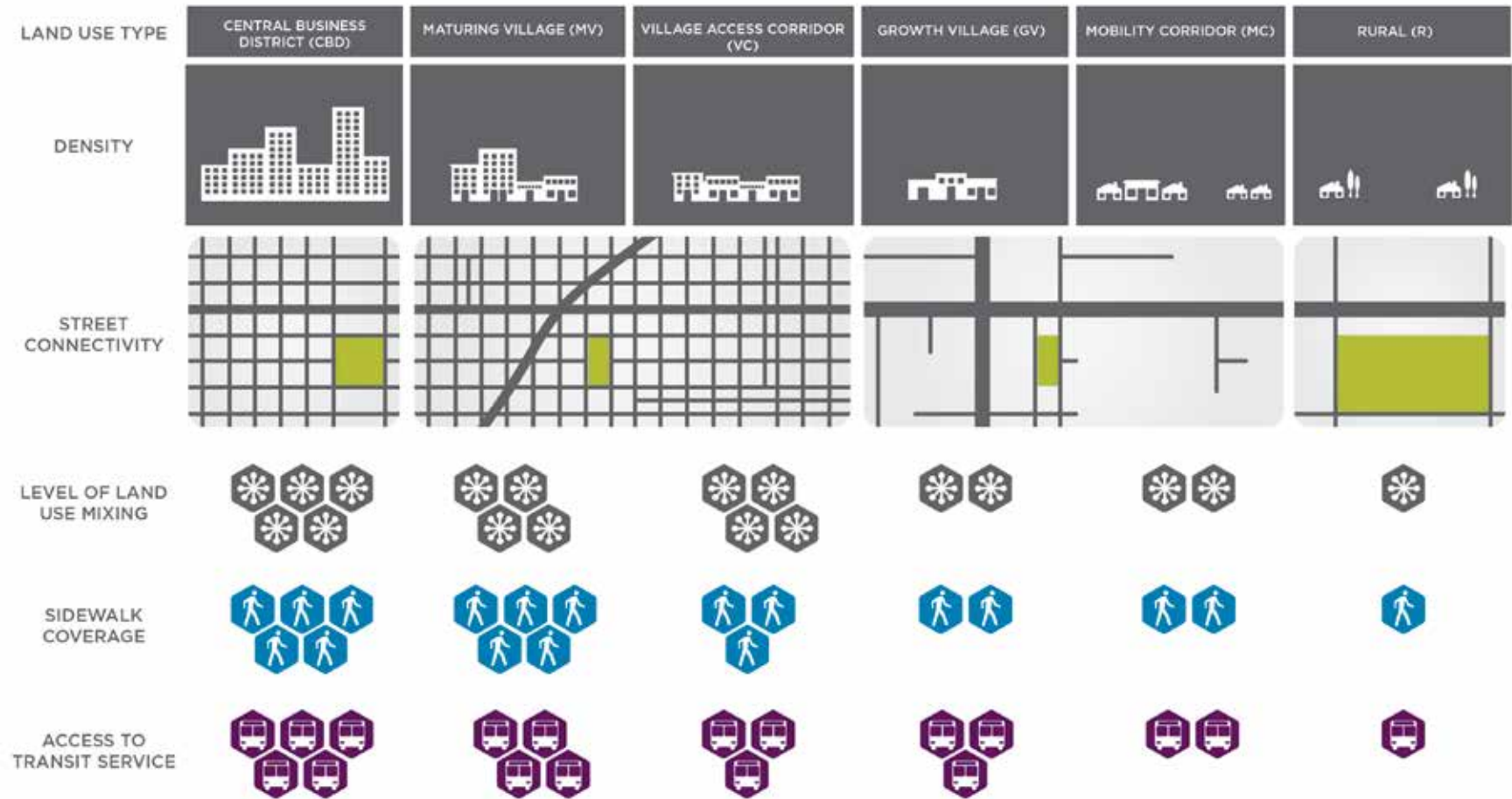
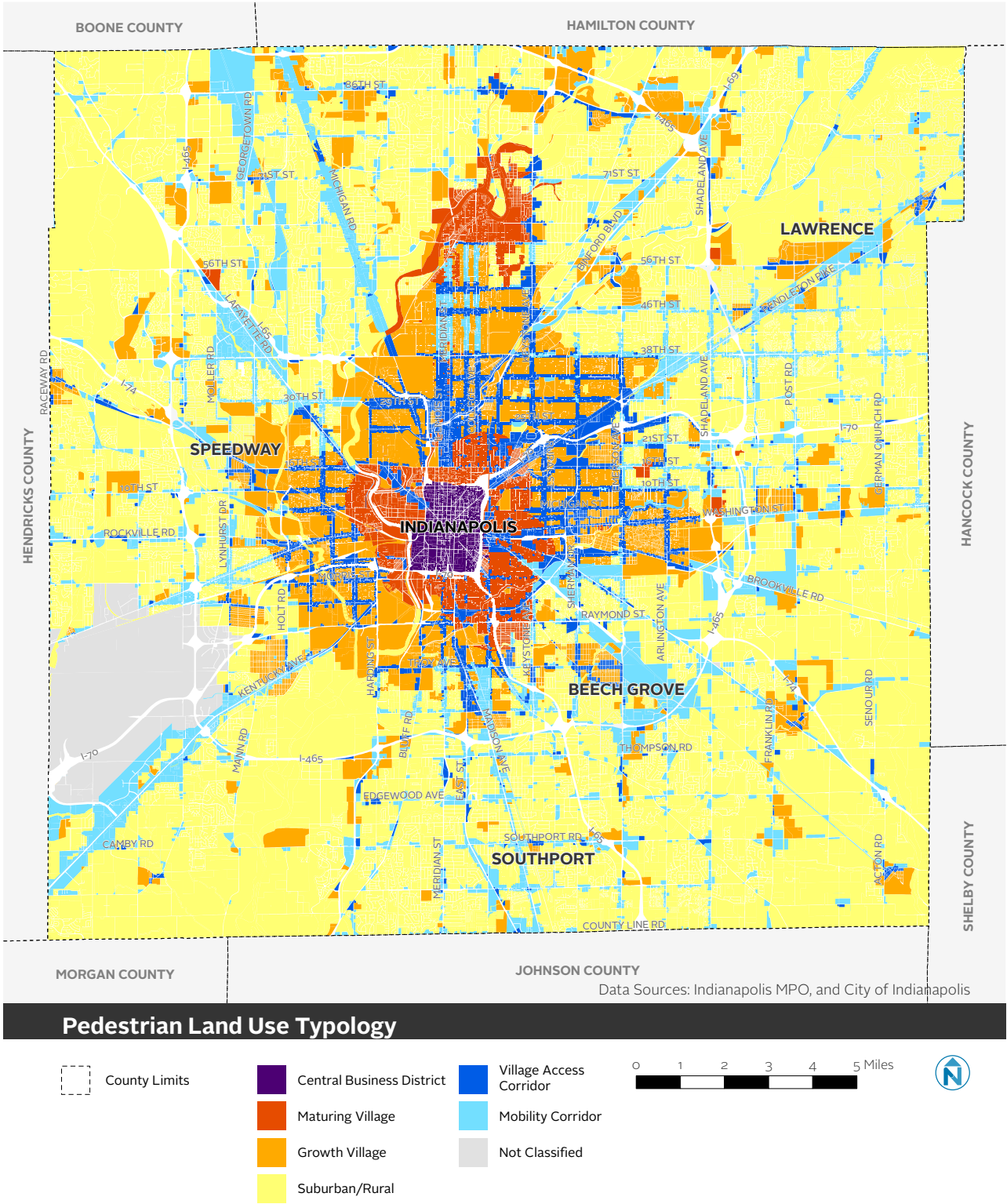


Figure 4 Connecting the Base Comprehensive Plan Land Use Types to the Pedestrian Land Use Types

COMPREHENSIVE PLAN		PEDESTRIAN PLAN
LIVING DISTRICTS	Suburban Neighborhood	GV
	City Neighborhood	MV GV
	Traditional Neighborhood	MV GV
	Rural Residential	R
WORKING DISTRICTS	Office Commercial Uses	CBD MV VC
	Community Commercial Uses	MV VC GV
	Regional Commercial Uses	GV MC R
	Heavy Commercial Uses	GV MC R
	Office/Industrial Mixed-Use (Business Park)	GV MC R
	Light Industrial	CBD MV VC GV MC
	Heavy Industrial	MV VC GV MC
MIXED-USE DISTRICTS	Institution Multi-Use	CBD MV VC
	Core Multi-Use	CBD MV VC
	Urban Multi-Use	MV VC
	Village Multi-Use	MV VC GV
OTHER DISTRICTS	Park	CBD MV VC GV MC R
	Linear Park	CBD MV VC GV MC R
	Floodway	CBD MV VC GV MC R
	Regional Special Use	CBD MV VC GV MC R

Figure 5 Pedestrian Land Use Typology





KEY FINDINGS OF THIS CHAPTER

- There’s been a great deal of recent planning and policy work in Indianapolis that paves the way for a walkable future.
- Walkable places are built on six levers that combine to support people walking.
- Indianapolis’ pedestrian land use typology helps us identify the unique characteristics of and potential solutions for diverse areas of the city.



2 THE BASELINE

In Indianapolis, as in most cities, the availability and quality of sidewalks, crosswalks, curb ramps, lighting, and other supports for walking vary throughout the city. This is due, in part, to historical development patterns and requirements, limited transportation funding, and a general orientation toward automobile travel. The distribution of pedestrian infrastructure influences the way people move in Indianapolis and how they feel when they walk or use a mobility device around the city. The following sections provide a close look at who is walking in Indianapolis today, the funding available for transportation, and Indianapolis' current pedestrian infrastructure.

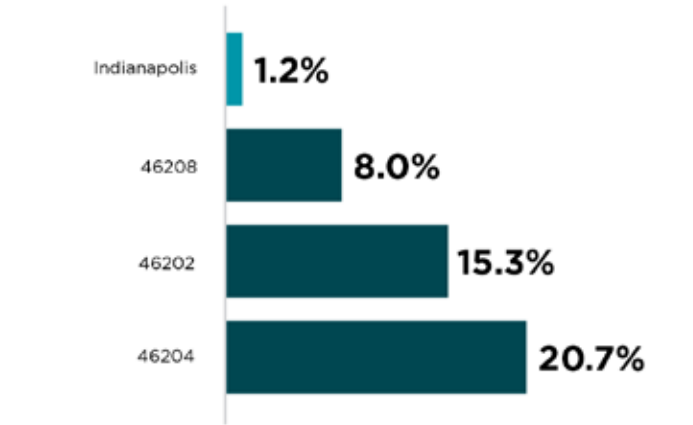
WALKING IN INDIANAPOLIS

Many of the stakeholders interviewed in the early stages of the Pedestrian Plan suggested that walking isn't a routine part of everyday travel in Indianapolis. People generally perceive that Indianapolis is a city where people drive to the places they need to go.

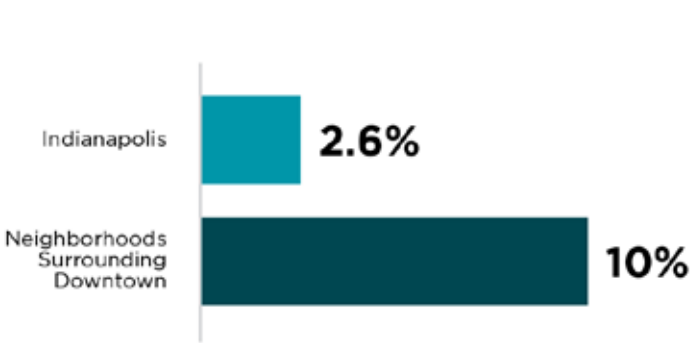
In reality, walking is the primary way that many people in Indianapolis get around. While only 1.6 percent of Indianapolis workers aged 16 and over walk to work, neighborhoods in the vicinity of downtown have walk-to-work rates that are comparable to those in some of the most walkable American cities. Between 8.0 percent and 20.7 percent of workers living in the three zip codes that extend north from downtown Indianapolis to Broad Ripple walk to work (zip codes 42602, 42604, 42608).

The percentage of people using transit provides another measure of who is walking in Indianapolis. Nearly every transit trip begins and ends with a walk to and from the bus. While just 2.6 percent of work trips in Indianapolis are made by transit, more than 10 percent of workers in neighborhoods that surround downtown take transit to work. Each workday, most of these people make up to four walk trips to reach transit or their final destination.

High Walk Mode Share Zip Codes



Transit Use Varies in Indy



While percentages of non-work trips made by walking are not available specifically for Indianapolis, non-work trips typically make up 68 percent of all trips in Marion County, compared to 80 percent nationally. Some of these trips are made on foot and by transit, meaning that the numbers of people walking in Indianapolis are certainly higher than just those walking to work.



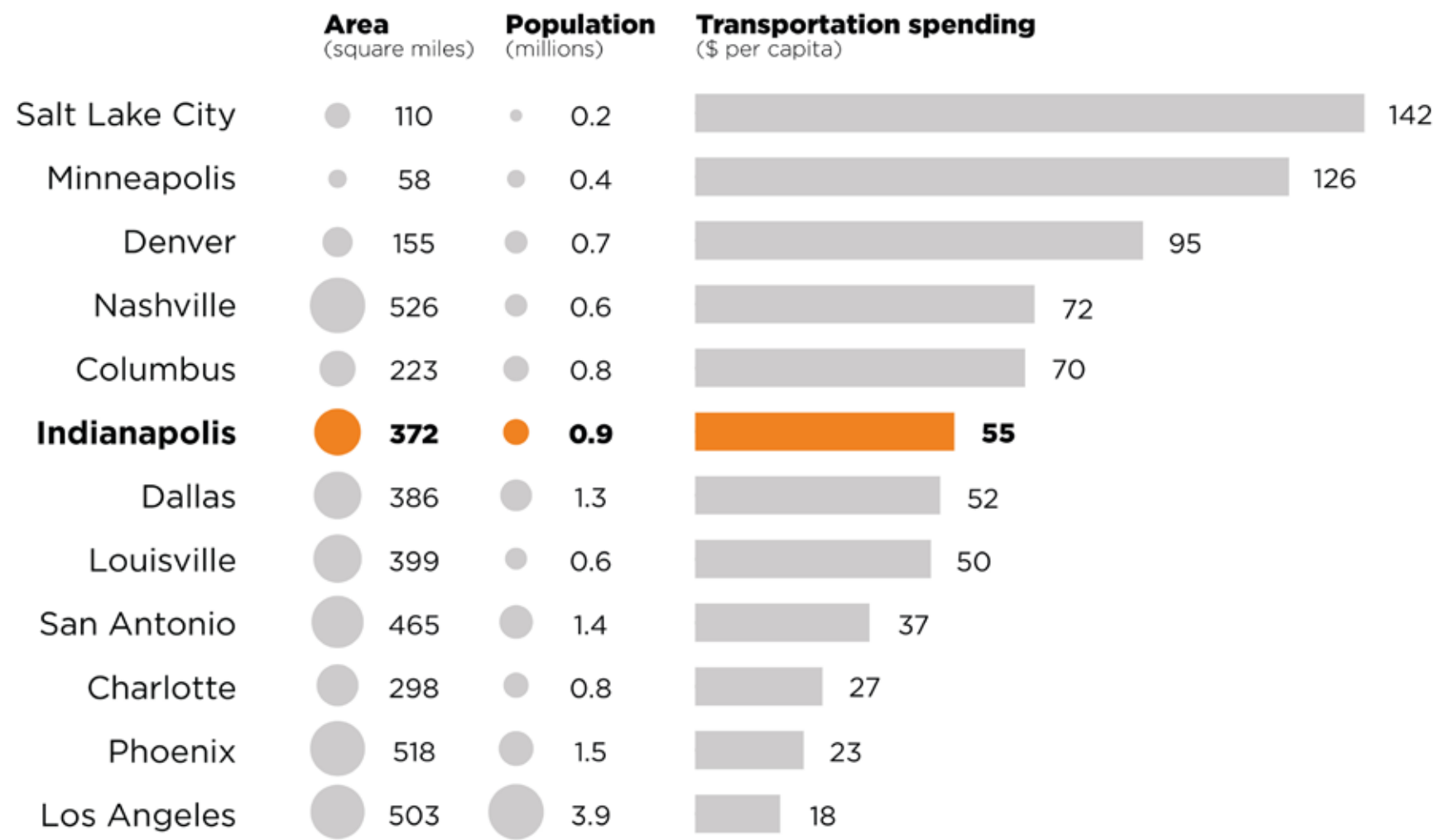
TRANSPORTATION FUNDING IN INDIANAPOLIS...AND BEYOND

Indianapolis is a large metropolitan area, covering 403 square miles. The city spends approximately \$50 million annually on transportation, which translates to \$125,000 per square mile. This funding is for all types of transportation projects, including those that enhance walkability. Indianapolis' spending translates to \$55 per person each year.

Figure 6 illustrates population size, total transportation spending, and per capita spending for Indianapolis, cities with similar land areas, current peer cities, and cities that might be considered “aspirational” peers for Indianapolis (i.e., cities that often serve as the benchmark for what Indianapolis is trying to achieve, based on feedback from city staff and stakeholders). When looking at cities with similar size populations—such as Dallas, San Antonio, and Phoenix—Indianapolis’ total transportation spending is comparable. However, Indianapolis spends less per capita than most of its peer cities and much less than those cities seen as great walking and transit cities (e.g., Denver, Minneapolis, and Salt Lake City).

In order to become a great walking city, Indianapolis will need to identify additional funding for transportation projects, especially those that benefit pedestrians. Continuing to spend at current levels means that Indianapolis will fall behind its current peers in terms of transportation infrastructure and investment. Additionally, this level of investment will leave Indianapolis far behind its aspirational peer cities.

Figure 6 Per Capita Transportation Spending

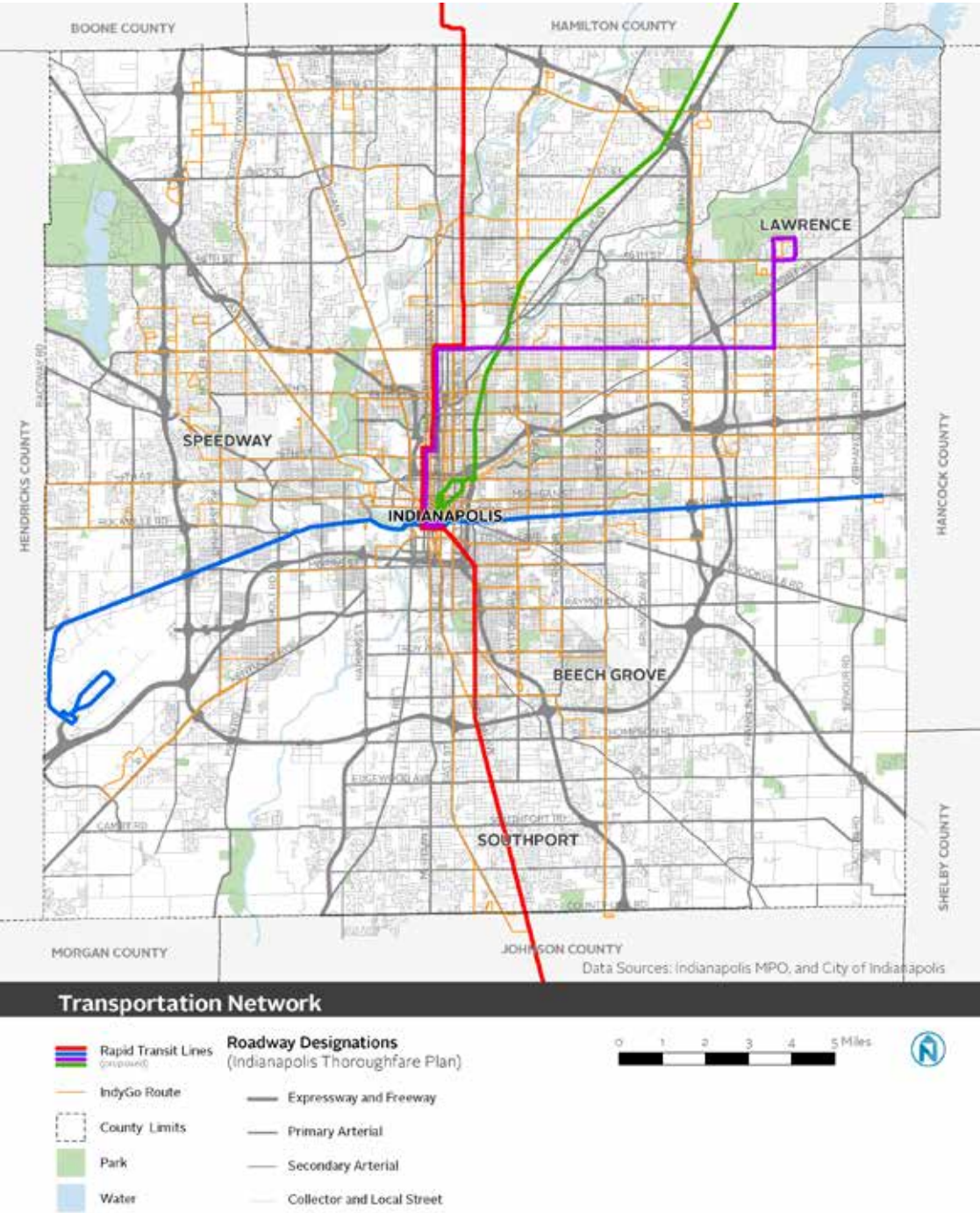


EXISTING INFRASTRUCTURE

Indianapolis residents need walking infrastructure that feels safe and comfortable in order to encourage walking. Walking infrastructure needs to make people feel respected and cared for—without supportive infrastructure, people may choose not to walk or take transit.

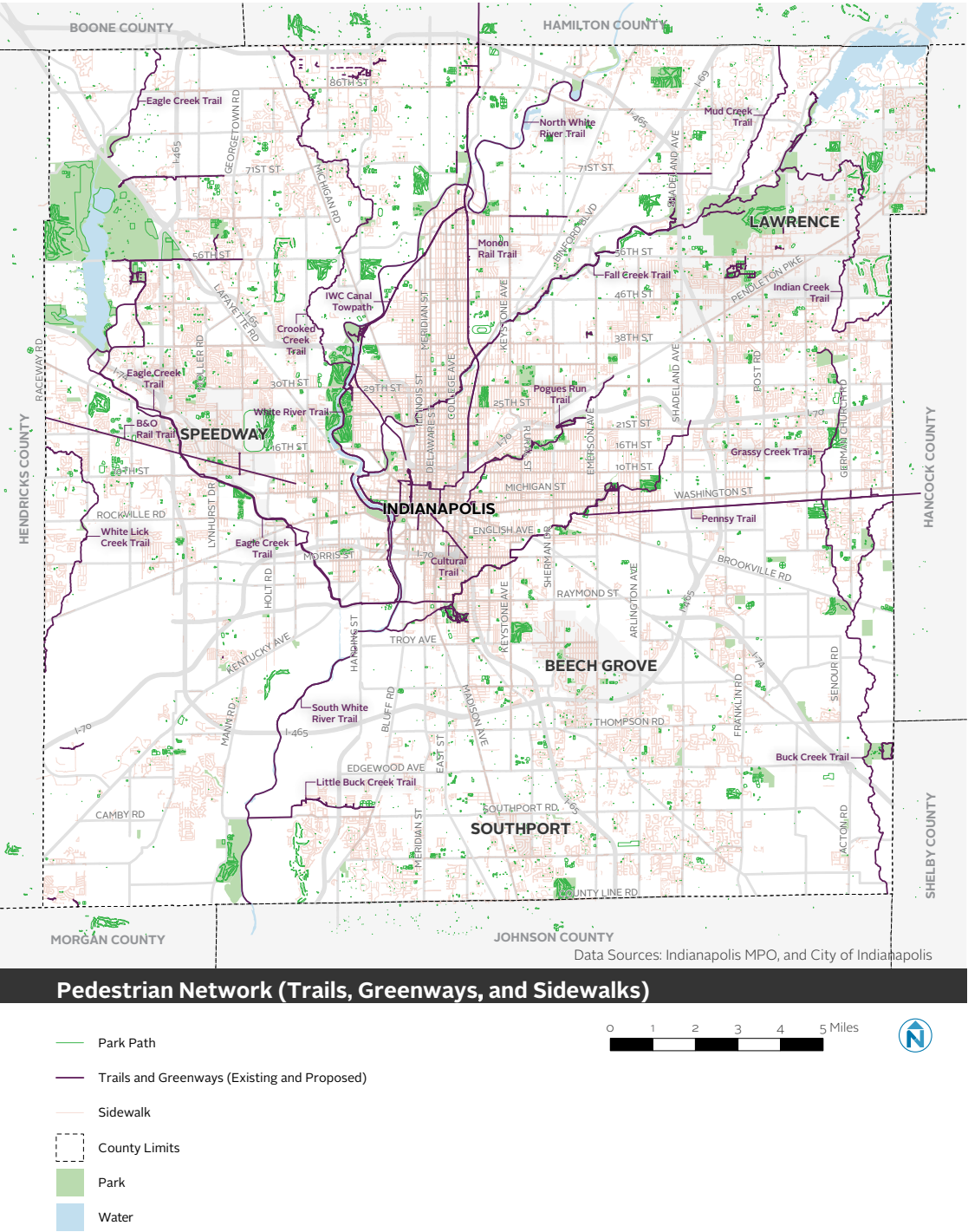
The following maps show the transportation network available for people walking in Indianapolis, establishing a baseline understanding of where infrastructure exists and where it is missing. In some neighborhoods, Indianapolis has an extensive sidewalk and trail network. Center Township and the older stock of inner ring neighborhoods have access to the greatest density of pedestrian infrastructure. Importantly, large sections northwest and southeast of downtown lack sidewalks or accessible curb ramps.

TRANSIT AND ROADWAY NETWORK



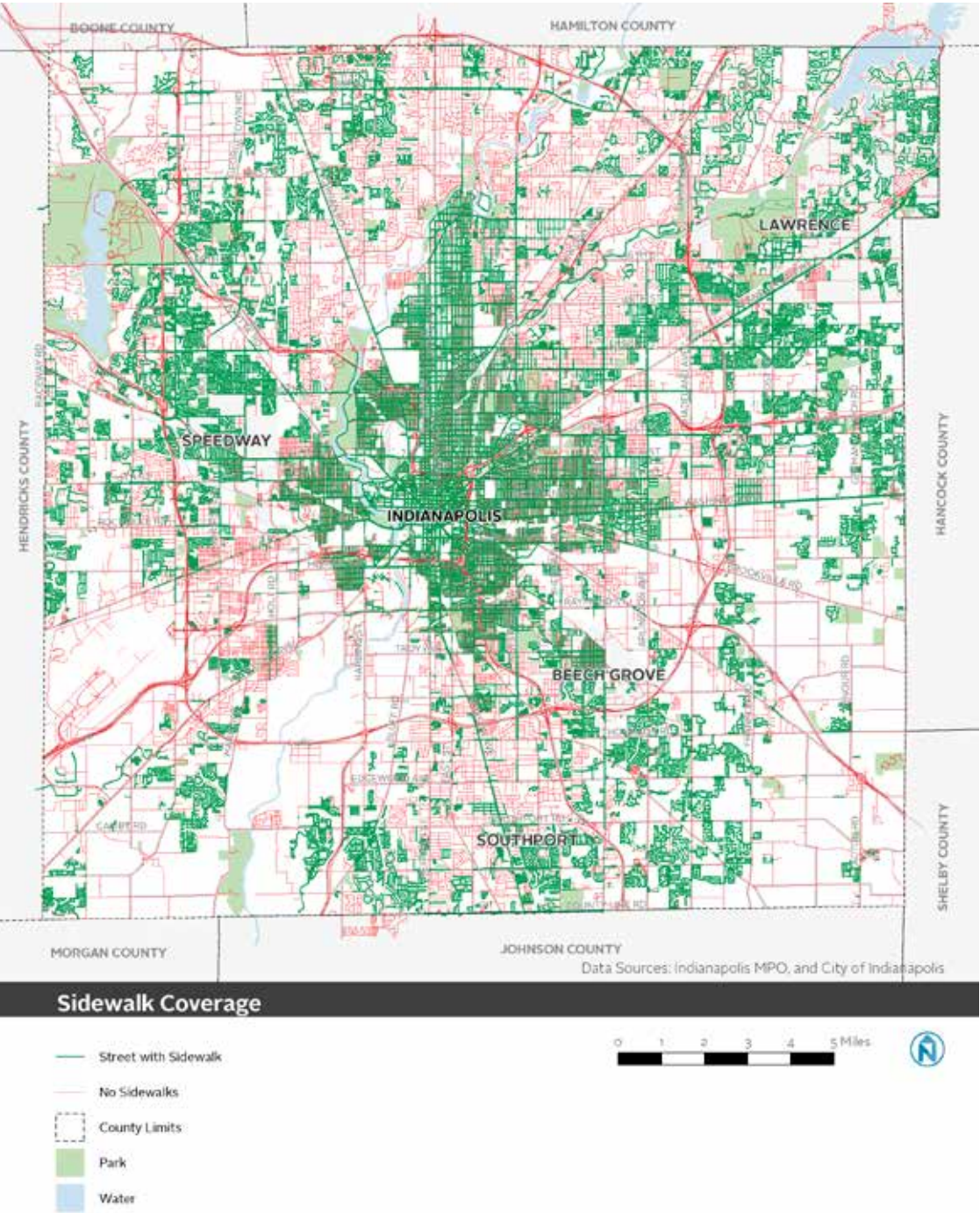
Indianapolis has an extensive street and transit network, but accessing these networks on foot can be challenging. The design, speeds, and volumes of Indy's major thoroughfares are major barriers for people walking along and across the street. Expressways also interrupt the pedestrian network in areas without underpasses or overpasses. The transit system—which spreads throughout much of Marion County—can help connect people to destinations that are too far away to reach on foot, but there are neighborhoods in the southeast and southwest of Indianapolis that lack transit services. Future rapid transit lines will radiate from Center Township, providing high quality, frequent transit service as well as enhanced pedestrian connections to transit stops and stations.

THE PEDESTRIAN NETWORK



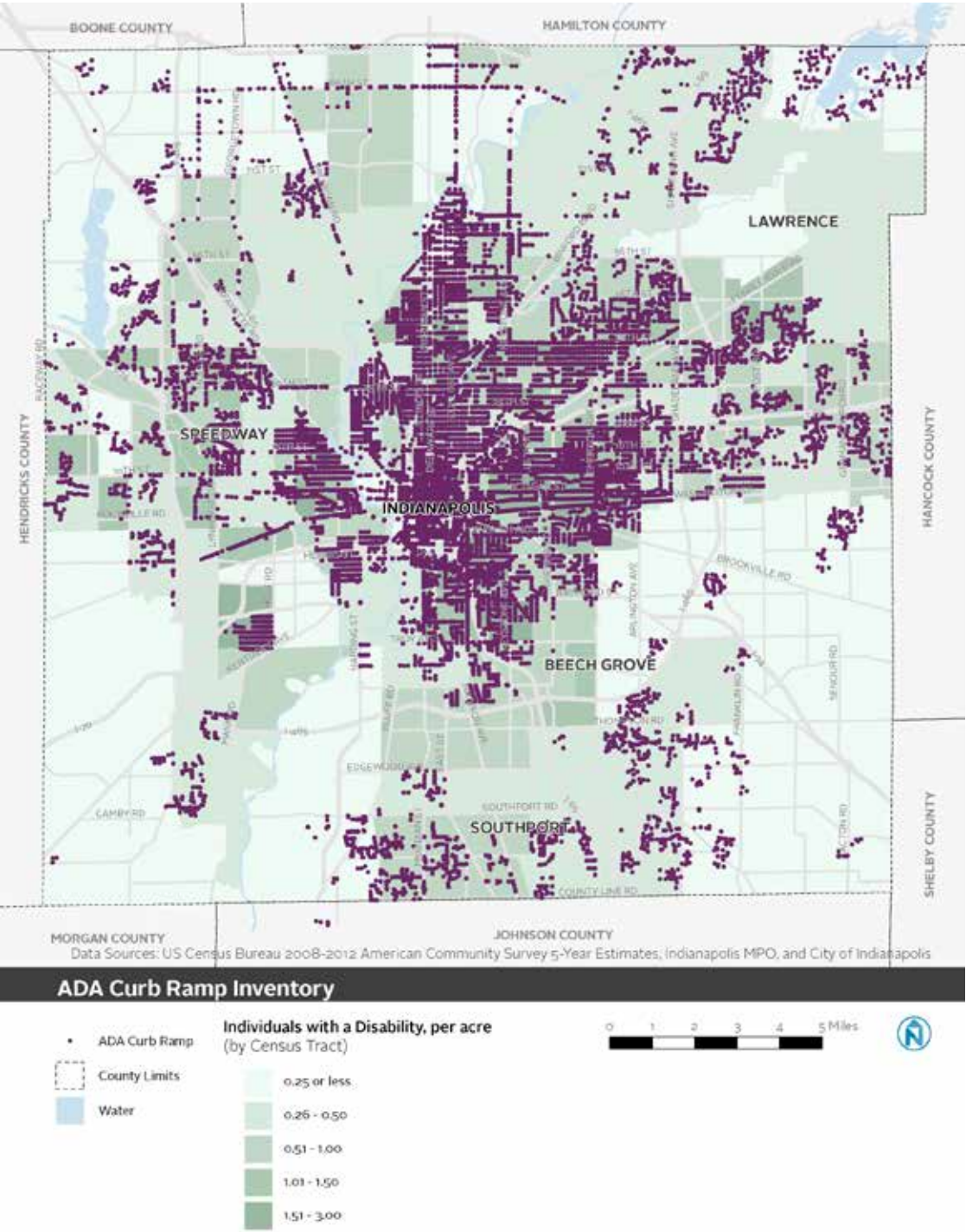
Indianapolis is home to a world-class trail and greenway network, including the Indianapolis Cultural Trail and the Monon Trail. Complementing the trail and greenway system is a network of linear pedestrian facilities including sidewalks, pedestrian bridges, and underpasses. Park paths also serve as neighborhood connectors and links between regional trail segments such as Eagle Creek Trail at Eagle Creek Park. The countywide system of 233 miles of trails and greenways weave together Indy's neighborhoods, offering an alternative, stress-free connection between neighborhoods and major destinations while encouraging active recreation. At the same time, the trail network is still not widespread enough to provide all of the walking infrastructure that's needed in neighborhoods that lack sidewalks.

SIDEWALK COVERAGE



Sidewalks provide a safe and comfortable space for people to walk, use a wheelchair, run, rest, or even enjoy a meal at an outdoor café. Sidewalks are the canvas on which public life is carried out in Indianapolis. The more sidewalk coverage available to a neighborhood, the more likely people are to spend time walking and achieve their daily recommended exercise. Many Indianapolis neighborhoods lack extensive sidewalk coverage resulting in large portions of the city where walking is not comfortable. In fact, a clear “arc” of missing sidewalks is apparent in the neighborhoods to the north, east, and south of Center Township. Sidewalks are concentrated in older, more-established neighborhoods and in the newest growth on the periphery of the urbanized area.

ACCESSIBLE CURB RAMPS



Curb ramps help people of all ages and abilities navigate intersections and other types of crossings. The presence of accessible curb ramps in Indy is almost identical to sidewalk coverage. Many parts of the city have curb ramps, yet they are not pervasive, particularly in outlying neighborhoods. On a positive note, areas of Indianapolis with more curb ramps correspond to areas of the city that have a greater density of people with a disability. This is likely due to a cycle of demand and supply: people with mobility impairments are more likely to seek housing in areas where the infrastructure best meets their needs. And at the same time, investments in curb ramps are likely to be made in areas where people request them.

EXISTING PROGRAMS AND STANDARD OPERATING PROCEDURES

The presence or absence of pedestrian infrastructure is an important factor in whether people will choose to walk. However, a city’s pedestrian programs and procedures also play a significant role in creating a place that supports walking. Programs can include education and encouragement programs—such as Safe Routes to School and walking campaigns—and procedures can range from a city’s approach to ensuring that sidewalks remain open during construction to requirements for accessibility.

Indianapolis has a number of very effective pedestrian-supportive programs but lacks standard operating procedures that can help to institutionalize a culture of walking at the municipal level.

PEDESTRIAN-SUPPORTIVE PROGRAMS

Many pedestrian-supportive programs in Indianapolis are currently operated by non-profit or partner organizations rather than by the city. Developing a city-led pedestrian program can help achieve a culture of walking in Indianapolis.

Rebuild Indy



- Initiative within Department of Public Works to help restore deteriorating infrastructure throughout Indianapolis.
- Planned infrastructure improvements go through project selection process that includes: (1) technical assessment conducted by engineers to determine quality and current conditions of pavement (road or sidewalk); (2) public input review to determine how many requests have been made for same project; (3) Councilor input to verify if a particular project is a district priority; and (4) Rebuild Indy meetings to solicit public input on projects.

Indianapolis Public Works Pedestrian and Bicycle Program



- Indianapolis Department of Public Works (DPW) builds and maintains streets, sidewalks, and bridges and maintains greenway trails throughout the city.
- Indianapolis Office of Sustainability manages SustainIndy under DPW and leads, coordinates, and collaborates on sustainability efforts, which include bicycle and pedestrian planning (bikeways and greenways).



Mayor’s Action Center

- Single portal through which residents of Indianapolis and Marion County can report issues and check the status of requests.
- Issues related to most types of city services can be reported, including but not limited to potholes, street maintenance, environmental concerns, zoning violations, stray animals, missed trash collections, traffic signals, and more.



Indy Parks’ Greenways Program

- Home to Indianapolis Greenways Development Committee that advises on development and management of greenways.
- Committee consists of 15 appointed volunteers.
- Released an update to Greenways Master Plan in 2014.

Indy Snow Force



- Responsible for snow and ice removal throughout Marion County.
- System for plowing streets starts with major thoroughfares identified as Primary Snow Routes then addresses secondary streets connecting to those major thoroughfares.
- Residential streets receive plowing only when city accumulates more than 6 inches of snow.
- Bike lanes along major thoroughfares and secondary streets are plowed as part of the street.
- Also responsible for clearing snow and ice from city greenways.
- Not responsible for clearing snow and ice from sidewalks (property owners and occupants are responsible and may face a fine of \$50 if found in violation).



Walk Urban Indy

- Works to get residents of Indianapolis to walk their neighborhoods to increase walking for exercise and neighborhood awareness.
- Provides route maps with directions to neighborhood destinations and assistance forming neighborhood walking groups.



Health by Design

- A coalition of diverse partners working in Indianapolis and communities throughout the state of Indiana to ensure neighborhoods, public spaces and transportation infrastructure promote physical activity and healthy living.
- Sponsor of the Pedestrian Plan, with funding through the American Planning Association.



Indianapolis Safe Routes to School Program

- Partnership between the City of Indianapolis and Health by Design, this program is designed to make walking and bicycling to school safe, convenient, and routine for students and families.
- Effort includes education, encouragement, engineering, enforcement, and evaluation activities and will lead to a county-wide Safe Routes to School plan.



Local Initiatives Support Corporation (LISC)

- National organization with local presence in Indianapolis established in 1992 as part of effort to address substandard housing in Indianapolis neighborhoods.
- Provides support and expertise to engage residents in transformation of their communities.
- Includes connecting communities to funders, sharing best practices, disbursing real estate loans, and providing or identifying grant opportunities.
- Facilitated Quality of Life Plans that have led to pedestrian-supportive actions in nine Indianapolis neighborhoods.

STANDARD OPERATING PROCEDURES AND TRANSPARENCY

Although individual departments within the city do have standard procedures to evaluate requests for pedestrian infrastructure, manage pedestrian access around construction sites, and ensure that city infrastructure meets the requirements of the Americans with Disabilities Act (ADA), many of these procedures are unwritten and not publicly accessible. In some cases, procedures are siloed between departments. Departments that commonly partner on a pedestrian project might not fully understand the procedures of another city department, which introduces barriers to effective coordination.

Examples of standard operating procedures that should be easy to find on the city’s website or, at the very least, be readily available to city staff are identified below. Key questions that should be answered as part of these standard operating procedures include the following:

Figure 7 Key Questions to be Answered by Standard Operating Procedures

Funding and Capacity	How are pedestrian projects funded? Is there a separate funding pool, or do they have to compete with other capital projects?
	What staff are assigned responsibilities related to pedestrian issues?
Development Review Process	How are projects reviewed to ensure they meet the city’s codes and requirements?
	What is the process for granting exceptions to requirements?
	When can a developer request (and be granted) the option to pay a fee instead of installing a sidewalk or other walking supports?
	Is there an opportunity for residents to provide feedback as part of this process?
Site Design Process	Who is involved in design of city projects? How are projects vetted across departments?
	What is the role of the Complete Streets Advisory Committee in project review?
	What opportunities does the public have for review and comment?
	Who is the final decision maker on project design?
ADA Transition Plan	What steps is the City of Indianapolis taking to ensure that its facilities (including pedestrian infrastructure) are ADA-compliant?
	In what way are projects being identified and prioritized?
	What did the citywide assessment of facilities indicate?
	How much funding is being allocated to implementation of the transition plan?
Crosswalk Warrants	How does the city decide where to mark crosswalks?
	What are the levels of pedestrian demand that indicate the need for a marked crossing?
	Are there requirements for signals, lighting, signs, or other safety features when a crosswalk is installed?
	What is the maintenance cycle for marked crossings?
Public Outreach Process	What types of outreach and engagement are required for public and private projects that impact pedestrians?
	At what points in the process should Indianapolis residents be consulted?
	How can people get information about upcoming projects?
	How can residents work with the city to make projects fit their neighborhood and support community goals?
	How are resident and Councilmember requests handled?



KEY FINDINGS OF THIS CHAPTER

- Despite limited walking infrastructure, many people already walk in Indianapolis for many kinds of trips.
- The area of the city with the most available pedestrian infrastructure is Center Township, including the older stock of inner ring neighborhoods.
- A number of well established walking programs already exist in Indianapolis, but the city lacks the capacity to deliver ongoing programming and planning-level oversight on walking infrastructure projects.
- Standard operating procedures are not consistent and not understood across departments, which makes coordination a challenge.
- The good news is that Indianapolis is starting from a solid foundation—there are a lot of great things happening in the city.

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3 MAPPING INDY

By looking closely at the factors that influence whether people can and will walk—including the ways that the environment impacts options, choices, and outcomes—it's possible to begin identifying the changes that are needed in Indianapolis to get more people walking.

26 | STATE OF WALKABILITY - FINAL

26 | STATE OF WALKABILITY - FINAL



LIFE EXPECTANCY AND WALKABILITY

Life expectancy is one way to illustrate the overall health of a population. Home location has a greater impact on life expectancy than almost any other factor. Areas with a low average life expectancy are often those where the built environment makes living a healthy lifestyle difficult. This may include limited access to safe places to walk or be active, lack of access to quality health care or healthy foods, and underinvestment or disinvestment in public infrastructure.

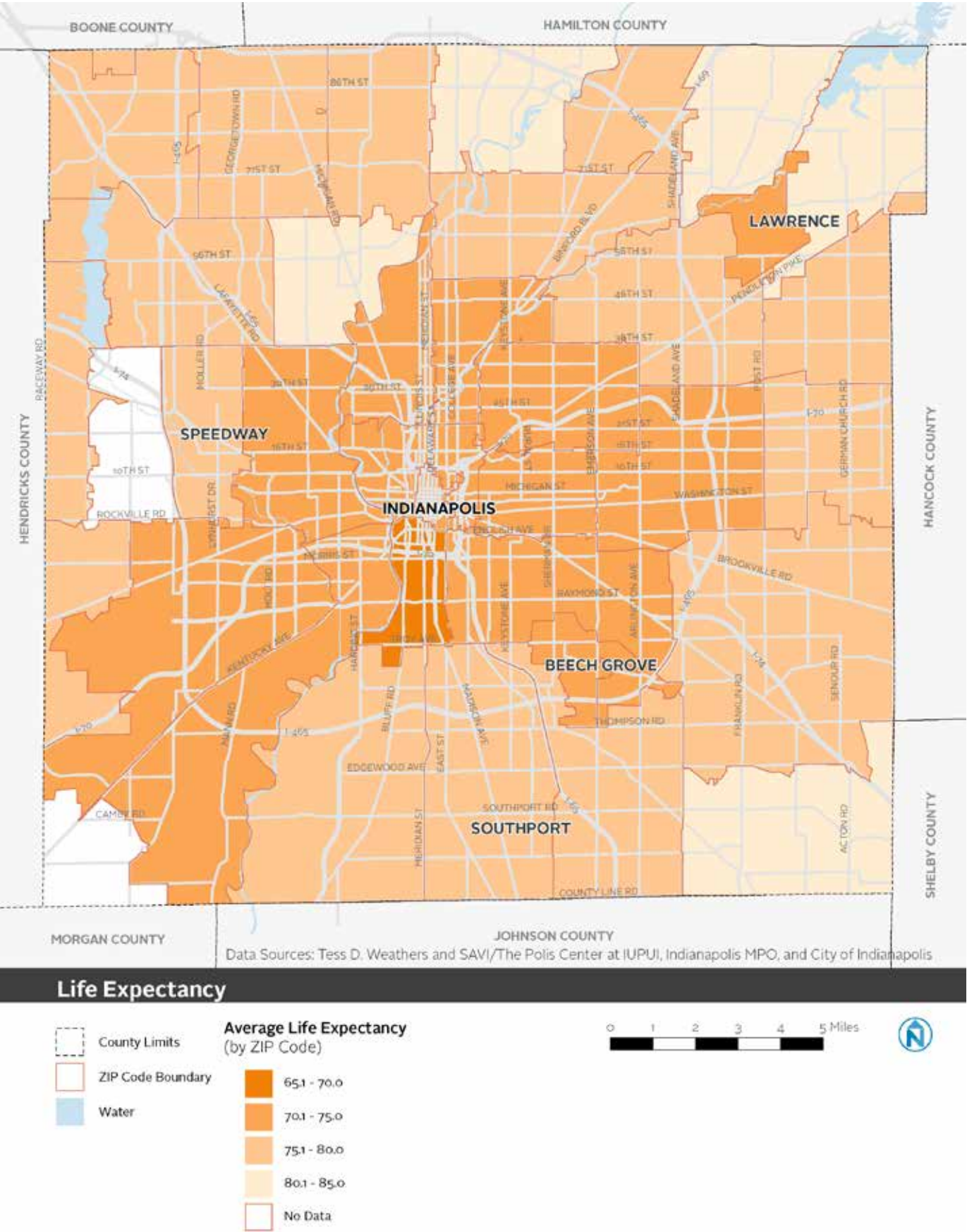
A recent report, *Worlds Apart: Gaps in Life Expectancy in the Indianapolis Metro Area*, produced by the Richard M. Fairbanks School of Public Health at Indiana University - Purdue University Indianapolis (IUPUI) in partnership with The Polis Center at IUPUI for the SAVI Community Information System, illustrates the stark differences in life expectancy throughout Indianapolis. In zip code 46033—a northeastern suburb of Indianapolis—residents have a life expectancy of 83.7 years, similar to some of the world’s healthiest countries (such as Switzerland and Japan at 83 and 84 years, respectively). Contrast this with zip code 46225, immediately south of Monument Circle, where life expectancy drops to 69.4 years—a figure that is worse than many developing countries.

More walkable areas of Indianapolis afford residents the opportunity to live healthier lifestyles and, in turn, increase their life expectancy. Some areas of Indianapolis have an average life expectancy greater than 80 years (such as in the far southeast and northeast neighborhoods); however, people’s lives are expected to be 10-15 years shorter in areas surrounding downtown Indianapolis. The lowest life expectancy in the city is in the downtown, Near Southside, and Garfield Park neighborhoods. While downtown does have walking infrastructure, other factors play a role in shorter life expectancies, including income.

Figure 8 Indianapolis Neighborhoods



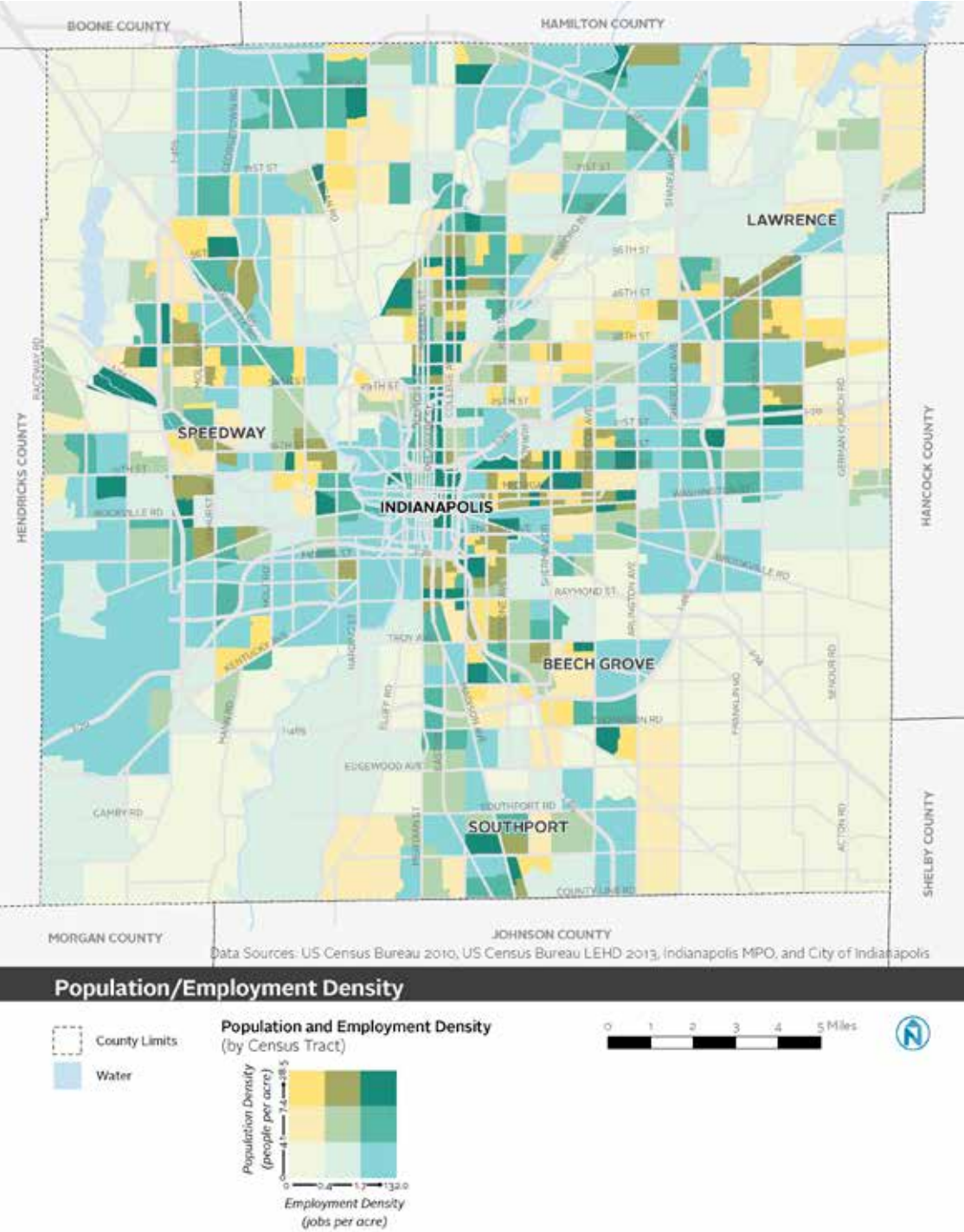
AVERAGE LIFE EXPECTANCY



PEDESTRIAN GENERATION

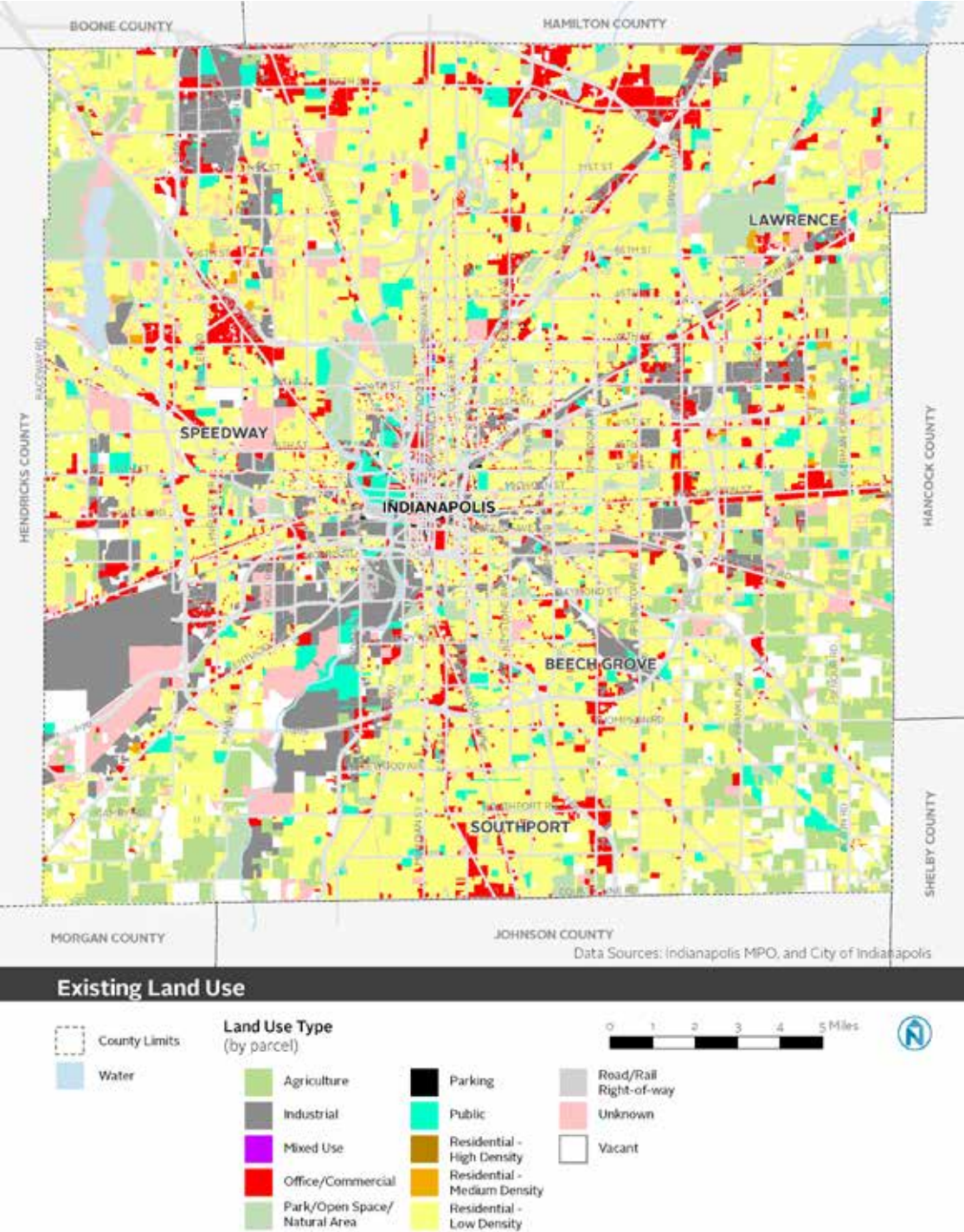
Whether walking to the bus, running errands, or getting their daily “steps,” most residents make several walk trips every day. Higher densities, mixed land uses, clusters of places to go, and specific types of destinations such as schools and transit stops typically generate more walking trips than areas without those characteristics. The maps that follow show how factors that encourage walking come together to indicate where there are major pedestrian-generating locations or conditions throughout Indianapolis.

POPULATION AND EMPLOYMENT DENSITY



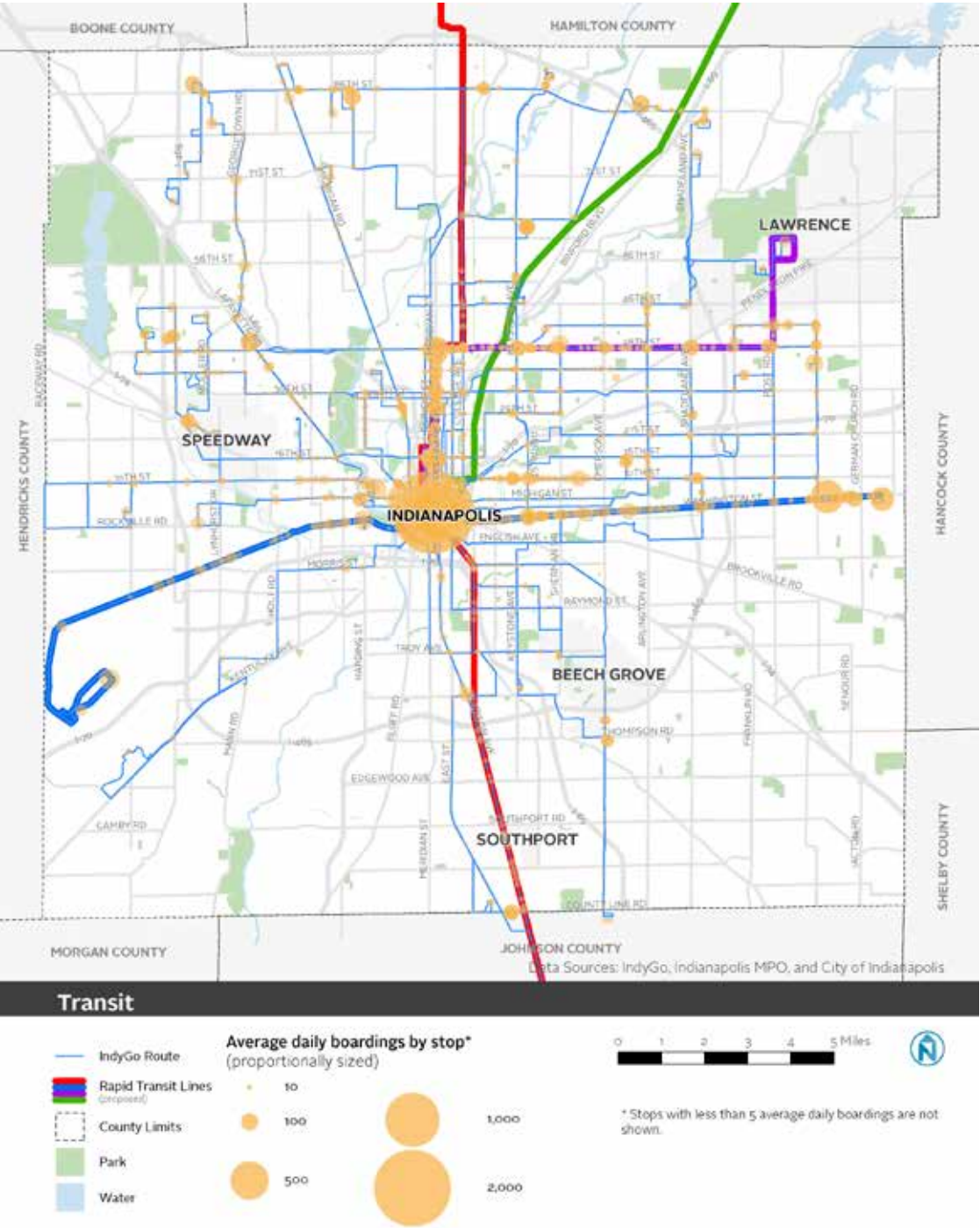
Population and employment density is a major driver of pedestrian demand. Areas with moderate to high density population and/or employment attract more people per acre and tend to have more destinations (and a greater variety of destinations) that are within a walkable distance. As density increases, people are more likely to run errands or make personal trips on foot, by bike, or on transit rather than in a car. The highest density areas in Marion County are concentrated in downtown Indianapolis and along spines radiating out of the core to the north, east, and south-southeast to areas such as Southport. These clusters of density also correspond with transit ridership (illustrated on the following page).

EXISTING LAND USE



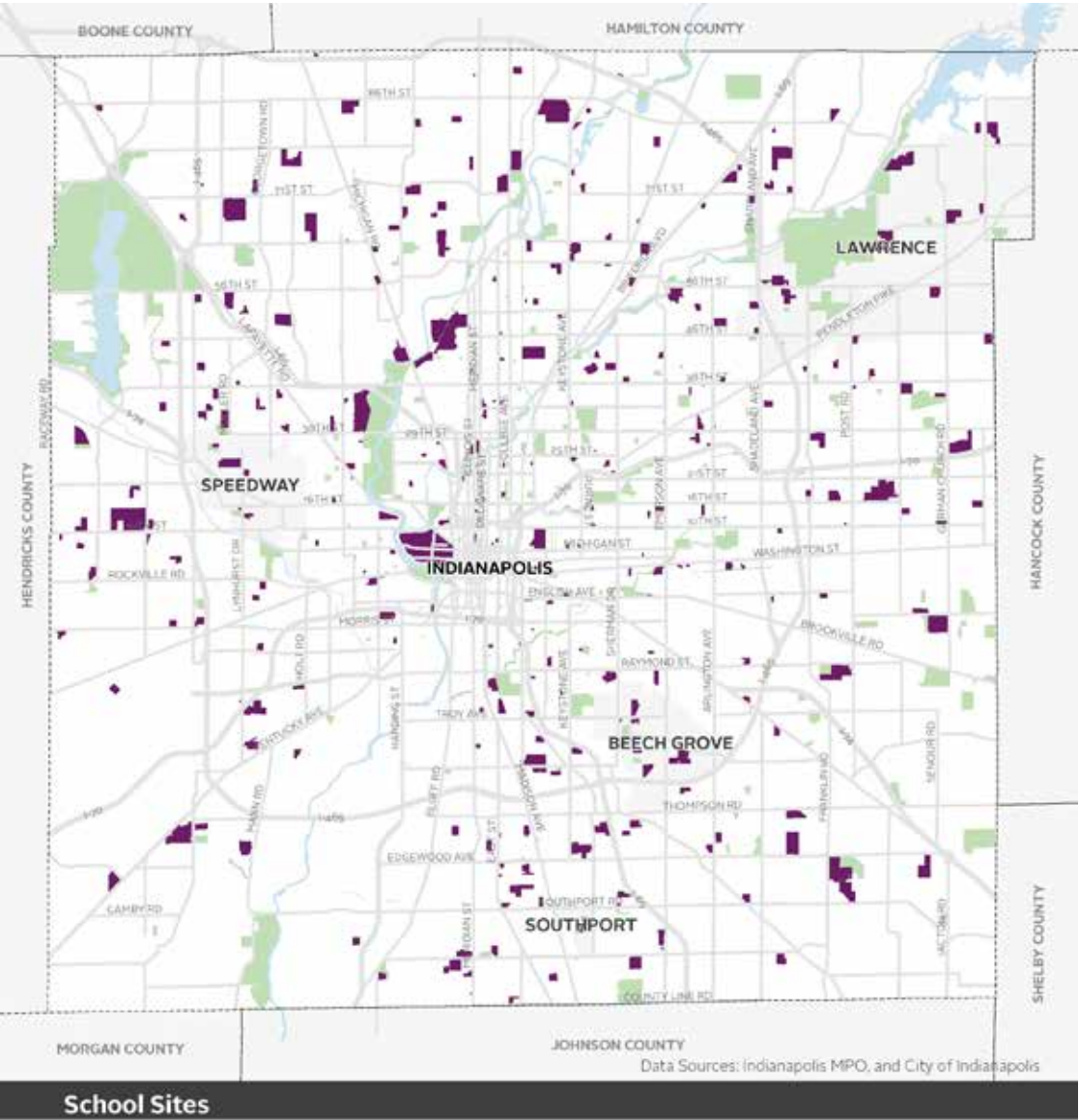
Indianapolis has a dense, mixed use, and walkable downtown core. Neighborhoods outside of the core are less dense and tend to be zoned for single uses, such as low density residential or office/commercial development. This land use environment means that destinations are not clustered, translating to long walking distances between them. Some types of land uses are more likely to have attractive walking environments and encourage walking; these include parks, colleges and universities, hospitals or medical facilities, commercial and/or mixed-use areas, and high density housing. In Indianapolis, commercial mixed-use areas and medium to high density housing are located downtown, in maturing village centers, and along commercial corridors.

TRANSIT RIDERSHIP



All transit trips start or end with a walk. Safe routes to transit support people connecting to and from the bus. A 2010 IndyGo survey found that over 90% of transit riders walk or use a mobility device to access a bus stop. While the remaining 10% bike or drive to a park and ride lot to access transit, they still walk to the bus—even if for a short distance. Transit passengers travel to or from areas that are more likely to support walking trips; therefore, transit boardings are a good proxy for areas with moderate to high levels of pedestrian activity. The highest numbers of transit boardings take place in Indy’s downtown core and along major corridors such as Washington Street, 10th Street, 38th Street, and major north-south streets north of downtown.

SCHOOLS AND UNIVERSITIES

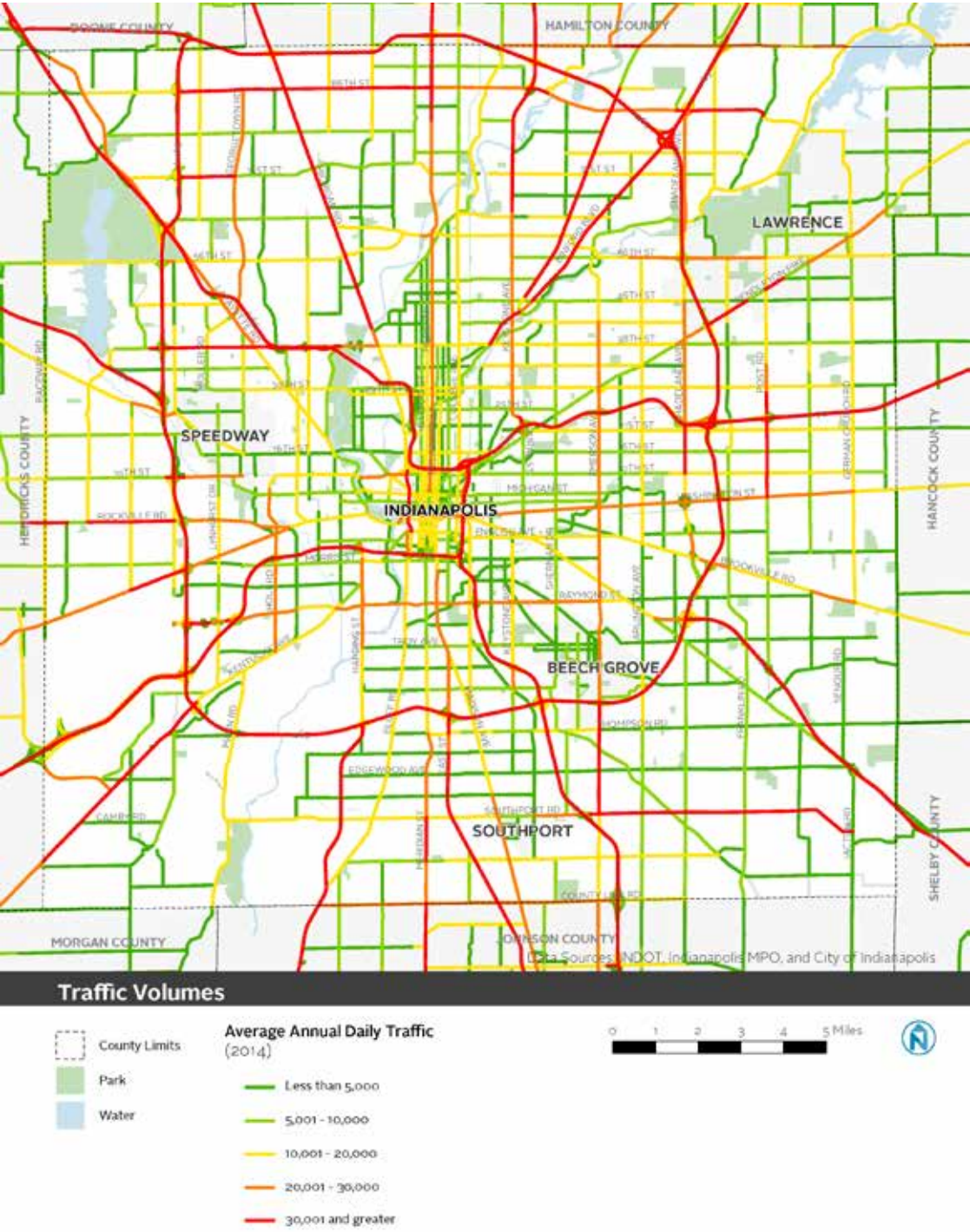


Most children depend on their parents or school buses to get to and from school. Over the last several decades, an increasing number of children have been driven to school, rather than walking or biking, contributing to increased levels of childhood obesity and other health issues. It is therefore important to reestablish lifelong habits for healthy transportation, making schools particularly important destinations in a pedestrian context. Indianapolis is home to 391 schools, including 33 colleges and universities such as Indiana University–Purdue University Indianapolis (IUPUI), Butler University, Marian University, and several smaller liberal arts and vocational colleges. Schools, particularly university campuses, generate a substantial number of walking trips. The quality of the pedestrian environment is especially important near schools.

WALKING COMFORT

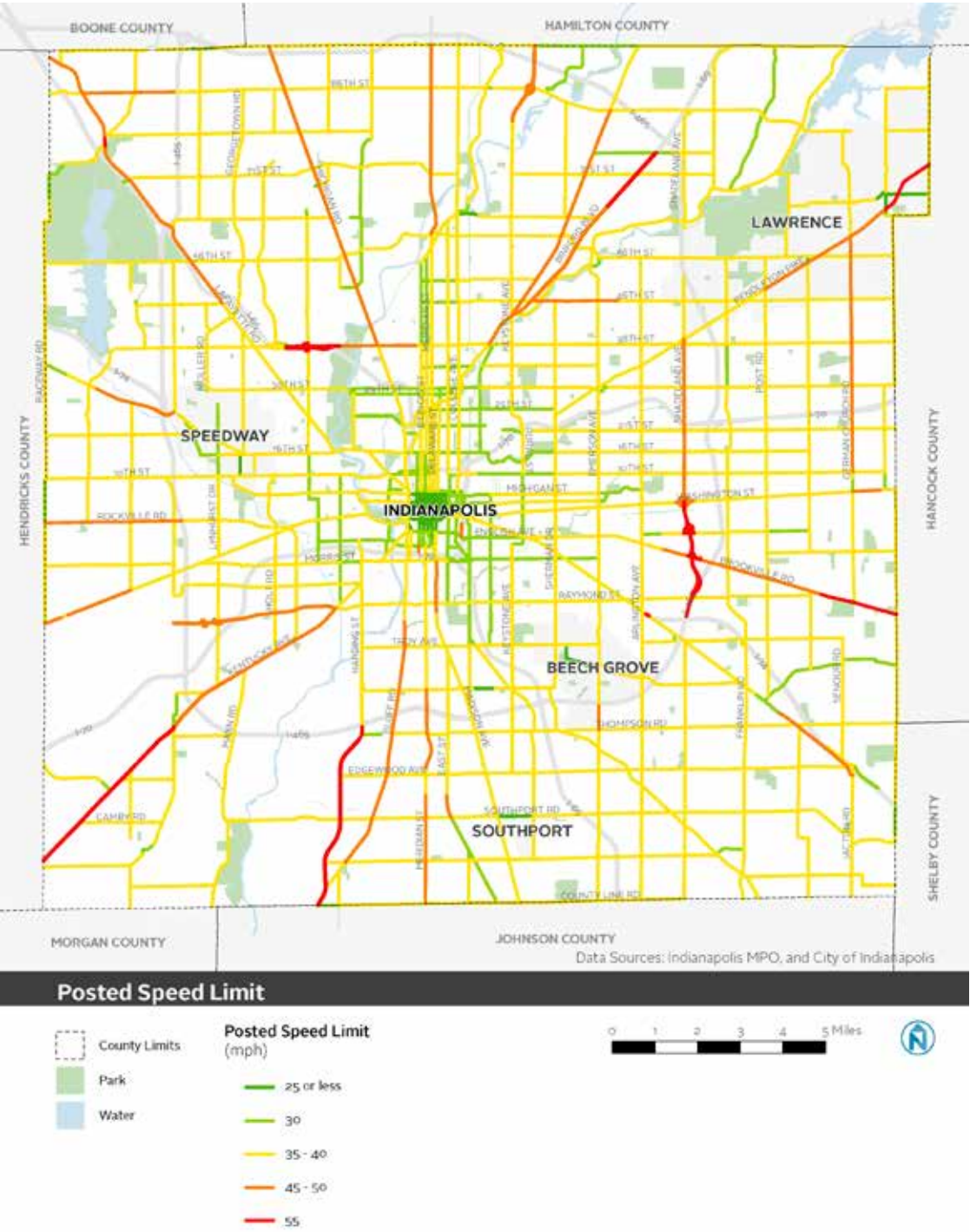
The conditions on a street—such as traffic speed, number of travel lanes, buffer zones, and presence of street lights—directly impact how people feel when walking. Simply having a sidewalk doesn’t necessarily mean that people will feel comfortable on a particular street. Outside of downtown and Indy’s older, inner neighborhoods, people walking face high-speed roads, heavy traffic, and few street lights. Under these conditions, depending on time of day and other factors, people may seek a more comfortable route or choose to avoid walking altogether. The following section looks at how comfortable Indy’s streets are for people walking based on traffic, roadway design and operations, and lighting.

TRAFFIC VOLUMES



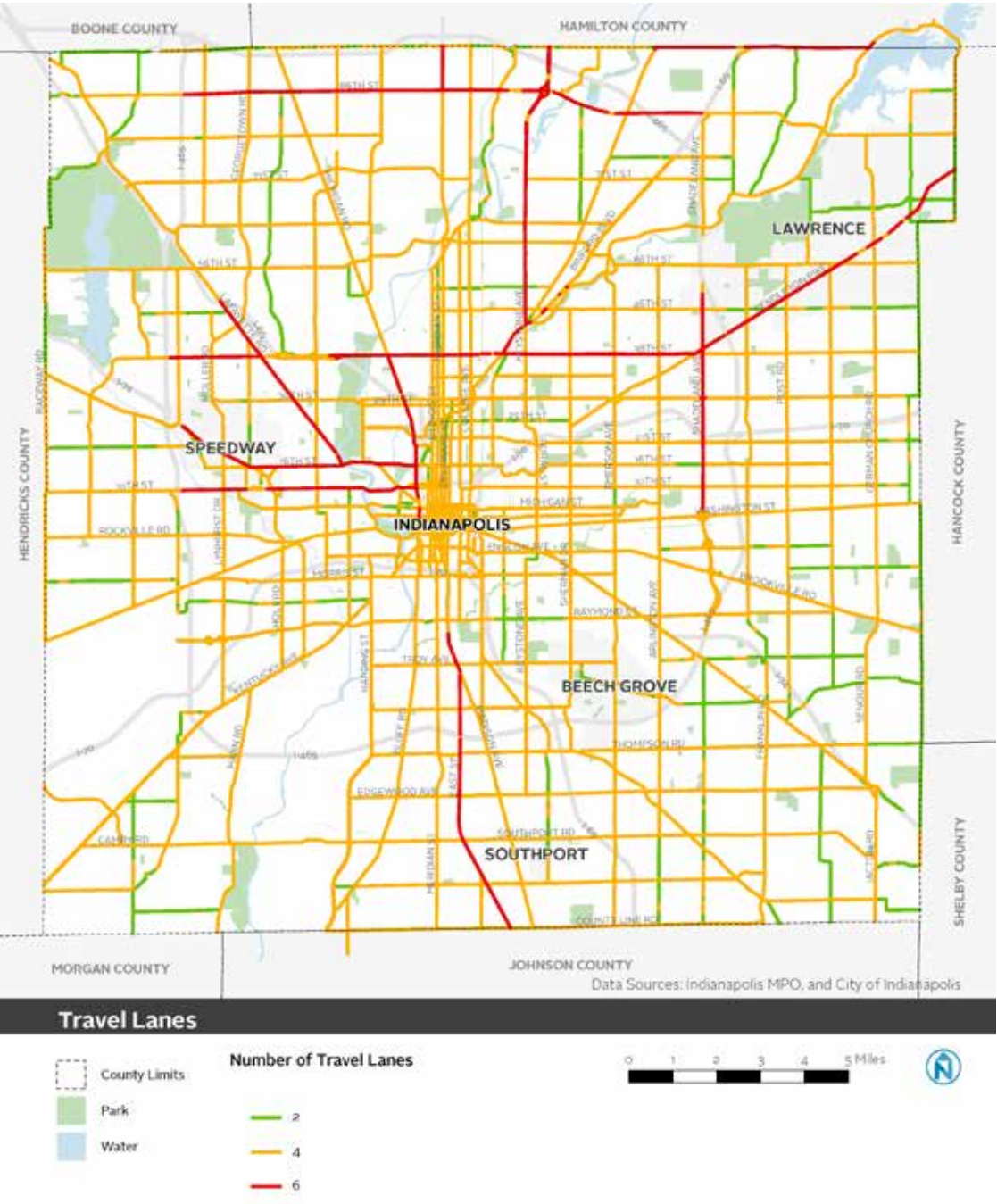
More cars on the street can create an uncomfortable environment for people walking along and across the street. High numbers of vehicles create noise and pollution and can be intimidating for some people, such as older adults and parents walking with small children. Streets with high volumes of traffic can also be very difficult to cross, particularly in areas without traffic signals where people are forced to wait for a “break” in traffic to dart across the street. The busiest roads in Indianapolis are the highways that surround and penetrate the city (i.e., I-70, I-65, and I-465) and major arterials such as Washington Street, 38th Street, Binford Avenue, Allisonville Road, Michigan Road, Meridian Street, and East Street. High speed and volume roadways like these are particularly in need of improvements to enhance pedestrian protection along and across the roadway.

POSTED SPEED LIMIT



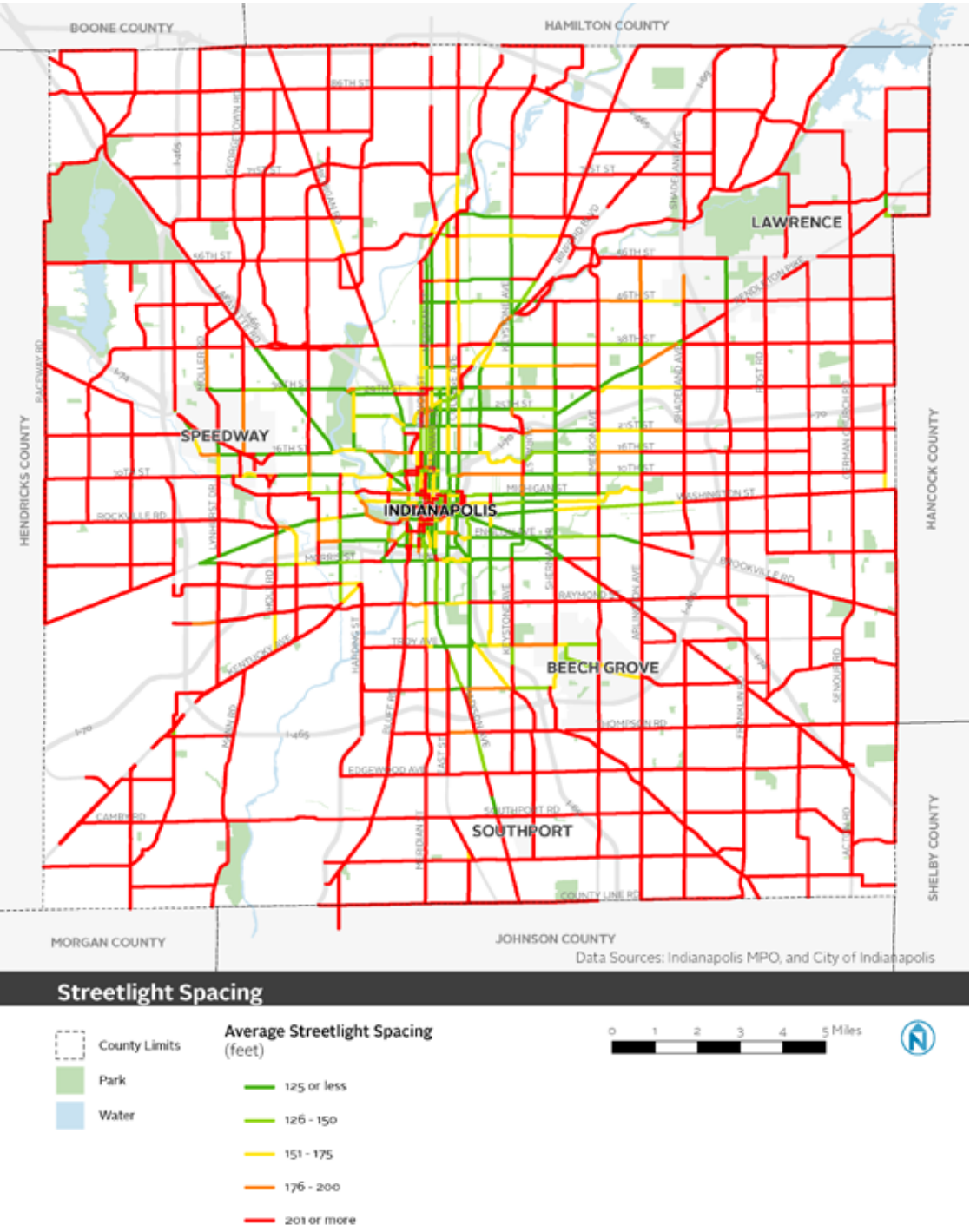
Pedestrian comfort and safety decrease as roadway speeds increase. People walking may not be able to react appropriately to a vehicle that is traveling at high speeds (or even to perceive the dangers associated with fast-moving vehicles that are several hundred feet away). Additionally, if a person walking is hit by a vehicle, their likelihood of serious injury or death increases with vehicle speed. Most roads with multiple lanes in each direction in Indianapolis have a posted speed limit of 35 or 40 mph. Most roadways in downtown Indianapolis have a speed limit of 30 mph or less but are designed to enable speeds that far exceed 30 mph.

NUMBER OF TRAVEL LANES



Roads with many travel lanes are typically very wide, making them difficult to cross and leading to increased speeding where conditions (such as low volumes) permit. This, in turn, reduces pedestrian comfort and limits street life. Streets with four or more travel lanes are particularly challenging to cross for older adults and people with limited mobility. Most roadways in Indianapolis have four travel lanes, and the busiest roads have six lanes or more (such as East Street, Pendleton Pike, 38th Street, Shadeland Avenue, Keystone Avenue, and 86th Street). Roads with two lanes are located primarily in residential neighborhoods, in more rural areas of Marion County, or along limited access roadways. (Note: Number of travel lanes shown above includes proposed street widening and may include parking lanes in some cases.)

AVERAGE STREETLIGHT SPACING



Lighting increases visibility at night and in the early hours of the morning for both motorists and people walking. Adequate lighting also has been linked to reducing perceived danger and criminal activity. Visibility is optimized when lights are spaced no more than 150 feet apart. A limited number of Indianapolis streets have lighting that is optimal. The majority of road miles in Marion County have streetlights that are more than 200 feet apart. Center Township and the Broad Ripple and Meridian/Kessler neighborhoods are examples of three areas with tighter streetlight spacing.

PEDESTRIAN SAFETY

Safe places to walk are critical to creating communities that are active, comfortable, and livable. Safety has a direct relationship to people’s willingness to walk—the safer streets are for walking, the more likely people are to walk. Higher rates of pedestrian collisions indicate unsafe roadway conditions and point to areas where changes to infrastructure or policy are needed to keep pedestrians safe and get more people walking.

Between 2004 and 2015, Indianapolis averaged roughly one pedestrian collision every day. While the number of annual pedestrian collisions has stayed relatively constant, pedestrian fatalities have increased almost 50% in the last 10 years. Street design and driver behaviors, such as speeding and driving under the influence, are the primary factors leading to this increase in pedestrian deaths.

Figure 9 Key Trends in Pedestrian Safety, 2004-2015



Source: Automated Reporting Information Exchange System (ARIES) data collected from Indiana DOT’s data management contractor, APPRISS
Note: 2015 data is shown only through October. Collisions on private property were not eliminated from the analysis. Crash severity was based on ARIES data reporting.

During the same period of time, the top 50 high collision corridors contributed to 962 pedestrian-involved collisions (weighted as 1,900 collisions). These collisions resulted in 33 deaths and 960 injuries. The 50 corridors span 49 linear miles of roadway and average at least 3.28 weighted pedestrian-related collisions per mile per year. The most dangerous corridor—Meridian Street between 16th Street and South Street—averaged 6.3 weighted pedestrian-related collisions per mile per year. One quarter of all pedestrian collisions in Indianapolis occurred on these 50 corridors. Nearly 17 percent of pedestrian fatalities were due to a collision in the top 50 corridors.


The highest 25 fatality corridors include 23 miles of roadway. While less than five percent of collisions occur on these corridors, they represent more than one quarter of all road-related pedestrian deaths in Indianapolis. The most perilous roadway was 38th Street between Eagle Creek Parkway and High School Road, which had 4.2 deaths per mile (or 1 death per mile every 2.8 years).

Figure 10 summarizes the percent of collisions, deaths, and injuries that occurred along the top 50 collision corridors and top 25 fatality corridors in relation to all pedestrian collisions in Indianapolis. Although the top 50 collision corridors have a high number of collisions per mile, those collisions led to relatively few deaths. This is in contrast to the top 25 fatality corridors where the number of collisions per mile is low, but the number of deaths is significant.

Figure 10 Pedestrian Collision Summary

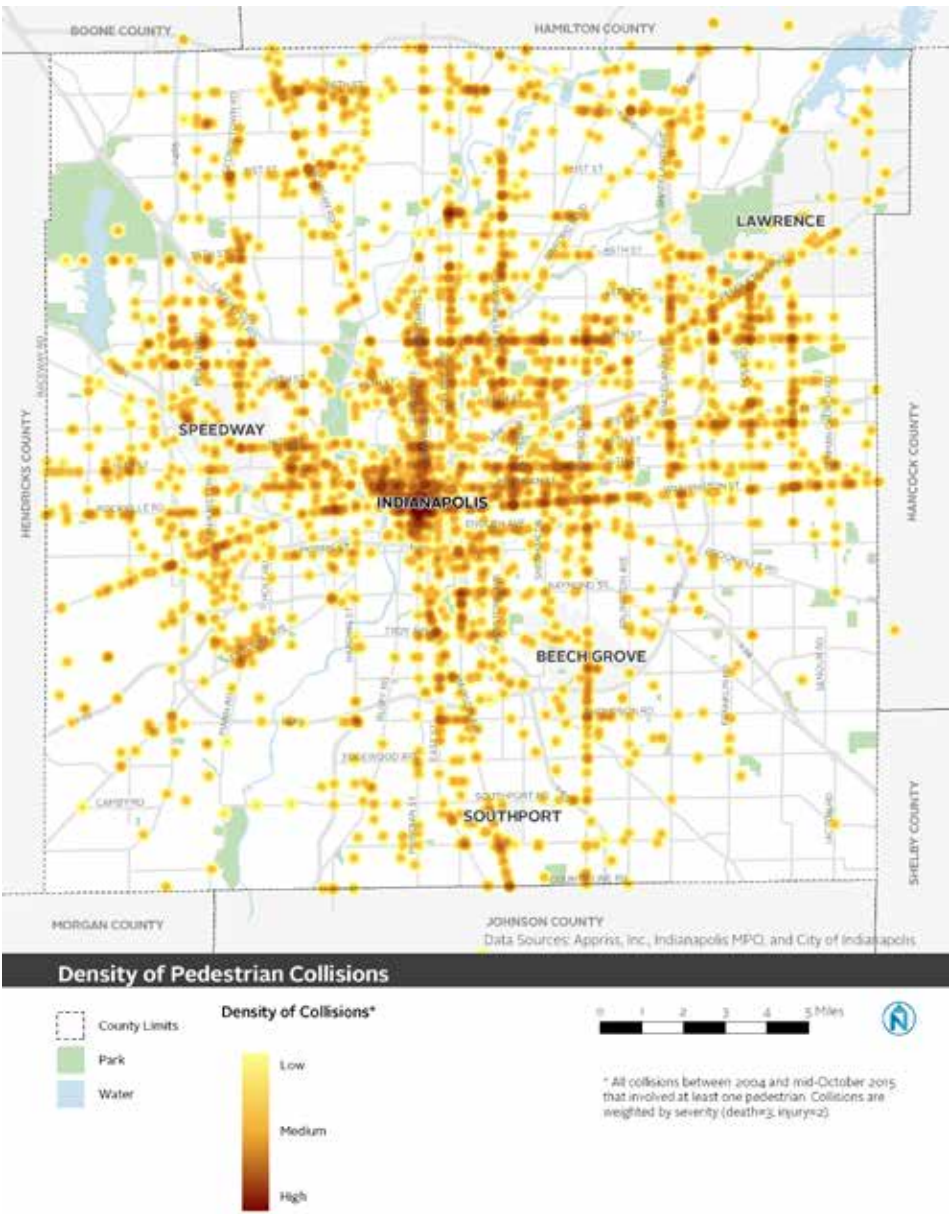
		Top 50 Collision Corridors ¹		Top 25 Fatality Corridors ²	
	All Indianapolis	Number	Percent of Total	Number	Percent of Total
Collisions Involving a Pedestrian	3,808	962	25.3%	177	4.6%
Total Deaths	199	33	16.6%	56	28.1%
Total Injuries	3,701	960	25.9%	154	4.2%
Average Collisions per Mile	-	19.59	-	7.64	-
Average Deaths per Mile	-	0.67	-	2.42	-

1 Based on the total number of weighted collisions involving a pedestrian per mile.
2 Based on the total number of deaths per mile.
Source: Indiana DOT



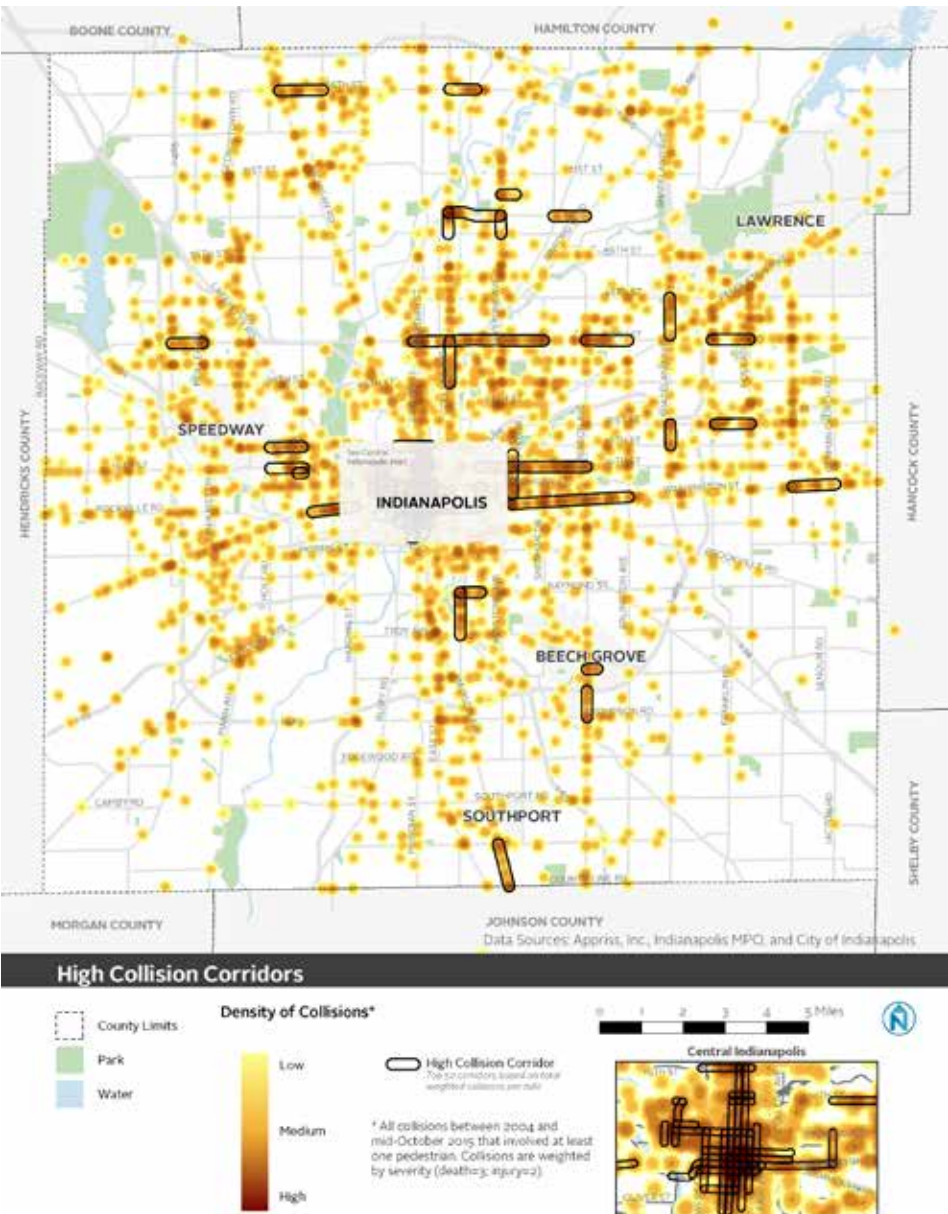
Recent research conducted by Health by Design found that hit-and-runs and collisions at mid-block crossings are major pedestrian safety issues in Indianapolis that need to be addressed. Between 2010 and 2014, 19 percent of crashes were hit-and-runs. During the same time period, pedestrians were struck at mid-block locations in 40 percent of crashes, likely due to long block lengths that discourage walking to marked or signalized crossings.

DENSITY OF PEDESTRIAN COLLISIONS



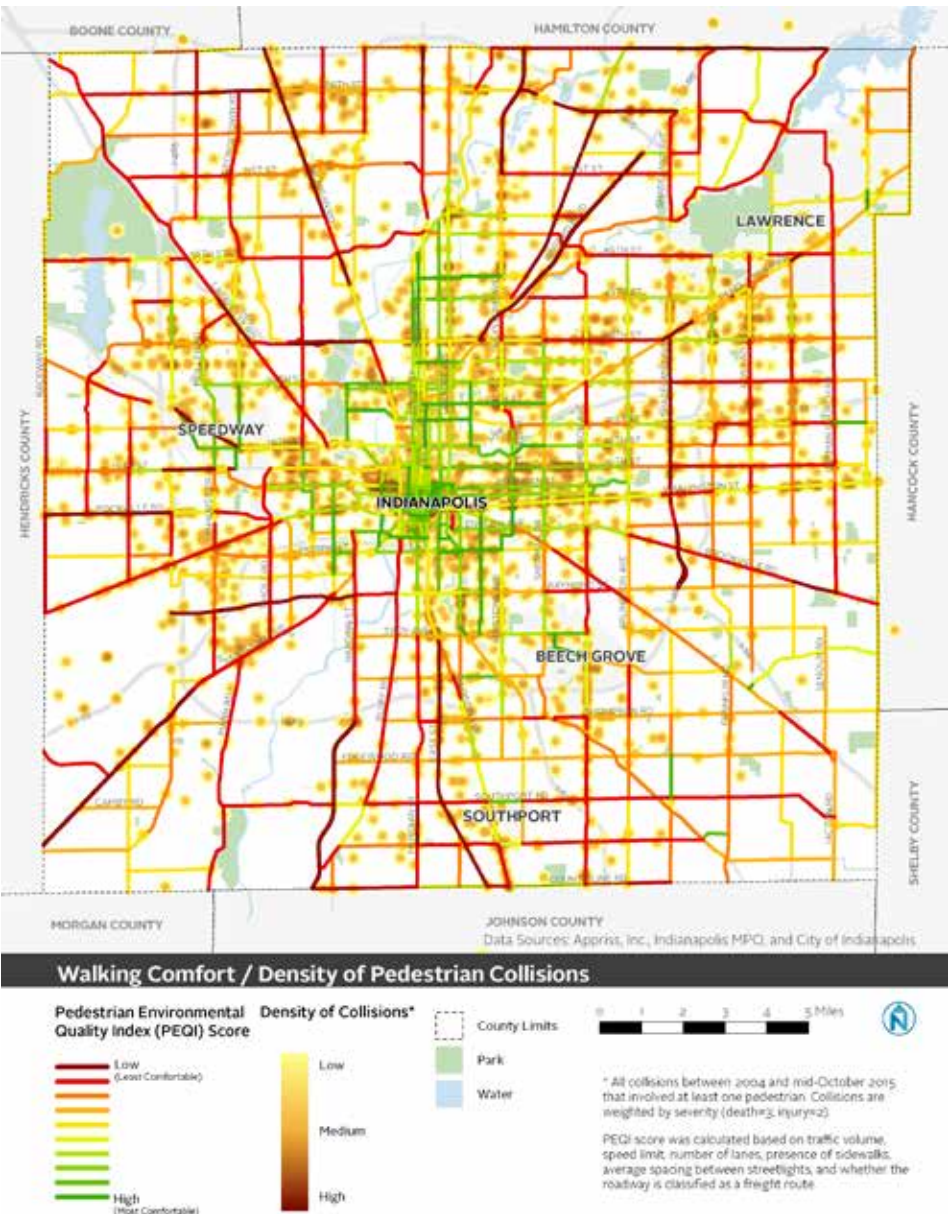
From 2004 through October 2015, there were more than 3,900 pedestrian-involved collisions in Indianapolis. The highest concentrations of total collisions and severe collisions are along major roadways with the highest daily vehicle volumes and the highest speed limits. Many of these concentrations are found in areas of the city with high levels of pedestrian generation, such as downtown, major commercial corridors, and high ridership transit stops. The vast majority of collisions in Indianapolis occur at intersections. Pedestrian visibility at crosswalks, conflicts between crossing pedestrians and turning vehicles, crossing distances (i.e., wide streets), and pedestrian wait times are the main design factors that impact pedestrian safety.

HIGH COLLISION CORRIDORS



Twenty-four of the top 50 high collision corridors are in downtown Indianapolis. This suggests downtown-focused investments that improve intersection safety and limit potential conflicts between vehicles and pedestrians would significantly decrease pedestrian injuries and fatalities. A downtown-focused strategy would provide efficiencies in improving these corridors, as the roadways share similar characteristics and are surrounded by similar land uses. The remaining 52% of high collision corridors are outside of downtown Indianapolis and have diverse land uses and roadway characteristics. The factors that contribute to the high rate of collisions vary by corridor, as do the investments and programs needed to increase safety on these corridors.

DENSITY OF PEDESTRIAN COLLISIONS AND WALKING COMFORT

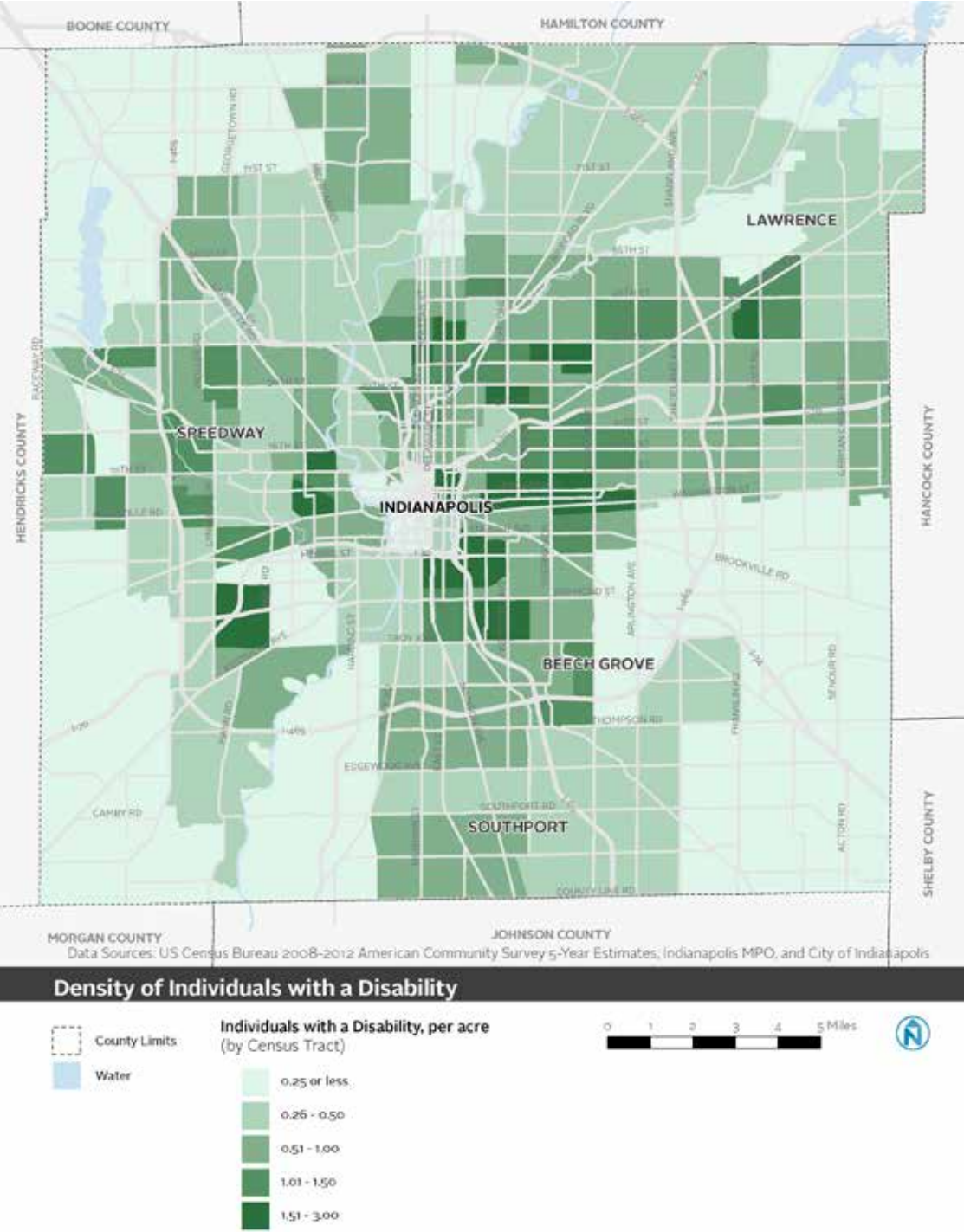


Many locations with high collision density coincide with low walking comfort. However, some streets with high quality walking environments also have high pedestrian collision density. While exposure increases the likelihood that a person will be involved in a collision, location matters as well. Although the walking comfort score is based on the pedestrian experience along roadways (including the presence of sidewalks), most collisions occur when a person crosses a street. For example, walking infrastructure in downtown Indianapolis makes it easy to walk along a street but intersection design and signal operations might not ensure safety and comfort for people crossing the street.

EQUITY

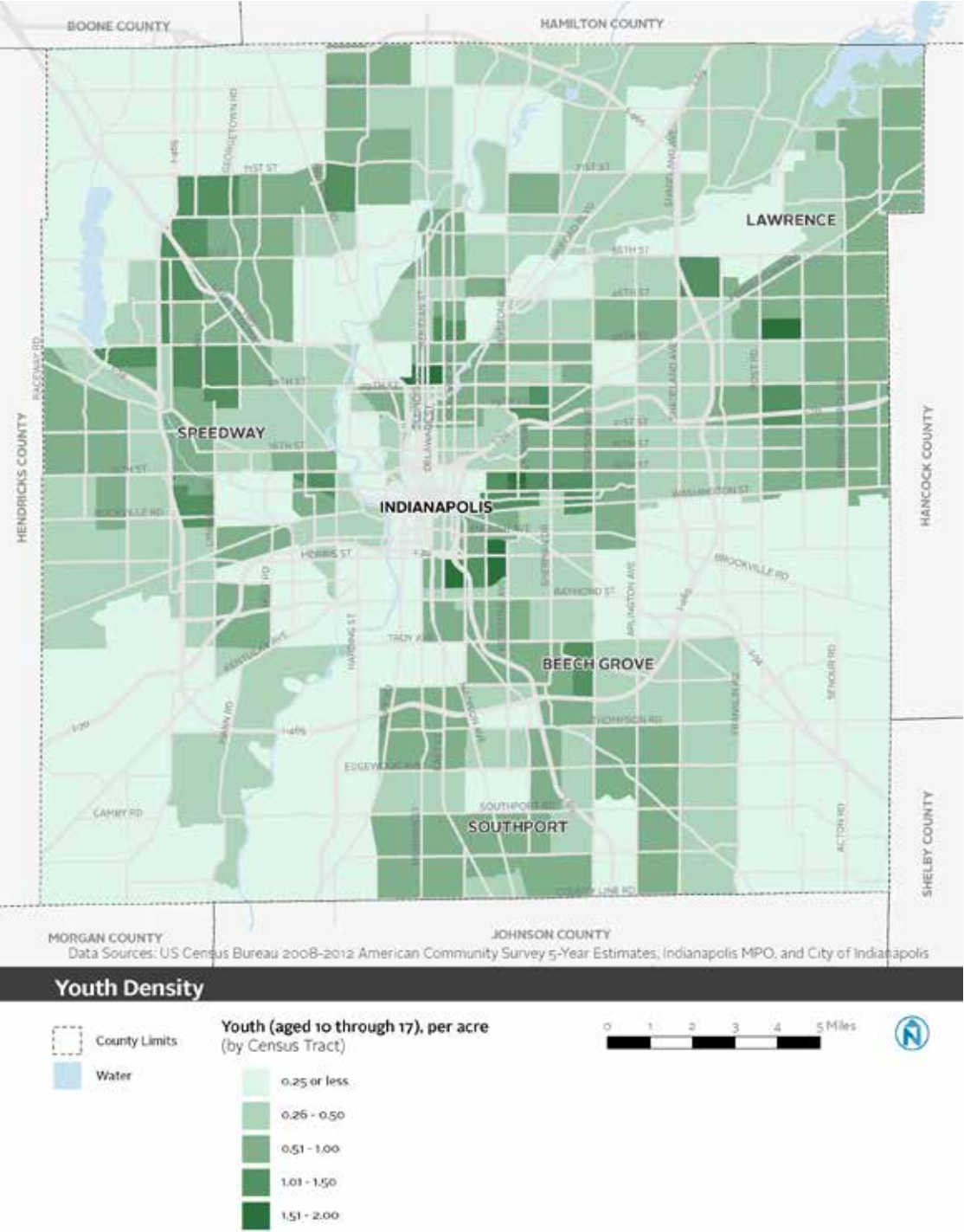
Providing equitable access to safe places to walk is a critical piece of making Indianapolis more walkable. To create an equitable system, investments in walking infrastructure must be targeted in areas of greatest need. While pedestrian infrastructure and program investments are needed throughout the city, some neighborhoods are more reliant on walking for transportation than others. Areas that have a greater need for walking infrastructure are those with higher concentrations of people with a disability, young people, older adults, households without vehicles, ethnic and racial minorities, people with limited English proficiency, and people living in poverty. People in these groups are often dependent on transit for the majority of their trips, meaning that they are more likely to walk than other groups and are most impacted by poor walking conditions.

DENSITY OF INDIVIDUALS WITH A DISABILITY



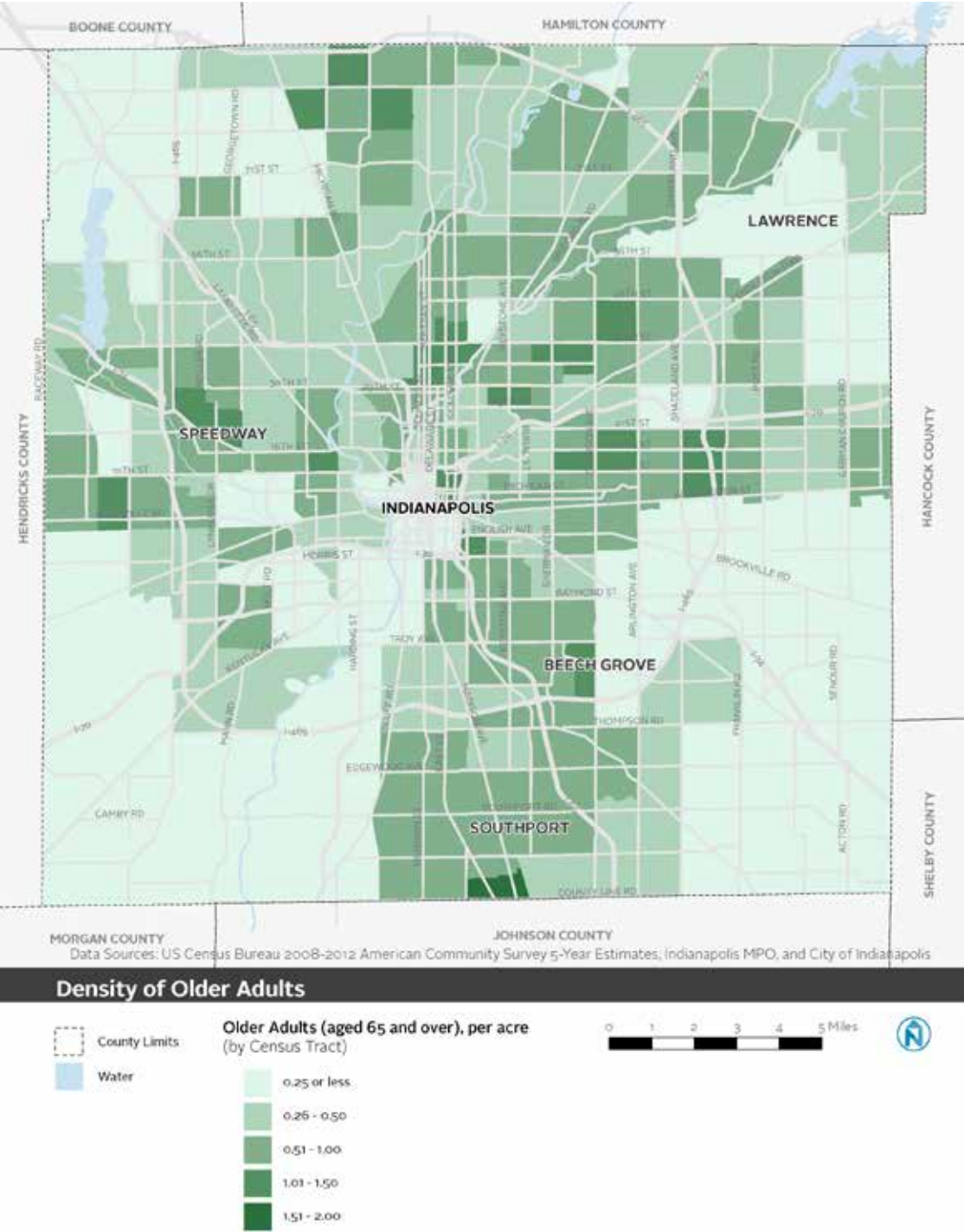
Navigating a street or neighborhood that has many obstructions and inaccessible pathways is a significant challenge for people with mobility, visual, or cognitive impairments, many of whom may walk or use a mobility device as their primary mode of travel. The concentrations of people who reported having a disability are highest east of downtown Indianapolis between 10th and Washington Streets, in the Park Fletcher neighborhood, in the Near Southeast and Near Southside neighborhoods, and in Fountain Square.

DENSITY OF YOUTH



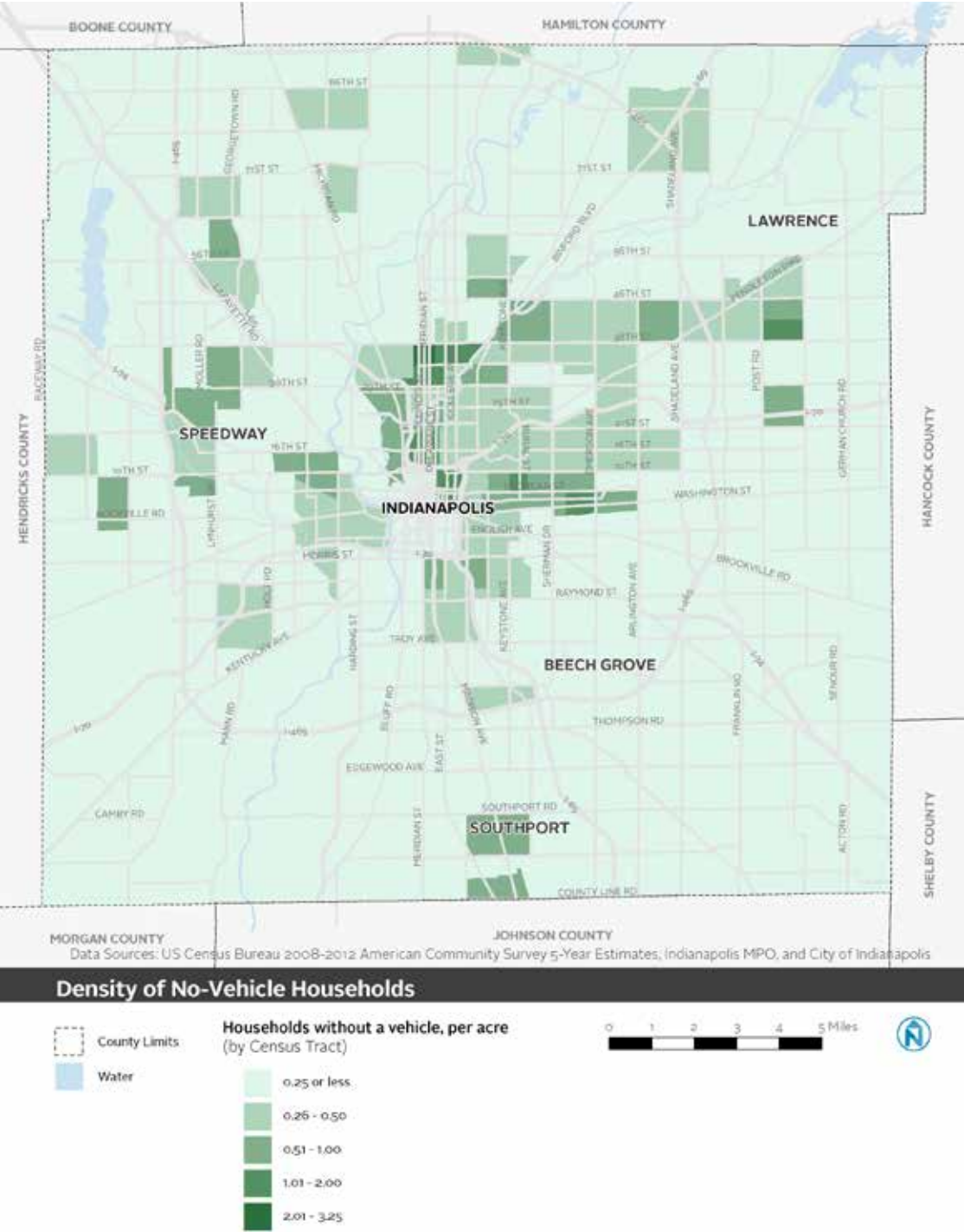
People between the ages of 10 and 17 are likely to walk or take transit for many of their personal trips, as most are too young to drive. As they get older, these youth will become more independent and may want to travel for personal errands or trips without depending upon parents or guardians. The highest concentrations of youth in Indianapolis are found directly southeast of downtown (in the Near Southeast and Near Southside neighborhoods) and north of Speedway (between 16th Street and 71st Street).

DENSITY OF OLDER ADULTS



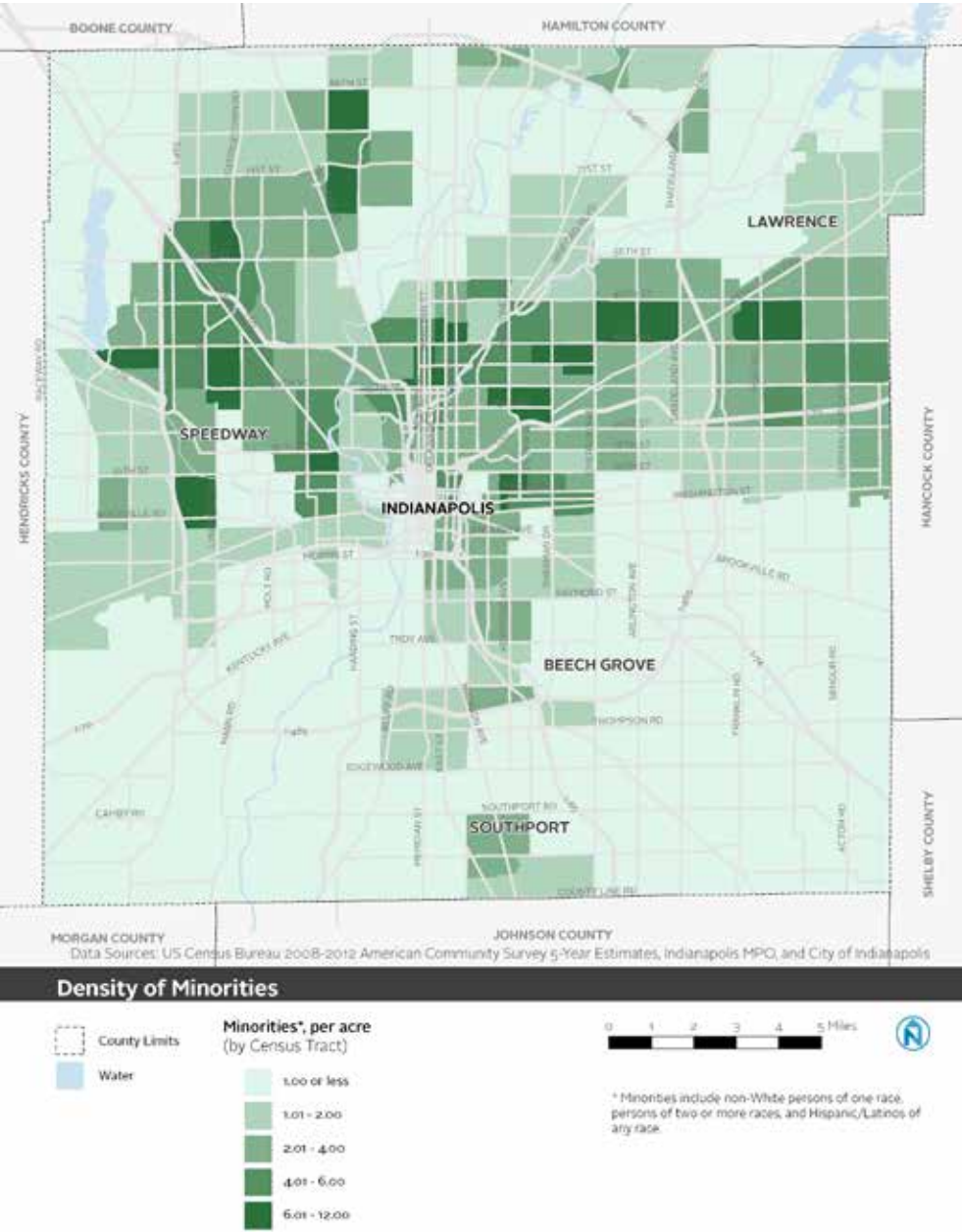
People over the age of 65 are more likely to have fixed incomes and health considerations that make it costly or unsafe to operate a motor vehicle, making them more likely to walk or take transit for many trips. Additionally, older adults are encouraged to walk daily to maintain a healthy lifestyle and reduce the risks of negative age-related physical and mental health outcomes. Older adults are spread throughout Indianapolis, with lower concentrations in the southwest (e.g., Camby, Valley Mills, West Newton, Sunshine Gardens) and southeast (e.g., Gallaudet, Wanamaker, Acton, South Franklin) corners of the city.

DENSITY OF NO-VEHICLE HOUSEHOLDS



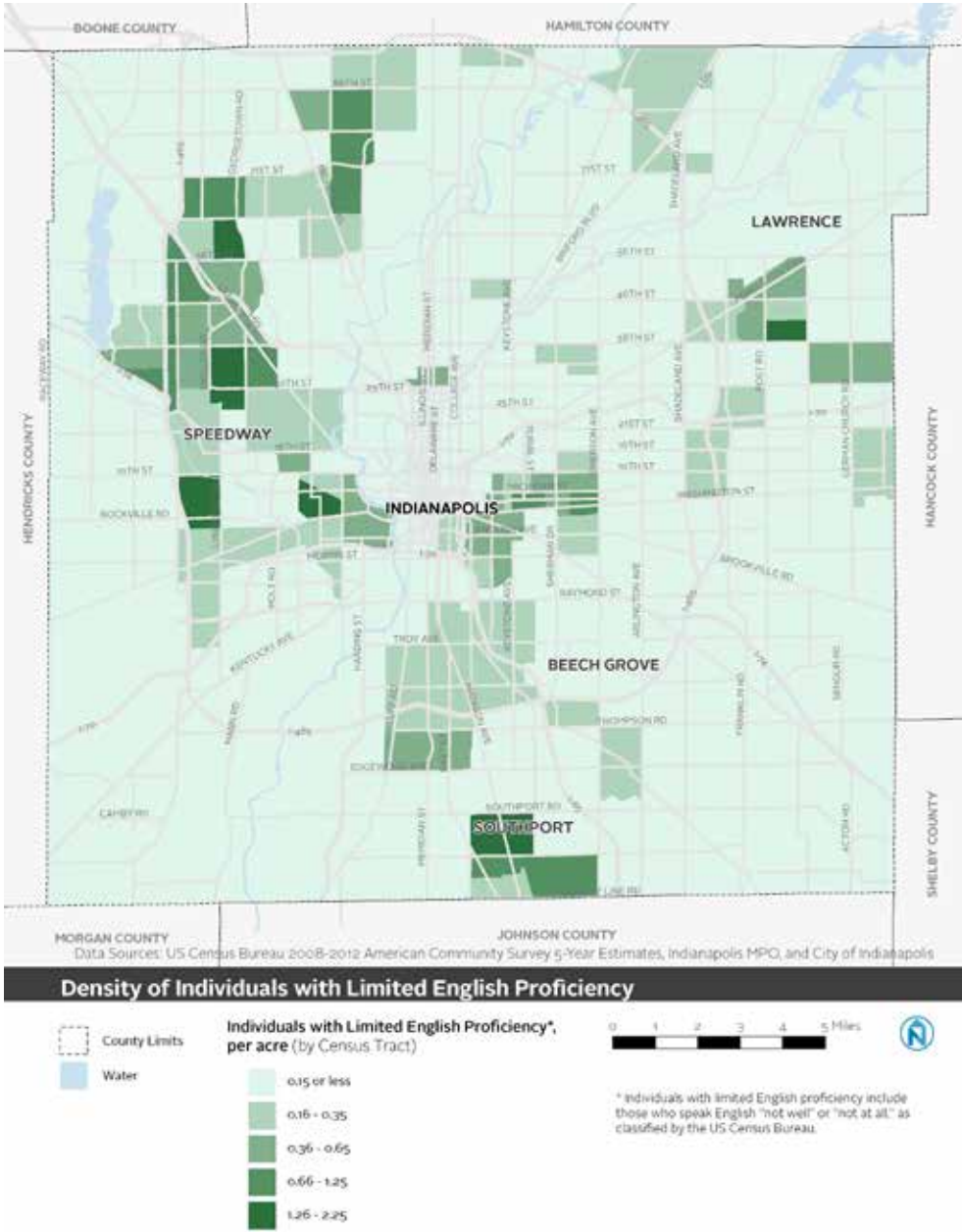
When residents of a household don't have access to an automobile, access to transit and safe places to walk are critical to their daily mobility. Indianapolis households without access to a vehicle are concentrated within the I-465 loop, generally northeast of Central Indianapolis. The highest concentrations are in the Mapleton-Fall Creek neighborhood, Near Eastside, and Downtown and located between 46th and 38th Streets between Keystone Avenue and Mitthoeffer Road. Today, Indy households with the lowest access to an automobile also have limited access to frequent transit and live in neighborhoods with minimal sidewalk coverage.

DENSITY OF MINORITIES



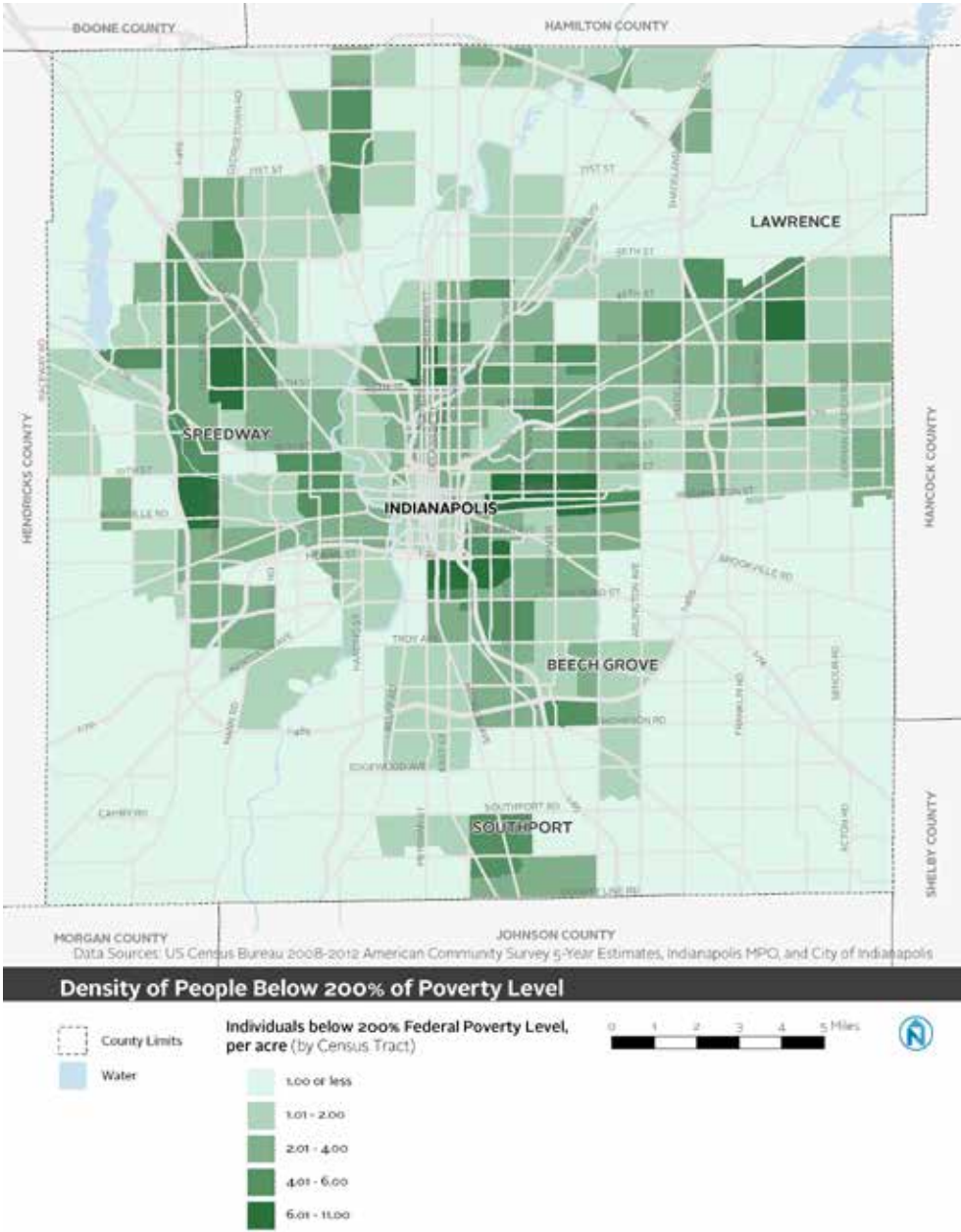
Racial and ethnic minorities tend to use transit more often than non-Hispanic whites. People who self-identify as non-white and/or Hispanic are concentrated in a band stretching across the northern half of Indianapolis. The highest concentrations of minorities are in Garden City, Wildwood, Eagledale, Crooked Creek, Far Eastside, Devington, and Martindale-Brightwood. This band coincides with Indianapolis areas that have limited sidewalk coverage and less comfortable walking conditions.

DENSITY OF INDIVIDUALS WITH LIMITED ENGLISH PROFICIENCY



People who are not proficient in English may lack access to a driver's license or have incomes that cannot support automobile ownership, making walking and transit use critical for their daily mobility. Residents of Marion County with limited English proficiency are largely concentrated north of Speedway and in the Southport, South Perry, Near Eastside, and Far Eastside neighborhoods.

DENSITY OF PEOPLE BELOW 200% OF POVERTY LEVEL



People with lower incomes may not be able to afford an automobile and often rely on transit or walking for daily transportation. These individuals also are likely to have a high housing cost burden, which can be offset by using public transportation, walking, and biking. People with incomes below 200% of the federal poverty level (an income of approximately \$31,000 per year for a family of two) are concentrated in the Near Eastside, Near Southeast, Near Southside, Meridian Park, Far Eastside, Garden City, and Eagledale neighborhoods of Indianapolis.

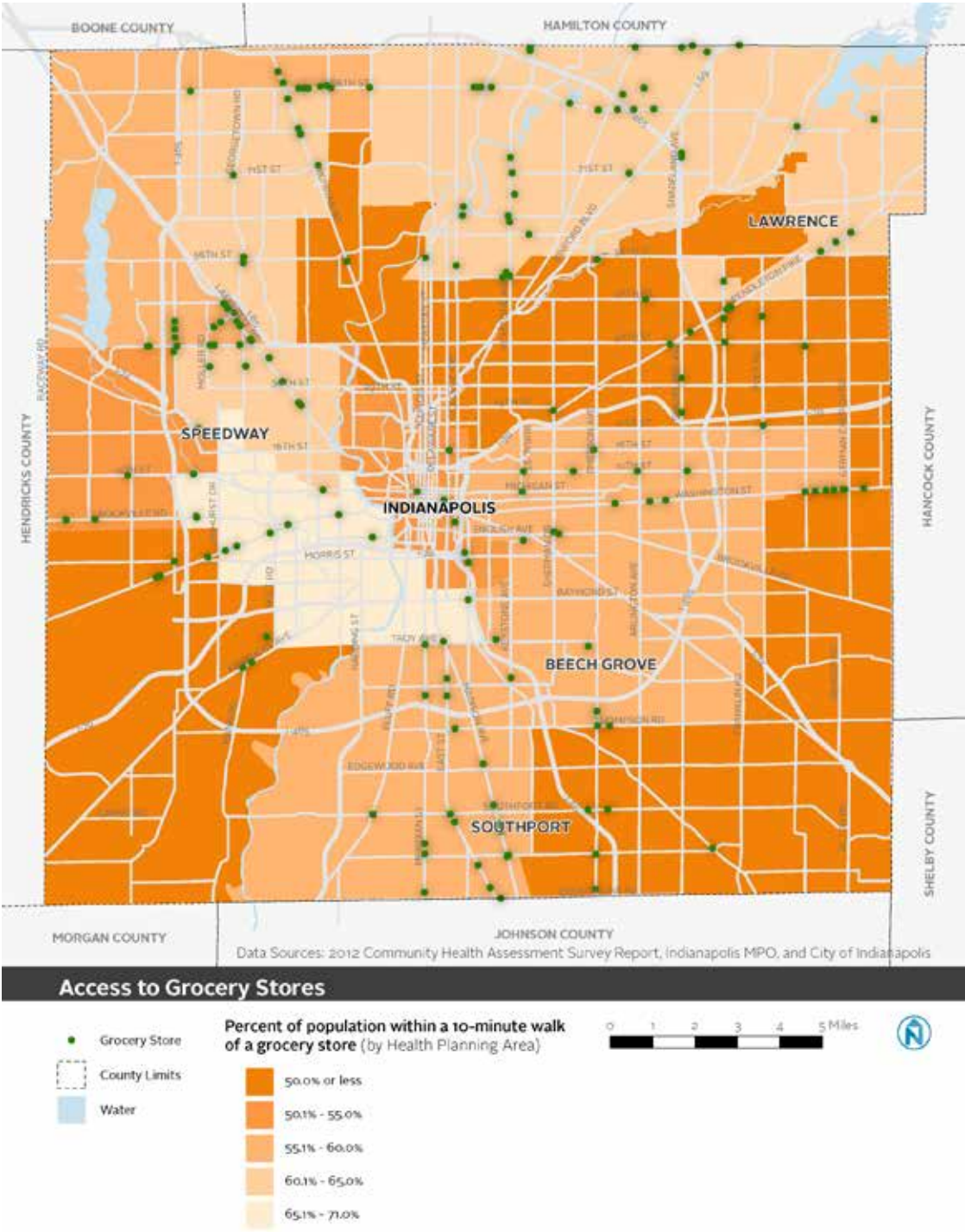
HEALTH

Cities around the country, including Indianapolis, are increasingly focused on the health of their residents and are working in partnership with local health departments and community-based organizations to improve health outcomes. By documenting areas where residents are experiencing negative health outcomes, cities can prioritize their investments in ways that help to improve health. In most communities, walking is part of the solution. Walking on a regular basis has been shown to reduce rates of cardiovascular disease, risk for coronary artery disease, and risk of stroke while improving quality of life and mental health.

Because the built environment has such a profound impact on individual health, improvements like sidewalk and trail projects can have a positive influence on the health of Indianapolis residents, especially in low-income communities. Where neighborhoods lack basic pedestrian infrastructure like sidewalks and safe crossings, people tend to walk less and drive more, leading to negative health outcomes. Indianapolis can start to build healthier neighborhoods through walkable community design, new transportation choices, and improved roadway safety.

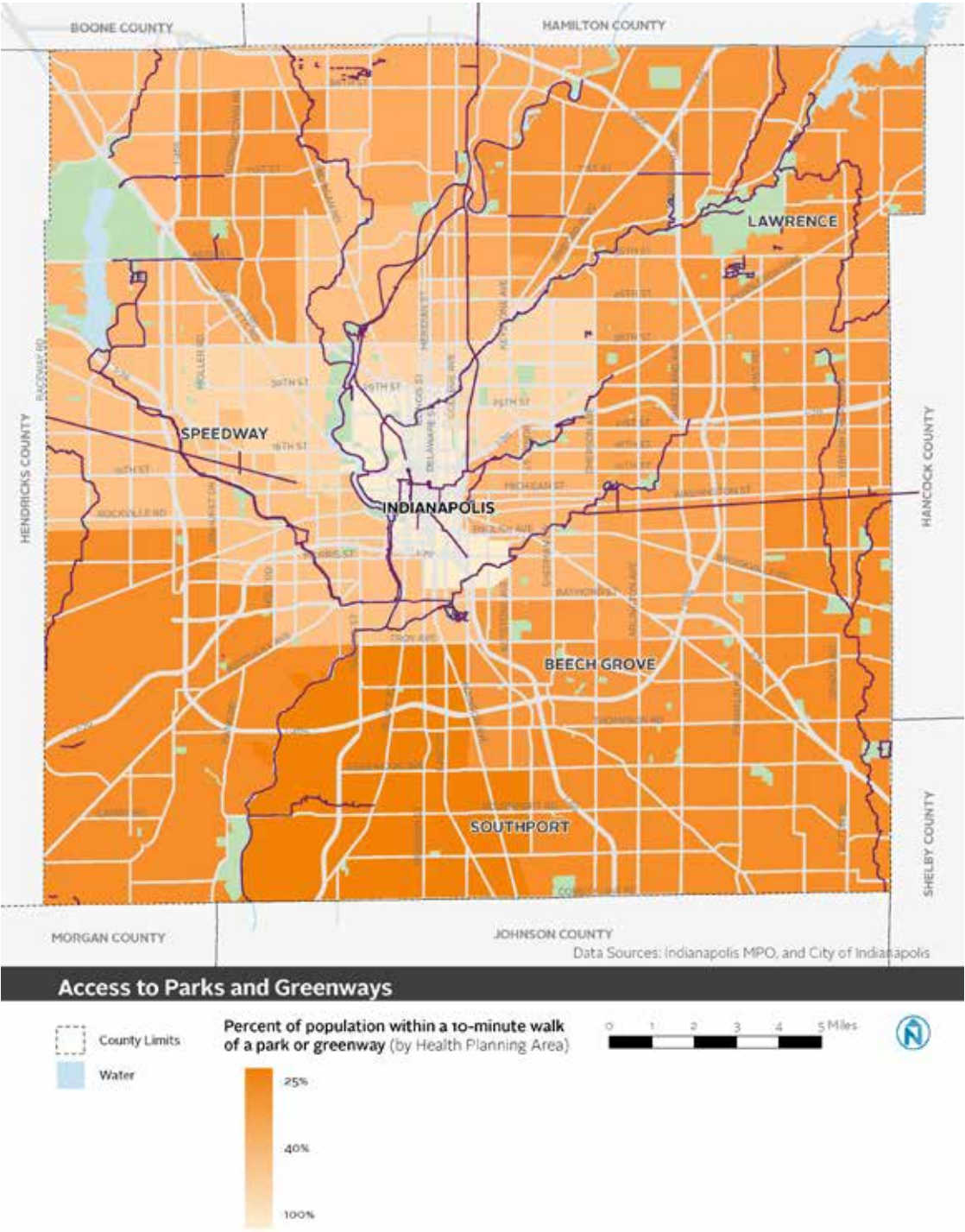
The following maps use five measures of health, including built environment factors, to identify areas of Indianapolis that are experiencing poor health outcomes.

ACCESS TO GROCERY STORES



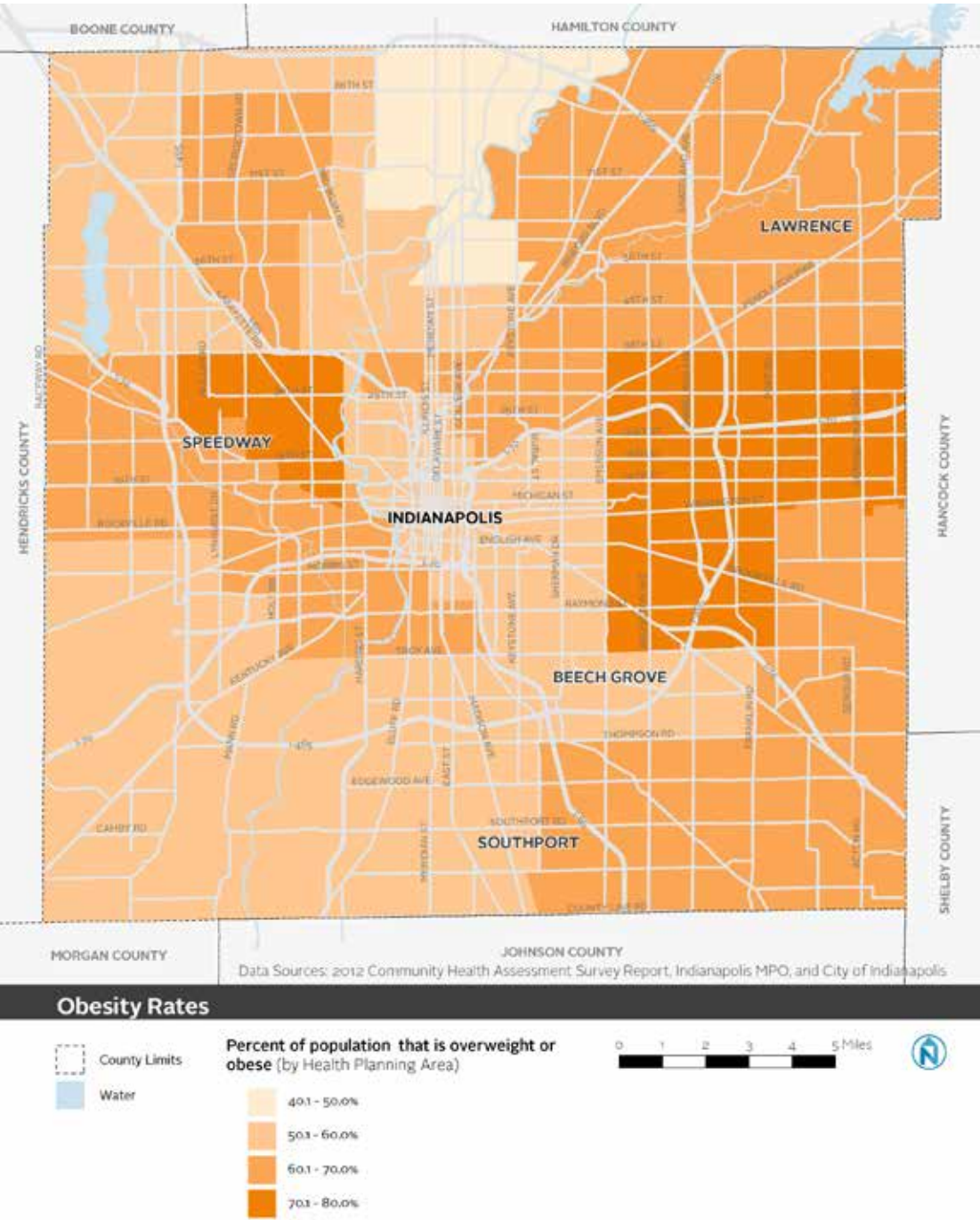
Proximity to a grocery store gives people options to purchase healthy foods and to maintain healthy eating habits. Indianapolis' lack of grocery stores and limited options to access grocery stores without a private automobile contribute to its high number of "food deserts"—residential neighborhoods with little or no access to healthy foods. The recent closure of Double 8 grocery stores and other popular grocery outlets has exacerbated the problem. In some areas of Indianapolis, such as southeast and southwest of downtown, less than half of the population has easy access to a grocery store. In contrast, almost three-quarters of people in neighborhoods just southwest of downtown Indianapolis have access to healthy food.

ACCESS TO PARKS AND GREENWAYS



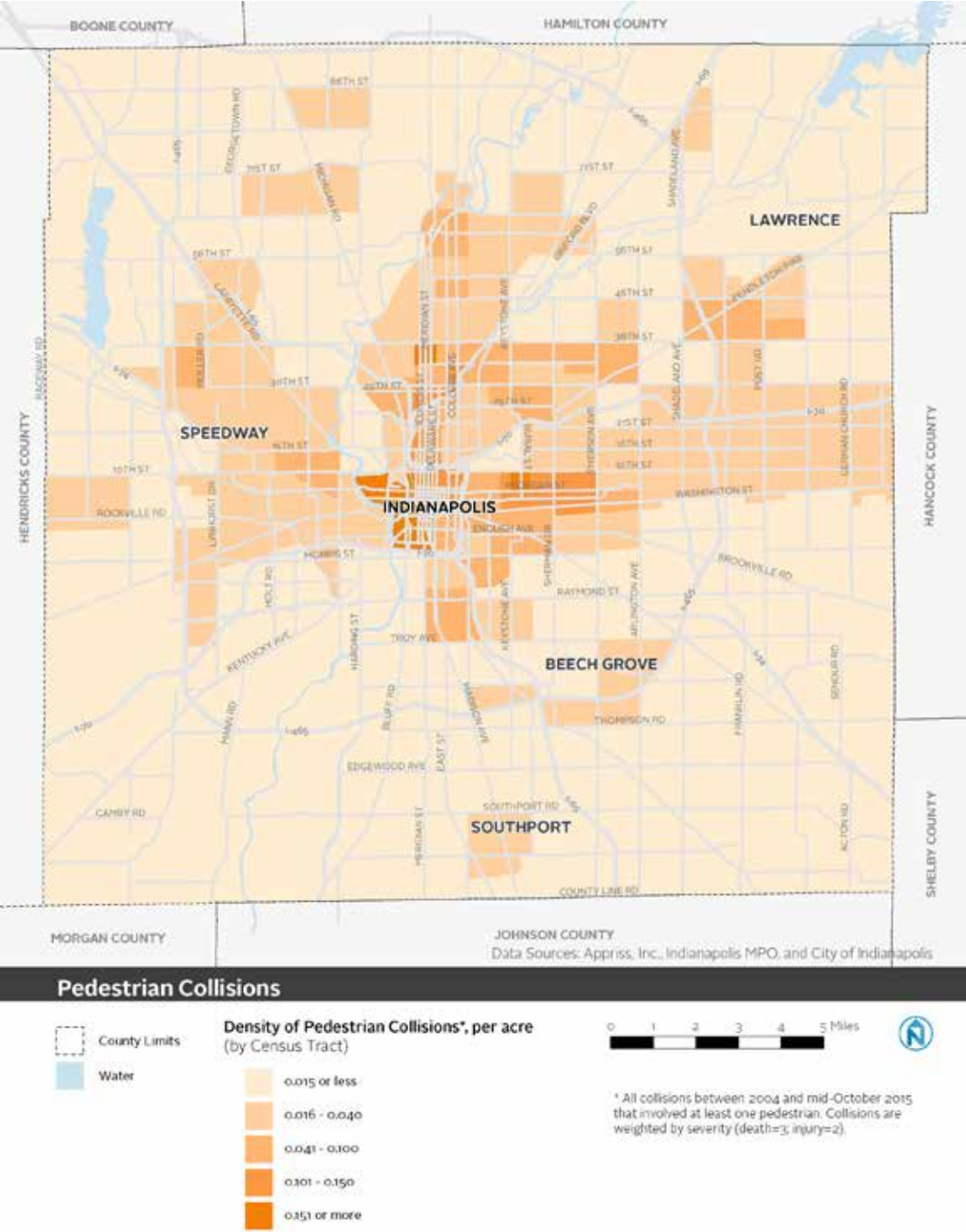
Proximity to parks and recreational opportunities can encourage physical activity. Daily physical activity improves health and reduces the risk for certain diseases. In many parts of Indianapolis, less than 50% of residents live within a 10-minute walk of a park or greenway. Lack of park access is most notable in the southern and eastern areas of Indianapolis, and in a northwest wedge including the Snacks-Guion Creek area. Residents in Downtown, Fountain Square, Near Northwest-Riverside, Eagledale, Meridian Kessler, and Meadows are most likely to be within a 10-minute walk of parks and greenways.

RATE OF OVERWEIGHT AND OBESITY




Indianapolis is experiencing an obesity epidemic, which is partly the result of sedentary lifestyles exacerbated by poor walking conditions. People are considered obese when their body mass index (BMI) is 25 or greater. People who are overweight or obese have a higher risk of heart disease, respiratory disorders, diabetes, and stroke. Increasing physical activity and reducing caloric intake are two ways to reduce BMI; therefore, overweight individuals would benefit from more opportunities to walk and greater opportunities to eat healthy foods. Large concentrations of overweight and obese populations are located east of Emerson Avenue (between Troy Avenue and 38th Street) and northwest of Center Township (particularly in the Wildwood and Eagledale neighborhoods). Residents in central north Indianapolis have the lowest overweight and obesity rates in the city.

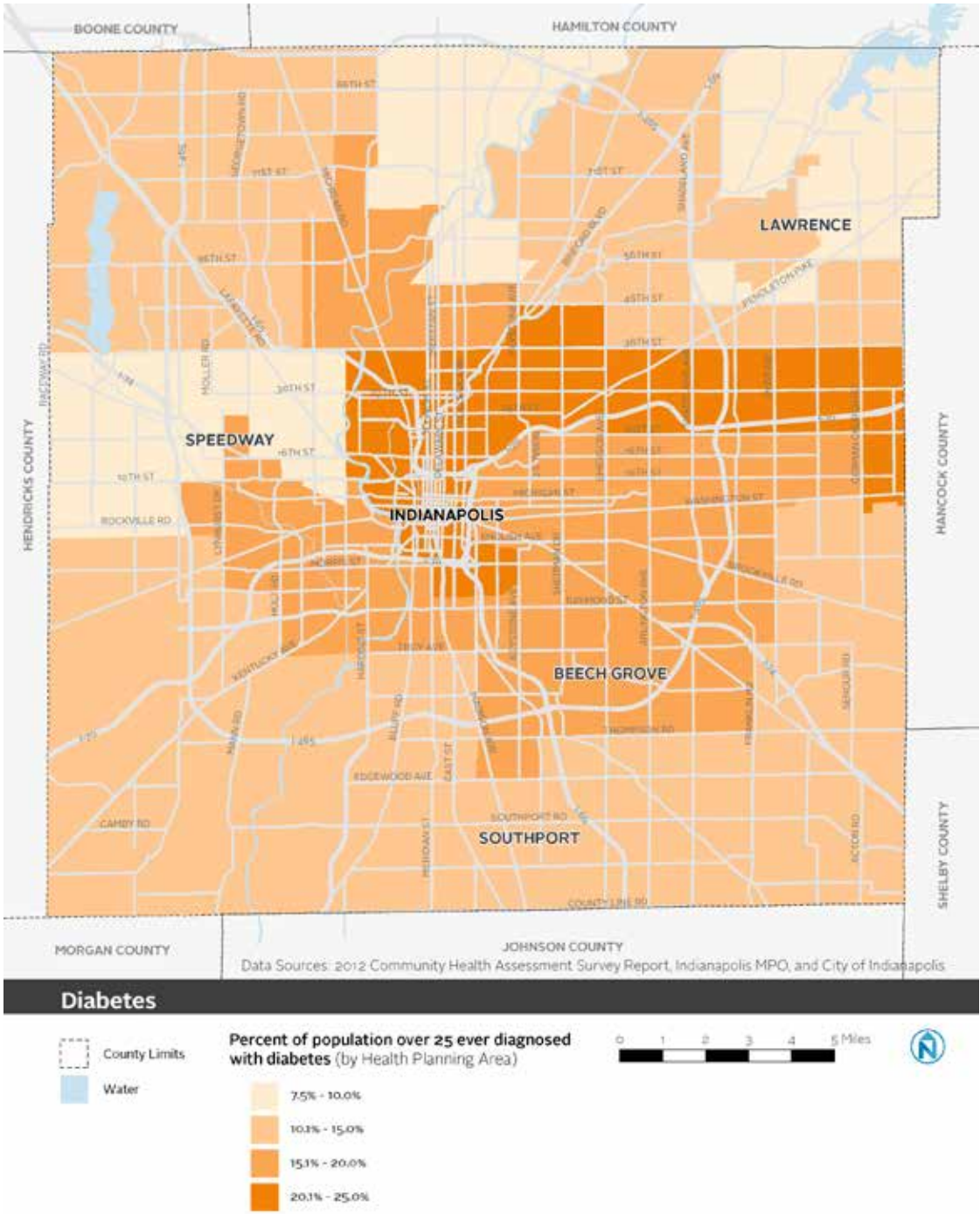
DENSITY OF PEDESTRIAN COLLISIONS



Pedestrian safety is a public health issue. Streets that prioritize automobile movement over the needs and safety of pedestrians often have high rates of pedestrian collisions. The areas of Indianapolis with the highest rates of collisions per acre are in Center Township (due to greater exposure and automobile-oriented intersection designs) and along east-west corridors throughout the city. Pedestrian collisions are described in more detail on page 32.

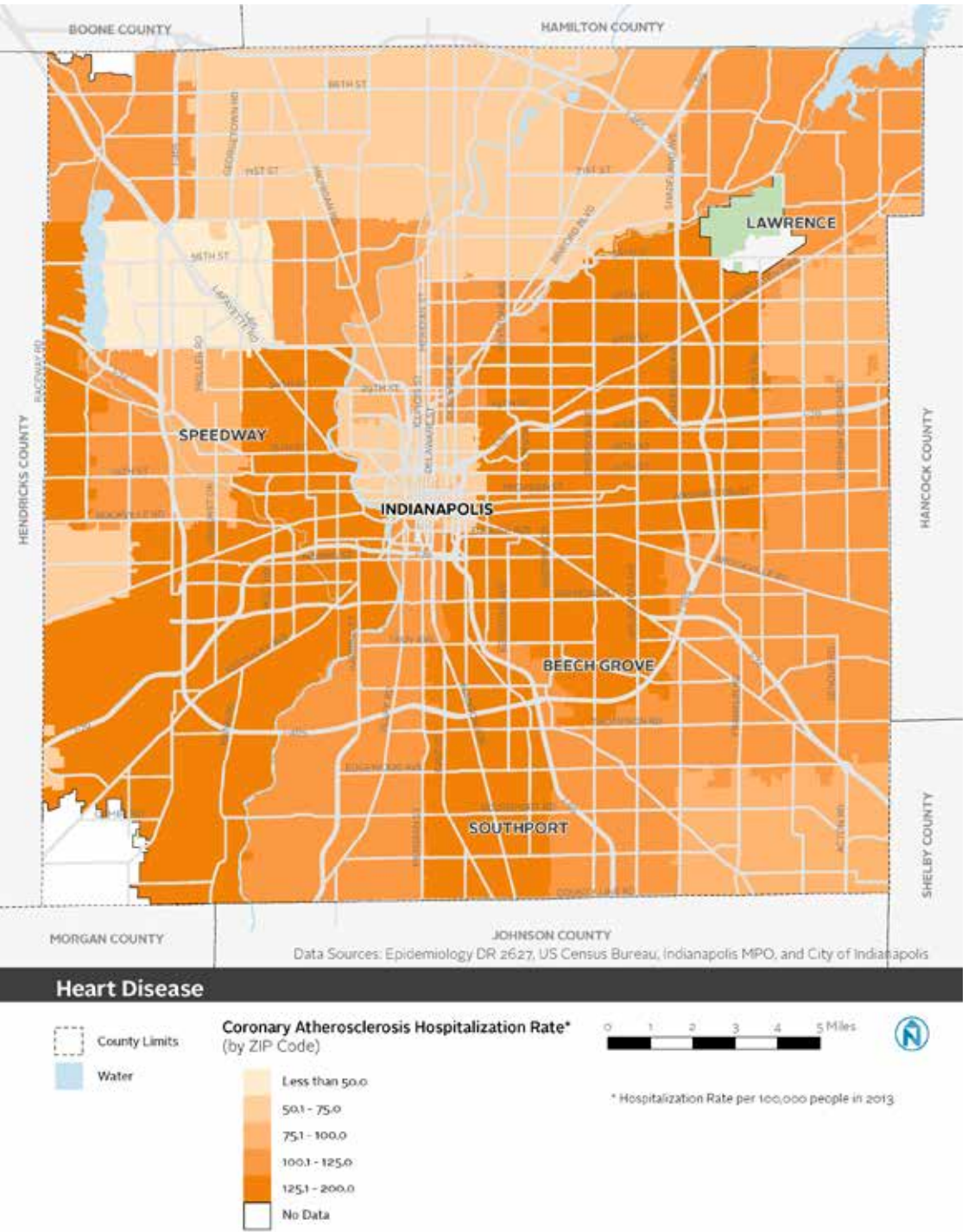
 Health Planning Areas (HPAs) are the standard geography used to collect and display self-reported health data. HPAs represent approximately 50,000 people per area, and data are aggregated across the sample. The areas are quite large compared to other geographies used in the State of Walkability Report, which means that differentiation between areas of Indianapolis is less fine grained in the health analysis and index compared to other indices in this chapter.

RATE OF DIABETES



The incidence of Type 2 Diabetes is exacerbated by poor nutrition, inactivity, and being overweight. Therefore, like obesity, diabetes is an indicator of sedentary lifestyles, which correlate directly with community design and walkability. The highest concentrations of Indianapolis residents who have been diagnosed with diabetes are located in areas surrounding downtown Indianapolis and east along 30th Street to the Hancock County border. These areas correspond with neighborhoods that have limited sidewalk coverage and low walking comfort.

RATE OF HEART DISEASE



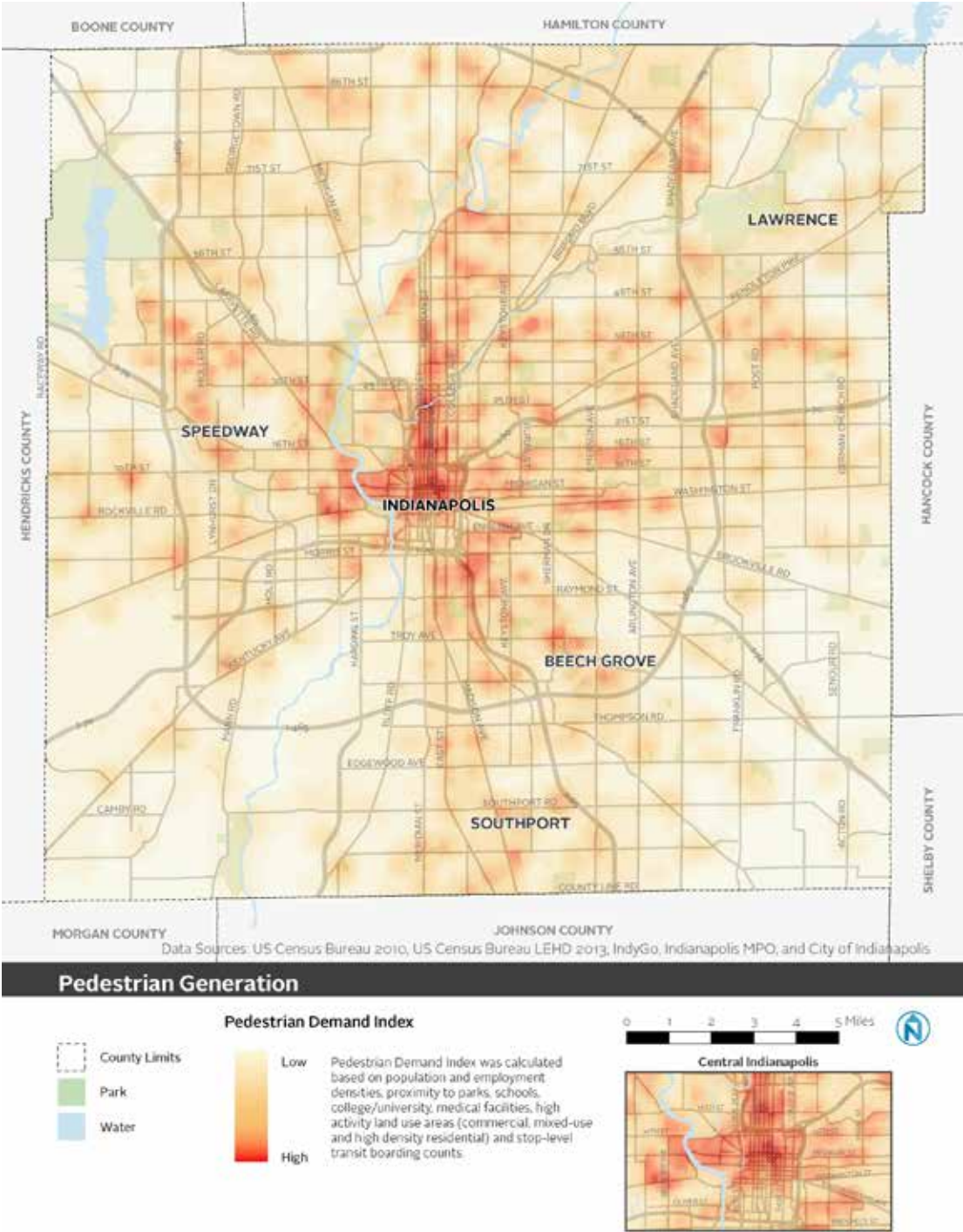
Coronary atherosclerosis, or heart disease, is the condition in which heart arteries slowly become clogged and hardened, usually from the buildup of fat, cholesterol, calcium, and other substances. This causes heart attacks, strokes, and other heart-related conditions. Atherosclerosis can worsen as a result of stress, smoking, unhealthy diets, lack of exercise, having diabetes, and being overweight/obese. Many of those factors can be improved by walking. The highest hospitalization rates in Indianapolis for atherosclerosis are in the neighborhoods immediately east and west of Center Township. The lowest rates are in the suburban neighborhoods north of Speedway.

KEY FINDINGS OF THIS CHAPTER

The maps in the preceding sections provide a snapshot of places where people are likely to walk, current walking conditions, distributions of transit dependent populations, select health indicators, and safety hotspots throughout Indianapolis. They include many of the factors that contribute to neighborhood walkability and walking comfort. These maps—considered both individually and together—demonstrate that the need for better walking infrastructure in Indianapolis is widespread.

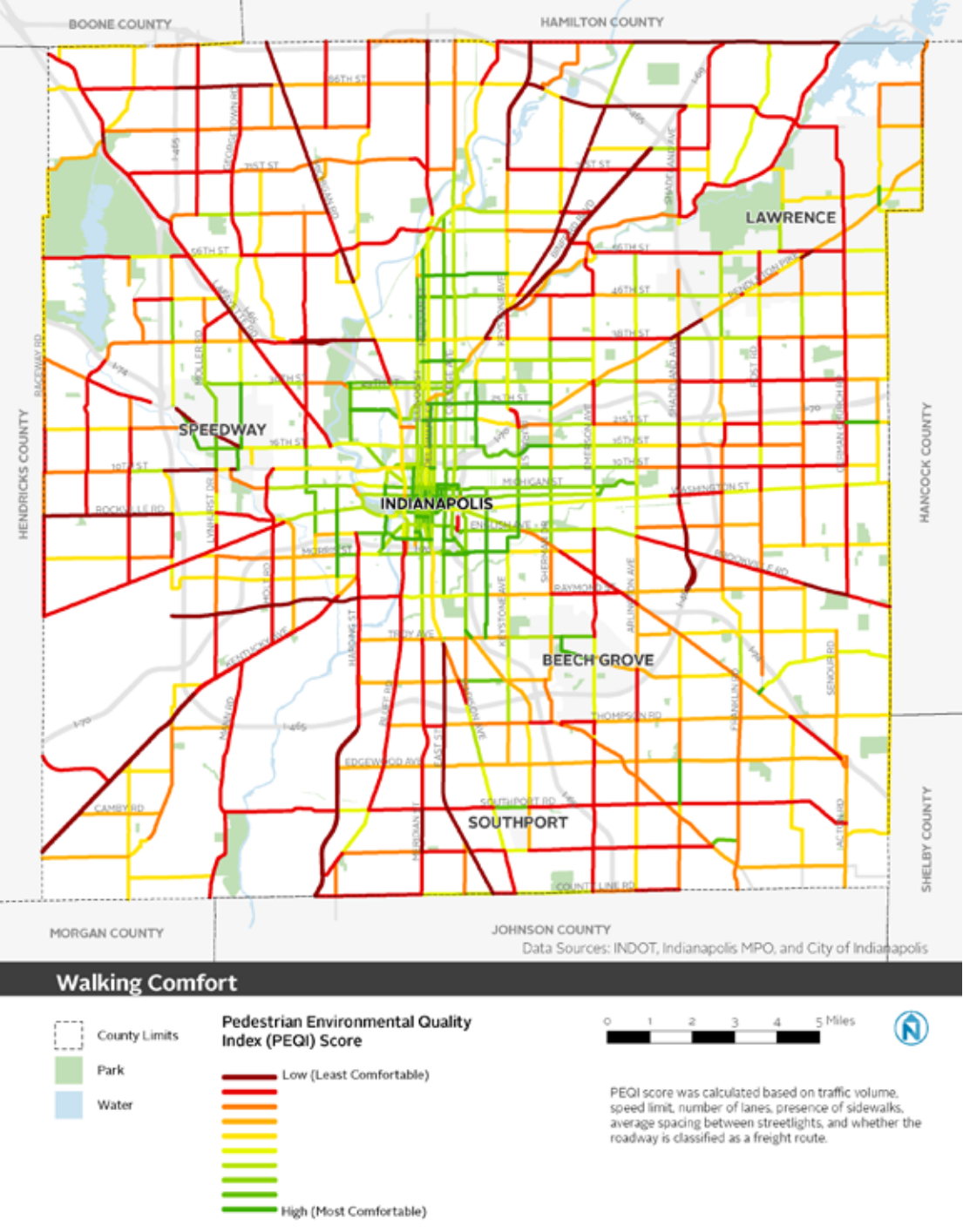
Digging deeper into where walking infrastructure is needed most, the following pages combine the individual maps into a series of indices. These indices provide a more complete picture of the need for pedestrian improvements throughout the city. The maps that follow summarize the key findings of the State of Walkability report and will directly inform the Pedestrian Plan’s prioritization framework.

PEDESTRIAN GENERATION INDEX



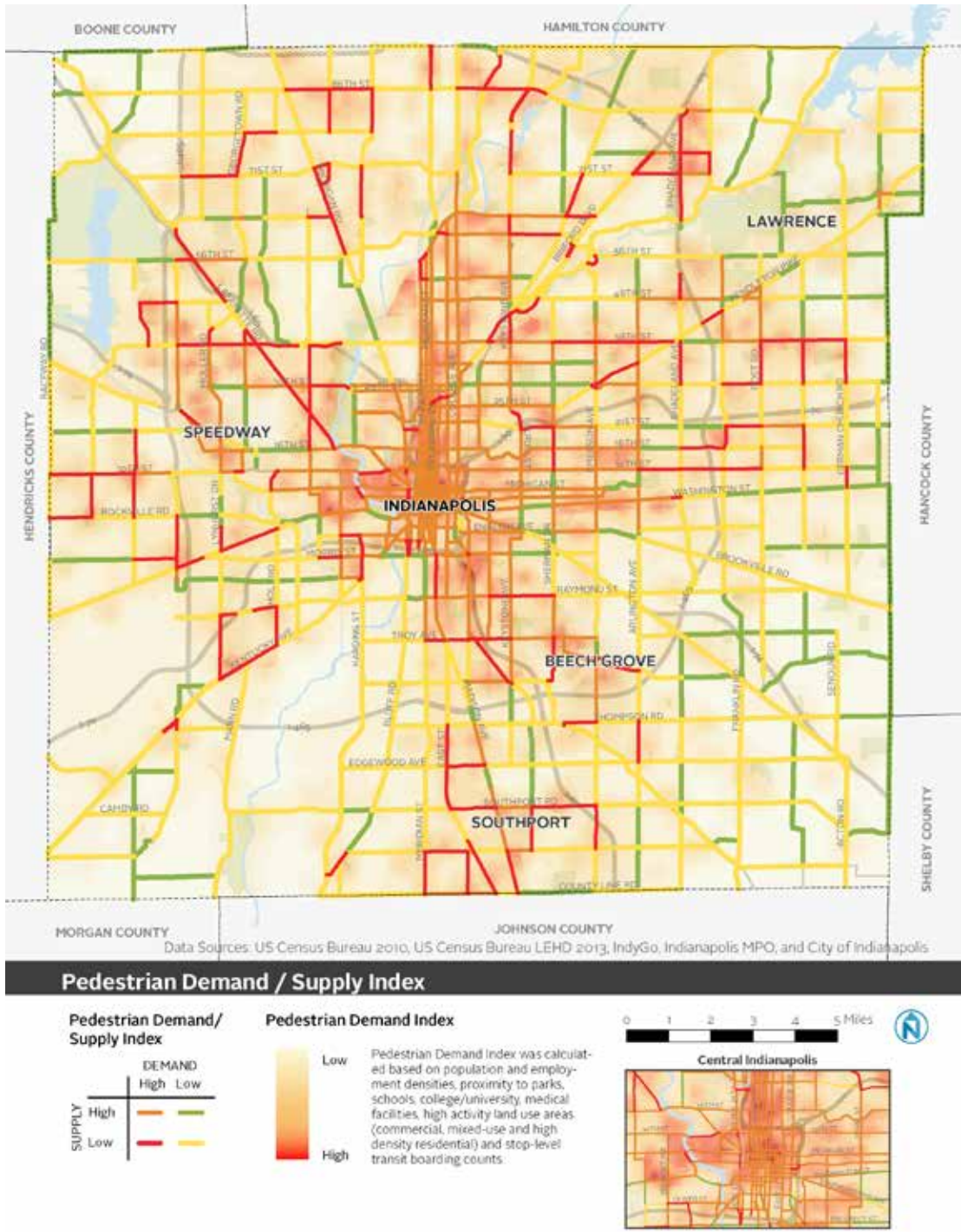
Using a combination of factors that generate or attract walking trips, the Pedestrian Generation Index highlights areas of Indianapolis that would be expected to have high levels of pedestrian activity. The index shows that the “center of gravity” for pedestrian activity is located in downtown. Secondary pockets of demand are found in the corridors that radiate from downtown, most notably the north-south corridors between downtown and Broad Ripple and several areas in the Near Eastside and Near Westside neighborhoods. See Figure 20 in the Appendix for information about the methodology used to determine relative levels of pedestrian generation.

WALKING COMFORT INDEX



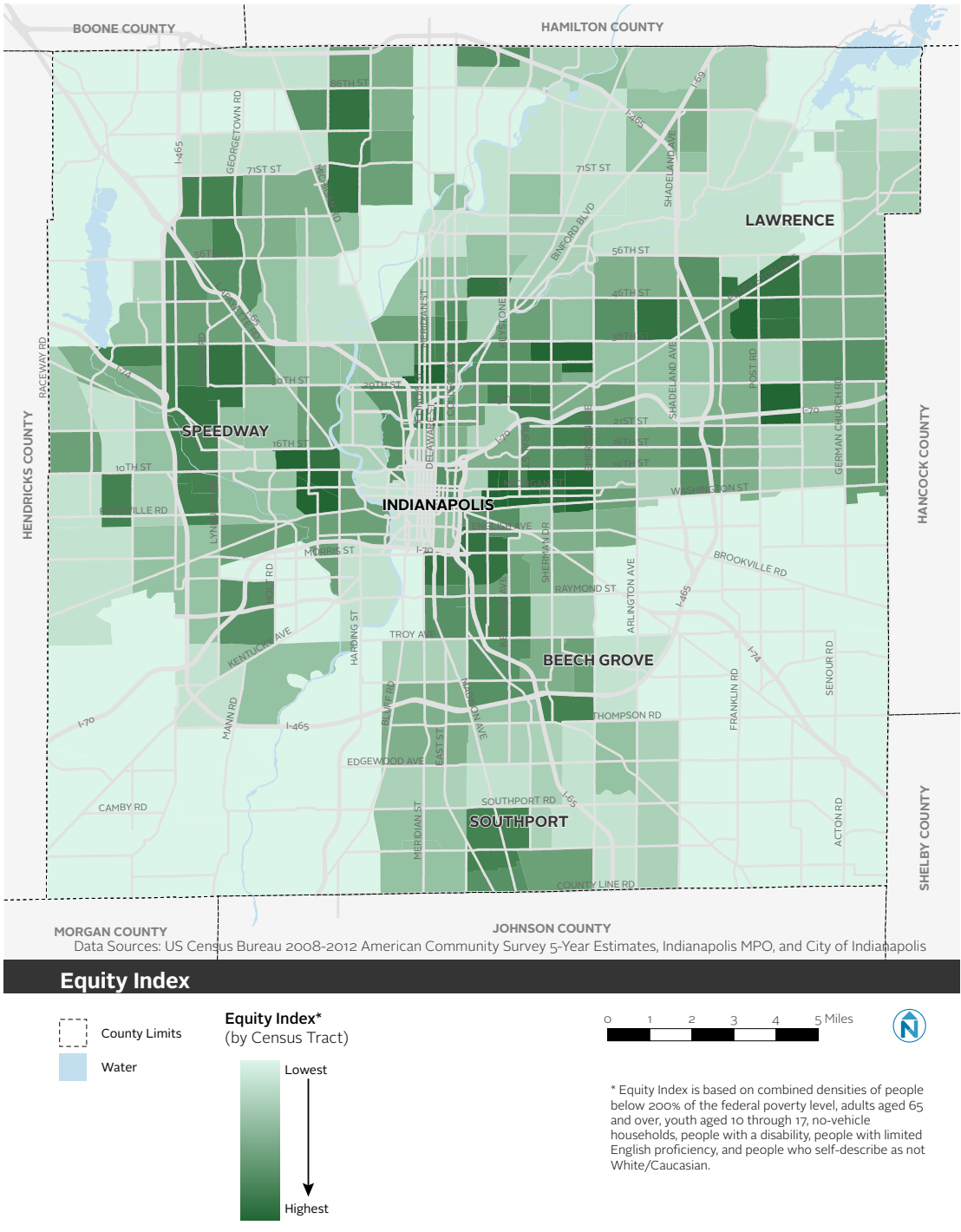
The Pedestrian Environmental Quality Index (PEQI) is an approach used by public health and built environment professionals to measure walking comfort along roadways. Illustrated above as a composite of sidewalk coverage, traffic volumes and speeds, number of travel lanes, street lighting, sidewalk availability, and freight volumes, pedestrian comfort varies throughout the city. Generally, streets with lower traffic volumes and speeds score more favorably (higher) in terms of their comfort level. The segments with the most favorable scores include many areas of central Indianapolis, and several north-south roadways between Broad Ripple and downtown. There is a ring of moderate to low comfort levels outside of downtown, and roadways further from downtown and along major arterial roadways have lower comfort ratings. See Figure 22 in the Appendix for the composite scoring methodology.

WALKING COMFORT AND PEDESTRIAN GENERATION INDEX



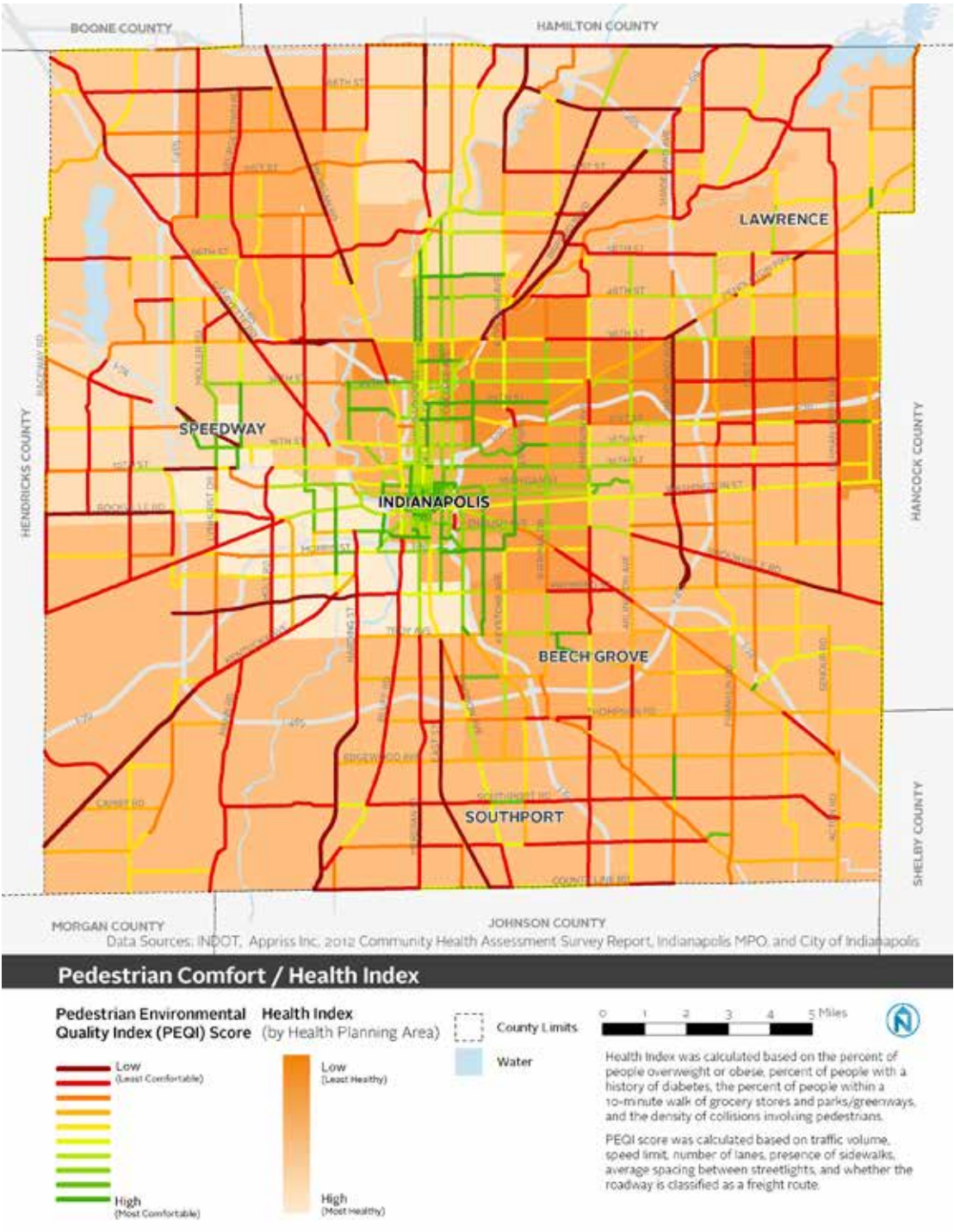
Exploring the mismatch between walking comfort factors, infrastructure supply, and pedestrian generation points to the areas where people want to walk but don't have the infrastructure in place to support them. The segments that have a high pedestrian demand but low comfort index (shown in red) should be considered a higher priority for improvement over areas that have low demand and a high comfort index (shown in green). Areas with high pedestrian demand are generally well served by pedestrian infrastructure, but neighborhoods to the northwest and inner west, south, and east of downtown have limited pedestrian infrastructure relative to pedestrian demand.

EQUITY INDEX



The Equity Index is a combination of the densities of factors that suggest high rates of trips by transit and on foot. The results shown above indicate that people who have the greatest needs for pedestrian infrastructure are spread throughout Indianapolis. Areas with significant need for walking infrastructure include several neighborhoods stretching from Fairfax through Speedway to the Snacks-Guion Creek neighborhood on the east side of I-465, and northeast through Crooked Creek and St. Vincent-Greenbriar neighborhoods; various neighborhoods between the Near Eastside and Far Eastside neighborhoods; and the Near Westside, Near Southside, and Mapleton-Fall Creek neighborhoods.

PEDESTRIAN COMFORT / HEALTH INDEX



The Pedestrian Comfort / Health index is calculated based on a combination of obesity rates, diabetes rates, access to grocery stores and parks/greenways, and density of collisions involving pedestrians (see Figure 21 in the Appendix for the methodology). Viewing the indicators of health as a composite shows that the least healthy areas of Indianapolis are concentrated in the neighborhoods surrounding downtown Indianapolis and spanning to the east and north. Notably, these areas have a relatively high pedestrian comfort score while areas of the county with better health ratings have a worse comfort score. Since many health conditions can be improved through active lifestyles and walking, the results suggest that residents in areas with the best pedestrian environments are not walking as frequently as may be necessary to reduce the risk of negative health outcomes.



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BREWERY

PENN
STATION

EAST COAST SUBS

THE CAPITAL

BOWEN & MERRILL
On March 17, 1880 the Bowen & Merrill Company, established at 1675 West Street, began the first of its many projects. The company, which was founded by James Bowen and Merrill Merrill, was the first to introduce the use of the word "BOWEN" in its name. The company's first project was the construction of the Bowen & Merrill Building, which was completed in 1885. The building was the first of its kind in the city and was a landmark in the history of the city. The building was later destroyed by fire in 1905. The site of the building is now occupied by the Bowen & Merrill Building, which was completed in 1905. The building is a landmark in the history of the city and is a testament to the company's legacy.

P

4 MOVING FORWARD

In recent years, Indianapolis has built world-class pedestrian environments downtown, in many neighborhood retail centers, and along its trail and greenway system. These investments in walking infrastructure have made it possible for many residents to walk more and live more active lifestyles.

However, many neighborhoods in Indianapolis still need basic pedestrian infrastructure—such as sidewalks and crosswalks—to make it easy for people to walk to work, transit, home, school, and recreation. To make Indianapolis a walkable city, all neighborhoods should be walkable. However, there's not enough funding available to take care of every need at once. Indianapolis must prioritize limited funds and target pedestrian improvements in the places of greatest need.

The Pedestrian Plan will set Indianapolis on a path to meet residents' most critical needs. To achieve this end, the following sections begin to draw conclusions, identify key findings, and set a clear vision to which the city can aspire. This chapter lays out problem statements and matches them with potential solutions that have been used effectively in cities across the nation. These leading practices are meant to inspire and expand the tools available to make Indianapolis more walkable.

VISION AND GOALS FOR A WALKABLE INDIANAPOLIS

Based on feedback from community outreach, stakeholder input, and conversations with city staff, the following vision and goals make an aspirational statement about the walkable city Indianapolis wants to become in the next 20 years. Achieving these outcomes will require steadfast commitment from the city’s leaders, staff, and residents as well as significant additional resources to support capital and program investments.

VISION: Indianapolis will be a great place to walk, leading to a community that is healthier, safer, resilient, and economically vibrant



Goal 1: Create Connected and Complete Communities

- Complete the pedestrian network and enhance the walking environment
- Make connections to the places people need and want to go
- Provide seamless connections to transit and ensure access to community assets
- Enhance streetscapes to create vibrant public spaces
- Extend nature into the street network with trees and landscaping



Goal 3: Build Walkable Places for All

- Prioritize projects to meet daily transportation needs
- Make investments that improve health and promote equity
- Serve people of all ages and abilities
- Get people excited about walking through neighborhood activities and demonstration projects
- Make walking a part of everyday life in Indianapolis



Goal 2: Make the Experience Safe

- Reduce the number of crashes and eliminate traffic-related injuries and fatalities
- Protect vulnerable populations and account for pedestrian needs first in planning and design
- Institute a culture of safety to get more people walking for more trips
- Teach and reinforce safe driving and walking behavior



Goal 4: Get it Done

- Maximize impact within existing capital investments and pursue new funding sources
- Pursue opportunities for low-cost, interim solutions as well as creative maintenance solutions
- Communicate, coordinate, and integrate activities across city departments
- Engage residents of Indianapolis in pedestrian planning and programs
- Report on progress annually

CONNECTING INDY’S CHALLENGES WITH OPPORTUNITIES

Building on preliminary research, stakeholder input, and data analysis, there are seven key challenges that impact walkability in Indianapolis (see Figure 11). These challenges influence pedestrian project delivery, pedestrian and driver behavior, walking comfort and safety, and mobility and access in Indianapolis. Each challenge presents an opportunity for the city to build on what's working well and to learn from the efforts of others. The opportunities are further explored in the Leading Practices section, which presents the types of solutions that can be applied to the challenges facing Indianapolis.

Figure 11 Key Challenges and Opportunities for Indianapolis

Topic	Challenge	Opportunity
Funding and Partnerships	Indy has a significant funding gap between its pedestrian infrastructure needs and its available transportation funding. The city estimates that more than \$750 million is needed to build sidewalks alone. Yet there is only \$50 million available for all types of transportation projects each year. With limited funding comes limited staff capacity, meaning that there are also very few resources available to support pedestrian programs.	Indy has a strong history of using public-private partnerships to develop signature infrastructure projects. Building on this tradition to explore other innovative funding sources and develop programs that allow residents to partner with the city could expand the funding available for pedestrian improvements. Additional resources would also present the opportunity to hire staff to support pedestrian infrastructure and program implementation.
Prioritization and Decision Making Processes	Indy’s current process for allocating limited funding spreads dollars evenly among council districts—the “peanut butter” approach. Some funding decisions are made to respond to requests based on “squeaky wheel” calls or the vocal support of councilmembers or neighborhoods. While this is not unique to Indianapolis, addressing pedestrian infrastructure needs in this way means that funding is spread too thinly to have a significant impact and that some neighborhoods are left behind.	Indy should develop and use an objective and data-driven approach to project prioritization that is based on community-supported goals and objectives. This will allow city staff to direct resources to areas of greatest need, taking important steps to create a more walkable and equitable Indianapolis.
Innovative and Effective Pedestrian Programs	Indy does not have a visible pedestrian program. Limited staff capacity and a lack of funding means that pedestrian-supportive projects and programs are implemented on an opportunistic basis, resulting in less impact than desired and little recognition of available programs by the public.	Indy needs an Active Transportation Program to house pedestrian projects and programs. By putting all existing and future work under a single umbrella, the city can communicate that the whole is greater than the sum of its parts and demonstrate a commitment to a walkable Indianapolis. Building on a history of successful partnerships, Indy can further expand its education, enforcement, and encouragement programs.
Right-of-Way Coordination	Indy lacks an integrated approach to coordinating both short-term and long-term uses of the right-of-way. In particular, pedestrian access around construction zones is poorly maintained, leaving pedestrians walking in the street or forced to zig-zag along a block to avoid sidewalk closures. Additionally, streets are continually ripped up for utility repair work and are not always fixed to the city’s specifications. There is limited coordination of utility and roadway projects, resulting in lost opportunities for efficiency and cost sharing.	Indy’s growth presents an opportunity to coordinate with developers and across city departments to ensure that pedestrian access is maintained during construction and that all types of projects are playing a role in building Indy’s pedestrian network. Using the Complete Streets Advisory Group as the forum for interdepartmental coordination is a “quick win” opportunity for the city. A new Construction Coordination team could help to manage the building boom and ensure pedestrian access around construction sites.
Creative Design Solutions	Indy lacks a comprehensive toolbox of interim design solutions to address unique challenges. The city does not typically use low-cost, temporary, or alternative treatments and designs for pedestrian infrastructure.	Indy has an opportunity to build on recent experience with community-led projects to develop innovative, low-cost approaches to pedestrian infrastructure. Using creative designs and alternative materials when funding is limited could help the city address its infrastructure needs. Demonstration projects could mobilize support for much-needed improvements to the pedestrian network and public space.

Topic	Challenge	Opportunity
Maintenance and Reporting	Indy’s existing pedestrian infrastructure is not well maintained. Many sidewalks are buckled and cracked, rendering them impassable. Older marked crosswalks are worn and barely visible. Sidewalks and storm drains are rarely cleared of snow and leaves, creating additional challenges in certain seasons. And residents have limited opportunities to partner with the city to improve conditions in their neighborhoods.	Indy has developed the Mayor’s Action Center as a one-stop shop for reporting issues, but it does not currently have the capacity to capture the range of needs that impact people walking. The city could work with volunteers to develop an inventory of assets and program a maintenance cycle, providing new ways for residents to report issues with the pedestrian environment. Indy can also explore new types of cost-sharing programs that allow residents to play a bigger role in building the network. More effective snow removal policies can be pursued, and spot enforcement can provide education opportunities and ensure that shoveling occurs.
Pedestrian Policies and Procedures	Indy lacks public-facing procedural guidance to ensure pedestrian improvements are built as required, communities are engaged, and progress is measured and reported. Many of the city’s policies and practices are not documented, leaving residents with a limited understanding of how decisions are made. Further, there are few systems in place for reporting and tracking progress.	Indy must establish protocols to ensure compliance with established policies, facilitate coordination among the appropriate public and private stakeholders, and develop new methods for involving communities in pedestrian projects. Simply documenting the practices that are currently in use would increase the city’s transparency and allow residents to better understand decisions.

APPLYING LEADING PRACTICES TO DIVERSE INDIANAPOLIS NEIGHBORHOODS

The State of Walkability report provides a snapshot of current walking conditions, programs, and standard operating procedures, illuminating a set of key challenges that Indianapolis must address. Indianapolis has unique funding and implementation constraints that are barriers to improving the pedestrian environment. To address these constraints, the city can look to national leading practices that are directly applicable to Indianapolis’ conditions. This section reviews select leading practices, highlighting those that are most applicable to Indianapolis and those that could have the greatest positive impact on people walking in Indianapolis.

As discussed in Chapter 1, Indianapolis is a mix of diverse neighborhoods, each with its own land use and street character. Each of these leading practices has different applications that would be appropriate across Indianapolis’ diverse communities and land use environments. This section uses the pedestrian land use typology as the framework for applying potential solutions.

FUNDING AND PARTNERSHIPS

Indianapolis has a significant funding and staffing shortfall that makes it particularly challenging to close gaps in the pedestrian network and establish new programs. Pedestrian projects must compete for funding with all types of transportation infrastructure needs (for which only \$50 million is available each year). Limited funding translates to limited staffing, which impacts the city’s ability to support innovative pedestrian programs. Indy’s available funding is less than many of its current and aspirational peer cities, meaning that, without additional resources, Indy will continue to fall behind its peers and will struggle to become a great walking city.

Indy’s Budget Gap



Select Leading Practices

Corporate/Health Care Partnerships

Collaboration with corporate partners can provide additional funding to help meet the costs for expensive new infrastructure. The private partner that sponsors these projects benefits from increased public exposure and positive press for contributing to the public good. Partnerships with health care companies are ideal for projects that facilitate active transportation, such as walking and biking. The health care agency benefits from the association with a project that is perceived as “healthy” for the community. Additionally, members of the public will associate the sponsored infrastructure as a healthy form of transportation.

Naming rights to a project can be structured as a short- or long-term contract. In Cleveland, the Cleveland Clinic and University Hospital purchased the naming rights to the city’s first bus rapid transit (BRT) line, the “HealthLine.” Revenue received from the partnership will offset some of the operating costs for 25 years of the project.



Image from Nelson\Nygaard

If Indianapolis were to implement this...

Indianapolis has a strong history of using public-private partnerships to creatively fund civic projects that improve residents’ quality of life. For example, the Indianapolis Cultural Trail is managed by a nonprofit and was made possible through collaboration between the city, the Central Indiana Community Foundation, and various non-profit organizations. Georgia Street, a downtown centerpiece and a hub for community activity, is managed by Downtown Indy, a non-profit whose mission is to develop, manage, activate, and market downtown. In order to maximize opportunities for improving the pedestrian environment, Indianapolis should continue this tradition, seeking out additional opportunities for projects beyond downtown.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R

Mode Share Based Funding

Mode share based funding is a strategy for government agencies to allocate funds based on mode shares or target mode shares. For example, if Indianapolis aims to have 10% of all trips be made on foot, then 10% of transportation funds would be allocated to walking infrastructure projects under a mode share based funding strategy.

In San Luis Obispo, CA, the city updated the transportation mode objectives in its transportation plan to dramatically increase its bike and pedestrian trip goals (20% and 18%, respectively). It then created a policy that allocates general fund transportation spending based on these goals.

If Indianapolis were to implement this...

Distributing funds based on desired mode shares (as opposed to actual mode shares) could be especially beneficial for areas within Indy where a lack of walking infrastructure may not meet current demand. The city would need to develop mode share targets to establish such a funding mechanism.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R



Image from City of San Luis Obispo

PRIORITIZATION PROCESSES AND DECISION-MAKING FRAMEWORKS

Today, funding for pedestrian projects in Indianapolis is spread evenly around the city, with limited amounts allocated to address political or neighborhood requests. Addressing pedestrian infrastructure needs in this way means that funding is spread too thinly to have a significant impact and that some neighborhoods are left behind. Establishing a clear approach to project prioritization would ensure that Indy’s limited dollars are being spent in the areas where they can have the greatest impact.

Select Leading Practices

City of Minneapolis 2009 Pedestrian Master Plan

The Pedestrian Master Plan adopted by the City of Minneapolis in 2009 used a Pedestrian Need Evaluation to calculate the Pedestrian Need Level and Readiness, in order to prioritize investments in walking infrastructure. Pedestrian Need Level refers to the level of urgency of potential pedestrian interventions, whereas Readiness refers to the level of opportunity for implementation.

The evaluation reviewed over 250 potential pedestrian improvement projects from five existing initiatives. With public input, the city consolidated these potential improvement projects into a list of 150.

To calculate the Pedestrian Need Level, the city evaluated each project based on eight measures associated with (1) the condition of existing infrastructure, as well as (2) demand for pedestrian trips. Figure 12 lists the eight measures used in the Pedestrian Need Evaluation.

Each measure had a scoring mechanism that resulted in a rating of “High” (2 points), “Medium” (1 point), or “Low” (0 points). Points were tallied to generate a prioritized list of projects based on the level of pedestrian need.

The city then assessed the “Readiness” of each project in order to gauge the level of opportunity for implementation. To do so it used the following approach:

High Project Readiness

- Project with pedestrian improvements is in a capital program and is substantially funded

Medium Project Readiness

- Project with pedestrian improvements is in a capital program and has been partially funded or is in a provisional capital program
- OR a non-pedestrian infrastructure improvement is in a capital program which offers an opportunity to integrate pedestrian improvements
- OR a significant planning or design study has been completed or is underway which demonstrates the feasibility of implementing the pedestrian improvement project

Low Project Readiness

- No pedestrian project is in a capital program
- AND no significant non-pedestrian infrastructure projects is in a capital program, offering the opportunity to integrate pedestrian improvements
- AND no significant planning or design study has been completed to demonstrate project feasibility

Figure 12 Measures used in the City of Minneapolis Pedestrian Need Evaluation

Measure	Additional Description
Crash Incidence	Total crashes involving pedestrians 2002-2006 within 1 block of project location
Multi-Lane Roadway	Number of motor vehicle lanes
Pedestrian Zone Width	Measured as minimum sidewalk and boulevard width on at least 1 side of the street for successive blocks
Sidewalk Gap	Sidewalk gap defined as location where a sidewalk is missing on one or both sides of the street and is needed to provide access to properties or to provide a direct connection to other sidewalks
Deficient Pedestrian Environment	Indicates lack of enhancements to the pedestrian environment measured by the presence of pedestrian-scale lighting, trees, architectural bridge fencing, or curb extensions
Transit Priority	The level of current or future transit use
Number of Pedestrian Generators	Schools, parks, museums, libraries, universities, large venues, hospitals, community corridors or neighborhood commercial node, or commercial corridors/activity centers (commercial corridors and activity centers are counted as 2 generators)
Areas with Low Pedestrian Network Connectivity	Defined as having an effective block size created by existing pedestrian facilities that is the same size as two large city blocks or larger

Source: City of Minneapolis 2009 Pedestrian Master Plan Appendix C

Pedestrian Need Level, in combination with Readiness, resulted in a matrix that allowed the city to tier projects in levels of priority. For example, a project rated “High” in both Readiness and Pedestrian Need Level falls into Tier 1. A project rated “Low” in both Readiness and Pedestrian Need Level falls into Tier 5. The five tiers include:

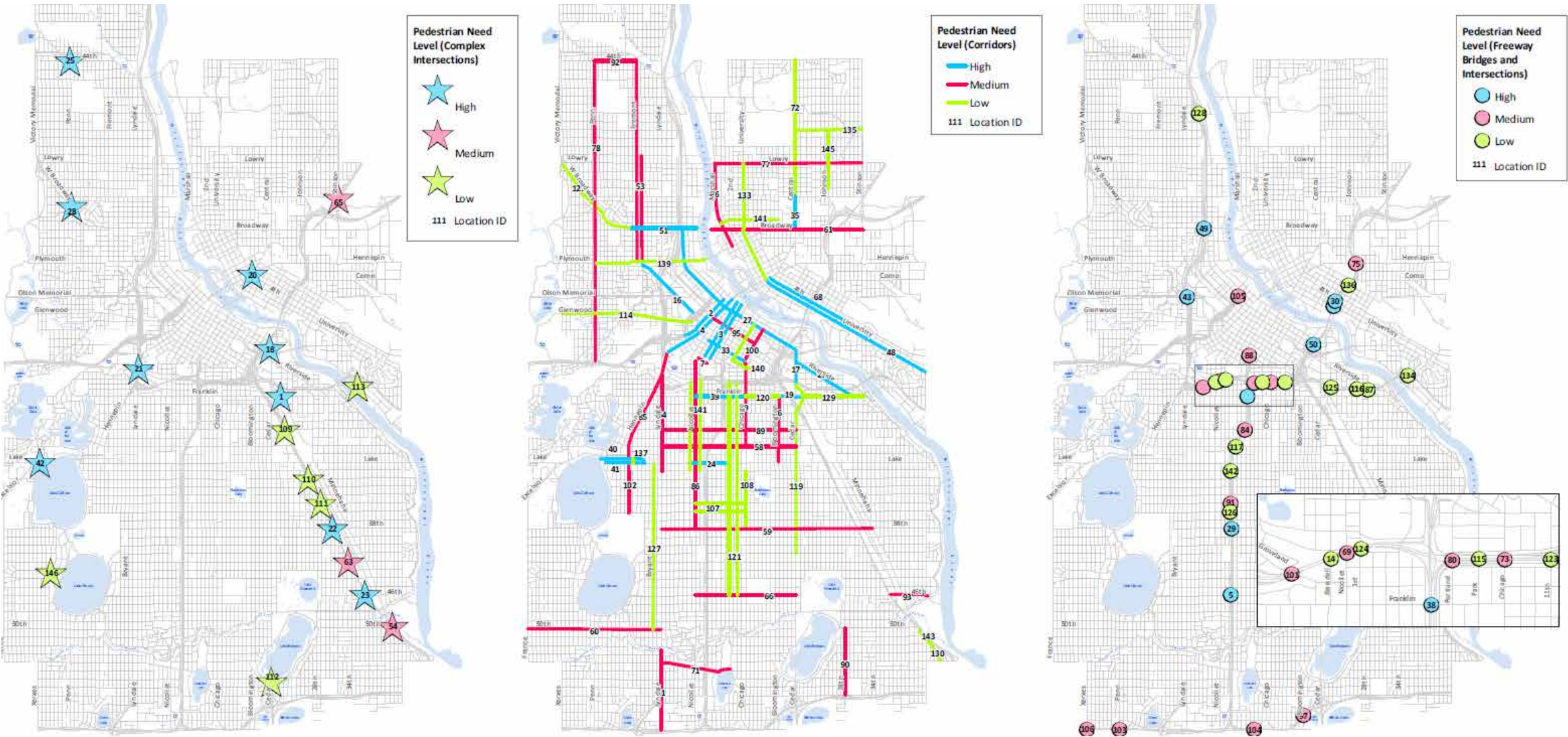
- Tier 1 projects have a high project readiness and any level of pedestrian need. Design and implementation is a priority for these projects.
- Tier 2 projects have a high pedestrian need and a medium project readiness. These projects are the highest priority for funding and scoping new pedestrian improvements based upon current information.
- Tier 3a projects have a medium pedestrian need but have a medium project readiness. Tier 3b projects have a high pedestrian need and a low project readiness. Tier 3a and 3b projects are the

second highest priority for funding and scoping new pedestrian improvements based upon current information.

- Tier 4a projects have a low pedestrian need and a medium project readiness. Tier 4b projects have a low pedestrian need and a medium project readiness. Tier 4a and 4b projects are moderate to low priority for funding and scoping pedestrian improvements based upon current information.
- Tier 5 projects have low pedestrian need and low project readiness and are the lowest priority based upon current information and may be addressed as opportunities allow, but are not a priority at a citywide scale.

The Pedestrian Need Evaluation successfully used the Pedestrian Need Level and Readiness to systematically tier investments in walking infrastructure within the City of Minneapolis.

Figure 13 Maps Produced from the Pedestrian Need Evaluation



Source: City of Minneapolis 2009 Pedestrian Master Plan, Appendix C

Mid-Ohio Regional Planning Commission 2016-2040 Active Transportation Plan

The Mid-Ohio Regional Planning Commission (MORPC) 2016-2040 Active Transportation Plan (ATP) is designed to identify regionally-significant projects that include pedestrian, bicycle, and transit components.

The ATP prioritized 12 key regional active transportation corridors using a five-step analytical process. Figure 14 describes each step in the process (taken from the MORPC website).

Figure 14 Five Steps in the Active Transportation Corridor Prioritization Process

Step	Description
Step 1: Network Identification	The network identification process started with the MORPC area and isolated roadways based on classification, identifying only arterial roadways and any roadways that crossed two or more jurisdictions.
Step 2: Network Analysis	The next round of analysis looked at the roadways from Step 1 and identified current and future jobs and housing densities around them. Step 2 also considered the proximity to various points of interest that would generate walking, biking and transit trips such as libraries, schools, parks, and shopping centers.
Step 3: Identification of Key Regional Corridors	With input from the Technical Committee, the ATP team analyzed the information that had been produced about these roadways and began to identify Key Regional Corridors. Corridors are the roadways plus the area within a 1,000-foot buffer on all sides of them.
Step 4: Validation Stage	The ATP team and the Technical Committee further refined the Key Regional Corridors based on their general knowledge of the area. They added the 12th corridor.
Step 5: Identification of Segment Typologies	The final step of the process was to break the Key Regional Corridors into segments based on surrounding land uses. The insight2050 place types, MORPC land use forecasting data, and general knowledge of the area were used to identify segments: urban, compact, standard, rural, and divided highway.

Source: MORPC 2016-2040 Draft Active Transportation Plan

Given the high level of variation and long length of the corridor segments, the ATP team classified segments into one of five categories: urban, compact, standard, rural, and divided highway.

- The **Urban Corridor** segment type goes through areas that tend toward dense housing and jobs. The land use surrounding it includes multi-family, high-rise, attached single-family, and small-lot single-family homes. These corridors and their surrounding areas are supported by higher levels of regional and local transit service. They are within well-connected street networks, and the mix and intensity of residential, commercial, and recreational land uses result in a highly walkable environment and relatively low dependence on the automobile for many trips.
- The **Compact Corridor** segment type is less dense than the Urban category, but still highly walkable with a rich mix of retail, commercial, residential, and civic uses. It has a diverse mix of housing, from multi-family to attached single family, to small- and medium-lot single family homes. It is well served by regional and local transit service, but may not benefit from as much service as in Urban corridors. It and the streets around it are well-connected and walkable, and destinations such as schools, shopping, and entertainment areas can typically be reached via a walk, bike, transit, or short auto trip.
- The **Standard Corridor** segment type is surrounded by standard auto-oriented suburban land uses. It has lower housing and job densities than along Compact corridors, with uses that are generally not highly mixed or organized to facilitate walking, biking, or transit service. It can contain a wide variety of housing types, though medium- and large-lot single family homes are the majority. It is not typically well served by regional transit service. Local street networks are not as well connected as those in Urban and Compact corridors. There are fewer destinations accessible by walking or bicycling, and most trips are made by automobile.
- The **Rural Corridor** segment type is marked by very low housing and job density, and the land use within it is generally mostly agricultural or industrial uses. It is not typically well served by regional transit service. Typically these corridors do not have curbs and gutters, and may not have paved shoulders. Housing types tend to be farmsteads and large-lot single family homes. Commercial uses are sparse, and may be concentrated at intersections.
- The **Divided Highways Corridor** segment type has limited access points and more channelized traffic, and does not allow non-motorized vehicles. These corridors require a different set of solutions. Because they have higher speeds and limited vehicle access, they are separated from the surrounding land uses, which could be urban, compact, standard, or rural in nature.

In classifying segments in the 12 priority corridors this way, project types were tailored to a diverse set of communities hoping to implement a diverse set of projects.

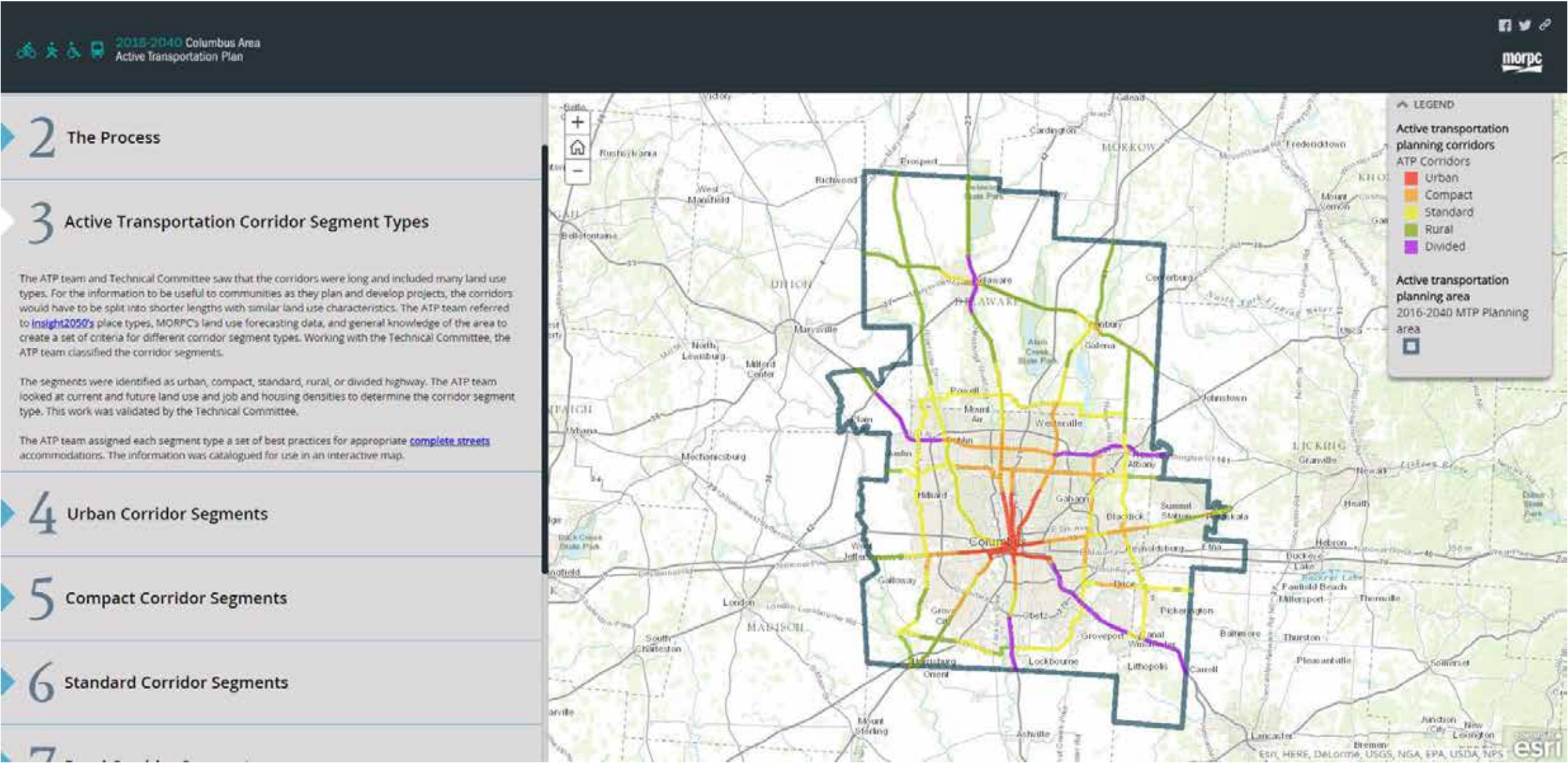
Seattle Pedestrian Master Plan and Bicycle Master Plan

The City of Seattle prioritizes a set of core values when implementing its various modal plans, including the Pedestrian Master Plan (PMP) and the Bicycle Master Plan (BMP). These four values (community, environmental stewardship, social equity, and economic opportunity and security), are set forth in the city’s Comprehensive Plan. In turn, the Transportation Element

of this plan informs the goals, policies, and strategies for the individual modal plans. The broad goals from the Transportation Element that pertain to walking and bicycling are to:

- Increase walking and bicycling to help achieve city transportation, environmental, community, and public health goals.
- Create and enhance safe, accessible, attractive, and convenient street and trail networks that are desirable for walking and bicycling.

Figure 15 Story Map Website for the Draft MORPC 2016-2040 Active Transportation Plan



Source: Image from the Draft MORPC 2016-2040 Active Transportation Plan

Based on these guidelines, Seattle’s Pedestrian Master Plan adopted the mission to make Seattle the most walkable city in the nation and established four plan goals based on safety, equity, vibrancy, and health. To prioritize projects in the short and long term, the city collects data related to these goals and assigns scores based on:

- **Along the Roadway.** Quantifies safety and comfort for road segments by assigning points for characteristics that may negatively affect a pedestrian’s experience walking along a given roadway. Data accounts for the presence of sidewalks and physical buffers, and the volume and speed of traffic.
- **Crossing the Roadway.** Same as “Along the Roadway” mapping analysis, but assigns scores to intersections instead of road segments. Data accounts for the presence of curb ramps, crosswalks, traffic signals, and stop signs, along with the width of roads and level of traffic.
- **High Priority Areas.** Identifies levels of walking need based on:
 - *Potential Pedestrian Demand Map.* Identifies strong trip generators (including areas where people will be living and working in the future)
 - *Equity Map.* Identifies populations with greatest need (due to being traditionally underserved or for having high health risks)
 - *Corridor Function Map.* Prioritizes streets based on character and role in the transportation network, reflecting physical character of the street along with adjacent land uses. Streets with higher scores provide the most important links in the pedestrian network.

Figure 16 High Priority Areas from the Seattle Pedestrian Master Plan

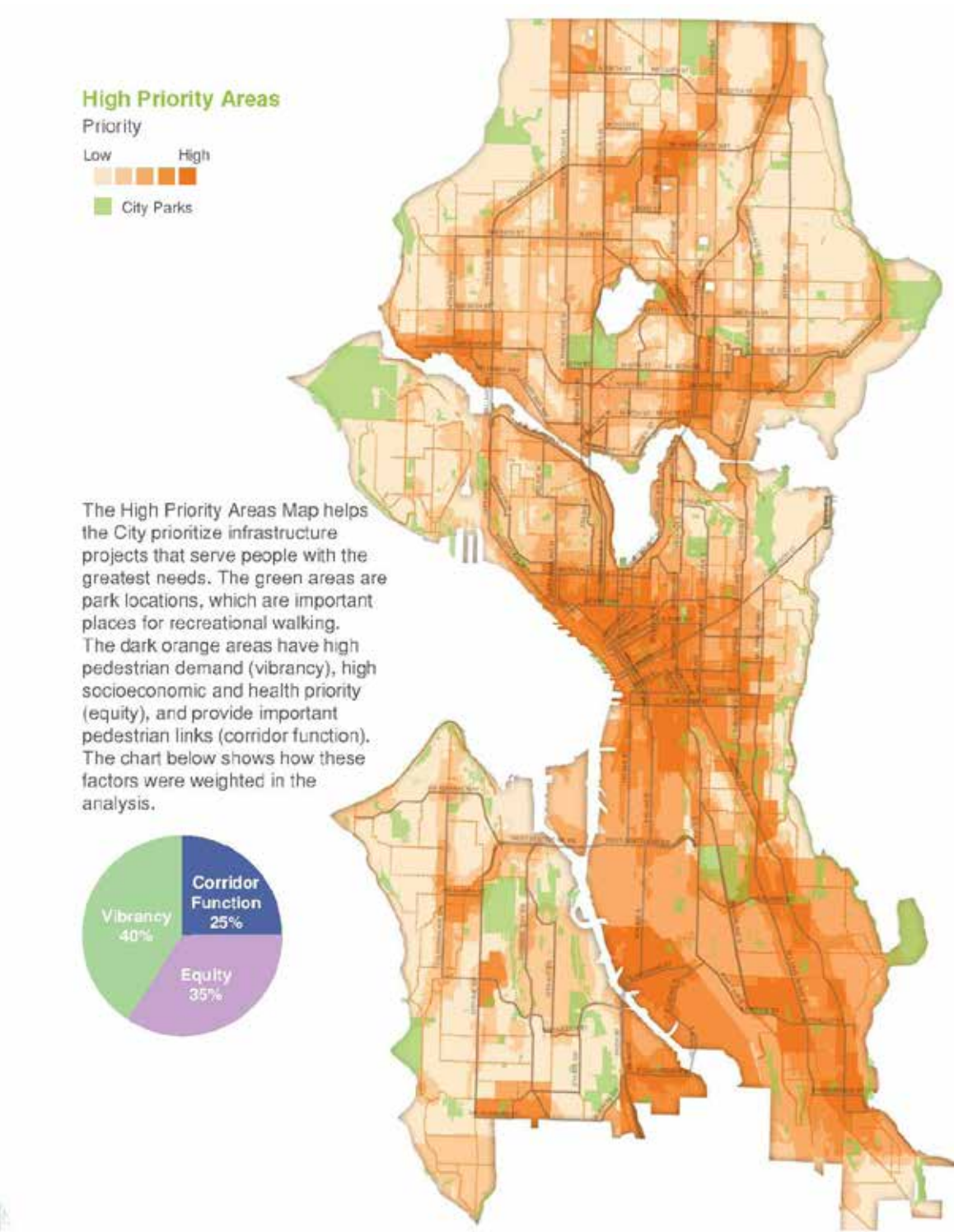


Image from the Seattle Department of Transportation

TriMet Pedestrian Network Analysis

The Pedestrian Network Analysis project was launched by TriMet, Portland, Oregon’s regional transit authority. The effort involved identifying key locations in the transit service area where bus stops were lacking pedestrian infrastructure and/or pedestrian connections.

The prioritization process involved a scoring methodology based on:

- **Transit supportiveness of an area.** This allowed the identification of areas where improvements would have the most impact on pedestrian and ridership activity.
- **Deficiencies and opportunities near stops.** Deficiencies were characteristics that made a place unsafe or uncomfortable for walking. Opportunities included improved connections and reducing the need for TriMet’s expensive paratransit service.
- **Composite scores.** Using scores from the previous two categories, clusters of high scoring stops were identified and compared to census tract maps showing areas with above average minority and low-income populations.

Through the process, TriMet identified 66 clusters of stops with the highest amount of need, and prioritized 10 areas to begin making improvements. Staff walked each area and inventoried the pedestrian needs around each stop. The resulting improvements have been beneficial for TriMet (by facilitating connections for riders) but also for pedestrians who may not ride transit.

Figure 17 Stops with Highest Need from TriMet Pedestrian Network Analysis

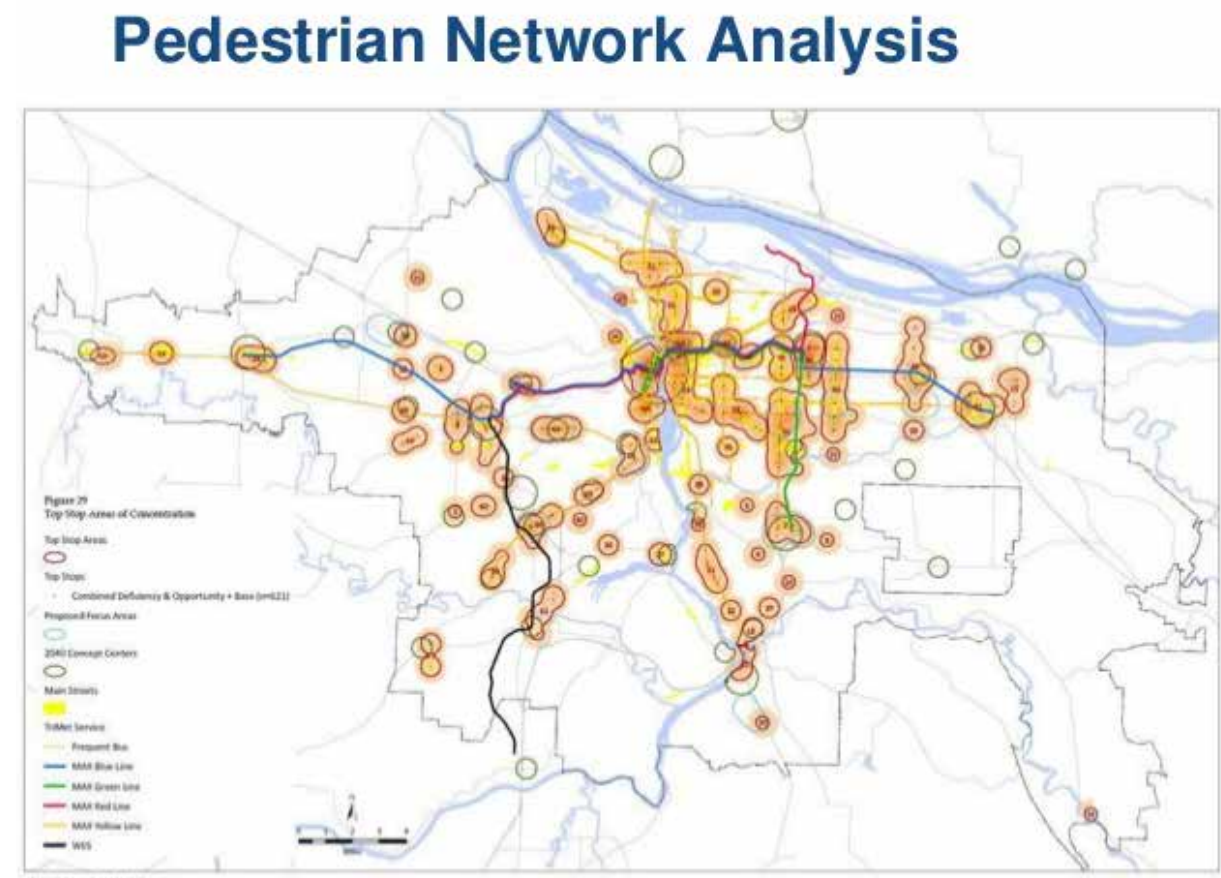


Image from TriMet

If Indianapolis were to implement this...

Establishing a clear prioritization process (backed by community-supported goals and objectives) would allow the city to remove the politics from project prioritization. Using a point-scoring system (accounting for the quality of facilities, nearby land uses and transportation networks, and population demographics) would help to allocate scarce funding objectively.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R

INNOVATIVE AND EFFECTIVE PEDESTRIAN PROGRAMS

Indianapolis does not currently have a visible pedestrian program due to limited staff capacity and a lack of funding. This translates to opportunistic implementation of projects and programs that support walking, resulting in less impact than desired and little public recognition of the programs that are available.

Select Leading Practices

Make Way for Play

Make Way for Play is a Safe Parks Access Plan developed for the City of Chicago through a collaborative partnership with the Chicago Park District, the Chicago Department of Transportation, and Healthy Places (an initiative that targets obesity). Recognizing the importance of active transportation as a tool for healthy living, the guide made the following policy recommendations for the city:



Image from City of Chicago: Make Way for Play

- Provide outreach on the benefits of active transportation
- Encourage the use of parks and public ways for active transportation
- Make streets and parks safe by enforcing traffic and personal safety laws
- Increase bicycling, walking, and transit use to and through parks with planning, design, construction, and maintenance
- Encourage interjurisdictional collaboration among government agencies along with developers and civic partners to improve the health of residents

The prioritization process involves an equity index (analysis of elderly and youth populations, families under the poverty level, and minority groups) to identify vulnerable populations throughout the city. In turn, access improvements and bikeway developments were recommended for parks in areas with the highest concentrations of these populations.

MBTA Systemwide Accessibility Department and Key Bus Route Improvement Program

The Massachusetts Bay Transportation Authority (MBTA) established the System-Wide Accessibility Department to ensure that all station and bus stops were universally accessible. As part of this effort, MBTA developed the Key Bus Route Improvement Program, which prioritizes pedestrian and passenger improvements along 15 bus routes with high levels of service. After extensive public outreach (with participation from riders, community stakeholders, and municipalities served by the routes) the program provided bus stop location improvements, traffic signal upgrades, transit signal priority and designated queue jump lanes, curb extensions, accessibility enhancements, and bus stop amenities.



Image from Nelson\Nygaard

If Indianapolis were to implement this...

Drafting and adopting a citywide plan like “Make Way for Play” can bring visibility to important initiatives even if funds are not available to implement the full plan right away. Creating such a plan would establish an approach to allocating funding as it becomes available and could set the parameters for the city to make improvements through creative partnerships.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC (where connected to villages)

Safe Routes to Transit

Safe Routes to Transit is a project piloted by the New York City Department of Transportation to improve rider accessibility to subway and bus stops. The Sidewalks to Buses program targets bus stops where pedestrians are most likely to encounter higher volumes of vehicle activity and higher speeds of vehicular traffic. Improvements include new sidewalks, crosswalks, and bus waiting areas. The plan calls for the installation of up to a quarter mile of new sidewalk and/or other infrastructure improvements at up to 15 bus stops per year through 2030.

Before



Image from City of New York

After



Image from City of Seattle

No Ridiculous Car Trips

The city of Malmo, Sweden provides a creative example of a public-awareness campaign urging citizens to re-examine their travel habits. After discovering that 50% of all car trips in the city were under three miles, the city’s bicycle office and transport departments began an effort to get people out of their cars for short trips. The annual campaign invites people to submit their “most ridiculous” car trip and uses those trips as examples to encourage walking and biking. The campaign has been wildly successful and (along with steady increases in infrastructure) has resulted in a steady increase in the city’s bicycle mode share.



Image from Allinx, European Association of Mobility Management Professionals

If Indianapolis were to implement this...

By working with private developers, Indianapolis can improve the pedestrian network and increase public space with no additional cost to the city.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC (depends on the type of development)

If Indianapolis were to implement this...

Boston and New York City’s transit accessibility initiatives are excellent examples of local programs that can improve outcomes for people traveling by all modes. Coordinated efforts with IndyGo can facilitate much needed improvements to the walking environment in areas served by transit.

Applicable pedestrian land use types: CBD | MV | VC | GV

Privately Owned Public Spaces

This creative initiative has seen considerable success in increasing the stock of public space in downtown Seattle. Through its Land Use Code, the city has been encouraging private developers to construct and maintain privately owned public spaces (POPS) on their property in exchange for increased development rights (most often higher building limits). POPS exist in the form of corner plazas and even rooftop terraces that are open and accessible to the public. To date there are 27 POPS within downtown Seattle.

If Indianapolis were to implement this...

Creative public campaigns can draw attention to Indianapolis’ current and future pedestrian initiatives, encouraging safe and healthy travel behavior.

Applicable pedestrian land use types: CBD | MV | VC | GV

RIGHT-OF-WAY COORDINATION

Indianapolis lacks an integrated approach to coordinating both short-term and long-term uses of the right-of-way. In particular, pedestrian access around construction zones is poorly maintained, and there is limited coordination of utility and roadway projects. Coordination is often complicated due to jurisdictional issues, with the state and city sharing responsibilities. For example, basic roadway maintenance may require coordination between the city and state and with utility companies and private developers. In order to ensure that Indy’s right-of-way can accommodate future transportation needs (including the space needed for walking and biking infrastructure), Indy needs to ensure coordination and congruency among all parties involved.

Select Leading Practices

DDOT Office Manual for Construction Management

Developed by the District of Columbia Department of Transportation (DDOT), the Manual for Construction Management establishes standard operating procedures for the agency’s engineers, construction managers, consultants, and contractors to facilitate uniformity and efficiency during and after the construction phases of transportation projects. These guidelines include requirements for coordination with other actors who may contribute to the project in the form of planning, budgeting, pre-design services, design services, scheduling, and bid and award services.



Image from Nelson\Nygaard

The manual also incorporates guidelines for a public involvement plan to facilitate community involvement, including special considerations for parking provisions/restrictions, traffic detours, pedestrian access, equipment staging, trash pickup, and work zone maintenance.

Seattle Right-of-Way Improvements Manual

Recognizing the importance of balancing the needs of all types of road users, the City of Seattle created the Right-of-Way Improvements Manual with guidelines for property owners, developers, architects, landscape architects, and engineers involved with design, permitting, and construction on the city’s right-of-ways (ROW). When new development requires street improvements, project applicants are required to construct their half of the ROW and ensure that a minimum of one 12-foot paved travel lane and five feet of graded shoulder exist on the other side of the centerline.

Standard roadway widths vary by land use type. The manual also establishes standard lane widths for arterials based on lane type, including parking lanes, parking lanes on bus routes, and curb lanes for vehicles and bicycles.



Landscape/Furniture Zone Pedestrian Zone Frontage Zone

Image from City of Seattle

Utility Coordination

Utility coordination programs ensure synchronization among the various utility companies (power, telephone, gas, water and sewer, television, and internet) that occupy ROW and the various levels of government that have jurisdiction over them. The Charlotte Department of Transportation created a Right-of-Way Management Section to issue permits for utility installations and repairs, ensuring that disruptions are minimized to the transportation network and to the provision of services from the utility companies themselves.

Street Vacation

Street vacation is the process of ceding control and ownership of a public ROW to a private entity. The Seattle Department of Transportation grants street vacations based on a public benefit matrix accounting for various factors, including: zoning designation, street classification, assessed value of adjacent property, nearby lease rates for similar projects, size of project, size of vacated area, and contribution of vacated area to development potential of the site.



Image from SDOT Blog, user nelsonlm

If Indianapolis were to implement this...

ROW coordination is not new to Indianapolis. However, the city’s protocols for minimizing disruptions to transportation and utility networks (and involving public and private stakeholders) should be consolidated, perhaps in a Construction Coordination office.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC

CREATIVE DESIGN SOLUTIONS: LOW-COST, TEMPORARY, AND ALTERNATIVE DESIGNS AND TREATMENTS

Indy lacks a comprehensive toolbox of interim design solutions to address unique challenges. The city does not typically use low-cost, temporary, or alternative treatments and designs for pedestrian infrastructure. However, Indy has an opportunity to build on recent community-led projects, such as Better Block and Spark Monument Circle, to expand its toolbox and foster creative collaborations that enliven the city’s public spaces.

Select Leading Practices

Hawthorne Bridge Pedestrian Improvements

Located in Portland, OR, the Hawthorne Bridge is the oldest operating vertical lift bridge in the U.S., and the city’s busiest for cyclists and transit riders. While the bridge’s predominant non-motorized users are on bicycle, more people are starting to walk across the bridge. When first constructed, however, the bridge was not furnished with continuous sidewalks on the eastbound approach on the eastside of the bridge. As more people walk across the bridge, the existing conflicts and safety issues became more pronounced. The city was able to increase safety and access for cyclists and pedestrians through widened sidewalks (now designated as shared-use paths), separate bike and pedestrian crossing areas, and sidewalk infill on the approaches.



Image from Nelson\Nygaard

Project delivery was innovative because of its phased approach. During the initial phase, the city applied striping to designate pedestrian space. This was a placeholder improvement that alleviated pedestrian safety issues on the bridge while the city sought funding for permanent sidewalks.

Bringing Back Broadway

Bringing Back Broadway is an initiative in the City of Los Angeles involving a series of pilot projects to recreate the physical layout of Broadway Street through its historic theatre district. The first set of street treatments applied low-cost curb extensions used to calm traffic and expand space for seating and social activity. The curb extensions were far cheaper than major corner reconstruction because they were installed at the same grade of the roadbed, separated by striping and resurfaced with a cement-based road coating.

The City ensured the maintenance of these installations through the authorization of contracts with various Business Improvement Districts (BID). The streetscape improvements have given space to pedestrians and diners on one of the city’s busiest corridors for walking.

This method of pilot improvements allows the City to experiment and trouble shoot to find the most cost-effective methods and the most creative solutions for attracting pedestrian activity before implementing them on a larger scale.



Image from Bringing Back Broadway

South Grand Avenue Lane Reduction Project

In St. Louis, the Streets Department has been addressing excess capacity on city streets to improve safety and accessibility for all types of road users. A project on South Grand Avenue was spurred by residents and business owners requesting a study for a lane reduction. The pilot project made use of concrete sewer pipe sections, named “Schoemehl pots” after a former mayor who is credited with use of the pots to close off streets for civic space. The temporary closure was advertised on a street sign inviting the public to call the Streets Department. Public input resulted in the alignment of turn lanes and a repositioning of barricades at certain points. These compromises garnered support for the project and led to long-term improvements for safer, more inviting streetscapes.



Image from Horner Shifrin, Inc.

Better Block Baton Rouge

Organized by Baton Rouge’s Center for Planning Excellence, Better Block Baton Rouge is an initiative to demonstrate the potential to transform downtown streets into vibrant places for motorists, bicyclists, and pedestrians. In 2013, the city hosted a community event on Government Street, one of Downtown’s main thoroughfares, with temporary motor vehicle lane reductions, increased space for cyclists and pedestrians, an outdoor café, and pop-up businesses.

Currently, the city government is considering taking control of the route (currently under State jurisdiction) through the Louisiana Department of Transportation and Development (LADOTD) Road Transfer Program. Through this program, local governments receive money that the State would have spent on 40 years of maintenance for a street. In turn, this funding can be used to finance capital construction projects.



Image from The Times-Picayne

If Indianapolis were to implement this...

Each of these case studies speak to the power of pilot projects and low-cost improvements. Staging these events can speak to the public’s imagination in a way that plans may not. Indianapolis has seen a renaissance in downtown placemaking. Demonstration projects in other parts of the city can mobilize support for much-needed improvements to the pedestrian network and public space. The City could find ways to build upon the work of Better Block Indianapolis and formalize such demonstration projects into corridor planning efforts.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC

MAINTENANCE AND REPORTING

Indianapolis’ existing pedestrian infrastructure is not well maintained. Sidewalks and crosswalks are in need of repair and repainting, and residents have limited opportunities to partner with the city to improve conditions in their neighborhoods. The city needs a systematic approach to take stock of its pedestrian infrastructure and its state of repair. People should be able to participate in this inventory and feel confident that their neighborhood’s needs will be addressed as the city prioritizes improvements.

Select Leading Practices

Los Angeles Sidewalk Repair

As part of a legal settlement with disability advocates, the City of Los Angeles has agreed to spend \$1.4 billion on sidewalk repair over the next thirty years. As part of the effort, city officials are recommending the reinstatement of a sidewalk inspection program to systematically evaluate the condition of the city’s sidewalks and issue citations when necessary. For single-family property owners, the city currently plans to foot the bill for repairs, then turn over maintenance responsibility to the owner. Commercial property owners will have one year to repair sidewalks before the inspection is finished, and then an additional year if they are cited for violations.

The repair process will prioritize sidewalks outside of city buildings and facilities, followed by transportation corridors, medical facilities, commercial areas, places of employments, and residential areas.



Image from Access

City of Edmonton’s Sidewalk Construction Program

As part of the Neighborhood Renewal program, the City of Edmonton maintains its sidewalks through a city-initiated effort that incorporates a 50-50 cost sharing structure between the city and property owners. Improvements can also be initiated by property owners via an expression of interest (EOI) which must demonstrate a majority of support (over 51%). Part of the city’s funding is borrowed from the provincial government. The remaining cost is passed on as a tax associated with the adjacent properties, whereby owners can choose to extend payments over the course of the improvement.

In order to petition against sidewalk reconstruction, the city must receive petitions from the majority of property owners in a project area. In such a case, areas will continue to be maintained with minimal maintenance procedures. If property owners in the same area elect to initiate sidewalk reconstruction in the future when there is no Neighborhood Program occurring, they will be responsible for 100% of costs.

In order to keep tabs on the maintenance of its roughly 3,000 miles of sidewalks, the city also offers a self-service reporting tool for community members to report sidewalk or road concerns in their neighborhoods.



Image from City of Edmonton

CDOT Degradation Fees

Degradation fees are fees levied when projects involve opening a recently-paved public street. The purpose of the fee is to encourage the coordination of projects requiring pavement removal with roadwork scheduled by public authorities. The Chicago Department of Transportation (CDOT) levies a degradation fee on top of its regular permit fees for projects involving cuts or trenches in public streets when the pavement surface is less than five years old. These fees help cover the cost of repaving and patches and ensures repairs will be made after utility work is completed.



Image from Nelson\Nygaard

If Indianapolis were to implement this...

Indy has challenges maintaining and keeping tabs on its transportation infrastructure. Tackling this problem will require a visible program that will gain the confidence of the public. Los Angeles’ ambitious sidewalk repair program demonstrates what may be required to address a significant maintenance backlog. The case of Edmonton serves as a model for making incremental improvements and sharing costs between the city and property owners. The Edmonton case provides a good example of a reporting mechanism that allows residents to both document state of repair and hold their public agencies accountable. Utility degradation fees are also an effective tool to ensure utility repairs do not create roadway maintenance issues.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R

PEDESTRIAN POLICIES AND PROCEDURES

Indy lacks clear procedural guidance to ensure pedestrian improvements are built as required, communities are engaged, and progress is measured and reported. With so many different actors involved in and affected by pedestrian projects, it is vital that the city establish and document its process for ensuring compliance with established policies, facilitating coordination among the appropriate public and private stakeholders, and incorporating the feedback of affected businesses and communities. Today, many of the city’s policies and practices are not documented, leaving residents with a limited understanding of how decisions are made.

Select Leading Practices

CDOT Complete Streets Guidelines

The Chicago Department of Transportation provides an excellent example of a comprehensive checklist for delivering projects according to Complete Streets standards. Depending on the project type (ranging from ADA ramp improvements to placemaking activities), the guide provides step-by-step tasks for each stage of the project. The stages and corresponding goals are as follows:

- **Project.** Identify/promote Complete Streets in projects. Includes identification of project initiation and project budget.
- **Scoping.** Address all needs identified in scoping. Includes project goals and requirements, research, site visits, mapping, and analysis.
- **Design.** Address all objectives identified during scoping. Includes design alternatives, schematic design, feedback/approvals, and design impact evaluation.
- **Construction.** Ensure project is built as designed for Complete Streets.
- **Measurement.** Measure the effectiveness of the Complete Street.
- **Maintenance.** Ensure all users are accommodated for lifespan.

In order to facilitate common understanding among the city’s various public agencies, CDOT led working groups with the Department of Housing and Economic Development, the Chicago Transit Authority, and the Illinois Department of Transportation. CDOT also created a Complete Streets Compliance Committee to ensure proper implementation of the guide. It also launched pilot projects to win support for Complete Streets projects and to allow staff to learn from their implementation before applying solutions at a larger scale.



Image from CDOT

Construction Hub Coordination Program

The City of Seattle’s Construction Hub Coordination Program is intended to mitigate the mobility impacts that arise from construction through active management and communication. The program arose from the need to coordinate the various public and private agencies involved in construction and the businesses, residents, and road users affected by it. After identifying and establishing an area as a construction hub, the program provides the following tools:

- Construction maps with mobility impacts
- Public fact sheets with updates schedules, impact information, and route suggestions
- Single points of contact for each hub
- Collaboration with business owners and community stakeholders affected by construction
- Encouragement to use impact-reducing construction methods
- Education to prepare travelers and attract visitors to hub areas

Through this collaborative effort, the city is able to facilitate a coordinated effort among those involved and/or affected by construction to identify mobility impacts and create solutions.

If Indianapolis were to implement this...

Adopting a Complete Streets checklist with clear guidelines is a vital step for Indianapolis. The step-by-step guidelines outlined in Chicago’s implementation manual offer clear and practical instructions for project implementation within the parameters of Complete Streets standards.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R



Image from SDOT Blog

Community Tools to Evaluate Pedestrian Safety

Community tools to evaluate pedestrian safety allow residents to take ownership of their streets by becoming involved in the data collection and prioritization processes that inform the often-complex and expert-driven decisions related to city infrastructure. Furthermore, this community-driven tool can also be an asset to local governments that do not have enough resources to take stock of every sidewalk, crosswalk, and intersection in the city.

An example of this tool was developed and tested by city staff in Boulder, CO. The city developed an easy to use pedestrian sidewalk and intersection audit tool as a way to educate community members and stakeholders about the factors that contribute to pedestrian safety. The city developed a standard methodology for delivering the audit tool including standard audit data collection sheets, a training presentation and audit procedure manual, and design prompts to teach lay people about street design and remind participants what to look for in the field. City staff were trained to facilitate pedestrian safety audits so that the practice would be integrated into all corridor design and district planning process.

These tools are also used to both assess the quality of sidewalks and intersections at crash clusters and draw attention to the physical factors that contribute to pedestrian hazards and discomfort. The University of New Orleans Transportation Institute developed a similar auditing tool but included a qualitative scoring method. The local MPO subsequently used this data to prioritize local infrastructure improvements.

If Indianapolis were to implement this...

Indianapolis can garner support and facilitate buy-in through visible practices that involve the public. While it would be difficult to use approach at the citywide scale, promoting these types of engagement tools sends a clear message to the public that the city values their input and is committed to improving walking in Indy.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R

If Indianapolis were to implement this...

Seattle's Construction Hub Coordination Program serves as a useful management and communication model that accounts for potentially affected stakeholders, utilities, and all modes of transportation. A collaborative approach is essential for ensuring buy-in and addressing possible disruptions.

Applicable pedestrian land use types: CBD | MV | VC | GV | MC | R



Image from City of Boulder

LESSONS LEARNED

This section has explored select leading practices that can serve as models for Indianapolis as it establishes policies, programs, and processes to improve walkability. Since funding for pedestrian improvements is limited and is likely to remain so in the near term, the approaches that the city uses to allocate those scarce resources will be particularly important.

The following themes summarize the opportunities for Indy as the city moves forward to address the challenges identified earlier in this chapter and meet the vision and goals of the Pedestrian Plan:

- **Collaboration.** Indianapolis should continue its tradition of creative partnerships to make improvements to walking infrastructure and public space.
- **Visibility.** Highly publicized initiatives, including cost-effective pilot projects, are necessary to ignite the public’s imagination and garner support for pedestrian improvements and new policies.
- **Coordination.** There are many actors—both public and private—involved in and affected by development, utility projects, and construction and maintenance of walking infrastructure. Ensuring the coordination and involvement of all parties can lead to smooth project implementation and positive outcomes.
- **Prioritization.** Building on the Pedestrian Plan’s goals and objectives, the city must establish a clear process for allocating funds and selecting projects in an objective manner that helps to meet the greatest needs.





KEY FINDINGS OF THIS CHAPTER

- The Pedestrian Plan requires a bold vision, goals, and objectives that are aspirational in spite of funding constraints.
- Challenges to pedestrian project/program delivery have been identified in order to develop effective solutions that chart a path to implementation.
- Following in the footsteps of other cities, Indianapolis will strive to emulate the leading pedestrian practices of peer and aspirational cities.

COMING NEXT

The preceding sections of the State of Walkability report provide a snapshot of the Indianapolis walking environment, and the infrastructure, programs, policies, and procedures that support it. The map atlas in chapter 3 illustrates key indicators of pedestrian generation, walking comfort, safety, equity, and health. While the city has gaps in walkability that have resulted in negative health and safety outcomes—particularly in communities of need—new policies, plans, and investments are driving Indianapolis toward a more walkable future. The city is using its Complete Streets policy as a tool to balance street designs and create better public spaces. Indianapolis’ longstanding history of strong public-private partnerships is helping to build walkable communities and finance major infrastructure projects. The Indianapolis Cultural Trail and other greenway/trail investments like the Monon Trail, Pogue Run Greenway, and Eagle Creek Greenway are the result of public, private, and community synergies, which provide recreational and mobility benefits for many neighborhoods in Indianapolis. Strong grassroots initiatives like the Quality of Life planning areas are forging new pathways to community development and walkability. Indeed, the future of Indianapolis is bright.

The second phase of the Pedestrian Plan will develop a process to identify the areas of Indianapolis that should be prioritized for improved pedestrian infrastructure and programs. These high priority areas will become the focus for developing prioritized project lists. The final plan, due in March 2016, will include project lists, a program and policy implementation matrix, and near-term actions that can help to make Indianapolis more walkable.



APPENDIX

SUPPLEMENTAL INFORMATION

SAFETY ANALYSIS METHODOLOGY

The top 50 high pedestrian collisions corridors and the top 25 high fatality corridors in Marion County were selected based on a data set of crash data from Appriss, Inc. The data included more than 700,000 reported collisions in Marion County from 1994 through October 15, 2015. The analysis focused on the 3,928 collisions that occurred from January 2004 through October 15, 2015 and involved at least one pedestrian.

DATA CLEANING/PREPARATION

Prior to importing the data set into ArcGIS, the data was cleaned. This involved correcting spelling errors in the primary road field, and ensuring all streets were labeled consistently. For example, a single road could be labeled in multiple formats (as listed below). Consistent naming allowed for joining/merging and assigning the data in a later step of the analysis.

- 10th
- 10th St
- 10th Street
- Tenth
- Tenth St
- Tenth Street

The data set contained fields for Latitude and Longitude. This information was used to geocode the data in ArcGIS. However, 120 collision entries did not have coordinates and were eliminated from the collisions used in the analysis. There were an additional 14 collisions which had coordinate data, but did not have any primary road attributes. These collisions were included in the overall analysis, but were not incorporated into any of the high collisions or fatality corridors. This avoided allocating them to an incorrect roadway, but still allowed them to be included in the maps showing density of collisions. Collisions which occurred on private property were not eliminated from the analysis.

DATA WEIGHTING

The data for each collision indicated the total number of injuries and deaths that occurred. This information was used to weight each collision by severity (severity features were provided in the ARIES data). Collisions which involved at least one death were assigned a weight of 3. All other collisions with at least one injury were assigned a weight of 2. The weight of collisions without any reported injuries or deaths were not changed.

Collision Type	Weight
At least one death	3
At least one injury; no deaths	2
No injuries or deaths reported	1

HEAT MAP

The Heat Map was created in ArcGIS using the Kernel Density tool. The following inputs and parameters were used:

The results were symbolized into 9 classes using the Geometrical Interval classification (shown in the table to the right), with cell values of 0.0 excluded.

Assigning Collisions to Corridors

A 300-ft buffer was created around the centerlines of all major roadway segments in Marion County. If (a) a collision intersected a buffer and (b) the collisions’ primary road attribute was consistent with the name of the buffer’s roadway, then the collision was assigned back to the roadway segment. This step resulted in the selection of 2,688 collisions. All other collisions did not occur along a major roadway and were excluded from the high collision/high fatality corridor analysis.

Determining High Collision/High Fatality Corridors

The severity weighting of collisions along each roadway segment was used to calculate the number of weighted collisions per mile. All roadway segments were ranked according to this number. Out of the top 50 roadway segments, if any two or more were contiguous along the same road, they were merged together. The number of weighted collisions per mile and ranking were recalculated for these merged segments. This process was iterated until the top 50 corridors were non-contiguous. The final 50 corridors include a total of 70 individual roadway segments.

The high fatality corridors were selected in a similar way (using total number of deaths per mile). If any of the top ranking high fatality roadway segments were contiguous, they were merged together until all corridors in the top 25 were non-contiguous. The final 25 corridors include a total of 33 individual roadway segments.

Class	Weighted Collision density (per square mile)
1	11.721 to 21.850
2	21.851 to 26.159
3	26.160 to 36.287
4	36.288 to 60.090
5	60.091 to 116.029
6	116.030 to 247.494
7	247.495 to 556.495
8	556.457 to 1,282.560
9	1,282.561 to 2,989.007

HIGH PEDESTRIAN COLLISION CORRIDORS

Figure 18 lists the top 50 high pedestrian collision corridors in Indianapolis, including number of collisions, deaths, and corridor segment length, among other indicators.

Figure 18 List of High Collision Corridors (Ranked by Weighted Collisions per Mile)

Rank	Corridor	Extent	Length (miles)	Total Collisions	Collisions per Mile	Weighted Collisions	Weighted Collisions per Mile	Deaths	Injuries
1	Meridian St	16th St to South St	1.78	66	37.02	132	74.03	0	71
2	Delaware St	Michigan St to South St	0.87	30	34.30	59	67.46	0	31
3	College Ave	Broad Ripple Ave to Kessler Blvd	0.51	16	31.13	32	62.26	0	18
4	Maryland St	Schumacher Way to New Jersey St	1.13	32	28.34	63	55.79	0	32
5	Pennsylvania St	16th St to McCarty St	2.14	56	26.23	109	51.05	1	53
6	Ohio St	West St to Pine St	1.30	35	26.86	66	50.65	0	31
7	University Blvd	10th St to New York St	0.66	18	27.34	33	50.12	0	15
8	16th St	Dr M L King Jr St to Hudson St	0.77	19	24.57	38	49.14	0	19
9	10th St	State Ave to Emerson Ave	2.53	61	24.07	119	46.95	1	58
10	North St	University Blvd to Blackford St	0.29	6	20.95	13	45.39	1	6
11	Washington St	White River Pkwy to State Ave	2.57	60	23.35	115	44.75	2	64
12	Raymond St	Shelby St to State Ave	0.50	10	20.06	22	44.14	2	8
13	Virginia St	Washington St to Maryland St	0.14	3	21.55	6	43.11	0	3
14	Washington St	Rural St to Arlington Ave	2.79	59	21.13	119	42.62	2	60
15	38th St	Emerson Ave to Arlington Ave	1.01	20	19.84	42	41.66	2	19
16	11th St	Illinois St to Delaware St	0.29	6	20.54	12	41.08	0	6
17	Capitol Ave	Michigan St to McCarty St	1.21	25	20.59	49	40.35	0	24
18	Hornet Ave	Emerson Ave to Beech Grove HS	0.25	5	19.92	10	39.84	0	5
19	Illinois St	10th St to McCarty St	1.70	34	20.04	66	38.90	0	32
20	Market St	Capitol Ave to Davidson St	0.91	18	19.86	35	38.62	0	17
21	West St	Michigan St to South St	0.88	17	19.36	33	37.59	0	18
22	38th St	Capitol Ave to Sherman Dr	3.13	60	19.16	114	36.40	1	52
23	Shelby St	Raymond St to Troy Ave	1.02	19	18.54	37	36.11	0	20
24	Washington St	Warman Ave to Harding St	1.03	16	15.51	35	33.93	4	26
25	Shadeland Ave	21st St to 16th St	0.50	8	15.86	17	33.70	1	7
26	Washington St	Mitthoefer Rd to German Church Rd	1.02	17	16.67	33	32.37	0	17
27	Barnhill Dr	IUPUI Campus to New York St	0.28	5	17.79	9	32.03	0	4
28	Alabama St	North St to Maryland St	0.68	11	16.29	21	31.09	0	10
29	38th St	Franklin Rd to Post Rd	0.91	13	14.35	28	30.92	2	15
30	St Clair St	Centennial St to Concord St	0.13	2	15.14	4	30.27	0	2
31	Shadeland Ave	46th St to Pendleton Pike	0.90	13	14.42	26	28.84	0	13

Rank	Corridor	Extent	Length (miles)	Total Collisions	Collisions per Mile	Weighted Collisions	Weighted Collisions per Mile	Deaths	Injuries
32	Broad Ripple Ave	College Ave to Keystone Ave	1.28	19	14.87	36	28.18	0	23
33	Rural St	Brookside Pkwy to New York St	1.53	23	15.04	43	28.11	0	21
34	College Ave	38th St to 30th St	1.89	25	13.24	53	28.07	3	29
35	86th St	College Ave to Westfield Blvd	0.64	9	14.02	18	28.05	0	12
36	Keystone Ave	Broad Ripple Ave to Kessler Blvd	0.44	6	13.78	12	27.57	0	7
37	10th St	Indiana Ave to University Blvd	0.11	2	18.25	3	27.38	0	1
38	16th St	Olin Ave to Concord St	0.78	11	14.17	21	27.05	0	10
39	38th St	High School Rd to Moller Rd	0.75	9	11.98	20	26.62	5	5
40	10th St	Olin Ave to Concord St	0.79	10	12.65	21	26.57	1	9
41	65th St	Keystone Ave to Oxford St	0.34	5	14.75	9	26.55	0	5
42	62nd St	Dean Rd to Binford Blvd	0.77	10	13.01	20	26.01	0	10
43	Emerson Ave	I-465 to Thompson Rd	0.62	8	12.80	16	25.60	0	10
44	Michigan St	University Blvd to Delaware St	1.14	15	13.21	29	25.53	0	14
45	Madison Ave	Stop 11 Rd to County Line Rd	1.04	12	11.50	26	24.93	2	10
46	South St	West St to Meridian St	0.48	6	12.43	12	24.87	0	9
47	State Ave	Michigan St to Washington St	0.48	6	12.40	12	24.81	0	7
48	86th St	Michigan St to Township Line Rd	1.04	13	12.49	25	24.03	1	10
49	10th St	Illinois St to Delaware St	0.29	4	13.68	7	23.93	0	3
50	21st St		0.84	9	10.66	20	23.69	2	9

HIGH FATALITY CORRIDORS

Figure 19 lists the top 25 high fatality corridors in Indianapolis, including number of collisions, deaths, and corridor segment length.

Figure 19 List of High Fatality Corridors (Ranked by Fatalities per Mile)

Rank	Corridor	Extent	Length (miles)	Total Collisions	Deaths	Deaths per Mile	Injuries
1	38th St	Eagle Creek Pkwy to High School Rd	1.44	12	6	4.16	7
2	Raymond St	Shelby St to State Ave	0.50	10	2	4.01	8
3	Hillside Ave	25th St to Bloyd Ave	0.52	4	2	3.83	4
4	Rural St	25th St to 23rd St	0.28	1	1	3.53	0
5	North St	University Blvd to Blackford St	0.29	6	1	3.49	6
6	College Ave	38th St to 30th St	1.01	15	3	2.97	18
7	82nd St	Dean Rd to Allisonville Rd	1.07	4	3	2.81	2
8	56th St	Lafayette Rd to Cross Creek Dr	1.23	9	3	2.43	7
9	56th St	Dandy Trail to Reed Rd	0.42	2	1	2.39	1
10	Washington St	Holt Rd to Harding St	2.09	20	5	2.39	28
11	Fall Creek Pkwy	Keystone Ave to 38th St	0.85	7	2	2.34	7
12	Emerson Ave	Albany St to I-465	1.38	9	3	2.18	5
13	Shadeland Ave	21st St to Washington St	1.41	15	3	2.13	12
14	Michigan Rd	51st St to White River	0.94	3	2	2.13	1
15	LaSalle St	10th St to Michigan St	0.47	3	1	2.11	2
16	21st St	Shadeland Ave to Post Rd	1.92	16	4	2.09	14
17	Tremont St	16th St to 10th St	0.50	3	1	1.99	2
18	30th St	Mitthoeffer Rd to German Church Rd	1.02	4	2	1.97	2
19	Emerson Ave	Stop 11 Rd to County Line Rd	1.02	5	2	1.97	3
20	Washington St	Shadeland Ave to Franklin Rd	1.02	6	2	1.96	5
21	Morris St	Tibbs Ave to Warman Ave	0.51	4	1	1.95	5
22	Madison Ave	Stop 11 Rd to County Line Rd	1.04	12	2	1.92	10
23	Prospect St	East St to State Ave	1.09	4	2	1.84	3
24	Central Ave	52nd St to 46th St	0.55	2	1	1.81	2
25	Meridian St	Henry St to Morris St	0.57	1	1	1.75	0

PEDESTRIAN GENERATION METHODOLOGY

Figure 20 conveys how each pedestrian generation factor was scored and weighted. Scoring is based on available data. Employment and population density as well as high activity land uses (i.e., commercial/retail, mixed use, and high density residential) were assigned the largest weight because of their relative impact on pedestrian demand.

Figure 20 Pedestrian Generation Scoring

Attribute	Weight	Notes
Population Density (2010)	2	10 values based on natural breaks
Employment Density (2013)	2	10 values based on natural breaks
High Activity Land Uses	2	Areas within a half mile of commercial, mixed use and high density residential land uses
K-12 Schools	1	Areas within a half mile of schools
Colleges/University	1	Areas within a half mile of college/universities
Transit Stops	1	Areas within a quarter mile of a transit stop; category values based on total annual boardings
Parks	1	Areas within a half mile
Medical/Health Care	1	Areas within a half mile

HEALTH INDEX METHODOLOGY

Figure 21 conveys how each health index attribute was scored. Each attribute is scored based on a 5-point scale and weighted equally.

Figure 21 Health Index Scoring

Attribute	Category	Value	Weight	Score
Obesity (percent of population considered obese)	10.0 or less	5	1	5
	10.1-20.0	4	1	4
	20.1-30.0	3	1	3
	30.1-40.0	2	1	2
	40.1 or greater	1	1	1
Diabetes (percent of population with diabetes)	10.0 or less	5	1	5
	10.1-20.0	4		4
	20.1-30.0	3		3
	30.1-40.0	2		2
	40.1 or greater	1		1
Food Access (percent of population within a 10-minute walk of a grocery store)	90.1 or greater	5	1	5
	80.1-90.0	4	1	4
	70.1-80.0	3	1	3
	60.1-70.0	2	1	2
	60.0 or less	1	1	1
Park Access (percent of population within a 10-minute walk of a park/ greenway)	90.1 or greater	5	1	5
	80.1-90.0	4	1	4
	70.1-80.0	3	1	3
	60.1-70.0	2	1	2
	60.0 or less	1	1	1
Pedestrian Collisions (collisions per acre)	0.010 or less	5	1	5
	0.011-0.020	4	1	4
	0.021-0.030	3	1	3
	0.031-0.040	2	1	2
	0.041 or greater	1	1	1

PEDESTRIAN ENVIRONMENTAL QUALITY INDEX (PEQI) METHODOLOGY

Figure 22 conveys how each PEQI attribute was scored and the weight applied to each score value. The presence of a sidewalk was assigned the largest weight because of its relative importance on comfort and safety.

Figure 22 Pedestrian Environmental Quality Index Scoring

Attribute	Category	Value	Weight	Score
Volume (AADT)	Less than 5,000	5	2	10
	5,000-10,000	4		8
	10,001-20,000	3		6
	20,001-30,000	2		4
	30,001 or greater	1		2
Speed (mph)	25 or less	5	2	10
	30	4		8
	35-40	3		6
	45-50	2		4
	55+	1		2
Vehicle Lanes	2	5	2	10
	3	3		6
	4	2		4
	6	1		2
	No	5		1
Freight Route	Yes	0	1	0
	Present	5		3
Sidewalk Presence	None	0	3	0
	125 or less	5		
Average spacing between lights (feet)	126 - 150	4	0.5	2.0
	151 - 175	3		1.5
	176 - 200	2		1.0
	201 or greater	1		
	201 or greater	1		

