City of Austin **Sidewalks, Crossings, and Shared Streets Plan**

November 30, 2023

Acknowledgments

City Council

Kirk Watson, Mayor

Natasha Harper-Madison, District 1

Vanessa Fuentes, District 2

Jose Velasquez, District 3

Jose “Chito” Vela, District 4

Ryan Alter, District 5

Mackenzie Kelly, District 6

Leslie Pool, District 7

Paige Ellis, District 8

Zohaib “Zo” Qadri, District 9

Alison Alter, District 10

City of Austin Project Staff

John Eastman, Ming-ru Chu, Justin Norvell, Hyunsuk Kim, Eric Dusza, Juan Camou, Christiane Vincent, Cheyenne Dolin, Emily Smith, Bryan Thompson, Javier A Martinez, Craig McColloch, Jessica Bild, Laura Dierenfield, Joel Meyer, Maddie Strange, Eric Virag, Cecily Foote, Christopher Evans, Kaz Wojtewicz, Kelsey Vizzard, Jacob Barrett, Nathan Wilkes, Cole Kitten, Katie Wettick

Community Ambassadors

To the Community Ambassadors who supported this plan’s development: Thank you for your continued dedication to this project, for the passion you brought to this planning process, and for your commitment to holding the City accountable to center equity in all aspects of the plan. Your leadership and expertise has been vital every step of the way, and this plan would not be successful without your partnership.

Consultant Team

Toole Design

Asakura Robinson

Cultural Strategies, Inc.

MWM DesignGroup

Reach Out Austin!

Contents

Information contained in this document is for planning purposes and should not be used for final design of any project. All results, recommendations, and commentary contained herein are based on limited data and information and on existing conditions that are subject to change. Existing conditions have not been field-verified. Further analysis and engineering design are necessary prior to implementing any of the recommendations contained herein.

Executive Summary

Austin is a one-of-a-kind place that blends bold ideas and innovation with diverse flavors, culture, and character. True to form, the City has set an ambitious goal: 50 percent of all the trips made in Austin by 2039 will be made by walking, biking, transit, or other eco-friendly ways of getting around. This 2023 Sidewalks, Crossings, and Shared Streets Plan plays an important part of achieving that goal. It focuses on strategies to manage and improve sidewalks, shared streets, and pedestrian crossings within City of Austin right-of-way. The Plan was developed alongside similar plans focused on urban trails and bikeways. All three efforts were deeply rooted in a shared public outreach process called ATX Walk Bike Roll (ATXWBR) and build upon the vision from the Austin Strategic Mobility Plan (ASMP) and the Imagine Austin Comprehensive Plan.

Purpose of the Plan

"Encourage walking as a viable mode of transportation, improve pedestrian safety, and enable people to walk to and from transit stops."

Existing and Planned Pedestrian Network

As of October 2022, there are approximately 4,800 miles of street frontage[1] in Austin. The existing pedestrian network includes 2,800 miles of frontage with sidewalk and well over 8,000 improved crossings. This Plan identifies a need for an additional 810 miles of sidewalks, 370 miles of shared streets (accounting for 740 miles of frontage), and addressing 2,000 pedestrian crossing gaps.

What we heard

69% of all survey respondents and 72% of respondents from focus populations said they would like to walk more, but there are issues holding them back. One resident put it this way:

"I've always used the bus to go to work. When going to nearby places, I would like to walk more (it has helped me reduce my blood pressure), but safety and security need to be improved for this."

—Community member comment, October 2021

1 A street frontage includes one side of a street for one block. Street frontages exist on both sides of every street.

Key Strategies

This Sidewalks, Crossings, and Shared Streets Plan contains strategies and action items for implementation (see Chapter 4). Key strategies include the following:

1. **Prioritize equity in the completion and maintenance of the pedestrian network by 1) allocating more resources in areas of historical inequity and ongoing vulnerability; and 2) providing stable and sufficient funding through the Transportation User Fee and/or other non-bond sources for sustainable repair and rehabilitation.**

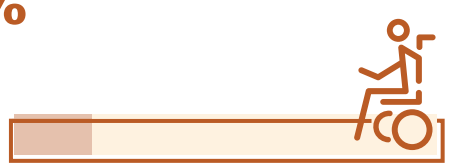
2. **Provide safe, comfortable, and accessible pedestrian passage along and across every public street.**

3. **Collaborate with public and private partners using a Complete Streets approach to improving the pedestrian network.**

Key Targets and Indicators

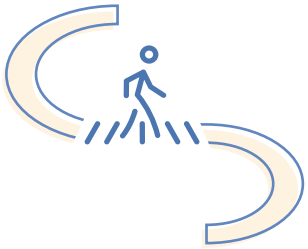
COMPLETE 100%

of missing *Very High* and *High*-priority sidewalks and shared streets by 2033



ELIMINATE 50%

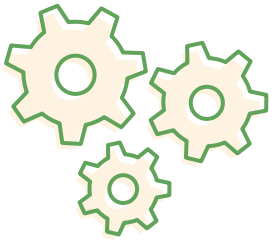
of *Very High* and *High*-priority crossing gaps within Focus Equity Analysis Zones (EAZ)[2], along the Pedestrian High Injury Network (HIN), and/or within 1/4 mile of all identified schools, public transit stops and stations, and parks **by 2033**



ACHIEVE & MAINTAIN

80% **functionality** for *Very High* and *High*-priority sidewalks **by 2033** and

50% **functionality** for the sidewalk system by **2033**



2 Equity Analysis Zones (EAZ) are based on Census data that describes an area's social and economic vulnerability. The EAZs are classified into five categories, from Least Vulnerable to Most Vulnerable. Most Vulnerable and Medium-High Vulnerable EAZs, called Focus EAZs.

THIS PAGE INTENTIONALLY LEFT BLANK.

Introduction 1

The 2023 Sidewalks, Crossings, and Shared Streets Plan builds on over 20 years of pedestrian and sidewalk focused planning efforts (see Appendix B). The 2023 Plan incorporates many of the elements of the 2009 and 2016 sidewalk plans, including the data-driven and equity focused prioritization process. The 2023 Plan includes new measures to assess the completeness of the sidewalk network and contains a citywide assessment of pedestrian crossings. The 2023 Plan also expands on the previous plans with new analyses, strategies, and action items related to:

- **Pedestrian Network Coverage and Access** – New analytical tools provide answers to the questions: What percentage of parcels/properties in the city are connected to the existing sidewalk network? What percentage of key destinations can be reached by the existing sidewalk network? How does sidewalk coverage and access to different destinations vary across different neighborhoods?
- **Shared Streets** – As an alternative to sidewalks on low-traffic residential streets, Shared Streets use design changes and other methods to improve the pedestrian experience and help expand the pedestrian network. Shared streets cost less than sidewalks, which can mean faster expansion of the network.
- **Pedestrian Crossings** – The 2023 Plan includes the first citywide, data-driven survey of pedestrian crossings. The analysis provides answers to the questions: Which crossings create safe and comfortable experiences for people walking across the street in different settings and contexts? In what locations does the distance between comfortable marked crossings exceed City standards? The focus is on non-signalized crossings.
- **Affordability and Transportation** – After performing an Equity Scan and developing a community-driven Equity Framework (see Appendices A1 and A2), the City recognized the need to more deeply engage with and learn from Austin's communities of color and lower income communities. People from these communities were recruited to serve as Community Ambassadors to help shape this Plan. A key outcome was the articulation of Austin's affordability crisis and ongoing displacement, which led to the identification of mobility-related strategies to improve affordability for vulnerable populations.

The 2023 Plan was developed as part of a larger effort called ATX Walk Bike Roll. This public engagement for the 2023 Plan was coordinated as part of this larger effort and provided vital public input and feedback for the development of the 2023 Plan.

1.1. ATX Walk Bike Roll

ATX Walk Bike Roll was a coordinated effort by the City of Austin Transportation and Public Works Department to update Austin's Sidewalks, Urban Trails, and Bicycle Plans. These plans guide how urban trails, sidewalks, pedestrian crossings, and bikeways are built and where they are needed most.

The guiding values of the ATX Walk Bike Roll process are shown in the text box to the right. In particular, ATX Walk Bike Roll centered racial equity throughout the plan update process. Racial equity can be defined as "the condition when race no longer predicts a person's quality of life outcomes in our community." The ATX Walk Bike Roll Equity Scan is in Appendix A1 and the Equity Framework is in Appendix A2.

ATX Walk Bike Roll Values

ATX Walk Bike Roll is about more than just getting from place to place. Here are a few examples:

Communities – Urban trails, sidewalks, and bikeways are an important part of our local transportation system. Access to different travel options influences how communities grow, where we choose to live, and how we interact.

Equity and Diversity – Austin's transportation options need to serve everyone. Your life experience, race/ethnicity, cultural background, or ability should not make it harder for you to get around.

Mobility and Accessibility – Walking, biking, and rolling are safe, affordable, and don't require a license. Because sidewalks, urban trails, and bikeways are available to a broad range of ages and abilities, they help create more opportunities for people to participate in their community.

Health and Environment – Our transportation system impacts our physical, social, mental, and environmental health. People will walk, bike, or roll more often when they have safe and easy routes to take. This can help cut down on car traffic and its negative environmental impacts.

Connections – Urban trails, sidewalks, and bikeways connect communities to businesses, parks, and neighborhoods.

Transportation and Housing Affordability – As Austin grows, so do housing costs and the cost of transportation. ATX Walk Bike Roll can help by providing a low-cost way to travel through a network of sidewalks, bikeways, and urban trails with easy access to transit throughout the city.

1.1.1. Applying an Equity Framework

ATX Walk, Bike, Roll used an Equity Framework to center equity at each stage of the planning and decision-making process (see Appendix A2). A concerted effort was made during ATX Walk Bike Roll to ensure that participation in community engagement, "exceeds the racial/ethnic and income demographic makeup of the city and reflects the voices of those most negatively impacted by the process."[1] This effort came short of meeting this goal; however, when reviewing public input results, comments received from the focus population were compared to total responses to review differences and elevate input received from the focus population. In addition to general online engagement, targeted engagement strategies, such as paid Community Ambassadors and Spanish-language focus groups, were used to reach the focus populations for this effort: Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income.

What we heard

"Ethnic, low-income and minority segments of town are vastly undeveloped and underserved by Austin's historic transportation plans leaving them without the necessary transportation infrastructure needed to thrive in their communities."

—Community member comment, October 2021

Engaging with communities and individuals throughout ATX Walk Bike Roll was crucial, especially to understand community priorities and to seek public direction on key policy and investment decisions. Public input, guided by the Equity Framework, steered the planning process at strategic points throughout ATX Walk Bike Roll. Because the scale of this project spanned several planning areas—urban trails, sidewalk improvements, shared streets, and bikeways—there were multiple phases of community engagement. In each phase, the team focused on tailored questions to receive constructive feedback from the public to shape the updated plans.

▶ These orange color text boxes throughout this document highlight what we heard through community engagement and how the feedback received is incorporated into the planned pedestrian network and implementation strategies.

The ATX Walk Bike Roll process prioritized engaging with People of Color, people with disabilities, and people with low incomes. In several locations throughout this document, we refer to "focus populations" as short-hand to refer to this group.

More information on the planning process, the Equity Framework, and outcomes of community engagement during the ATX Walk Bike Roll process can be found in Appendix A.

1 ATX Walk Bike Roll Equity Framework. See Appendix C.

To provide consistency in measuring equitable outcomes across the plans and other City initiatives, the City—in collaboration with members of the community—developed Equity Analysis Zones to understand which areas of Austin have higher concentrations of historically marginalized populations. Equity Analysis Zones (EAZ) are based on Census tracts and include nine different US Census American Community Survey (ACS) variables that reflect an area's social and economic vulnerability. The EAZs are classified into five categories, from *Least Vulnerable to Most Vulnerable*.

Figure 1-1 shows the majority of the *Most Vulnerable* and *Medium-High Vulnerable* EAZs, called **Focus EAZs**, are located on the east side of Austin. Many of these areas were once "redlined", a historic practice of institutionalized discrimination by the government, banks, and other institutions based on the racial/ethnic or economic make-up of the community. Many of these areas are now experiencing high rates of displacement. More information on EAZs and historic inequities in planning and development in Austin can be found in the ATX Walk Bike Roll Equity Framework (see Appendix A2).

Equity Analysis Zones are used across Austin's transportation programs as a tool to evaluate the equity of investments. Project selection will follow more detailed prioritization models.

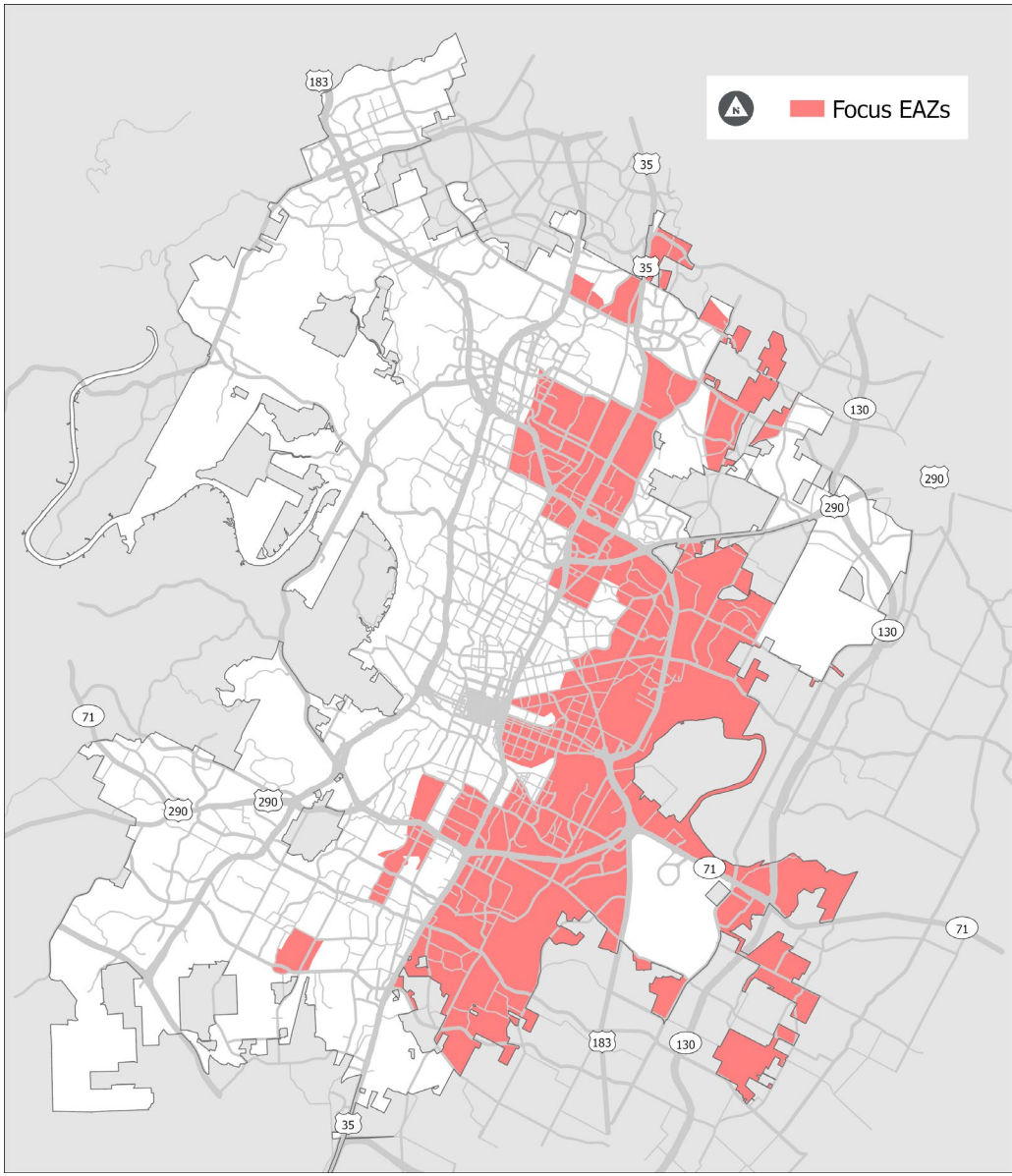


Figure 1-1. Map of Focus (*Most Vulnerable* and *Medium-High Vulnerable*) Equity Analysis Zones.

What we heard

Throughout the ATX Walk Bike Roll process, concerns about affordability and displacement were shared—especially by People of Color and people with low incomes. Policies to address these issues and keep transportation affordable are essential to peoples' ability to happily live and thrive in the city. In the words of one community member, people are *"concerned that urban trails and sidewalk improvements are benefiting wealthy white residents... that People of Color and low-income residents are being pushed out, and that People of Color will not be around in 5-10 years from now, after additional improvements to sidewalks, bike lanes, and urban trails."*

The ATX Walk Bike Roll Equity Framework was applied to this Plan by **engaging** with, **evaluating** impacts for, and **prioritizing** needs of People of Color and people with low incomes, who have historically been underserved or harmed by planning and infrastructure decisions.

In this 2023 Sidewalks, Crossings, and Shared Streets Plan, the EAZ framework is used to analyze and identify potential disparities in the existing and planned pedestrian networks. Specifically, comparisons are made between Focus EAZs and the rest of the city to identify disparities. As this Plan, the Urban Trails Plan, and the Bicycle Plan are developed and implemented, EAZs will continue to be used to guide plan development, project initiation, and infrastructure investments, with the intent of equitably distributing the benefits that pedestrian crossings, sidewalks, bikeways, and urban trails provide and mitigating disproportionate burdens already placed on underserved communities.

Equity of Recent Sidewalk Investments

The 2009 Sidewalk Plan established a new prioritization approach for expanding and maintaining the sidewalk network. The model emphasizes affordable housing, population density, areas below median household income, and public health indicators (in addition to multiple other factors). The result is that the City of Austin has prioritized building and repairing sidewalks in neighborhoods that are now identified as Focus EAZs. Analysis performed for this 2023 Plan shows this approach has yielded sidewalk connectivity and condition within Focus EAZs that is as good or slightly better than other parts of the city. However, there is still much work to be done to address equity in the City of Austin transportation networks. As of 2022, only 32% of the sidewalk network is in a functionally acceptable condition whereas the street network is in 76% fair to excellent condition and while the street network provides vehicular access citywide the pedestrian network is still far from complete.

Figure 1-2. Overview of the ATX Walk Bike Roll Engagement Process

1.2. Austin Strategic Mobility Plan

The Austin Strategic Mobility Plan (ASMP) is a comprehensive long-range transportation plan that establishes a vision for Austin's multimodal transportation network. It calls for decreasing the percent of people who drive alone to work to 50 percent by increasing the percent of people who walk, bike, take transit, carpool, or avoid commuting by working from home to 50 percent. This 2023 Sidewalks, Crossings, and Shared Streets Plan supports the ASMP's mobility goal and its overall vision by planning ways to enhance Austin's pedestrian network so walking is a viable form of mobility.

The ASMP includes numerous mobility-related policies. Specific policies that both shaped the development of this Plan and that this Plan helps to support include (but are not limited to):

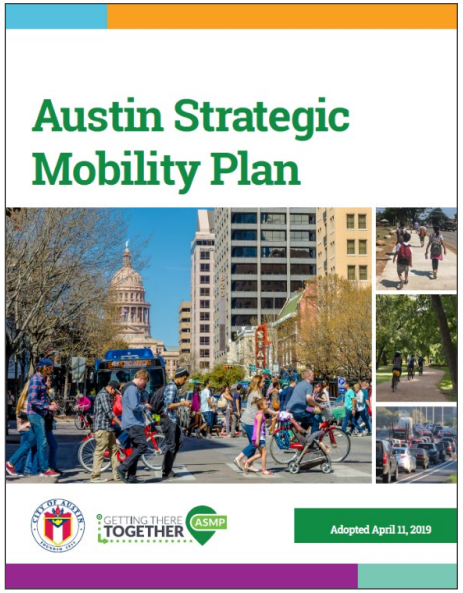


Figure 1-3. The Austin Strategic Mobility Plan

Mobility-Related Policies:

Pedestrian Network Policy #1:	**Complete the pedestrian network**	Provide safe, comfortable, and accessible pedestrian passage along and across every public street to provide safe, equitable access throughout all of Austin.
Pedestrian Network Policy #2:	**Make the sidewalk system accessible and comfortable for all**	Implement sidewalk system projects and complementary transportation investments that increase accessibility to, and comfort using, the sidewalk system.
Pedestrian Network Policy #3:	**Maintain the usability of the sidewalk system**	Proactively maintain and provide incentives to ensure our existing sidewalk system is functional and clear of obstructions.
Pedestrian Network Policy #4:	**Ensure new development connects to the sidewalk system**	Promote and incentivize the expansion of the sidewalk system through new development and site redevelopment.
Roadway Policy #6	**Support streets as places where people and community engage in non-mobility activity**	Recognize the diverse and expanding civic needs within our right-of-way and promote adaptive uses of the street.
Public Transportation System Policy #6	**Improve access to public transportation**	Supply infrastructure to provide safe, expanded, and seamless multimodal access to public transportation.
Affordability Policy #2	**Reduce transportation costs as a component of household affordability**	Ensure that all voices are represented, especially those of historically underserved and underrepresented communities, throughout the planning, development, provision, and operation of the transportation network.

Mobility-Related Policies:

Urban Trail Policy #3	**Pursue opportunities to connect to and expand the Urban Trail System**	Reduce personal costs associated with car ownership by offering more choices in how we travel.
Accessibility Policy #3	**Ensure sidewalks are safe and accessible for people with mobility impairments**	Recognize that children, seniors, and people with mobility impairments face disproportional difficulties when sidewalk infrastructure is not properly provided, operated, and maintained.
Public Health Policy #1	**Recognize that transportation fatalities and serious injuries are a public health crisis**	Holistically address fatalities and serious injuries on the transportation network as a public health issue.
Public Health Policy #3	**Provide infrastructure and programming to encourage active lifestyles and healthy living**	Recognize active transportation's contribution to preventing and managing chronic diseases and supporting physical and mental well-being for people of all ages and abilities.
Public Interaction Policy #2	**Engage community members in transportation decisions**	Include interested and affected community members when making decisions in the planning, design, construction, and operation of transportation projects and programs.
Collaboration Policy #6	**Work with the community to incorporate public art and beautification into transportation infrastructure**	Reflect our community values and make places more inviting by incorporating public art into the transportation network.
Financial Strategies Policy #1	**Ensure long-term, viable funding models to plan, finance, and maintain the transportation network**	Identify and implement sustainable funding strategies to supply, operate, and maintain transportation assets and programs that meet the community's mobility needs.
Financial Strategies Policy #2	**Operate in a fiscally responsible manner**	Be responsible stewards of public resources in the design, construction, operation, and maintenance of the transportation network.

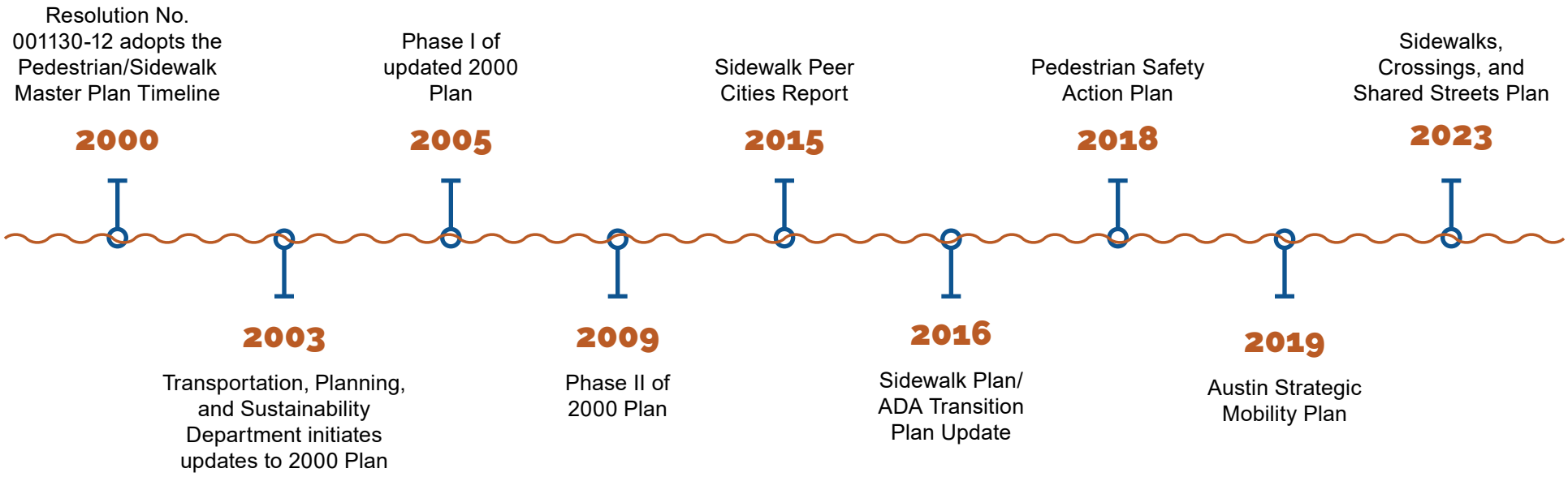
1.3. Context

Prior to the 1990 Americans with Disabilities Act (ADA), sidewalks and other pedestrian accommodations were considered optional. In 2000, the City of Austin proactively began repairing and rehabilitating the sidewalk network in the public right-of-way, as well as building additional sidewalks along existing streets to fill gaps. This 2023 Sidewalks, Crossings, and Shared Streets Plan incorporates many elements of the 2009 and 2016 sidewalk plans, including the data-driven, equity focused prioritization process developed as part of the 2009 Plan.

The 2023 Plan focuses on the management and expansion of sidewalks, shared streets, and pedestrian crossing infrastructure and serves as the ADA Transition Plan for City of Austin sidewalks within the public right-of-way. This Plan also identifies the need for the City of Austin to develop an ADA Transition Plan for pedestrian crossings on City of Austin streets. In addition to what is covered by this Plan, there are other elements and facets that influence pedestrian comfort and safety (such as programs and urban design). This Plan is not intended to address those topics.

The analysis and recommendations in this update are inclusive of the existing city limits and do not include information for areas within Austin's extra-territorial jurisdiction. Maps and data contained in this report are based on a snapshot of the best available sidewalk data as of October 2022.

Figure 1-4. Timeline of Austin Sidewalk Planning History



1.3.1. Complementary Planning Guidance

While the 2023 Sidewalks, Crossings, and Shared Streets Plan is principally focused on network management of sidewalks, shared streets, and pedestrian crossings, the Plan aligns with other planning guidance to provide for the safe movement of people walking and rolling in the City of Austin:

- The **2016 Vision Zero Action Plan** identified several actions that support the goals of the 2023 Sidewalks, Crossings, and Shared Streets Plan focused on reducing speeds, improving crossings, coordinating with transit stops and school sites, and implementing targeted education initiatives.
- The **2018 Pedestrian Safety Action Plan** includes a pedestrian safety analysis and recommendations for engineering, education, enforcement, and encouragement strategies to reduce pedestrian fatalities and serious injuries.
- The **Bicycle Plan, Urban Trails Plan**, and the **Community Health Improvement Plan** contain complementary strategies that support the goals of the 2023 Sidewalks, Crossings, and Shared Streets Plan.
- The 2020-21 **Climate Equity Plan** sets the goal of achieving net-zero community-wide greenhouse gas emissions by 2040. As the second largest contributor to Austin's community carbon footprint in 2020, the transportation sector is an area of focus. A more accessible and connected pedestrian network is a key foundation for achieving a "person-centered mobility network that meets the needs of low-income communities and communities of color of all ages and abilities."
- The vision of the **2020 Austin & Travis County Active Living Plan** is that "residents all live, work, and play in environments that facilitate day-to-day physical activity." Improving the pedestrian realm was a key theme found in the best practice review and heard repeatedly during public engagement.
- **Austin Strategic Mobility Plan**

Previous engagement efforts

The 2023 Sidewalks, Crossings, and Shared Streets Plan was built upon a strong foundation of community input from previous planning efforts. In particular, the Austin Strategic Mobility Plan (ASMP) included four phases of engagement that actively connected with the entire community, with specific focus on those that had been previously missing. Critical voices from historically underrepresented and underserved populations guided the ASMP, including People of Color, seniors, youth, and people with disabilities.

However, in a survey performed at the beginning of the ATX Walk Bike Roll process, 55% of respondents (61% of focus population respondents) said they had NOT participated in a public process (such as a meeting or survey) where decisions about trails, sidewalks or bikeways had been made.

Therefore, additional input from the community was vital to guide the development of the 2023 Plan, building upon previous input related to pedestrian priorities. Summaries of the input are provided in Appendix A4, A5, and A6.

"I am pleased to see the efforts and progress Austin is making in becoming more bike and pedestrian friendly. However, we have a long way to go."

—Community member input, October 2021

1.3.2. ADA Requirements

The Americans with Disabilities Act of 1990 mandates in Title II, Subpart A, that public entities establish and maintain a Transition Plan to achieve full accessibility of existing public infrastructure, including existing sidewalk and crossings within public right-of-way.

Figure 1-5. Key Requirements for ADA Transition Plan

ADA Transition Plan Requirement
Inventory of physical barriers and proposed methods to remove them
Schedule for barrier removal
Public official responsible for plan implementation
Proposed funding source for improvements
Opportunity for individuals with disabilities to provide input

Sidewalks and Shared Streets 2

2.1. Sidewalks

Sidewalks are an essential component of Austin's transportation network. A connected sidewalk system provides pedestrian routes from Point A to Point B and enables people to connect to transit for longer trips. Beyond transportation, sidewalks provide "numerous health benefits associated with active lifestyles and can help foster a dynamic public realm that makes commercial districts and neighborhoods vibrant places to be."[1]

The City of Austin has been actively expanding the sidewalk network for two decades. However, the sheer volume of streets without sidewalks—the result of more than a century of not requiring sidewalks to be built on all streets—means that many gaps still exist. The 2016 Sidewalk Plan introduced a new approach whereby sidewalks are provided on one side of low-traffic residential streets for retrofit projects.[2] But even with the construction of 400 miles of sidewalk since then (many of these were a result of new development), there are still approximately 1,500 miles of "absent" sidewalk.[3] If the historic pace of implementation continues, it could take up to 100 years to build sidewalks along all streets in Austin. Figure 2-1 illustrates the scale of this challenge.

To more quickly increase access and connectivity for people walking and rolling, the 2023 Plan establishes a new approach to completing the pedestrian network through a combination of sidewalks and shared streets.

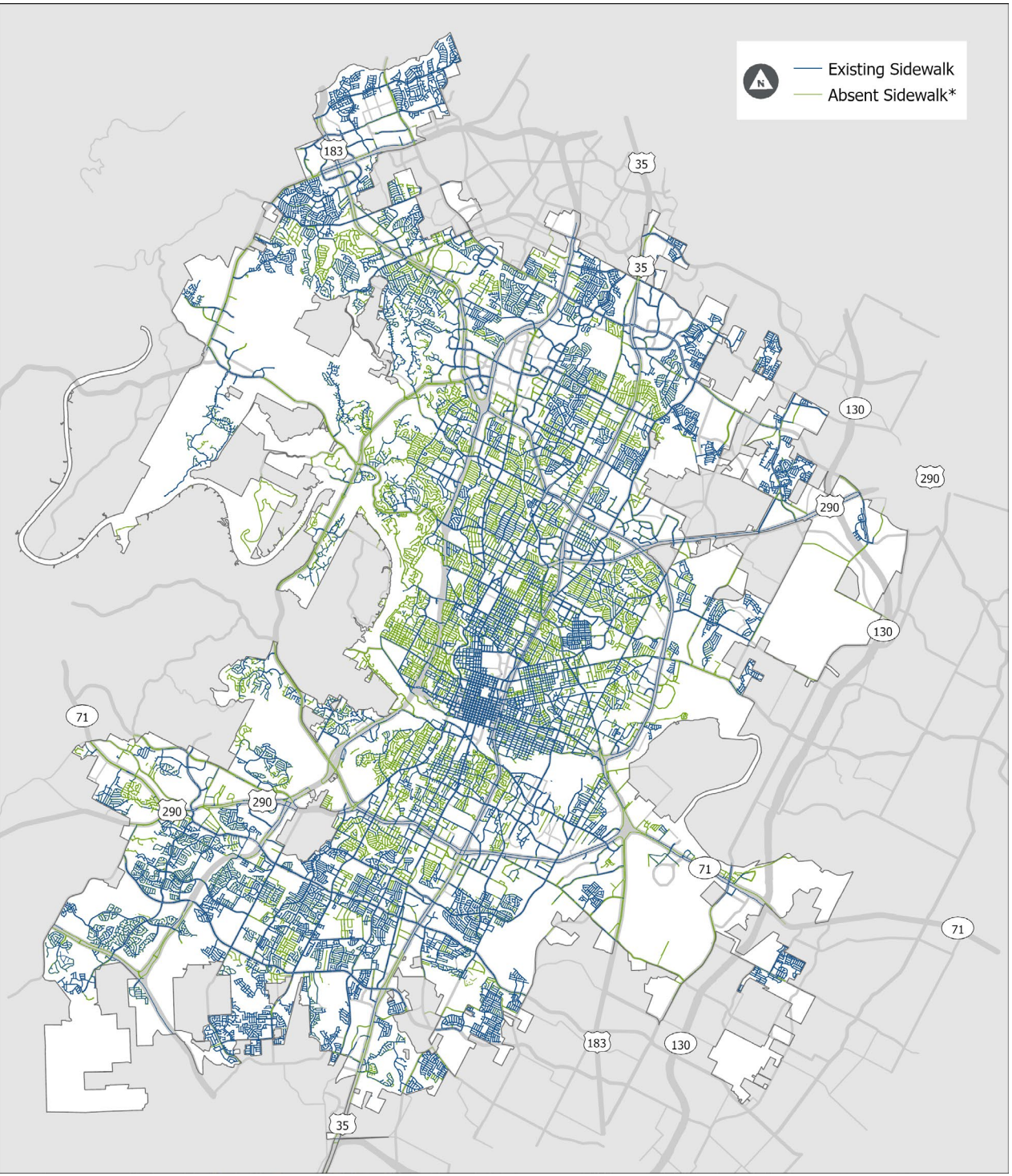
This chapter also includes sections on maintaining the existing sidewalk network and compares the utility of the existing sidewalk network to the utility of a more complete network. This is measured by the percentage of properties in the city that are connected to the pedestrian network, as well as the percentage of key destinations that can be accessed via the network. This is the first time this has been assessed citywide in Austin, and this analysis provides the City with an additional tool for assessing gaps in network coverage and expanding access to key destinations.

What we heard about sidewalks

Survey respondents indicate they would walk more often if sidewalks were continuous and in better condition, especially in high-traffic areas. In the words of one community member, *"Sidewalks on both sides of every major street seems more critical than anything else."*

Several respondents noted that not all bus stops have sidewalks or an accessible route to get to the bus stop.

1 Austin Strategic Mobility Plan
2 Sidewalk is required on both sides of new residential streets.
3 The mileage of "absent" sidewalks equals the amount of sidewalk needed to provide continuous sidewalks on *one* side of existing residential streets and *both* sides of other existing streets.



Snapshot of the current sidewalk network:

2,800 miles of existing sidewalk

Approximately 1,500 miles of absent sidewalk*

61% of properties are on streets with existing sidewalks*

51% of properties are connected by sidewalks to schools**

35% of properties are connected by sidewalks to transit**

20% of properties are connected by sidewalks to groceries and other food sources**

*City policy is to address sidewalk gaps on both sides of arterial and collector streets, and on one side of existing residential streets. Streets labeled as "absent sidewalk" do not meet these conditions.

**Percent of properties within two miles of a school, 0.25 miles of a transit stop, and 0.25 miles of a place to buy groceries that are connected to those places by the existing sidewalk network.

Figure 2-1. Snapshot of the Current Sidewalk Network

2.2. Shared Streets

The term “shared streets” refers to an environment where people walking, bicycling, and driving share the same space in a way that prioritizes the safety and comfort of pedestrians while allowing for movement of bicycles and motor vehicles. Shared streets are a potential alternative for improving pedestrian access in existing neighborhoods that were developed without sidewalks; and shared streets may be a preferred alternative for aesthetic, social, or environmental reasons, or where construction of sidewalks would be particularly difficult. Shared streets are applicable primarily as a retrofit solution in existing communities, as opposed to new development areas. Widespread implementation of shared streets in existing neighborhoods will help complete the pedestrian network faster and more economically than building out sidewalks on one side of every local street.

Many local streets without sidewalks already function as shared streets now. Key principles of shared street design include:

- Designing for Slow Speeds: Use traffic calming devices to slow traffic, such as curb extensions, signs, markings, or other treatments as outlined in the City’s Traffic Calming Toolkit.
- Establishing Gateways: Implement clear demarcations of a transition from a conventional streetscape to a shared street, through treatments such as curb extensions, reduced pavement or lane width, and signage.
- Evaluating Effectiveness: Collect “before” and “after” data on speed, volume, crashes, rates of walking and bicycling and social impacts to help determine the effectiveness of shared streets, and implement changes to continue to improve mobility, safety, and connectivity.

The Sidewalk Program estimates it can install three to four blocks of shared streets for the same cost as installing one block of sidewalk. In addition to the financial benefit of adding more miles to the pedestrian network with limited funds, shared streets also have several environmental benefits.

Environmental Benefits of Shared Streets

- Enhance tree cover by preserving established landscapes and by adding new trees and green space in curb extensions to calm traffic. The provision of trees and shade is an equity issue. The area east of I-35 has less than half of the tree canopy compared to the area west of I-35[1].
- Reduce impervious cover and improve stormwater infiltration by removing excess pavement at intersections and adding native plants or rain gardens.
- Lower the City’s carbon footprint. The process of making concrete involves high temperatures and burning large quantities of fossil fuels. One 2019 study found that cement production accounts for 7% of all greenhouse gas emissions worldwide.

1 https://www.esri.com/about/newsroom/blog/austins-map-of-tree-equity/

What we heard about shared streets

In addition to testing the concept via pilot projects and collecting feedback (described on the following pages), citywide surveys and pop-up tabling at community events were used to explain and gather feedback on the concept.

Overall, 80% of respondents said they strongly support or somewhat support the concept of shared streets. 82% of focus population respondents said they strongly or somewhat support the concept.

2022 Shared Streets Pilots: From Identification to Installation

Figure 2-2. City staff engaged with community members during a series of neighborhood pop-ups, such as here on Avenues G and H.

Throughout 2022, staff from Transporation and Public Works met regularly to design and implement a Shared Streets Pilot Program. The pilot program provides an avenue to test different shared street designs in multiple locations throughout the city and better understand how shared streets can be used to complete the pedestrian network. These pages outline the steps of the pilot development process.

Review best practices

The first step in the process was a review of best practices for shared streets and alternative pedestrian facilities in other U.S. cities, including Boulder, CO; Portland, OR; San Francisco, CA; and Seattle, WA. The review focused on street selection criteria, public engagement techniques, accessibility, street design, and implementation strategies that would help initiate the City of Austin's Shared Streets Program.

Identify candidate streets

The next step was using data on sidewalks and street level classifications to identify low-speed, low-volume streets without sidewalks that would make good potential locations for these pilot projects. Approximately a dozen candidate sites were selected and a postcard survey was mailed out to gauge interest. Based on the results four locations were selected to move into the next public engagement phase. Two of the locations were within Focus EAZs, and two were outside the Focus EAZs.

Hosted pop-up events

The City hosted pop-up events for the four pilot project locations in Spring 2022. The City installed yard signs to alert neighbors about a pop-up meeting on their street. During the pop-up, City staff used cones to set up temporary traffic calming measures to demonstrate street changes and staffed a table to respond to questions, gather feedback, and gauge community support for shared streets. Community support for shared streets varied among the four pop-up locations. Two locations with minimal design challenges were moved into the design phase, while the other locations warrant further study to address the traffic safety concerns raised by community members at the pop-ups. This is demonstrated by some quotes from participants, shown below.

"I appreciate the way this program reclaims streets for kids, cyclists, walkers, etc. – cars aren't the only priority."

"Prefer shared street over sidewalk in a heartbeat."

"Mixed feeling on shared street. Afraid it gives walkers false sense of security and afraid of hitting them."

"We love the way our street looks, but cars do go very fast and if there was a way to slow them down without all the lines and speed bumps it would be great."

"Lack of sidewalks [and] having to constantly keep an eye out on approaching vehicles is often uncomfortable."

Figure 2-3. Shared Streets have distinctive blue signs to alert people to expect all users to be in the roadway.

Photo of shared street pilot project installed on Avenue H in 2022.

Advance designs for two locations

City staff moved ahead with shared street designs for two locations in summer 2022: Avenues G and H between 51st and 56th Streets, and Ullrich Avenue between Arroyo Seco and Joe Sayers Avenue. The design for Avenues G and H feature traffic calming devices such as neighborhood traffic circles and curb extensions at regular intervals. The design for Ullrich Avenue focuses on narrowing the entrances to the street with planted curb extensions, which will reduce impervious cover. Both designs include a signature blue “Shared Streets” sign at each entrance to the shared streets.

Install Shared Street designs

Signage and traffic calming devices were installed on Avenues G and H from 51st and 56th Streets in late September 2022. The temporary designs remained in place for six months. A more permanent shared street design was then installed on Ulrich Avenue.

Evaluate and provide method for community feedback

At the time this Plan was being finalized, both pilots were still in operation and will continue to be evaluated by staff observation and community feedback to help determine how well they worked. If pilot projects produce the desired outcomes and continue to have the support of residents along the street, the design changes will remain in place longer than six months and temporary materials will be replaced with more permanent ones (such as concrete).

2.3. Completing the Network

The City's objective is to complete the pedestrian network, which requires building an additional approximately 1,500 miles of sidewalks and shared streets in Austin. The cost and timeframe required to complete the network is significant. This section presents the methods used to evaluate how to approach implementation and identify priorities given real-world constraints on time and funding.

2.3.1. Evaluating Needs

With this 2023 Plan, the City has new analytical tools to evaluate the utility of the pedestrian network, defined as the degree to which it connects homes, businesses, schools, services, transit, and other places people need to go on a daily basis. Two tools—Network Coverage and Network Access—were developed with this Plan to evaluate current conditions and provide a process for the City to evaluate progress as the network is built out and Austin continues to grow.

Network Coverage

The network coverage analysis is designed to answer: "What locations currently have adequate pedestrian coverage?" In Austin, adequate sidewalk is defined as sidewalks on both sides of arterial and collector streets, while some local residential streets only need sidewalk on one side. With the addition of shared streets to the pedestrian network, some local streets may not have sidewalks at all, and instead receive traffic calming and signage to provide pedestrians with a comfortable place to walk.

The coverage analysis evaluates parcels of land, as defined by registered property boundaries. A parcel is either served by the pedestrian network (i.e., connected to an existing sidewalk) or not served. The coverage analysis does not account for the condition of existing sidewalks.

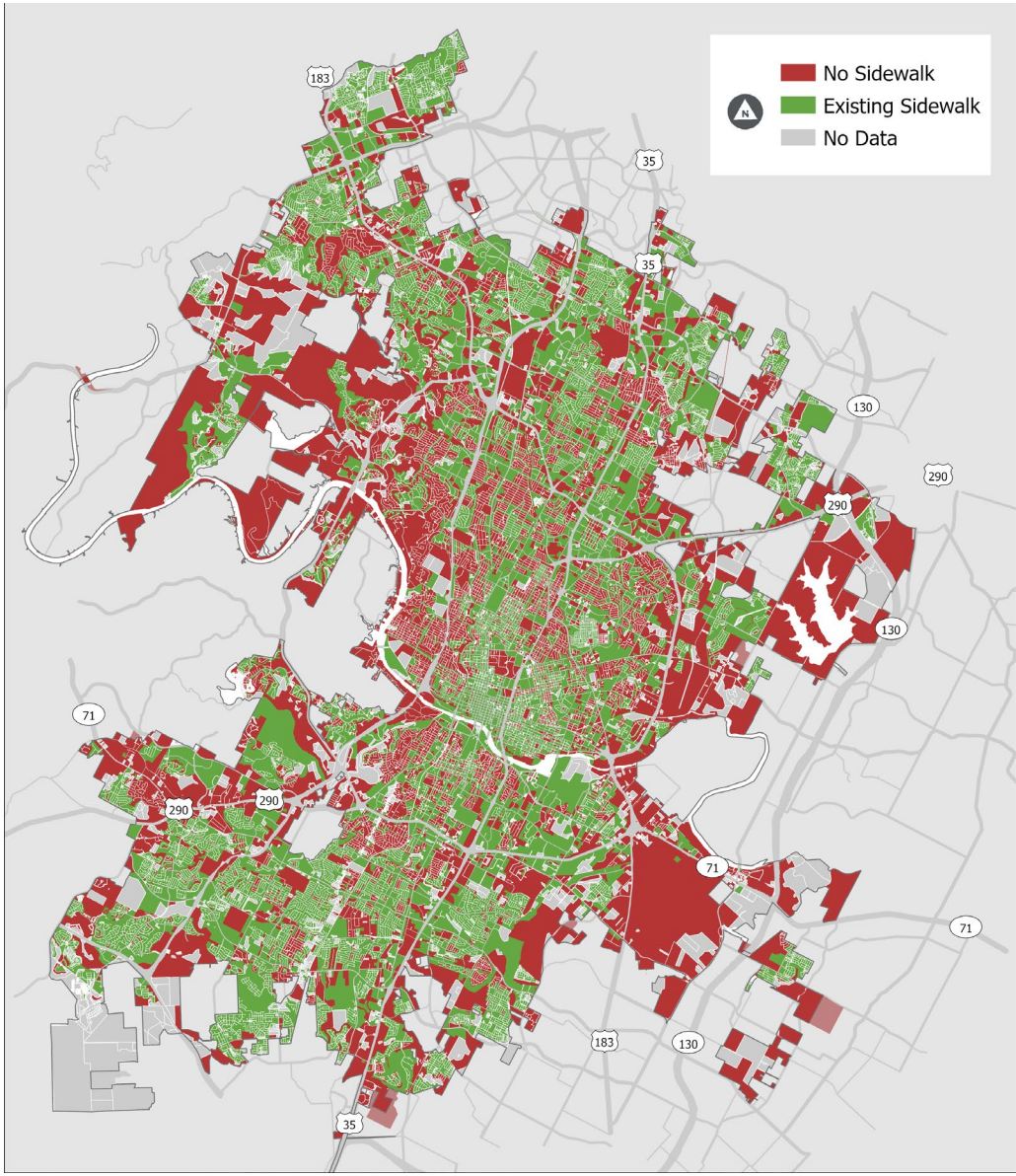


Figure 2-4. Map of existing sidewalk network coverage. Parcels on streets with complete sidewalks are green. Parcels on streets without complete sidewalk are red. Grey parcels are not directly adjacent to streets.

Network Access

The network access analysis answers the question: "How many locations have access to a given type of destination via the pedestrian network?" The answer is a product of immediate access to the walking network *and also* the continuity of the network.

The access analysis builds on the coverage analysis and also uses parcels of land as the unit of analysis. Access is defined as having a continuous pedestrian route from the parcel to a specific type of destination within a distance that is considered walkable. The tool can be used for a wide variety of destination types. To evaluate current conditions, three important destination types were evaluated using common walking distances. The results are recorded in Figure 2-5.

Together, the results of these analyses show that the current sidewalk network does not support a significant proportion of potential walking and rolling trips. For example, only 51 percent of parcels within two miles of a school have continuous pedestrian access to that school. Notably, however, parcels within Focus EAZs have somewhat better access to these three destination types.

What we heard about sidewalk coverage and access

An ATX Walk Bike Roll survey asked participants about their perception of equality in access to safe and comfortable places to walk, bike, and/or roll. Most participants described perceptions of unequal access, identifying a pattern of better infrastructure in wealthier, whiter, and gentrifying neighborhoods and worse infrastructure in neighborhoods with lower-income communities of color. Sidewalk condition was a commonly noted aspect of this inequality.

Figure 2-5. Access to three destination types on the existing sidewalk network

Destination	% of Parcels Citywide with Access	% of Parcels Outside of Focus EAZs with Access	% of parcels within Focus EAZs with Access
Schools (Two miles)[1]	*51%*	*50%*	*53%*
Transit (0.25 miles)	*35%*	*32%*	*38%*
Groceries and other food (0.25 miles)	*20%*	*19%*	*22%*

1 School access is calculated at two miles to align with Austin Independent School District policy. Families with students living within two miles of their school must provide their own transportation.

2.3.2. Sidewalk and Shared Street Network Plan

Continuing to build and enhance sidewalks on major streets and in commercial areas will remain a priority. In addition, based on evaluation of three scenarios and public input, the City of Austin has determined that shared streets can be provided instead of sidewalks on a significant portion of low-traffic neighborhood streets and can help to meet the need for an additional approximately 1,500 miles of pedestrian network. By incorporating shared streets as a key element of network completion, the total cost and implementation timeframe can be significantly reduced. Based on an evaluation of land use, right-of-way, and traffic conditions, the City of Austin has determined that a total of approximately 740 miles of street frontages are good candidates for shared streets instead of sidewalks.

There are three primary elements of the sidewalk and shared street network plan:

- **Existing Sidewalks** - Any constructed sidewalk within public right-of-way, regardless of physical condition or accessibility compliance. Maintenance, repair, and replacement of existing sidewalks is described in Section 2.4.
- **Planned Sidewalks** – Street frontages where sidewalks are currently missing but are needed to provide safe pedestrian access to commercial areas, transit stops, schools, community centers, parks, and other important community destinations.
- **Planned Shared Streets** – Local residential streets with lower traffic volumes that are typically missing sidewalks on both sides.

What's the right mix of sidewalks and shared streets?

Public engagement in fall 2022 defined shared streets and their benefits and asked Austinites to help determine the appropriate mix of sidewalks and shared streets the City should build in the next 20 years.

Three scenarios were presented:

1. Mostly Sidewalks – If we continue to focus on mostly building sidewalks, then most neighborhoods will only have sidewalks along major streets and near commercial areas and transit, with some neighborhood streets getting sidewalks on one side.

2. An Even Mix – If we also build shared streets, then busier streets and areas with higher amounts of walking activity would continue to get sidewalks, but we would also cover more neighborhood streets with shared streets.

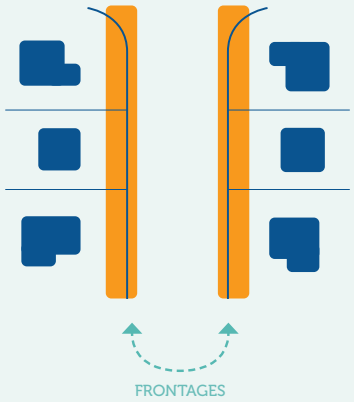
3. Lots of Shared Streets – If we invest more heavily in shared streets, then we'll be able to cover more neighborhood streets across Austin. Major streets and streets with lots of walking activity will still get sidewalks.

80% of respondents (82% of focus population respondents) strongly or somewhat supported the concept of shared streets, compared to 15% (10% of focus population) who strongly or somewhat opposed the concept. Most respondents (41%) preferred Scenario 3. Lots of Shared Streets (Scenario 2. An Even Mix: 36%. Scenario 1. Mostly Sidewalks: 17%). Considering only the responses from People of Color and people with lower incomes, 41% preferred Scenario 3, 40% preferred Scenario 2, and 15% preferred Scenario 1. More detail about the Network Scenarios is provided in Appendix D.

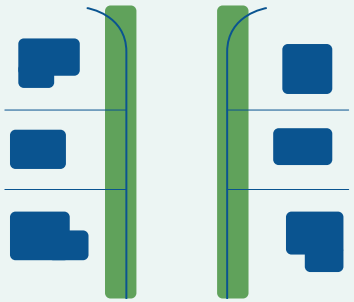
Completing the Pedestrian Network

What does it mean when we say that Austin has the need for an additional approximately 1,500 miles of pedestrian network?

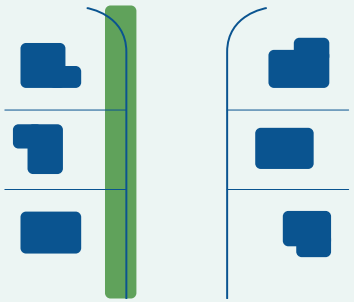
All streets have two frontages, one on each side of the street:



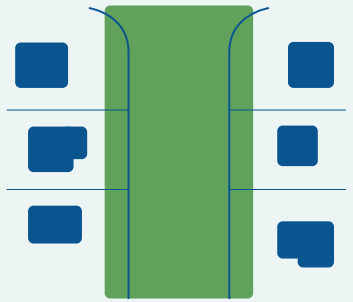
There are different ways of providing pedestrian access based on the type of street:



On most streets, sidewalk is required on *both* sides to complete the pedestrian network.



On low-traffic residential streets in *existing neighborhoods, sidewalk is only required on one side to complete the pedestrian network.**



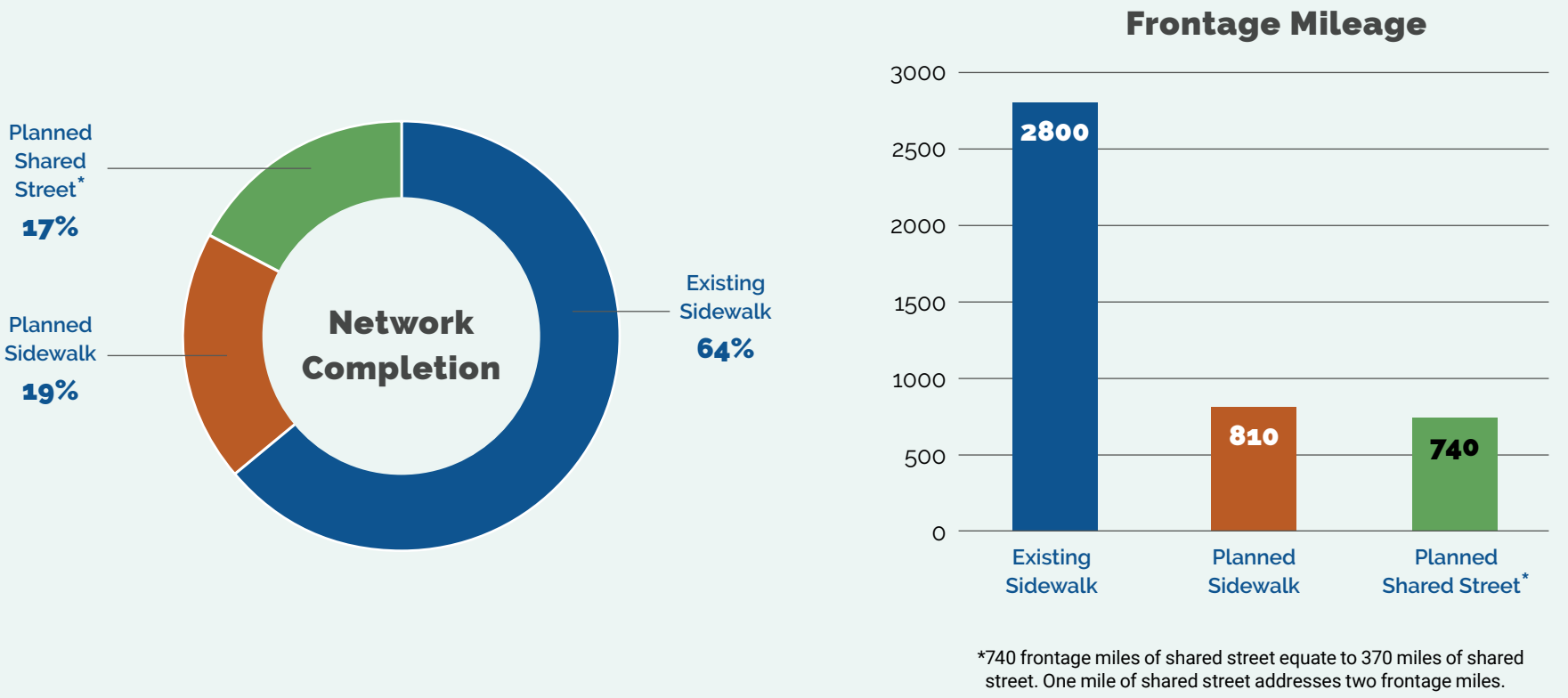
On low-traffic residential streets in *existing neighborhoods*, shared streets can be provided instead of sidewalks. They provide access to both frontages.

*Sidewalks are generally required on both sides of all streets in new development, which reflects best practices for pedestrian safety and comfort.

Completing the pedestrian network will include 810 miles of sidewalk and 740 miles of shared street frontage. The 810 miles of sidewalk is actual linear miles of frontage, meaning if one mile of street has planned sidewalk down both sides, that would be counted as two miles of sidewalk.

Shared streets are an efficient means of completing the pedestrian network because they provide pedestrian access to properties fronting both sides of the street. The 740 miles of shared street frontage is achieved by implementing 370 miles of shared street (740 miles divided by two frontages equals 370).

Figure 2-6. Elements of the sidewalks and shared streets network plan



*740 frontage miles of shared street equate to 370 miles of shared street. One mile of shared street addresses two frontage miles.

Figure 2-6 shows that Austin's pedestrian network is 64 percent complete. The remaining 36 percent of the network is composed of planned sidewalks and planned shared streets, described above. The existing and planned pedestrian network is mapped in Figure 2-7.

As shown in Figure 2-8, construction of all approximately 1,500 miles of planned sidewalks and shared streets in the network would cost approximately $903 million (based on historical new sidewalk construction costs and estimated shared streets costs).[1] The current budget for new sidewalk construction is approximately $10 million per year. At this funding level, full build out would take over 90 years.

Figure 2-8. Planned Sidewalk and Shared Street Buildout Costs

Planned Facility	Miles	Per Mile Cost	Total Cost
Sidewalk	810	$1,000,000	$810 million
Shared Street[2]	740	$250,000	$93 million
			$903 million

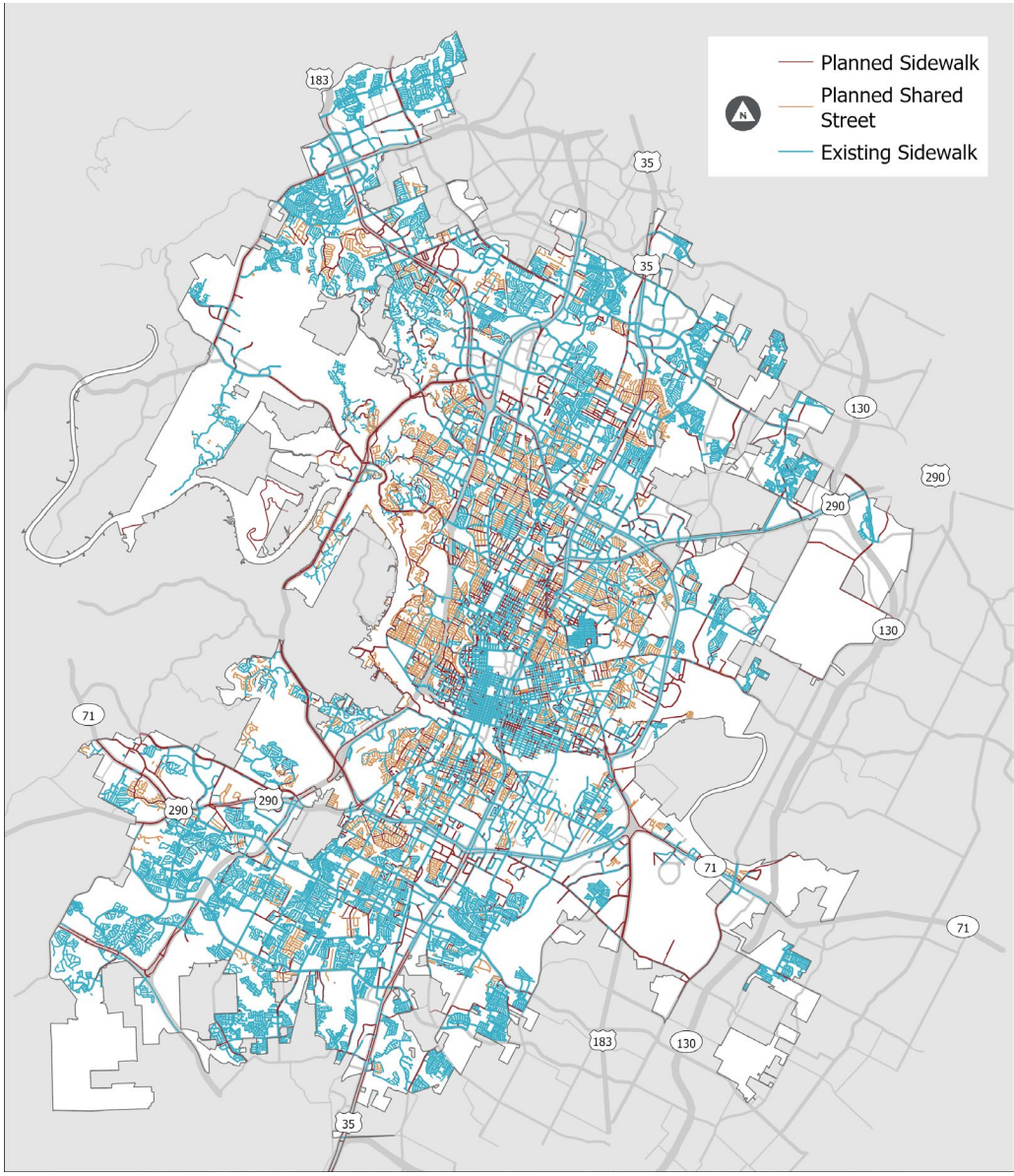


Figure 2-7. Map of the Existing and Planned Pedestrian Network.

1 Opinions of probable cost were developed by establishing rough quantities to determine a rough order of magnitude cost. These costs can vary widely depending on the exact details and nature of the work. The overall cost opinions are intended to be general and used only for planning purposes. Toole Design Group, LLC makes no guarantees or warranties regarding the cost estimate herein. Construction costs will vary based on the ultimate project scope, actual site conditions and constraints, schedule, and economic conditions at the time of construction.

2 Mileage and per mile cost for shared streets are calculated per frontage mile in this table. 740 miles of shared street frontage equates to 370 street centerline miles.

2.3.3. Sidewalk and Shared Street Project Selection

The sidewalk and shared street network plan establishes the breakdown of facility types (i.e., how much of the complete network will be sidewalks versus shared streets). The next step in the process is to identify[3] which sidewalk and shared street projects to build first. The prioritization methodology from the 2009 and 2016 Sidewalk Plans has been carried through in this update (see Appendix F). The prioritization factors and weights had been thoroughly vetted by stakeholders previously, and have been effective in equitably directing resources to the areas of the city with the most need.

A few minor updates were made as part of the 2023 Plan, including:

- Removing bonus points awarded for sidewalks identified in a neighborhood plan. Not all areas in Austin have a neighborhood plan, and eliminating this bonus is consistent with City policy that there should be safe pedestrian access along every public right-of-way.
- Using updated data from the Centers for Disease Control (CDC) PLACES database to create a more consistent and up-to-date data set for the pedestrian health and safety status input.
- Making adjustments to the granularity of previous scores. All planned sidewalk segments on both sides of a block now receive the same prioritization score.

See Appendix G for a map of planned sidewalk and shared street priorities. Each year the Capital Improvement Program (CIP) budget provides funding for a relatively small fraction of the *Very High* and *High* priority planned sidewalks and shared streets identified on the prioritization map. To select projects, the Sidewalk Program looks for opportunities to coordinate with additional programs to better leverage funding and address multiple City priorities at once. Additional opportunities could be present through:

- Project Connect
- Imagine Austin Centers and Corridors
- Other City projects, such as street maintenance, utility improvements, and facility access improvements
- 311 and ADA access requests
- Connectivity and ADA compliance near new Pedestrian Hybrid Beacons (PHBs) and other pedestrian signal improvements
- Bicycle program projects, particularly in constrained locations where reallocation of existing right-of-way may be required
- Transit projects in addition to Project Connect, such as improvements with new or relocated CapMetro stops, with priority for high volume transit locations, special use routes, or CapMetro paratransit priority locations
- Network connectivity, such as urban trails
- Safe Routes to School Program
- Small Area Planning and Neighborhood Partnering Program

What we heard

"Filling in unconnected sidewalk gaps/ properties should be a priority for neighborhoods…Combine any new road/path plans with street trees and foliage to mitigate the Austin heat island and to make walking more pleasurable."

—Community member comment, October 2021

3 This prioritization model applies only to sidewalks and shared streets. A separate prioritization model is used for pedestrian crossings.

- Development, including private and affordable housing
- ADA access to Parks and Recreation Department facilities
- Agency coordination with TxDOT and Central Texas Regional Mobility Authority (CTRMA)
- Coordination with the City's Vision Zero Program
- Coordination with City programs/departments such as Community Tree Preservation Division Development Services Department (DSD) and their Urban Forest Grant Program, Office of Sustainability Climate protection, Food System, Green Business Leadership and Eco-district programs and associated grants, and Art in Public Places Program
- Recommendations of the Joint Task Force (county, city, AISD)
- Recommendations on Family and Children and Educational Impact Process

Shared Street Selection and Installation

The process for selecting and installing shared streets differs from that of installing sidewalks. In addition to the prioritization score and the factors listed above, shared streets implementation requires a greater degree of intra-departmental coordination between the Sidewalk Program and the other mobility programs. Areas of coordination include assessing traffic conditions and potential impacts, evaluating and addressing pavement quality, installing and maintaining signs and pavement markings, potentially adjusting on-street parking, and most importantly engaging with local residents at a neighborhood scale to ensure the choice to install shared streets instead of sidewalks is supported by the local community.

What we heard

Safety is a key reason to expand the sidewalk and shared street networks. In a survey, 69% of respondents (76% of focus population respondents) say a top concern is that they don't feel safe near fast-moving motor vehicle traffic and 53% (56% of focus population) say a top concern is lack of connections in trails, bikeways, and/or sidewalks.

Equity & Pedestrian Safety

Vulnerable road users in Austin make up a disproportionate share of serious injury and fatal crash victims. Only 3% of total crashes involve pedestrians, but pedestrian-involved crashes account for 17% of serious injury and fatal crashes (Austin Strategic Mobility Plan).

The impacts are even more profound for Black and Native American populations who are involved in serious injury and fatal pedestrian crashes at more than twice the frequency as expected based on the composition of the general population. The ATX Walk Bike Roll Crash Analysis is provided in Appendix C.

2.3.4. Funding

The purpose of this section is to quantify the need for additional funding.

New sidewalk construction in Austin typically occurs by one of three methods:

1. as part of private development by subdivision or site development,
2. as part of a Capital Improvement Program (CIP) street or utility project, or
3. by a City Sidewalk Program CIP project.

For the City Sidewalk Program CIP, the majority of funding comes from Austin's Mobility Bonds, with limited additional funding from fee-in-lieu, grants, and other sources. The 2020 Mobility Bond provides a total of $80 million for sidewalks with a focus on sidewalks over six years, including $50 million for new sidewalks and $30 million for sidewalk rehabilitation.

The $50 million dedicated to expanding the pedestrian network combined with other currently identified funding sources is anticipated to provide less than half the estimated funding required to meet plan goals (see Figure 2-9) through 2028. Significant levels of additional funding and a more concerted effort to implement the City of Austin Complete Streets Policy will be necessary to fully implement this plan.

Figure 2-9. Sidewalk Program Target, Schedule, and Budget for Fiscal Years 2024–2034

Target	Implementation Schedule	Est. Annual Budget
Address all *Very High* and *High* priority sidewalks and shared streets within 10 years (Approx. 340 miles of new sidewalks and 200 miles of shared streets)	34 miles of new sidewalk and 20 miles of shared street per year	$32 million per year

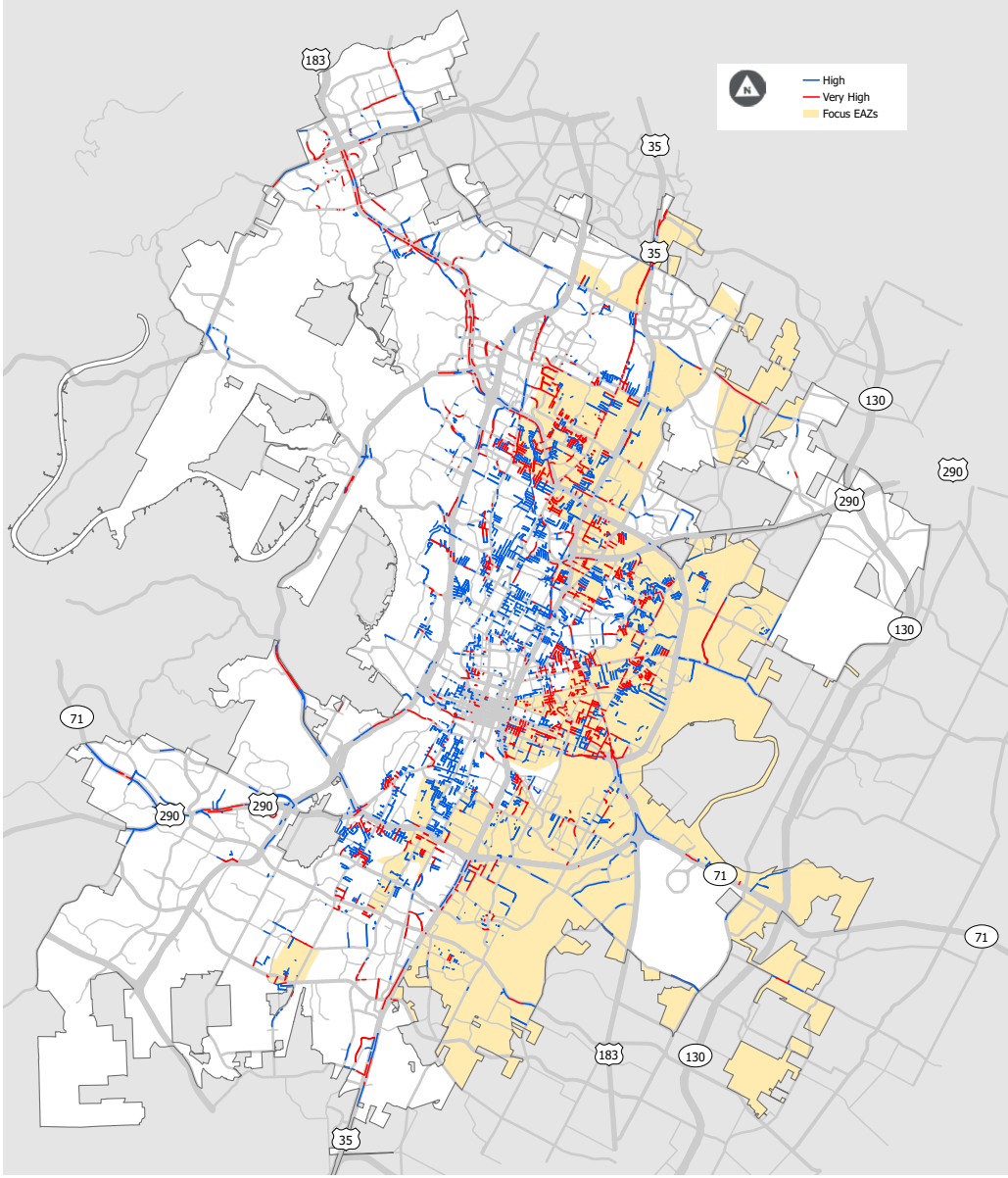


Figure 2-10. Map of *Very High* and *High* Priority sidewalks and shared streets in the planned pedestrian network

2.4. Maintaining the Network & ADA Transition Plan for Sidewalks

Maintenance of existing sidewalks within public right-of-way has historically been considered the responsibility of the adjacent property owner. The City of Austin Code included this responsibility requirement until 1999. Subsequently, the City implemented a repair and rehabilitation program for its sidewalk network, but funding levels do not sustain a serviceable sidewalk network given life-cycle costs and previous years of deferred maintenance. The Transportation and Public Works Department is currently responsible for maintaining approximately 2,800 miles of existing sidewalk network. Existing sidewalk repair and rehabilitation is also mandated by the Americans with Disabilities Act (ADA).

2.4.1. Current Program

Prior to the late 1990s, little or no City funding was devoted to sidewalk repair and rehabilitation. Starting in 1998 and again in 2000, transportation bonds were approved that included sidewalk funding. From 2006 to 2014, the City spent roughly $1 million of bond-funding annually on sidewalk repair and rehabilitation. The 2016 Plan identified an annual need of $15 million (32 miles per year) of sidewalk repair. Since 2016, the City has repaired and rehabilitated approximately 15 miles of sidewalks per year—a result of inadequate funding and increases in construction costs.

In addition to this spending, the Transportation and Public Works Department Sidewalk Program has historically performed repair and rehabilitation as "ADA transition" projects, combining installation of new sidewalks with rehabilitation of existing sidewalks to complete ADA compliant routes between destinations. However, because these ADA transition projects are focused on installation of sidewalk gaps, they do not always address the most critical repair and rehabilitation need. A stable and sufficient funding source for ADA transition projects and sidewalk repair and rehabilitation is needed to ensure a functional pedestrian environment.

Poor Sidewalk Conditions Limit Accessibility

A condition assessment performed as part of the 2016 plan determined 80% of existing sidewalks in Austin are functionally deficient, rendering them unusable by many people with disabilities. According to the U.S. Census Bureau, around 6.7% of Austinites under age 65 live with a disability. This statistic may underestimate due to lack of professional diagnoses, discrepancies in self-reporting, and definitions of disabilities. In addition, most people experience a temporary disability (e.g., using crutches) at some point in their lives. For people with a disability that impacts mobility, a sidewalk that is obstructed or in poor repair can represent a barrier that is insurmountable.

Without an accessible sidewalk network, many people with disabilities have limited alternatives for getting where they need to go. Some people may choose to walk or roll in busy streets, which creates a safety risk both for them and for drivers. Others may choose paratransit services, such as MetroAccess, although these services are costlier to provide than traditional public transit and often inconvenient. Still others may choose not to make a trip they would otherwise undertake if the sidewalk were in better shape, which has profound implications on employment, health, and meeting daily needs.

The City of Austin maintains the pedestrian network using a variety of different approaches and processes, described below.

Vegetation Obstructions – Vegetation impacts the ADA compliance and functionality of sidewalks by creating hanging protrusions and ground obstructions. City Code requires property owners to maintain vegetation and non-public trees above or adjacent to sidewalk within the right-of-way. The Transportation and Public Works Department Urban Forestry Program pro-actively addresses vegetative sidewalk obstructions in response to the 3-1-1 customer service request system and through an ongoing inspection, notification, and enforcement program. Combined with public awareness campaigns the pro-active vegetation maintenance program has been critical to improving the condition of sidewalks in Austin.

Spot Replacement – There are no cost-effective, preventive maintenance methods to completely address ADA noncompliance along a pedestrian route. As a result, removal and replacement is the typical remedy. There are however a few types of defects that can be repaired through alternative methods.

Lifting and Grinding/Cutting – The City sometimes uses concrete lifting and concrete grinding or cutting to increase the functionality of a sidewalk for a fraction of the cost of replacement. These methods do not generally bring a sidewalk into full ADA compliance; however, they increase functionality by removing trip hazards and cross-slope faults. Because of the economy of these alternative methods, they are currently used to address faults within areas where there have been a significant number of citizen repair requests. If needed, these alternative maintenance methods are sometimes followed by spot replacement of remaining problem areas.

Curb Ramps and Street Alterations – In 2013, the Department of Justice and Federal Highway Administration provided guidance regarding the installation of curb ramps in conjunction with asphalt overlays and other street "alterations." While implementing this guidance on street maintenance resurfacing projects, the City also seeks to ensure that new curb ramps connect

to a functional ADA route. To the extent that resources are available, new curb ramp installations are coordinated with sidewalk rehabilitation and applicable street alterations. In addition to street maintenance resurfacing projects performed by Transportation and Public Works, other City Departments may resurface streets as part of utility or Capital Improvement Projects, which also requires coordinated curb ramp installations.

Driveways – When the requirement for sidewalk repair and rehabilitation responsibility by the adjacent property owner was removed from the City of Austin Code in 1999, Transportation and Public Works adopted a policy that driveways would still be the responsibility of the property owner because they provide direct vehicular access from private property to the right-of-way. Because the driveway crosses the pedestrian route, any newly constructed driveway is required to include an ADA compliant sidewalk section. Currently this policy is waived when driveways are replaced during a sidewalk project, the City installs new ADA compliant driveway aprons at no cost to the property owner. Driveway replacement accounts for approximately 20% of sidewalk repair and rehabilitation project costs.

Shared Streets – Shared streets are a new approach to providing pedestrian passage on low-traffic neighborhood streets in Austin. Designs of shared streets may include signs, rigid or flexible bollards, speed cushions, mini traffic circles, chicanes, curb extensions, and more to mitigate automobile speed. These features can be constructed of lightweight materials installed rapidly or made from more durable concrete, and may include vegetation. In addition, shared street projects are opportunities to collaborate with communities to provide spaces for public art, edible landscaping, and play. This diversity of design treatments means maintenance will have unique requirements. The City will need to evaluate maintenance needs and develop long-term strategies.

2.4.2. Project Selection

The City of Austin identifies sidewalk repair and rehabilitation projects with the goal of providing a functional pedestrian route along an entire block or series of blocks. Projects are selected based on a systematic sidewalk condition assessment program and objective prioritization of existing sidewalks. The prioritization method is the same as used for new sidewalk and shared streets (described in Section 2.3.3). See Appendix G for a map of existing sidewalk priorities and existing sidewalk conditions.

In addition to condition assessment and prioritization, selection of sidewalk repair and rehabilitation projects will include additional priorities and coordination opportunities similar to those outlined in Section 2.3.3 to maximize effectiveness of available funding.

Inventory of Physical Barriers

The City of Austin condition rating system is used to apply a rating of A through F to each sidewalk segment, curb ramp, and driveway, based on the worst severity condition, such as cross-slope, cracking, etc. Sidewalk segments are defined between intersections and driveways. Figure 2-11 describes the rating system and Figure 2-12 provides an example of the conditions that are evaluated for each sidewalk segment and how the condition impacts the rating.

Figure 2-11. Condition Rating System

Letter Rating	Descriptive Rating	Description
A	Excellent condition	Fully ADA Compliant
B	Good condition	Minor level of ADA Noncompliance - Functional for almost all users
C	Fair condition	Intermediate level of ADA Noncompliance - May not be functional for some users
D	Poor condition	Severe level of ADA Noncompliance - Not functional for many / May present hazards for all users
F	Failed condition	Extreme level of ADA Noncompliance - Essentially nonexistent as a developed pedestrian route

Figure 2-12. Sidewalk Rating Matrix

	Functionally Acceptable		Functionally Deficient		
Sidewalk Condition	**A**	**B**	**C**	**D**	**F**
Width	> 48 in.	36 in.–48 in.			< 36 in.
Cross-slope	0–2%	3–5%	6–8%	9–12%	> 12%
Faults	< 0.25 in.	0.25–0.5 in.	0.5–2 in.	2–4 in.	> 4 in.
Faults (count)	None	< 20 / 100 ft	> 20 / 100 ft		
Cracks	None / Minor	Moderate	Severe		
Vertical Clearance	> 80 in.			< 80 in.	
Obstruction	None				Obstruction

The existing sidewalk condition assessment results are illustrated in Appendix G.

Schedule for Barrier Removal – Prioritization of Improvements

Prioritization of ADA barrier removal for existing sidewalks will include a combination of locational priority and the condition rating. For example, repair priority will be given to areas that have a large majority of D- and F-rated sidewalks within Very High and High priority areas to address the most significant ADA barriers in the most critical areas. Final repair scopes will likely also address C-rated sidewalks within the general repair area to create functionally acceptable pedestrian routes. Where street level pedestrian walkways cross curbs, curb ramps will be provided ancillary to priority sidewalk rehabilitation projects. In addition, provision of curb ramps will also be coordinated with street alterations where the functionality of the pedestrian route is moderately improved. The quantity of ADA-compliant curb ramps provided annually will not be less than the total required for street alterations each year.

See Section 2.4.3 for time horizon, annual funding level, and barrier removal target.

Public Official Responsible for Plan Implementation

The City's ADA Transition Plan for sidewalks in public right-of-way is implemented by the Director of Transportation and Public Works.

Opportunity for Individuals with Disabilities to Provide Input

Multiple, ongoing opportunities to provide input include: the Mayor's Committee for People with Disabilities, the City of Austin ADA Task Force, the Pedestrian Advisory Committee, 3-1-1, and ADAPT, a grassroots community of disability rights activists.

2.4.3. Funding

The anticipated average service life for sidewalks is approximately 75 years. As a result, replacement of the current 2,800-mile sidewalk network on a 75-year cycle (1/75th or 1.3 percent of the sidewalk network annually) would cost approximately $30 million annually. This simplified service life model identifies the order of magnitude necessary to achieve a more functional sidewalk network, providing a baseline for annual sidewalk repair and rehabilitation budgets.

Historically, deferred maintenance or future expansion of the sidewalk network is not included in the 75-year life cycle cost calculation. The estimated duration to repair or rehabilitate all functionally deficient existing sidewalk in the network at a $30 million annual budget exceeds 20 years.

Therefore, this Plan includes a 10-year target to achieve acceptable functionality for 80% of all Very High and High priority sidewalks and 50% of the citywide sidewalk network.

Below is the new sidewalk program target and key recommendations for existing sidewalks in Austin:

What we heard

"Many sidewalks are effected by tree roots. The roots cause buckling of the sidewalks. Also, restrict water flow into drainage structures. The maintenance of drainage structures can be slow, relative to the deformation damage, induced by vegetation propagation. This is an expensive problem to control."

—Community member comment, Survey, August - September 2021

Figure 2-13. Annual Asset Management Need

Item	Extent
Existing Sidewalks	2,800 miles 76 million square feet
Replacement Costs	$30 square foot
Service Life	75 years
Annual Repair and Rehabilitation Costs	37 miles, $30 million

Figure 2-14. Existing Sidewalk Maintenance and ADA Transition Plan Program 10-year Target

Target	Implementation Schedule	Estimated Annual Budget
Achieve 80% functionality for Very High and High priority sidewalks and Achieve 50% functionality for citywide sidewalk network	10 years	$30 million per year

Pedestrian Crossings 3

Pedestrian crossings are an important complement to sidewalks and shared streets. They address safety and comfort for pedestrians at locations where different modes of travel intersect, where the risk of crashes or conflicts is highest. Together, sidewalks/shared streets and crossing improvements such as signals, crosswalks, bulb outs, or crossing islands form a cohesive pedestrian network.

The fundamental purpose of the 2023 Plan pertaining to pedestrian crossings is to evaluate whether each crossing in the city is suitable, identify gaps between suitable crossings, and prioritize corridors for build out.

This chapter begins with a snapshot of existing pedestrian crossings and pedestrian safety in the City of Austin, followed by an overview of the standards and funding sources for pedestrian crossing improvements. This chapter also includes the first citywide assessment of pedestrian crossings: a two-step process that identifies sections of corridors where the distance between suitable crossings exceeds city standards (see Section 3.2), as defined in the Transportation Criteria Manual and the City's Crossing Guidelines. The chapter concludes with a framework for prioritizing crossing improvements and toolkit for implementation.

3.1. Background

The Transportation and Public Works Department leads a pedestrian crossing program, in coordination with various other mobility programs to achieve more complete street outcomes. The crossing improvement program is designed to a) enhance the pedestrian network in coordination with sidewalk investments and b) address racial and economic disparities in pedestrian safety.

Community input on crossing needs

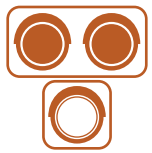
During the ATX Walk Bike Roll process, the public was given the opportunity to identify challenging crossing locations on an online map (promoted online and through the Community Ambassadors, who helped focus population individuals provide input). Participants identified 465 unique challenging crossings and placed dots on the map at those locations. In addition, 1,575 total upvotes and downvotes were received on those 465 challenging crossing dots. This community-generated data is used as an input to the crossing gap prioritization tool, described in Section 3.2 and Appendix I.

Figure 3-1. Snapshot of Pedestrian Crossings Features in Austin (see Section 3.1.2 for definitions/photos of these facility types)

5,780
Marked Pedestrian Crossings

550
Median Islands

27
Rapid Flashing Beacons



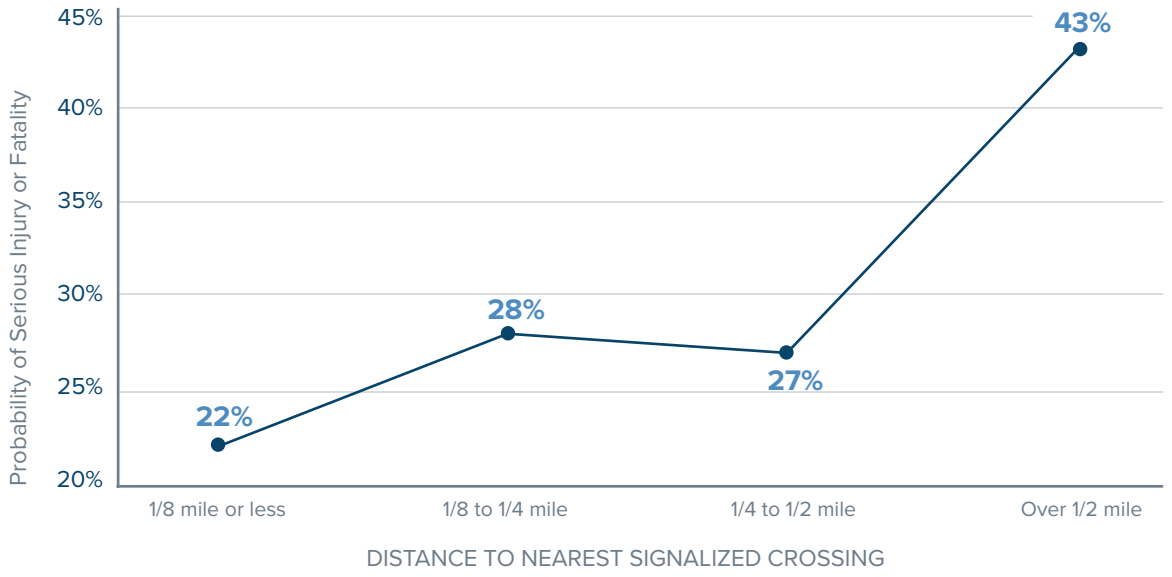
88
Pedestrian Hybrid Beacons

3.1.1. Pedestrian Safety at Crossings

The Austin Pedestrian Safety Action Plan evaluated pedestrian safety related to a variety of roadway factors. One of its key findings was that crashes that happen farther from signalized crossings (i.e., traffic signal or pedestrian hybrid beacon) are more severe. Crashes occurring over a half mile away from the nearest signalized crossing resulted in serious injury or fatality 43% of the time, compared with only 22% of the time if the crash occurred within one-eighth of a mile of a signal (See Figure 3-2), likely due to the faster speeds drivers can achieve farther from the intersection.[1] This data underscores the importance of addressing driving speeds, multi-lane streets, and crossing gaps along entire corridors in service to pedestrian safety, not just at signalized intersections.

As part of ATX Walk Bike Roll, an analysis was performed to evaluate the relationship between the Pedestrian High Injury Network (HIN) and Equity Analysis Zones (EAZs). The Pedestrian HIN shown in Figure 3-3, which also shows the location of Focus EAZs, represents less than five percent of the non-freeway roadway network but nearly 70 percent of the pedestrian serious injury and fatal pedestrian crashes occur on it. The relationship between the Pedestrian HIN and EAZs was evaluated by calculating the percent of streets within each EAZ category that are designated as being on the Pedestrian HIN

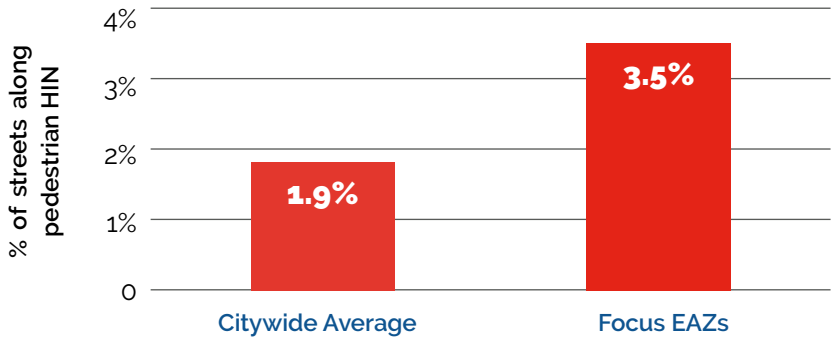
Figure 3-2. Chart showing probability of serious injury or fatality increasing further from intersections (Pedestrian Safety Action Plan, 2018)



1 Pedestrian Safety Action Plan.

Figure 3-4 shows the proportion of streets that are part of the Pedestrian HIN both citywide and within Focus EAZs. Areas with higher shares of the roadway network along the Pedestrian HIN typically overlap with Focus EAZs. This analysis highlights that lower income communities of color experience a disproportionate burden related to pedestrian safety compared to other communities in Austin. It also identifies an opportunity to address racial and income disparities by focusing pedestrian safety investments along the Pedestrian HIN.[1] The Vision Zero program has performed additional analyses on the intersection of race and traffic safety; see the Vision Zero webpage for more information.

Figure 3-4 Percent of streets along the Pedestrian High Injury Network (HIN), comparing citywide average to Focus Equity Analysis Zones



Pedestrian High Injury Network

The Pedestrian HIN is comprised of corridors with a relatively high number of pedestrian-involved crashes that result in serious injuries of fatalities. Learn more at the City's Vision Zero webpage.

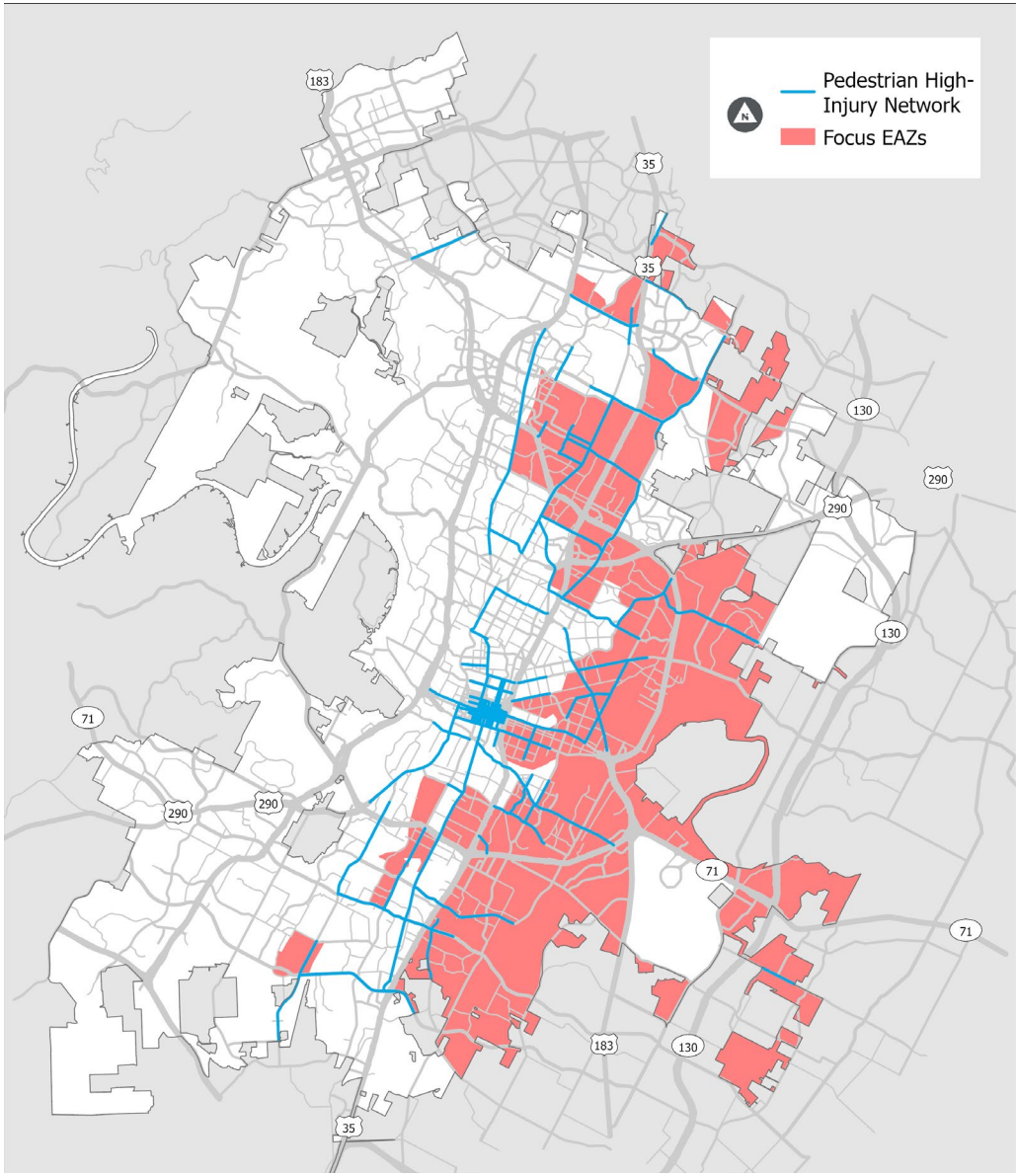


Figure 3-3 Pedestrian High Injury Network and Equity Analysis Zones

1 ATX Walk Bike Roll Crash Analysis. See Appendix B.

3.1.2. Standards and Crossings Toolkit

In Austin, pedestrian crossing design is guided by the City of Austin Transportation Criteria Manual (TCM) and the City's Crossing Guidelines. Section 4 of the TCM states that, "pedestrian crossings should be highly visible and be combined with street design treatments that slow vehicle speeds near the pedestrian crossings." They shall be provided frequently to ensure safe pedestrian crossings, avoid crossing delay, discourage unsafe and illegal crossings, and promote walking as a chosen mode of transportation."[1] In addition, pedestrian crossings must be:

- designed to be as short as possible,
- highly visible to other users,
- ADA compliant using curb ramps and detectable warning surfaces, and
- signaled as appropriate or to meet City standards.

The City's Crossing Guidelines[2] are used to determine the appropriate crossing treatment for a location based on the number of lanes, whether there is a median island, vehicle speeds, and vehicle volumes. The toolkit on the following pages is based on those guidelines and provides a brief overview of what each element entails and the general cost of implementation.

What we heard

When asked to select their top five priorities for the City to do to help people walk/bike/roll more comfortably, 41% of survey respondents would like the city to build more designated pedestrian crossings (on average, this was the fourth-highest priority). At 49%, the level of support for additional pedestrian crossings is higher among the focus population respondents (this was the third-highest priority on average for the focus population respondents).

Several respondents voiced frustration about driver behaviors and long waits at traffic signals, making comments like this:

"The lights are VERY long and do not provide lead time for cyclists and pedestrians in much of the city. This is especially difficult at unshaded intersections, where the heat can really bear down on you and cars are not attending to cyclists and pedestrians when they get going again."

—Community member comment, October 2021

1 City of Austin. Transportation Criteria Manual.
2 Austin Transportation Department. Crossing Guidelines.

Crossing Treatments

High Visibility Crossings improve a driver's awareness of a pedestrian crossing through a striping design, which includes continental crosswalk markings. These enhancements are generally appropriate on all streets but higher speed streets require additional treatments to provide the needed level of safety.

The cost for these types of enhancements range from $2,000 to $8,000.

Crossing Islands or pedestrian refuge islands provide a protected space for pedestrians to stand and wait in the middle of a two-way street. Crossing islands are generally appropriate on all street levels and should be considered with signalized treatments for level 3 and 4 streets[1] with high travel speeds.

The cost for this treatment ranges from $30,000–$50,000 depending on design and field constraints.

Curb Extensions, or bulb outs, extend the sidewalk into the street to reduce the distance of the crossing, limiting the exposure of crossing pedestrians and enhancing the sight distance between pedestrians and motorists. Curb extensions are good candidates for locations with existing parking lanes and should be used in combination with other countermeasures. Curb extensions are generally appropriate on all street levels within the guidelines of the Transportation Criteria Manual.

The cost for this treatment ranges from $10,000–$50,000, depending on design and field constraints.

Raised Crossings are ramped speed tables spanning the entire width of the roadway, often placed at mid-block crossing locations. Raised crossings are particularly useful around schools where children are expected to cross frequently.

The cost for this treatment ranges from $30,000–$75,000, depending on design and field constraints.

1 The City of Austin classifies all City streets by Level, with Level 1 streets being local/neighborhood streets and Level 5 being highways and freeways. Level 2 streets connect local streets to larger roads; Level 3 streets include busier corridors like Lamar Boulevard and South 1st Street, and Level 4 streets are often Farm to Market roads and other major thoroughfares.

Crossing Treatments

Grade Separation refers to building a pedestrian bridge or tunnel to fully separate people crossing from moving vehicles using a multilane street or a controlled access highway. Grade separation can eliminate the conflicts associated with crossing such facilities.

The cost for this treatment can range from $2 million–$20 million, depending on location and complexity.

Rectangular Rapid Flashing Beacons (RRFB) are rectangular-shaped yellow lights indicators that flash when a pedestrian activates it via pushbutton or pedestrian detection. These are typically used with a crossing warning sign and are placed on both ends of the crossing and potentially in the crossing island (if present). RRFBs are generally appropriate when crossing islands can't be installed.

The cost for this treatment ranges from $10,000–$30,000, depending on design and field constraints.

Pedestrian Hybrid Beacons (PHB) include one yellow and two red lenses on a signal pole to stop traffic when pedestrians are present. The PHB are activated by a pedestrian push button or pedestrian detection. PHBs are generally appropriate on level 3 and 4 streets.

The cost for this treatment ranges from $190,000-$230,000.

Other Signal Solutions Countdown timers, Audible Pedestrian Signals (APS) and Leading Pedestrian Intervals (LPI) are among several solutions that support safer and more predictable crossings at signalized intersections.

The costs for these treatments range from $1,000–$20,000, depending on treatment type.

Lane Conversions: a Tool for Establishing Safer and More Frequent Crossings

Streets with more than one lane in each direction tend to require signalized treatments to make crossings safer and more comfortable. This is in part because of the multiple threat crash risk where a driver in one lane yields to a person crossing the street but the driver in the other lane does not, elevating the risk of the person crossing the street to be struck. A signal controls for these movements and thus reduces the risk of conflict.

However, signalized treatments such as full signals and pedestrian hybrid beacons (PHBs) are typically much more expensive to construct than unsignalized treatments such as pedestrian crossing islands, making it difficult to install signalized crossings on multilane streets at the frequency necessary to provide accessible, convenient, safe and comfortable crossings for use in accessing bus stops, schools, parks, corner stores and other destinations.

Lane conversion is a tool that repurposes the outside general travel lane through the mid-block of a multilane street to another use thereby reducing the number of travel lanes a pedestrian has to cross. This treatment can open up more cost-effective options for constructing frequent unsignalized crossings, typically in the form of a pedestrian crossing island, between major intersections that are typically left signalized to accommodate multiple turn and through lanes. By keeping the number of lanes at major intersections, a street can function as it does today for motor vehicles, while also opening up space between these intersections to enable safer crossings as well as other uses such as parking, floating bus stops, or bike lanes.

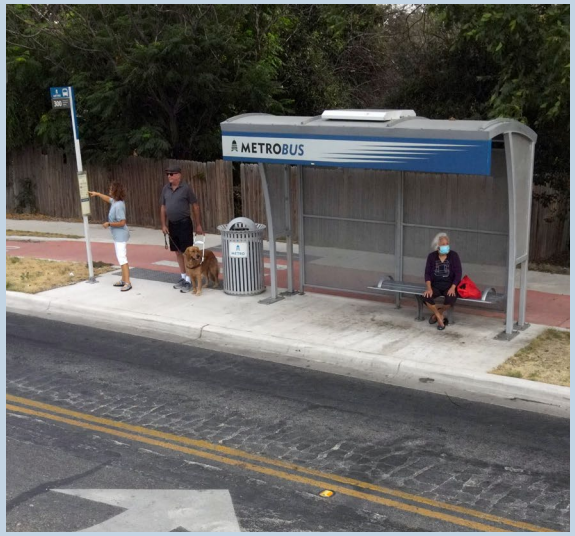
Signals can cost between $500,000 and $1 million and PHBs can cost between $190,000 and $230,000. At between $20,000 and $50,000 for a pedestrian crossing island, one can construct 10-15x more crossings with a lane conversion versus signalized treatments.

This treatment also makes the street safer for everyone. Austin's use of this tool in converting streets from four to three lanes has shown a crash reduction of between 20 – 40% and significant reduction of high-risk speeding*, which is a primary cause for serious injury and fatal crashes in Austin.

*Austin Transportation Lane Conversion Report, 2015.

Floating Bus Stop

A floating bus stop is designed to remove the conflict between people walking, bicycling and getting on and off buses by bringing the bike lane and sidewalk behind the stop. This also makes it easier and more efficient for the bus operator to stop curbside for boarding and alighting. The costs for this treatment ranges from $30,000 to $50,000 per stop.



Complementary Treatments

Centerline Hardening can be placed along the centerline (middle) of a roadway at intersections where there is not enough roadway width for a median or crossing island. Hardened centerlines slow left-turning traffic and can be constructed of concrete curbing, rubber blocks, rigid or flexible posts, or a combination of these.

The cost for these types of enhancements range from $2,000–$100,000, depending on length and material.

Turn Wedges are placed at the corner and extend toward the center of an intersection. Providing a similar traffic calming effect as curb extensions, turn wedges slow right-turning traffic. Turn wedges can be constructed of concrete and raised above the roadway surface, they can include rigid posts/bollards, or they can be more rapidly installed with paint and flexible posts.

The cost for these types of enhancements range from $2,000–$5,000.

Pedestrian Scale Lighting provides an appropriate level of lighting at an established crossing during night or low-light conditions. These enhancements are generally appropriate on all streets but higher speed streets require additional treatments to provide the needed level of safety.

The cost for these types of enhancements range from $5,000 single luminare, $20,000–50,000 full intersection.

Daylighting improves visibility at intersections and mid-block crossing locations by removing visual obstructions in close proximity to the crossing. Daylighting can include the spot removal of parking space markings generally with signs. These enhancements are generally appropriate on all streets and most useful at cross streets.

The cost for these types of enhancements range from $2,000–$30,000, depending on material, design and field constraints

3.2. Identifying and Addressing Crossing Gaps

The Transportation and Public Works Department will use this Plan to identify general locations where crossing enhancements are needed and then use further analysis and judgment to identify specific locations and treatments to address the gaps. **Again, the focus for this effort is on crossings that are currently non-signalized.**

Identifying corridor segments where there are insufficient crossing opportunities is a two-part process. First, data are used to evaluate whether the treatments present at an existing pedestrian crossing are suitable for the context. Once suitability has been determined, the distances between suitable crossings can be measured to identify gaps.

Crossing gaps are then quantified and prioritized to form a build-out plan for pedestrian crossings that identifies the necessary funding level to achieve the target of eliminating 50% of Very High and High priority crossing gaps within Focus EAZs, along the Pedestrian High Injury Network (HIN), or within a 1/4 mile of all identified schools, public transit stops and stations, and parks by 2033.

3.2.1. Crossing Suitability Evaluation

The presence of a marked crosswalk at a pedestrian crossing does not fully convey the condition, quality, or suitability of that crossing. To evaluate the suitability of every pedestrian crossing in Austin, the City developed an inventory of all existing and potential crossings and systematically evaluated each (see Appendix I for the full methodology). Potential crossings were identified on all sides of all street intersections without existing marked crossings. Existing crossings were identified at intersections and mid-block locations where the City has installed crossing treatments like marked crosswalks, pedestrian crossing warning signs, or median islands.

The suitability evaluation method considers basic details including the speed of cross traffic, distance to cross, and mitigating features like signals and crossing island. Suitable crossings are those on lower-traffic/lower-speed streets as well as crossings with appropriate treatments to mitigate higher speeds and traffic volumes. Unsuitable crossings are those that are more stressful, and often include locations with multiple lanes, high traffic volumes, and high speeds. A detailed methodology of the factors used in these calculations is available in Appendix I.

Figure 3-5. Examples of crossing suitability

Street Level[1]	Examples of Suitable Crossings
Level 1 (local/neighborhood streets)	Unmarked crossings where two low-traffic level 1 streets intersect
Level 2 (streets that connect local streets to larger roads)	High-visibility crosswalk (e.g. pavement markings, curb extension, etc.) and median island
Level 3 (busier corridors like Lamar Boulevard and South 1st Street)	Pedestrian hybrid beacon, median, and visibility enhancements
Level 4 (Farm to Market roads and other major thoroughfares)	Pedestrian hybrid beacon, median, and visibility enhancements
Level 5 (highways and freeways	Pedestrian bridge or trail under the roadway

To further limit the number of potential crossing gaps along Austin's roadways, the following "rules" were also applied:

- Due to the low-speed (typically 30 MPH or less), low-volume (typically less than 1,000 vehicles per day) characteristics of a Level 1 street, all crossings of Level 1 streets are considered suitable for the purposes of this exercise.
- Any signalized intersection was considered suitable.

1 The City of Austin classifies all City streets by Level, with Level 1 streets being local/neighborhood streets and Level 5 being highways and freeways.

Every existing and potential crossing within the City of Austin was rated using the methodology. Figure 3-6 summarizes the percentage of crossings suitable for the surrounding context citywide and in Focus EAZs. The Focus EAZs have a lower percentage of suitable crossings.

Figure 3-6. Summary of crossing suitability at existing and potential unsignalized crossings

Suitability Rating	% of Crossings Citywide	% of Crossings in Focus EAZs
Suitable (all street types)	79%	74%
Not suitable (all street types)	21%	26%
Suitable (Level 1 Streets)	100%	100%
Suitable (Level 2 Streets)	23%	24%
Suitable (Level 3 Streets)	38%	33%
Suitable (Level 4 Streets)	63%	58%

3.2.2. Distance Between Suitable Crossings

After calculating a suitability score for every crossing, the next step was to measure the distance between suitable crossings and flag locations where the distance between suitable crossings exceeds the distances specified in the Transportation Criteria Manual (TCM). As shown in Figure 3-7, the required crossing spacing varies by street level[2] and whether a street is part of the Transit Priority Network.

Figure 3-7 Pedestrian Crossing Spacing from the Transportation Criteria Manual (TCM) Section 4.2.2.

Street Level	Context	Maximum Desirable Distance Between Marked Crossings
2	All	600 ft.
3	On Transit Priority Network	600 ft.
	All other streets	1,200 ft.
4	All	1,200 ft.
5	All	All vehicle crossings & every ½ mile maximum where vehicle crossings don't exist
All	All	Within 100 ft. of all transit stops

2 The City of Austin classifies all City streets by Level, with Level 1 streets being local/neighborhood streets and Level 5 being highways and freeways. Level 2 streets connect local streets to larger roads; Level 3 streets include busier corridors like Lamar Boulevard and South 1st Street, and Level 4 streets are often Farm to Market roads and other major thoroughfares.

3.2.3. Crossing Gap Identification

Completing steps one and two above reveal that many corridors in Austin have significant crossing gaps that present pedestrians with the difficult choice of traveling out of their way to reach a suitable crossing or putting themselves at risk crossing the street at an unsuitable location. Figure 3-8 is a map that highlights the segments of corridors with crossing gaps. Many of the longest gaps are outside of the center of Austin where development patterns are less dense and the distances between intersections are greater.

Figure 3-9 summarizes the number of corridor gaps and compares the number of gaps in the Focus EAZs with the citywide total. The number of crossing gaps in EAZs is higher than the City as a whole, potentially reflecting lower levels of infrastructure investment and auto-centric development patterns that put pedestrians at risk.

Figure 3-10 summarizes the presence of transit crossing gaps (lack of suitable crossings within 100 feet of transit stops). This shows similar levels of disparities in gap presence within Focus EAZs.

Figure 3-9. Corridor Crossing Gap Summary

Area	# of Gaps	Gap Total Length (mi.)	Mileage of Level 2/3/4 Streets	Gap %
Citywide	1,986	607	1,040	58%
In Focus EAZs	698	222	348	64%

Figure 3-10. Transit Crossing Gaps (Note: Transit crossing gaps overlap corridor crossing gaps and are significantly shorter in length)

Area	# of Transit Stops	# of Crossing Gaps at Transit Stops	% of Transit Stops at Crossing Gaps
Citywide	2,273	1,760	77%
In Focus EAZs	916	729	80%

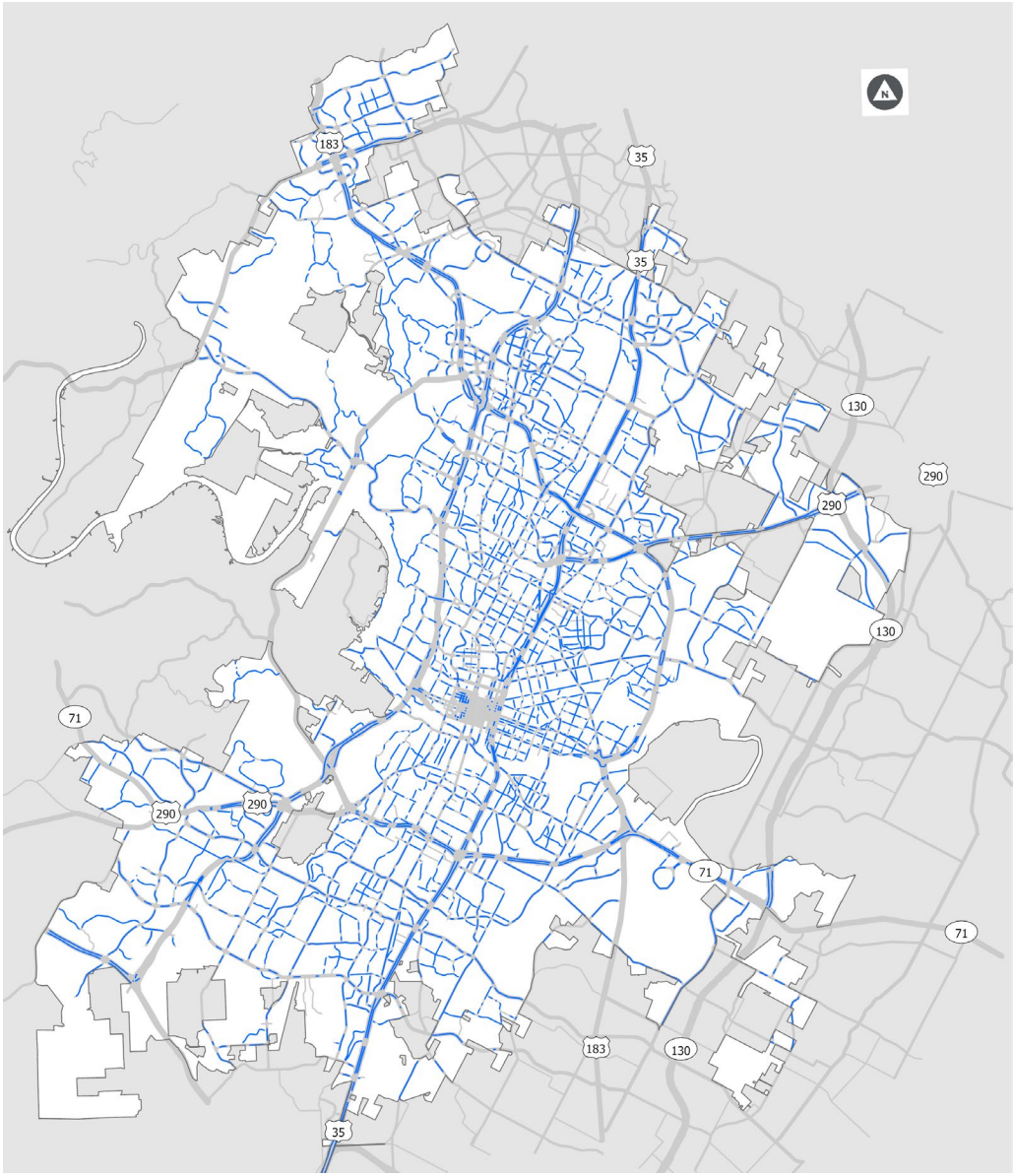


Figure 3-8 Corridor Crossing Gaps (Level 2, 3, and 4 Streets)

3.2.4. Crossing Gap Prioritization & Project Selection

A crossing gap prioritization model was developed to guide the selection of the most important gaps to address (see Figure 3-11). This model was designed to have alignment with the sidewalk and shared streets prioritization model but to incorporate the unique factors that influence safety at crossings. Community priorities for crossing improvements were identified during public engagement to verify and adjust the model. To be consistent with the ATX Walk Bike Roll Equity Framework, equity is the highest weighted factor at 30 percent.

Figure 3-11 Crossing Gap Prioritization Factors and Weights

Factor	Variable (Data Set)	Weight
Equity[3]	Proximity to Affordable Housing (within 1/8 or 1/4 mile) Pedestrian Health and Safety Status (health needs per ZIP code, based on factors such as crime statistics, obesity, diabetes, heart disease, and respiratory disease)	30%
Safety	Overlaps the Pedestrian High Injury Network Number of Lanes & Posted Speed Limit (more points awarded for more lanes and faster speeds)	25%
Demand/Trip Potential	Pedestrian Trip Potential (Inputs include: population, employment, college campuses, transit stops, parks, K-12 schools, and commercial activity)	20%
Requests	Was the project requested by ADA Task Force? Was the project requested by a resident through 311, a Council office, or ATX Walk Bike Roll public input process?	15%
Network Connectivity	For arterials (Level 4) and collector (Level 3 and 2) streets, are there complete sidewalks on both sides of the street?	10%
	Total	**100%**

What we heard about prioritizing crossings

When asked to where safe crossings were needed most, community members scored the following location types from 1 to 5, with 1 being least important and 5 being most important.

- *Streets with a history of serious or fatal pedestrian crashes* topped the list with an average score of 4.7.
- *Near K-12 schools* ranked second with an average score of 4.5
- *Near transit/bus stops and on busy streets with many cars or cars moving quickly* tied for third with average scores of 4.3.
- *Improved connections across major barriers such as highways, railroads and creeks* received a 4.2
- *Near neighborhood commercial districts* rounded out the list with an average score of 3.9.

3 In addition to this quantitative prioritization approach, the City's target is to address 50% of the crossing gaps in Focus EAZs by 2034.

Crossing gaps on Level 2, 3, and 4 streets were prioritized during the development of this plan. Gaps along frontage roads were not included in this analysis because the solutions to those gaps (typically bridges or underpasses) are significantly different than crossing treatments for surface streets. Figure 3-12 is a map of prioritized crossing gaps where darker colored lines indicate higher priority. There are clusters of high priority crossing gaps in East Austin and along many of the major corridors in the northern and southern parts of the city.

Figure 3-13 summarizes crossing gaps by priority and ASMP Street Level.[4] The majority of *Very High* and *High* priority crossing gaps are on Level 4 streets, which will need more expensive and substantial treatments to improve safety. *Very High* and *High* priority crossing gaps on Level 2 and some Level 3 streets can be addressed with less expensive treatments. Moving forward, the City will need to identify the right balance between making a few substantial investments on the busiest streets and making more widespread interventions on calmer roadways.

Figure 3-13 Miles of crossing gaps by priority and street level

Priority Level	ASMP Street Level			Transit Gaps
	Level 2	Level 3	Level 4	
Very High	4.6	38.4	54.8	4.9
High	52.7	73.1	76.4	17.0
Medium	87.1	42.3	29.9	16.8
Low	110.1	17.7	2.6	14.9
Very Low	14.4	3.4	0.1	6.4
Total	268.8	174.8	163.8	60.1

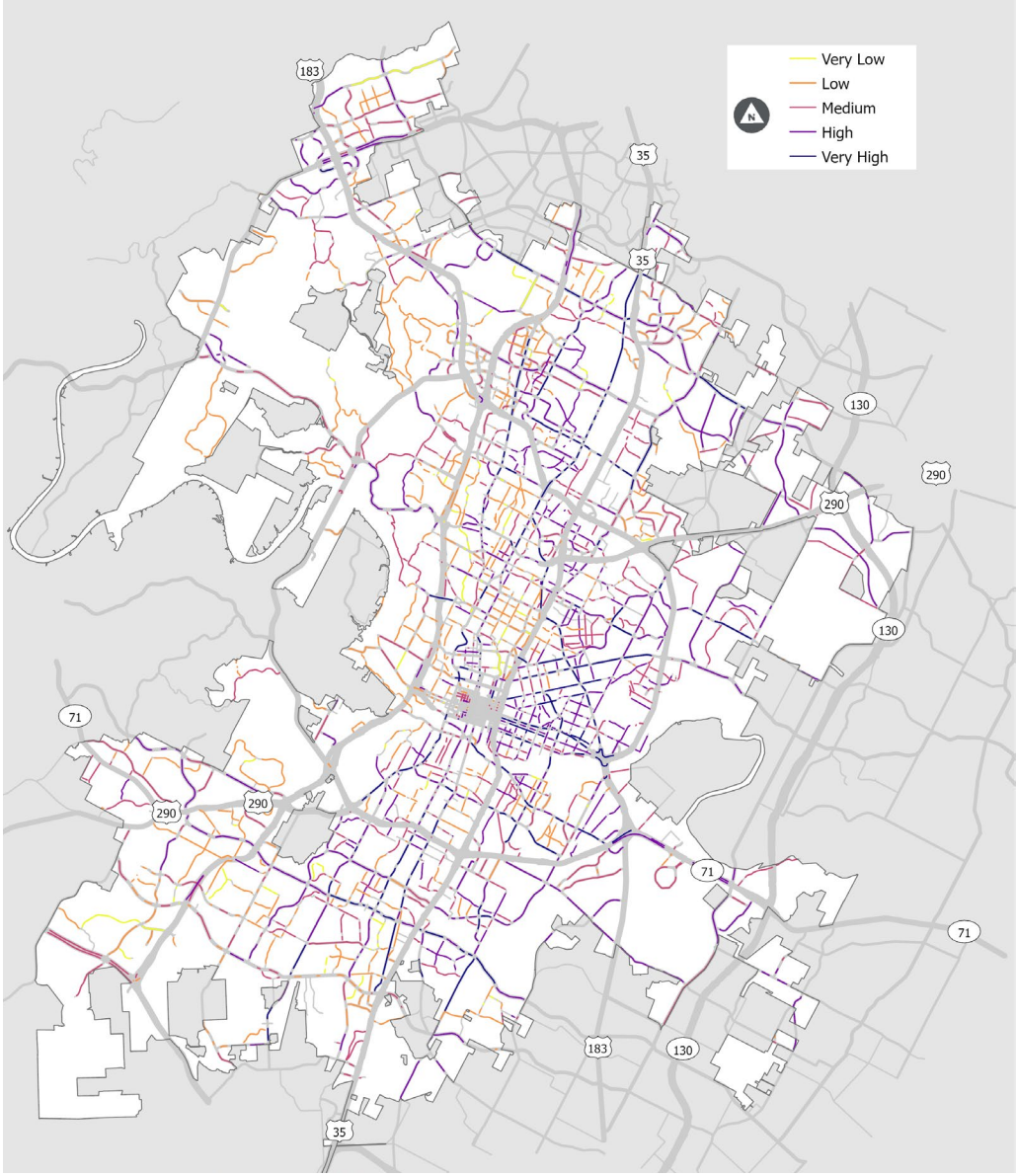


Figure 3-12. Map of prioritized crossing gaps. Darker colored lines indicate higher priority.

4 The City of Austin classifies all City streets by Level, with Level 1 streets being local/neighborhood streets and Level 5 being highways and freeways. Level 4 streets are often Farm to Market roads and other major thoroughfares, Level 3 streets are slightly lower intensity streets like Lamar Boulevard and South 1st Street, and Level 2 streets are yet lower intensity streets providing access to higher-level streets.

Figure 3-14 summarizes what portion of the gaps citywide and within Focus EAZs are prioritized by this plan.

Figure 3-14. Corridor Crossing Gap Summary

Area	Gap Total Length (mi).	Very High and High Priority Gap Mileage	Percent of Gaps Rated Very High and High Priority
Citywide	607	300	49.4%
In Focus EAZs	222	160	72.1%

Project Selection

Project selection will begin with the Very High and High priority crossing gaps and will be leveraged with other projects to build crossings that address crossing gaps. Examples include:

- Imagine Austin Centers and Corridors
- Other City projects, such as street maintenance, utility improvements, and facility access improvements
- 311 and ADA access requests
- Bicycle program and Urban Trails program projects
- Transit projects, such as improvements with new or relocated CapMetro stops, with particular priority for high volume transit locations, special use routes, or CapMetro Para transit priority locations
- Safe Routes to School Program
- Opportunities to leverage funding
- Records of automobile/pedestrian incidents
- Speed Management Program

3.2.5. Pedestrian Crossings Network Plan

There are 1,986 crossing gaps in Austin totaling 607 miles in length. The approach to (and cost of) addressing these gaps varies based on context and street level. The specific location, design, and selection of crossing treatments will vary from location to location and be based on the ATD Crossing Guidelines[5] and engineering judgement. The information below is presented to forecast the order of magnitude of building out the pedestrian crossing network.

Figure 3-15. Pedestrian Crossings Network Plan

Location	Typical Treatment Package[6]	Typical Cost Per Mile[7]
Level 2 Streets	High visibility crosswalk markings, parking restrictions, curb extensions, and/or crossing islands, RRFBs	$400,000
Level 3 and Level 4 Streets	High visibility crosswalk markings, curb extensions and/or median island, crosswalk warning signs, parking restrictions, enhanced lighting, advance Stop Here for Pedestrian sign, and stop line. Higher speed and/or higher traffic volume streets may include pedestrian hybrid beacons (PHB).	$900,000 - $1 million*
Transit-Adjacent Crossings	Treatment at transit-adjacent crossings is context dependent, but generally follows the above guidelines based on street level.	

***Cost does not assume inclusion of PHBs.**

Location	Total Length of Gaps (mi.)	Length of Very High and High Priority Gaps (mi.)	Estimated Cost per Mile	Total Cost	Cost of Very High and High Priority Gaps
Level 2 Streets	269	57	$400,000	$108 million	$23 million
Level 3 Streets	175	111	$900,000	$158 million	$100 million
Level 4 Streets	164	131	$1M*	$164 million*	$131 million*
Transit-Adjacent Crossings	60	22	$1.2M	$72 million	$26 million
City Total[8]	607	300		$502 million	$280 million

***Costs assume inclusion of PHBs due to assumed higher volume and higher speeds on Level 3-4 Streets.**

---

5 Crossing Guidelines.

6 The typical treatment packages here assume all the treatments listed are applied together, and is intended only to estimate a typical cost per mile for crossing enhancements. Treatment packages will vary from location to location based on context and engineering judgement.

7 Assumes 8 crossings per mile on Level 2 streets and 4 crossings per mile on Level 3 and 4 streets. Opinions of probable cost were developed by establishing rough quantities to determine a rough order of magnitude cost. These costs can vary widely depending on the exact details and nature of the work. The overall cost opinions are intended to be general and used only for planning purposes. Toole Design Group, LLC makes no guarantees or warranties regarding the cost estimate herein. Construction costs will vary based on the ultimate project scope, actual site conditions and constraints, schedule, and economic conditions at the time of construction.

8 Does not include mileage for transit gaps, which overlap other gap types.

3.2.6. Funding

Pedestrian crossing improvements are implemented through a variety of funding programs, including but not limited to major capital improvements projects, the Corridor Program, and Safe Routes to School. The 2018 and 2020 Mobility Bonds also provide funding for crossing improvements as part of larger safety/Vision Zero funding categories.

- The 2018 Bond includes $15 million for intersection and pedestrian safety improvements, with $4 million of that set aside for the Pedestrian Crossing Program.
- The 2020 Bond has $65 million for projects that reduce conflicts and improve safety for all road users through major roadway reconstruction and rapid implementation of low-cost, high-impact projects, with $4.1 million specifically for the Pedestrian Crossing Program.

The total cost of addressing all crossing gaps far exceeds these limited funds. To address and eliminate the highest priority crossing gaps by 2033, additional funding will be needed. Below is the new crossing program target and key recommendations for addressing crossing gaps in Austin:

Figure 3-16. Pedestrian Crossing Program Implementation Target, Schedule, and Budget for Fiscal Years 2024 - 2034

Target	Implementation Schedule	Estimated Annual Budget
Eliminate 50% of Very High and High-priority crossing gaps within Focus (*Most Vulnerable* and *Medium-High Vulnerable*) EAZs, along the Pedestrian High Injury Network (HIN), and/or within 1/4 mile of all identified schools, public transit stops and stations, and parks by 2033. (Approximately 144 miles)	14 miles of gaps per year (approx. 80-100 crossing enhancement projects per year)	$14 million per year

Implementing the Plan

4

This section identifies the strategies and action items that provide direction for achieving the City's goals for sidewalks, shared streets, and crossings. The strategies and action items include those identified during the process of developing this 2023 Plan, as well as recommendations from the 2016 Sidewalk Plan and 2018 Pedestrian Safety Action Plan that have not been completed or are in the process of being completed.

On the following pages, seven key strategies are identified and defined. For each strategy, a collection of action items is listed with timeframes.

4.1. Implementation Responsibilities

The main components of this plan—sidewalks, shared streets, and pedestrian crossings—work in concert. At the time this Plan was first drafted, these components fell under two different departments. By the time of adoption, the two departments had been combined and implementation of the Plan will be the primary responsibility of the Transportation and Public Works Department. Ongoing coordination amongst the department's programs as well as other Departments citywide will be vital to realize the goals of this plan.

Figure 4-1. Sidewalks, Crossings, and Shared Streets Implementation Approach

Element	Implementation Lead
Sidewalks and Shared Streets (Chapter 2)	Sidewalk Program
Pedestrian Crossings (Chapter 3)	Crossings Program

For the elements above, each implementation lead is individually responsible for inventorying and tracking infrastructure presence and condition, maintaining data and analysis tools, and updating prioritization as the city grows and evolves.

Mobility Annual Plan

The challenges of transforming and then maintaining a citywide sidewalk, crossing, and shared streets network requires a robust multi-programmatic and interdepartmental approach. The Sidewalk Program and Crossings Program provide technical support and coordination resources to the many other city programs that also work directly on pedestrian infrastructure. One of the primary coordination mechanisms is the Mobility Annual Plan, which aligns planned improvements by a variety of programs and agencies, including Sidewalks, Crossings, Vision Zero, the Corridor Mobility Program, Regional Mobility Program, Major Capital Improvements, Safe Routes to School, Urban Trails, Bikeways, Transit Enhancement, Neighborhood Partnering Program, Street Reconstruction, Substandard Streets / Capital Renewal, Project Connect, and Capital Metro.

Summary of 2023 Sidewalks, Crossings, and Shared Streets Plan Strategies

Overarching Strategies

1. Prioritize equity in the completion and maintenance of the pedestrian network by 1) allocating more resources in areas of historical inequity and ongoing vulnerability; and 2) providing stable and sufficient funding through the Transportation User Fee and/or other non-bond sources for sustainable repair and rehabilitation.
2. Provide safe, comfortable, and accessible pedestrian passage along and across every public street.
3. Collaborate with public and private partners using a Complete Streets approach to improving the pedestrian network.

Sidewalk & Shared Street Strategies

4. Improve efforts to assess the pedestrian network, and evaluate and communicate progress made toward achieving a safe and accessible pedestrian network.
5. Improve the condition of sidewalks and shared streets.

Crossing Strategies

6. Reduce the distance between low-stress crossings.
7. Enhance the safety and accessibility of existing crossings.

These strategies, and actions pertaining to each, are further described on the following pages.

Strategy 1

Prioritize equity in the completion and maintenance of the pedestrian network by 1) allocating more resources in areas of historical inequity and ongoing vulnerability; and 2) providing stable and sufficient funding through Transportation User Fee and/or other non-bond sources for sustainable repair and rehabilitation.

To enhance equity, capital and maintenance investments in pedestrian facilities are to be focused in areas that have higher concentrations of populations that have been historically marginalized. The Sidewalks, Crossings, and Shared Streets Plan uses Equity Analysis Zones (EAZs), which identify areas that include higher concentrations of historically marginalized populations and have more barriers to achieving equitable outcomes, to assess equity.

Action Items		Timeframe
1a	Use equity focused, data-driven prioritization models included in this plan to allocate sidewalk, safe crossing, and shared streets resources.	Ongoing
1b	Annually evaluate and report on the extents and condition of sidewalks, crossings, and shared streets in Focus (Most Vulnerable and Medium-High Vulnerable) EAZs relative to the areas outside of the Focus EAZs.	0-5 years
1c	Develop program to evaluate and systematically improve shade cover for sidewalks and transit stops in Focus (Most Vulnerable and Medium-High Vulnerable) EAZs.	0-5 years

2 Strategy 2

Provide safe, comfortable, and accessible pedestrian passage along and across every public street.

Pedestrian safety is defined as designing and operating streets in ways that reduce crashes between people walking and motor vehicle traffic. Pedestrian comfort includes enhancing the experience of walking through things like shade, art, and routes that are as direct and flat as possible. Comfort also includes addressing the perception of safety such as providing crossings that are short and low-stress, additional separation between sidewalks and motor vehicle traffic, and pedestrian lighting. Austin aspires to have a sidewalk and shared street network that connects the entire city and provides access to every property. There are existing gaps and missing links in the network. Installing sidewalks or shared streets to fill in the missing links is vital to provide pedestrian access for everyone and every destination throughout the entire city.

Action Item		Timeframe
2a	Identify existing City ordinances and state laws that can be strengthened, and explore potential new regulations needed to better promote pedestrian safety and priority.	Ongoing
2b	Include pedestrian safety as a primary consideration in the promotion and adoption of emerging mobility technologies, including autonomous and connected vehicle technology and regulations on the use of pedestrian space for autonomous robots and other similar devices.	Ongoing
2c	Review and amend Transportation Criteria Manual (TCM) and other city policies as needed to give priority to installation of missing sidewalks over maintaining existing parking or extra travel lanes (where multiple travel lanes in the same direction are provided) in constrained locations.[1]	0-5 years
2d	Amend the Transportation Criteria Manual (TCM) to identify shared streets as a suitable treatment in some contexts and allowing retrofit neighborhood streets to have sidewalk on only one side.	0-5 years
2e	Conduct a citywide lighting plan to recommend strategies to improve pedestrian-scale lighting along sidewalks, shared streets, and at crossings. Identify departmental roles and responsibilities, potential funding mechanisms, and needed code reforms to support the implementation pedestrian lighting.[2]	5-10 years
2f	Continue to work with CapMetro, Safe Routes to School, and school districts to improve pedestrian safety and accessibility around transit stops, school bus stops and across railroad tracks.	Ongoing
2g	Review and update city policies, procedures, and design standards to minimize impacts of waste containers to accessible routes.	0-5 years

1 Tree removal for sidewalks will follow the same requirements as other construction in the city, which includes avoiding heritage trees and mitigating through new tree plantings.
2 Action item identified in the 2018 Pedestrian Safety Action Plan.

What we heard about shade and lighting

Ambassador engagements and focus group discussion participants frequently reported a lack of shade and a lack of lighting along the right-of-way to support a comfortable walking, biking, and/or rolling experience. 28% of survey respondents chose this as a top concern.

Almost 90% of respondents (92% of focus population respondents) strongly or somewhat support the statement "active transportation routes, such as sidewalks, bikeways, urban trails, and pedestrian crossings, should have comparable lighting to roads and highways" and almost 80% of respondents (81% of focus population respondents) "support increasing the operations and maintenance budget" for the city to install more trees, water fountains, and benches in the public right-of-way.

"Heat island effect is a real barrier, especially as climate change ramps up. Shade is critical in addition to the actual safety of pedestrians and bike, etc. Include in plans tree plantings wherever possible along any sidewalk, trail, and bus stop."

—Community member comment, October 2021

Action Item		Timeframe
2h	Enhance visual interest and environmental resiliency by incorporating green infrastructure, park-like enhancements, and pedestrian safety priorities into sidewalk projects by removing unnecessary pavement and introducing rain gardens, shade trees, and low maintenance landscaping wherever it is feasible and cost effective.	Ongoing
2i	Review and update city standards as needed to ensure adequate shade along pedestrian routes.	0-5 years
2j	Expand the Neighborhood Shared Streets pilot program to evaluate alternative strategies for safe and cost-effective pedestrian access.	0-5 years
2k	Update applicable city codes to require sidewalk construction with development and limit the use of fee-in-lieu of sidewalk construction consistent with this plan.	0-5 years
2l	Identify planned shared streets that currently function safely as shared streets and do not require shared street signs or physical improvements, and formalize criteria used to make this determination.	0-5 years
2m	Develop art in public places program (AIPP) in coordination with Shared Streets projects.	0-5 years
2n	Review and update city standards to require minimum spacing of bike and pedestrian connection points at multifamily/ large parcel developments.	0-5 years
2o	Create incentive for creating/retrofitting bike and pedestrian connections at multifamily/large parcel developments that adjoin right-of-way, city owned properties, and/or public access easements. Work with property owner/managers to ensure gate access through fence is safe, well lit, and secure.	0-5 years
2p	Prioritize the safety of pedestrians as autonomous vehicles continue to develop and are tested on our roadways. Particular attention should be given to speed limits for autonomous vehicles in shared streets and streets without sidewalks as the nature of these streets requires drivers and AVs to share street space with all users.	Ongoing
2q	Proactively engage with autonomous vehicle companies to test AVs' behavior on shared streets.	Ongoing

3 Strategy 3

Collaborate with public and private partners using a Complete Streets approach to improving the pedestrian network.

There are many potential partners in delivering on policies and goals, such as school districts, non-profits, community-based organizations, businesses and other private organizations, regional planning agencies, and the state agencies. Many partner agencies will realize benefits from expanded and enhanced pedestrian facilities. Partner agency resources can be used to enhance the City's resources, providing not only funding, but a more comprehensive approach to pedestrian enhancements.

Action Item		Timeframe
3a	Explore opportunities for pre-construction outreach to Planning, Watershed, Economic Development, Parks and Recreation, and other departments to use sidewalk and crossing improvements as catalyst for encouraging coordinated public and private investments in streetscape improvements, green infrastructure, and other improvements.	5-10 years
3b	Coordinate with schools/school districts on the siting for new schools to promote walking to school. A major consideration should be the site's proximity to residential units and safe and comfortable pedestrian access.	5-10 years
3c	Promote pedestrian safety and seek funding for pedestrian facilities in programs, plans, and policies developed in conjunction with the Capital Area Metropolitan Planning Organization (CAMPO).	Ongoing
3d	Work proactively with Texas Department of Transportation (TxDOT) and Central Texas Regional Mobility Authority (CTRMA) to ensure that safe and convenient pedestrian access is provided along the full length of all TxDOT/CTRMA roadways, including but not limited to installation of suitable sidewalks and/or shared use paths and safe pedestrian crossings as part of every TxDOT or CTRMA improvement project.	Ongoing
3e	Develop and implement Americans with Disabilities Act (ADA) accessibility training program for city staff and contractors working in the public right-of-way.	0-5 years
3f	Develop consistent processes to ensure that all work in the right-of-way adheres to City of Austin Complete Streets policy including installation of new sidewalks and safe crossings and repair and rehabilitation of existing sidewalks for ADA compliance.	Ongoing
3g	Continue working with CapMetro to seek opportunities to provide safe, convenient, accessible pedestrian access to transit stops and stations.	Ongoing

Strategy 4

Improve efforts to assess the pedestrian network, and evaluate and communicate progress made toward achieving a safe and accessible pedestrian network.

It is vital to understand how pedestrian investments impact safety and accessibility of the pedestrian network and move the community toward achieving its goals. Regular and routine data collection, evaluation, and reporting will help determine if efforts are leading to the desired outcomes and where changes in approach are needed.

Action Item		Timeframe
4a	Lead neighborhood walkability audits with Austin residents, businesses, and advocacy groups to identify opportunities to improve the safety and walkability of their neighborhoods.	5-10 years
4b	Evaluate and report on the effectiveness of existing and newly installed pedestrian facilities to help inform Austin-specific strategies.	Ongoing
4c	Periodically update pedestrian crash records with detailed crash type information and work with partner agencies to improve crash record data collection and reporting. Explore opportunities to supplement pedestrian crash data with local hospital or Emergency Medical Service data to get a more complete picture of traffic-related pedestrian injuries.	Ongoing
4d	Improve data collection on sidewalk construction by public and private developments to support implementation of City of Austin Complete Streets policy.	0-5 years
4e	Identify interdepartmental opportunities to collaboratively report on performance measures in support of citywide goals	0-5 years

5 Strategy 5

Improve the condition of sidewalks and shared streets.

Investments in the sidewalk and shared street network are only useful if they are in acceptable condition and properly maintained. Having pavement and tree limbs obstructing pedestrian routes are just a few examples that make pedestrian travel difficult, especially for people with disabilities. It is important that there is a collective understanding of who is responsible for maintenance and that routine maintenance, repair, and rehabilitation is performed to provide a safe, functional, comfortable, and accessible pedestrian network.

Action Item		Timeframe
5a	Provide stable and sufficient funding through Transportation User Fee and/or other non-bond sources for sustainable repair and rehabilitation of existing sidewalks, shared streets, and crossings.	Ongoing
5b	Continue to develop, formalize, and implement the vegetative obstruction removal program to enhance functionality of the sidewalk by promoting property owner vegetation maintenance responsibilities, clarifying code requirements, enforcing, and proactively managing (by the City) public tree obstructions.	0-5 years, then ongoing
5c	Implement ongoing sidewalk condition assessment program that assesses at least 10% of the existing network annually using the equity based prioritization model in this plan to guide data collection. The program should also focus on transit areas.	Ongoing
5d	Develop and implement an ongoing shared streets condition assessment program that assesses at least 10% of existing shared streets annually. The assessment needs will be different than the approach for sidewalks. The City will need to evaluate needs and develop an assessment approach.	0-5 years
5e	Develop a process to proactively identify, and work with asset owners to relocate, permanent obstructions (e.g. utility poles, utility boxes, traffic signal control cabinets, etc.) that are within the pedestrian travel zone to improve pedestrian comfort and meet accessibility requirements.	Ongoing
5f	Implement a strategy to reduce obstructions caused by shared/rental scooters parked on sidewalks, exploring options including regulatory/enforcement approaches and infrastructure/design solutions.	0-5 years
5g	Engage with neighborhoods—in areas with expansive soils or other conditions that make sidewalk maintenance particularly challenging—to evaluate the efficacy of a program that removes existing poor condition sidewalk on one side of a residential street and/or converts the street to a shared street.	5-10 years
5h	Develop a program to proactively address debris accumulation on sidewalks in the City of Austin including Texas Department of Transportation rights-of-way.	0-5 years

6 Strategy 6

Reduce the distance between low-stress crossings.

Streets, especially those with high motor vehicle volumes and speeds, create barriers to pedestrian travel. The distance between low-stress crossings along streets impacts the functionality of the pedestrian network. Large gaps between low-stress crossings can cause pedestrians to cross at unsafe locations. The City of Austin Transportation Criteria Manual states that crossings should be provided at frequent intervals to ensure safe pedestrian crossings, avoid crossing delay, discourage unsafe and illegal crossings, and promote walking as a chosen mode of transportation. It also provides maximum desirable spacing between marked crossings.

	Action Item	Timeframe
6a	Provide resources for a pedestrian crossing program to install large numbers of high-impact, cost-effective pedestrian treatments throughout Austin.	0-5 years, then ongoing
6b	Implement at least 100 pedestrian crossing projects each year to promote safe pedestrian mobility in Austin to mitigate the barriers that busy streets create for pedestrian travel.	Ongoing
6c	Seek additional capital funding measures to construct priority pedestrian crossing projects.	Ongoing
6d	Actively seek outside funding, such as grants and partnerships, to construct priority pedestrian crossing projects.	Ongoing
6e	Enact key land development code updates that clarify responsibilities and ensure developers construct new crossings and upgrade existing noncompliant pedestrian crossings during property development and redevelopment.	0-5 years
6f	Reevaluate the presence of crossing gaps annually and update prioritization using updated input data.	Ongoing
6g	Continue to coordinate internally and with external partners to construct safe crossings.	Ongoing

7 Strategy 7

Enhance the safety and accessibility of existing crossings.

Barriers can limit the accessibility of existing pedestrian crossings, especially for individuals with disabilities. Removing barriers to accessibility, such as installing ADA-compliant curb ramps, providing smooth and level crossing surfaces, and regularly removing debris can enhance crossings and the functionality of the entire pedestrian network.

	Action Item	Timeframe
7a	Develop an ADA Transition Plan for Crossings, which which will include, at a minimum, an inventory of physical barriers and proposed methods to remove them, a schedule for barrier removal, identification of a public official responsible for plan implementation, proposed funding sources, and public input opportunities.	0-5 years
7b	Implement a program to address repaired, rehabilitated, or improved pedestrian crossings to enhance safety and accessibility, such as reducing the crossing distance, enhancing sight distances, reducing motor vehicle speeds, increasing nighttime lighting, providing pedestrian crossing islands, and providing ADA accessible features.	5-10 years
7c	Provide stable and sufficient funding for sustainable repair and rehabilitation of existing pedestrian crossings.	Ongoing
7d	Leverage regular pavement rehabilitation and utility work to implement new crossings when streets are repaved.	Ongoing

ADA Transition Plan for Crossings

The Americans with Disabilities Act (ADA), signed in 1990, mandates in Title II, Subpart A, that public entities establish and maintain a Transition Plan to achieve full accessibility of existing public infrastructure, including pedestrian crossings within public right-of-way.

While City staff have considered and incorporated accessibility into crossing designs, a full inventory and plan for transition is warranted. A transition plan is a step toward a more accessible and equitable pedestrian network. According to federal law, ADA transition plans require:

- Inventory of physical barriers and proposed methods to remove them
- Schedule for barrier removal
- Public official responsible for plan implementation
- Proposed funding source for improvements
- Opportunity for individuals with disabilities to provide input

THIS PAGE INTENTIONALLY LEFT BLANK.

City of Austin

Sidewalks, Crossings and Shared Streets Plan

November 30, 2023

Appendices

Appendix A: ATX Walk Bike Roll Process Summary

Appendix B: Sidewalk Plan History

Appendix C: ATX Walk Bike Roll Crash Analysis

Appendix D: Network Scenarios

Appendix E: Sidewalk and Shared Street Network Plan Map

Appendix F: Sidewalk and Shared Street Project Prioritization Methodology

Appendix G: Sidewalk and Shared Street Conditions and Priorities (Maps and Tables)

Appendix H: Crossing Gap Identification and Prioritization Methodology

Appendix I: Crossing Gap Maps

January 2023

ATX Walk Bike Roll Process Summary

ATX Walk Bike Roll use the Equity Office's definition of equity:

"the condition when race no longer predicts a person's quality of life outcomes in our community."

Racial equity was the primary consideration through which ATX Walk Bike Roll considered the distribution of benefits gained and burdens placed on communities from access or lack of access to pedestrian crossings, sidewalks, bikeways, and urban trails. Other considerations like socioeconomic status, age, disability status were also key factors.

ATXWBR Overview

ATX Walk Bike Roll was a coordinated effort by the City of Austin's Public Works Department and the Transportation Department to update Austin's Sidewalks, Crossings, and Shared Streets Plan; Urban Trails Plan; and Bicycle Plan. These plans guide how the City builds urban trails, sidewalks, shared streets, pedestrian crossings, and bikeways and identifies where they are needed most. For more information about ATX Walk Bike Roll, visit: AustinTexas.gov/ATXWBR.

Guiding Documents

The ATX Walk Bike Roll process—from community engagement to writing the three plans—centered equity and inclusion to create a more just transportation decision-making process and build lasting partnerships across Austin. The process and this commitment to inclusion were guided by three documents:

1. Equity Scan

The Equity Scan included a review of 20 recent planning initiatives in Austin and engaged 17 stakeholders from 12 organizations dedicated to equity, anti-displacement, public health, accessibility, and education. The goal was to understand, through the lens of community voices, how the City of Austin has incorporated equity into its plans, initiatives, processes, and outcomes, and where there are lessons to be learned. Conversations with local leaders highlighted priorities that ATX Walk Bike Roll should center, which were incorporated into the Public Outreach Plan and planning process. View Appendix A.1 for the Equity Scan.

2. Equity Framework

The Equity Framework is a tool for accountability to guide decision-making during the ATX Walk Bike Roll process and afterwards during plan implementation. The development of the Equity

This document refers to Appendices A.1 through A.6. Those can be viewed here.

Framework builds off past and ongoing work from the City's Equity Office and was informed by stakeholder guidance from the Equity Scan and the Public Outreach Plan. The Equity Framework also identifies approaches to defining and considering geographic areas with infrastructure disinvestment, lower access to opportunity, and/or concentrations of underserved populations. ATX Walk Bike Roll used the Equity Analysis Zones developed in 2021 by the Austin Transportation Department and an Advisory Team of community members. Equity Analysis Zones are areas in Austin that have higher concentrations of historically marginalized populations and more barriers to achieving equitable outcomes.

These Equity Analysis Zones were developed using weighting data from the United States Census that reflect an area's social and economic vulnerability. The Equity Analysis Zones are classified into five categories from Least Vulnerable to Most Vulnerable. Throughout the planning process, input by residents within the Equity Analysis Zones was used to identify disparities in the existing and planned pedestrian networks, safe crossings, bike networks, and urban trails. Additionally, comparisons were made between Most Vulnerable/ Medium-High Vulnerable Equity Analysis Zones and the rest of the city to identify where resources should be prioritized. View Appendix A.2 for the Equity Framework.

3. Public Outreach Plan

The Public Outreach Plan included steps for engaging the community as a whole and established a tailored strategy to engage focus populations (defined as Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income) about the challenges and opportunities facing historically underrepresented groups. View Appendix A.3 for the Public Outreach Plan.

Messaging, Tools, & Tactics

We held two Virtual Open Houses:

The first Virtual Open House was held on Zoom on August 11, 2021, introducing the project and goals. The video presentation was posted online which was attended and later viewed by at least 729 people. The second Virtual Open House was hosted on an interactive webpage and open between September 7 and October 23, 2022 and focused on the project's three scenarios for how the City of Austin can continue building urban trails and bikeways. An estimated 11,900 people visited this virtual open house. Both meetings were posted online for ongoing viewing.

We sought input through three surveys:

- **June 14 – September 26, 2021:** 4,411 people gave their input, on a survey and/or poll asking what residents value about the city's pedestrian and bicycle pathways, and their main concerns and desires for the City's pedestrian and bicycle networks.
- **January 18 - March 7, 2022:** A Mapping Survey was launched online and on paper, including both English and Spanish options. 9,778 people viewed the mapping site and 4,542 people provided survey responses. 2,807 placed markers on the map to indicate challenges, gaps, and opportunities related to walking and biking in Austin.
- **September 7 - October 23, 2022:** 2,108 people provided survey responses to either online or paper surveys which proposed three scenarios for how the City of Austin can continue building the pedestrian network, urban trails, and bikeways, asked about policy ideas and how to prioritize pedestrian crossings.

The Community Ambassadors engaged focus populations:

In August and September 2021, Community Ambassadors reached 316 people and shared 600 social media surveys. They completed 125 event reports, which documented community events or conversations where they spoke to people about walking and biking in Austin. Ambassadors used a wide range of engagement activities, including: one-on-one conversations, small group discussions, tabling at local events or along busy corridors and urban trails, emails, social media, video chats, distributing flyers to local Housing Authority of City of Austin (HACA) developments and schools, and hosting other candid conversations with focus populations (defined as Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income).We employed print, broadcast, news media, emails, and social media to spread information and increase awareness about the project:

Marketing tools included emails, flyers, social media ads, social media posts, newsprint ads, media advisories, email campaigns, interviews with journalists, video production, website updates, and the utilization of partner organization's communication channels.

We attended community events and gave presentations to community groups and Boards and Commissions:

In Phase 1, 130 tabling events and awareness activities, including two in-person events at the Mexican American Consulate and at the Boys and Girls Club of the Austin Area. We also made presentations about the project as part of six community group meetings. In Phase 3, we attended 12 tabling events, and presented at four boards and commissions and at three community groups.

We hosted Focus Groups:

Six focus group discussions were held during Phase 1 with the objectives to present the project; understand stakeholders' interests, needs, and concerns; and facilitate deep-dive discussions about the project. 27 people participated in the Focus Group discussions, with group sizes ranging from 1 to 10 people.

What We Did

13 Presentations
4 to City of Austin Boards & Commissions
9 to community groups

12,637 participants in two Virtual Open Houses

2,709,000 digital media impressions generated through promoted and organic social media posts

27 focus group participants

10,650 survey respondents in three separate surveys

Emails & calls to over **800** individuals and key organizations

142 scheduled community tabling events & awareness activities in focus population communities, which engaged **6,192** participants

Throughout the planning process the public was engaged using a wide range of methods to help shape the direction of the plan, as detailed above.


Capitol


METRO
300
METRO

How Public Input was Used to Develop the Plans

Strategies and Action Items

Community input highlighted the need to center equity, affordability, comfort, and connectivity in the plans. Specific concerns that came up repeatedly (especially amongst focus populations- defined as Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income) were expanded into plan goals, strategies, and action items.

Network Development

People were asked to identify where they'd like to see improvements to Austin's walking and biking routes. The data people provided guided changes to the Proposed Urban Trails Network and Proposed All Ages and Abilities Bike Network. Data on challenging crossings was used to help prioritize pedestrian crossing projects.

Scenarios

Three urban trails and bikeways scenarios (which were oriented around different ways of prioritizing network expansion) and three sidewalks and shared streets scenarios (which explored building different proportions of sidewalks and shared streets) were presented to the public for feedback. Input on these scenarios shaped overall plan direction regarding targets and strategy development.

Project Prioritization

Through surveys and Community Ambassador input, participants told us what considerations should be used when projects are prioritized. This input was used to create or update data-driven prioritization methods for the urban trails and bikeways plans and to better emphasize equity as a prioritization factor.

Design Guidelines

Several aspects of the Design Guidelines were informed by public input. For example, heat and climate change were identified by many people, and people of color and people with low incomes are especially burdened by these challenges. The importance of shade and reducing pavement factored into new design guidelines for urban trails and strategies to reduce paving through the use of shared streets.

Partnerships and Actions Beyond ATX Walk Bike Roll

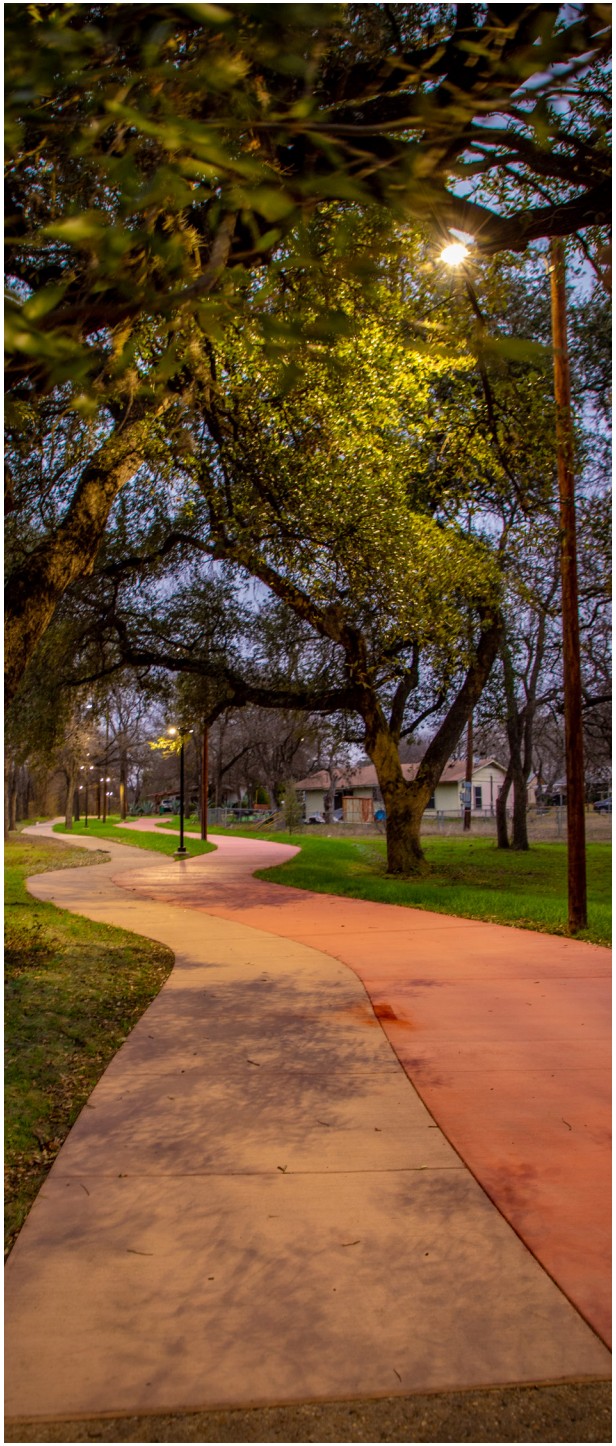
Public input identified the need for action around equity, anti-displacement efforts, and affordability that go beyond the purview of the Austin Public Works and Transportation Departments. These issues and actions were collected for consideration in a future update of the Austin Strategic Mobility Plan and by other City departments.

Did We Meet Our Goals for Inclusive Engagement?

The following goals were articulated in the Public Engagement Plan.

1. Implement a process that carries out the recommendations and guidance outlined in the project's Equity Framework and results in participation that exceeds the racial/ethnic and income demographic makeup of the city.
2. Prioritize engagement with stakeholders from historically underrepresented and underserved populations by collaborating with community organizations with access and credibility to these populations. Value this expertise through incentives and/or compensation for time.
3. Create awareness of ATX Walk Bike Roll and associated Plan Updates, the public input needed, and the overall update process.
4. Present information in a manner that respects native languages and is culturally appropriate.
5. Provide a variety of methods for public participation that are accessible in terms of language, technology literacy, location, and time so that people from focus population groups may easily participate in the process.
6. Gain substantive insights from the public input process that establishes a vision for each of the Plan Updates and guides the technical elements of the updates.

As described in the Phase Summaries below, goals #2 through #6 were met. Regarding Goal #1, the Community Ambassador program and other targeted efforts resulted in deep and broad engagement with people from historically underrepresented groups and annual household income under $50,000. However, as shown in Table 1 and 2, participation from People of Color and people with lower incomes did not exceed the racial/ethnic or income makeup of Austin. Although this goal was not met, demographic questions asked as part of outreach activities allowed the project team to review responses from the focus population separately (defined as Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income), to review differences and elevate input received from those respondents.



Racial/Ethnic Identity Groups	City of Austin	Phase I Engagement	Phase II Engagement	Phase III Engagement
Asian	7.6%	4%	4.5%	6%
Black or African American	7.8%	4%	1.5%	4%
Hispanic/Latinx	33.9%	16%	12%	21%
Native/Indigenous	0.7%	0.7%	0.3%	1%
Self-Described	3.6%	1.3%	12.2%	2%
White	72.6%	55%	60%	51%
Prefer not to say (+Skipped Question)	N/A	19.2%	12%	15%

TABLE 1. RACIAL IDENTITIES OF PARTICIPANTS IN ATX WALK BIKE ROLL ENGAGEMENT

(NOTE: This is estimated, since we did not collect demographic data on every single person who engaged in the process. However, we did so when possible, so the data below reflects the best information available about the participants in the process. This is collected demographic information collected from the Community Ambassador outreach efforts and the surveys, combined.)

Yearly Household Income	City of Austin	Phase I Survey	Phase II Survey	Phase III Survey
Less than $50000 ($0 - $49000)	30.9%	12.18%	7.96%	12.86%
More than $50000 ($50000-$150000+)	69.2%	58.81%	63.69%	67.28%
Prefer not to answer	N/A	29.02%	28.35%	19.87%

TABLE 2. YEARLY HOUSEHOLD INCOME OF SURVEY PARTICIPANTS

(NOTE: This is estimated, since we did not collect demographic data on every single person who engaged in the process. However, we did so when possible, so the data below reflects the best information available about the participants in the process.)

PLAN KICKOFF

Equity Scan & Equity Framework

Engagement

PHASE 1

Aug–Sept 2021

Preferences & Needs

We asked:

- "How you get around Austin and how you'd prefer to get around."
- "What are your concerns or frustrations?"
- "What is comfortable/uncomfortable?"

How we engaged:

- Plan Ambassadors
- Online Surveys
- Online Public Meeting
- Virtual Open House
- Focus Groups

PHASE 2

Jan–March 2022

Opportunities & Barriers

We asked:

- "Where are there barriers?"
- "Where do you want new connections?"
- "Where are challenging crossings?"

How we engaged:

- Plan Ambassadors
- Pop-Up Events
- Online Input Map

PHASE 3

Sept–Oct 2022

Scenarios & Policy Concepts

We asked:

- "Which approach to building networks and prioritizing projects do you like?"
- "What major policy changes should the City consider?"

How we engaged:

- Plan Ambassadors
- Online Surveys
- Virtual Open House
- Pop-Up Events

PLAN PUBLIC REVIEW

Phase Summaries

ATX Walk Bike Roll engagement was organized around three primary phases, illustrated in the graphic to the left and further described on the following pages.

Phase 1: Preferences and Needs

From August through September of 2021, Phase 1 of engagement sought to connect with residents – particularly those that have been historically underrepresented in past City planning efforts (Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income) – to raise awareness about ATX Walk Bike Roll and collect insight on how urban trails, sidewalks, pedestrian crossings, and on-street bicycle infrastructure impacts quality of life.

The objectives of Phase 1 were to:

- Raise awareness of ATX Walk Bike Roll
- Document the experiences of residents when using active transportation infrastructure
- Share ATX Walk Bike Roll's purpose, goals, challenges, and the planning process
- Create trust and build relationships with focus populations, guided by the Equity Framework
- Understand how residents currently get around Austin, their concerns about active transportation, and what improvements they'd like to see.
- Use public input to guide the development of scenarios for bikeways, trails, and sidewalks in Phase 3

Phase 1 of ATX Walk Bike Roll sought to create new industry best practices for prioritizing the lived experiences of underrepresented communities in planning efforts. Phase 1 engagement activities included surveys, small group events, and a pre-recorded virtual public meeting. Some Phase 1 activities also had to be adapted to the changing circumstances of the COVID-19 pandemic.

To center diverse populations in the engagement process, Phase 1 Public Outreach activities had a wide reach. Focused strategies — including Community Ambassador outreach, focus groups, and collaboration with community organizations that center equity in their mission and programs — successfully boosted engagement among Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income. Broader methods like the online survey and the virtual public meeting disproportionately represented high-income and White populations. This emphasized the importance of focused strategies, particularly the Community Ambassador Program, as vital to reaching low-income communities and communities of color.

Community Ambassadors were much more successful in reaching focus populations (defined as Black, Hispanic/Latinx, and other People of Color, and those earning less than 80% of the median household income) compared to

broader engagement methods like surveys and public meetings. Because of the successes of Community Ambassadors, the Public Outreach Plan was restructured to extend their work into Phases 2 and 3 of engagement efforts and strategies were modified to prioritize efforts designed to achieve better demographic representation to calls for engagement.

Across engagement efforts in Phase 1, participants from focus population communities expressed confusion and/or planning fatigue because of the simultaneous outreach efforts addressing upcoming transit investments in Austin. Phases 2 and 3 sought to improve on this by enhancing coordination and synchronization of messaging between the efforts, clarifying distinctions between various transportation-related projects, and sharing engagement results between projects.

More detail on outreach and a summary of public input is in Appendix A.4 Phase 1 Summary.

Phase 2: Opportunities and Barriers

Phase 2 engagement took place from January through March of 2022. A map-based outreach approach was utilized to record feedback from community members. This informed prioritization models in alignment with our Equity Framework to ensure that implementation plans match demonstrated need.

Feedback, preferences, and concerns from focus populations in Phase 1 were examined and elevated as the project moved into this Phase of engagement. Increased investment was given to the Community Ambassador program which transitioned from being managed by the consultant team to being managed by City of Austin staff in January.

Objectives for Phase 2 engagement were to:

- Explore themes and priorities heard from Phase 1
- Identify important gaps in the urban trail and bikeway networks, locations of barriers, opportunities for new urban trail or bikeway connections, and places where crossing the street is challenging
- Envision opportunities to improve connections to transit
- Gather preferences on active transportation programs like Smart Trips and Shared Streets
- Understand what is and is not working as it relates to facility maintenance
- Digest specific displacement concerns in order to craft a responsive plan for action in collaboration with ongoing anti-displacement efforts in Austin

Phase 2 engagement activities included Social Pinpoint/Online Mapping Tool available in English and Spanish; paper maps and paper surveys utilized by Ambassadors; tablet-based access to the online mapping tool delivered by Ambassadors; pop up events, shared street pop-up events hosted by Austin staff and supported by

Ambassadors; and continued Ambassador reports.

Community Ambassadors were equipped with tablets to encourage community members without easy access to a computer to take the digital survey. However, technological barriers and internet access issues prevented tablets from being a successful outreach tool. Nevertheless, through conversations and the use of paper maps, Community Ambassadors were able to continue receiving feedback.

Community Ambassadors also began functioning as project advisors providing feedback on design guidance in March. That feedback was invaluable. The engagement plan was modified to allow Community Ambassadors to continue to engage with community members and to formally utilize Community Ambassadors as advisors to the project and sponsor team. The online survey tool was also promoted through Austin's traditional communication channels. 9,778 people viewed the site and 3,319 people provided input or upvoted comments. Participants left a total of 2,807 markers on the map and completed 4,542 survey responses. The survey metrics included responses to the demographics survey as well as to questions about the markers dropped on the map.

This survey effectively captured network gaps and challenges for people with technological access and skills but required internet access, technological knowledge, and larger screens to easily drag, drop, and draw desired connections on computers, phones, or tablets. To mitigate skewed results the project team again examined and prioritized responses from people in focus populations weighting those responses more heavily.

More detail on outreach and a summary of public input is in Appendix A.5 Phase 2 Summary.

Phase 3: Scenarios and Policy Concepts

September and October of 2022 focused on presenting major plan elements for public feedback. Community members were asked to rate their level of support for three Urban Trails and Bikeways and Sidewalk and Shared Street scenarios. Phase 3 also asked if participants supported transportation policies that were meant to reduce transportation costs in an equitable way and address hidden subsidies that currently favor automobiles above other transportation options.

The objectives of Phase 3 were to gather feedback to shape:

- Network plans for urban trails and bikeways
- How large a role shared streets should play in Austin's future pedestrian network
- Prioritization methods for urban trails, bikeways, and pedestrian crossings
- Transportation policies to improve equitable outcomes from infrastructure investments

Phase 3 presented a key moment to make major decisions about where to direct new investment in walking, biking, and rolling infrastructure. The options presented in the Phase 3 survey were

created using input from Phases 1 and 2. The Phase 3 survey, offered in English and Spanish, was available online and as a paper version, and used non-technical language and images to convey complex concepts. A shortened paper version of the survey focused on key issues and was used at tabling events in focus population communities.

Community profiles were written using past input to convey the challenges and opportunities that low-income residents and/or communities of color shared to a broad audience.

In conveying the transportation realities faced by these focus populations, all survey participants could better understand how planning decisions might impact the lives of various residents. These community profiles were also used throughout Phase 3 tabling efforts and within our information packets as a way to humanize data. Profiles were born out of conversations with Community Ambassadors who questioned the efficacy of highly curated presentations complete with new terms and concepts. These were used to guide the creation of options for how to prioritize investments.

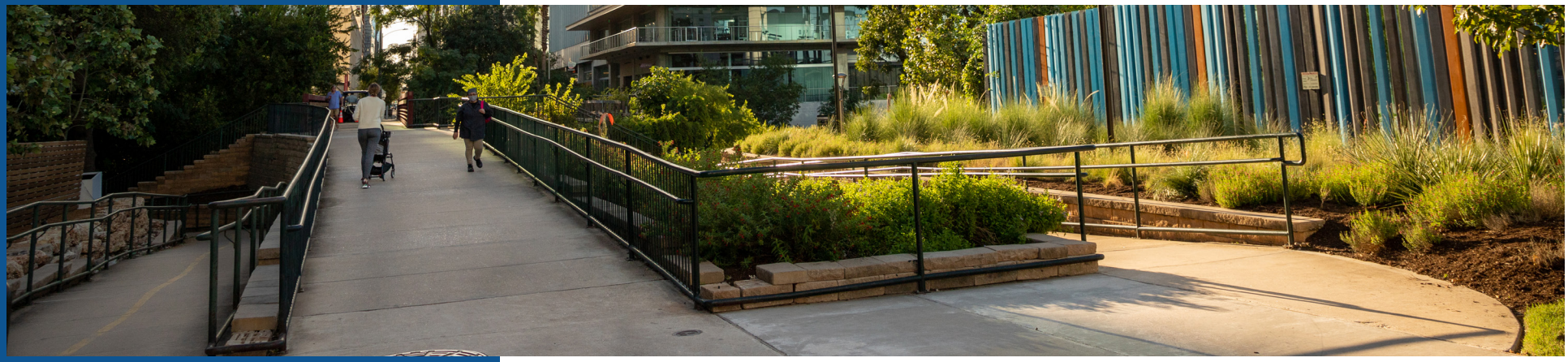
The next engagement opportunity to provide feedback involved gathering input on a series of sidewalk, bikeways, and urban trails implementation scenarios. Participants gave input on their level of support for each scenario and provided input on elements they did and did not like about each proposal. Policy considerations were also included with the desire to gain input on broad and important issues not solely transportation related, including affordability and displacement, climate resiliency and other key issues raised by focus populations over the first two engagement rounds.

The project team recognized that all Phases of engagement were significantly oversampling predominately white and wealthy residents. This was addressed in three ways.

1. Responses from low-income respondents and from People of Color were examined more closely.
2. Concerns and opportunities raised in Community Ambassador reports became central in decision making.
3. Community Ambassadors were enlisted as advisors in decision making.

These sources of information influenced the design of policy recommendations to address the many overlapping concerns that the focus populations expressed across all Phases of engagement.

More detail on what we did and a summary of key themes from the input received is in Appendix A.6 Phase 3 Summary.



“... to move beyond community engagement and into community partnerships.”

Looking Ahead to Next Steps

ATX Walk Bike Roll sought to move beyond community engagement and into community partnerships. Understanding and acknowledging past harmful policies—in Austin generally and by the transportation profession specifically—enabled project staff to work with historically marginalized community members (defined as Black, Hispanic/Latinx, and other People of Color) to test new approaches rooted in cultural responsiveness. historically marginalized community members engaged throughout this process also expressed an expectation that these sentiments be backed by action to ensure that key concerns are addressed and prioritized moving forward.

Across Phases we acknowledged when engagement methods failed to uphold the commitment to equitable engagement and listened to focus population voices to influence adaptation. When majority populations (people who are white, wealthier, and historically had and currently have more power in decision making) were oversampled in engagement, increased weight was given to the voices of focus populations. This was done in the examination of survey results and in spending resources to listen to the long form narratives reflecting the stories, realities, and lived experiences of focus populations. We also reflected on common transportation experiences faced by focus populations as an educational tool, to better inform individual participants’ feedback.

The voices of focus populations clearly described the interconnectedness of issues like housing affordability, sustainability, personal safety, and land use planning. Though the focus of the work of ATX Walk Bike Roll is active transportation, we recognize how interconnected the success of these plans are with those other topics. The community is calling for departments to break through rigid agency silos and collaborate with other City departments that address housing, utilities, and public health, to further conversations about how policy and programming can create a more just city.

Austin is experiencing an affordability crisis. As neighborhoods become more expensive, families and individuals are pushed to areas with less connectivity. An improved active transportation network across the city would help mitigate these factors, and it no longer would be a luxury to live in an area with great connectivity. Recognizing how these concerns have historically manifested in Austin's built landscape, the prioritization approach shifted to elevate projects around existing corridors with long term, stable affordable housing to ensure long standing residents can stay in place.

As the three plans developed during ATX Walk Bike Roll are adopted and move to implementation, the following key considerations for future efforts are essential to continue upholding commitments to equity in action:

Valuing Lived Experience

Valuing and prioritizing expertise that comes with lived experience is an important component to successful planning and implementation. Continuing to evaluate future decisions through the lens of focus populations will be necessary for the long-term success of ATX Walk Bike Roll. The Community Ambassadors were an asset in this area. They were more skilled at and capable of reaching people from focus populations than any other outreach efforts because of pre-established relationships and deeper levels of trust.

They were able to bring their own lived expertise:

- influencing how the City's planning team thought through implementation priorities,
- helping the planning team better tailor language and communicate more clearly,
- leading informal cultural and active transportation education for City staff,
- providing honest and candid feedback, and
- remaining a steady voice for planning efforts to better align with equity goals.

Austin would be well served by employing Community Ambassadors to continue in that role through implementation and beyond to other projects.

Designing Tools for All

Language and access are two key themes that consistently surfaced throughout outreach. Someone's access to the internet, ability to speak a certain language, or understanding of highly technical language should not limit their ability to share their thoughts on public issues. All materials, surveys, and outreach content should account for these considerations to ensure that those who have been historically left out of planning processes are included and at the center of outreach efforts.

Compensation and Coordination

Learning from Phase 1, outreach efforts with the potential to drastically increase diverse representation may have faltered because communities who have faced historic disinvestment are continually asked to share input without compensation. ATX Walk Bike Roll is just one of many ongoing efforts occurring in Austin. This may mean many community leaders from focus populations have been repeatedly engaged and answered similar questions creating engagement fatigue. To recognize this labor, transparency about when and how their responses will be used is critical and should also be supported with compensation for their participation. The significant impact of our ATX Walk Bike Roll Community Ambassadors highlights the need for similar programs to become citywide engagement standards, with adequate compensation for time and labor.

Further coordination between projects and departments is critical to make sure feedback gathered is shared across time, projects, and departments so people are not over surveyed.

Integrating Active Transportation and Anti-Displacement Efforts

While centered on walk, bike, and roll infrastructure, many of the responses across the three project Phases tied these issues to concerns for housing affordability and anti-displacement. As such, it is critical that active transportation improvements are not viewed or implemented in silos, but rather build on the integrated work that has already begun directing improvements to sidewalk networks, urban trails and bikeways with community preservation efforts. As Austin becomes increasingly unaffordable, particularly for Black people, Hispanic/Latinx people, other People of Color, and low-income residents of

all races and ethnicities, it is critical that new investment is accompanied by strategies to allow focus populations to age in place, and access is improved so people can get to the places they need to go

Embracing Multiple Approaches

Relying on a robust set of tools for engagement allows residents multiple ways to get involved. Engagement approaches like public meetings and tabling should be located in places familiar to focus populations and promoted through channels utilized by focus population communities. Less formal approaches led by trusted community members, like Community Ambassadors, allows people from focus population communities to engage as part of a typical day in candid conversations with friends, loved ones, while waiting on a bus or using transit, or folding laundry in the laundromat. These methods allow people to provide input who don't necessarily feel driven to respond to conventional outreach channels.

APPENDIX B. SIDEWALK PLAN HISTORY

Over two decades ago, the City of Austin adopted the **2000 Pedestrian Master Plan** to set forth a structured approach for improving pedestrian facilities. The 2000 Plan established a goal to "set forth policies that will encourage walking as a viable mode of transportation, improve pedestrian safety and enable people to walk to and from transit stops." It officially recognized that sidewalks and other pedestrian facilities were necessary to "help control air pollution and traffic congestion, and increase the quality of life in Austin." The document covered justification for the adoption of such a plan, policies that outline criteria for proper pedestrian infrastructure, recommendations for facilities that need improvement, and a design guide to effectively follow through on the previously identified policies with compliance to standards set by the Americans with Disabilities Act.

The **2009 Sidewalk Master Plan** began in 2003 as a two-phased process to update the 2000 Plan. Phase I, completed in 2005, included the Pedestrian Information Management System (PIMS) to meet the needs for assessing and prioritizing existing and absent sidewalk infrastructure as well as updates to the 2000 Plan and the City's Americans with Disabilities Act (ADA) Transition Plan. Phase II was completed in 2009, which was titled the 2009 Sidewalk Master Plan. The 2009 Plan included extensive stakeholder outreach to develop the sidewalk prioritization criteria and scoring system and it significantly progressed sidewalk infrastructure management in the City of Austin. After five years of implementing the 2009 Plan, the City identified several successes and lessons learned. Successes included 1) the establishment of a data-driven prioritization process, 2) absent sidewalk prioritization map, 3) citywide gap and rehabilitation cost estimates, and 4) ADA Transition Plan funding targets. Lessons learned included 1) the point-based sidewalk condition assessment provided too much granular data, making it ineffective in repair and rehabilitation assessment and prioritization, 2) the PIMS programming and interface were overly complex, making it difficult for nonspecialized staff to maintain and use effectively, and 3) the ongoing need for a stable funding source for repair and rehabilitation of sidewalks, similar to road maintenance, was not adequately identified.

Prior to initiating the update to the 2009 Plan, the City Council adopted the **Imagine Austin Comprehensive Plan** in 2012, which includes a strong emphasis on enhancing Austin as a walkable city. In June 2014, the City Council adopted an updated **Complete Streets Policy**, designed to help realize the Imagine Austin Comprehensive Plan vision for a healthy, green, vibrant, compact, and connected community.

The **2016 Sidewalk Master Plan / ADA Transition Plan Update** process began in November 2014 to update the 2009 Plan. The 2016 Update provided the opportunity to incorporate the ideals strongly emphasized in the Imagine Austin Comprehensive Plan, namely to make Austin a walkable, livable, and pedestrian friendly city through the "Compact and Connected" policies and priorities, while providing overdue technical updates using current data and methodologies. The 2016 Update was primarily intended to be a sidewalk infrastructure asset management document and ADA Transition Plan for sidewalks within the public right-of-way. It was not intended to serve as a master plan for pedestrian mobility or connectivity, and did not address mobility infrastructure such as bike lanes, crosswalks, trails, etc. The process also reengaged stakeholder groups from the 2009 Plan through public outreach and meetings, building on the previous work, rather than making substantive changes to the prioritization matrix. Key aspects of the 2016 Update included:

- Peer Cities Report – analysis of data collected from seven Peer Cities regarding current sidewalk program policies and practices, provided as a separate document
- Sidewalk Prioritization Update – simplification of the GIS-based prioritization tool and updating of the Pedestrian Attractor and Pedestrian Safety datasets

- Condition Assessment – development of a methodology for assessing and scoring the condition of existing sidewalks using a GIS-based application
- Funding Update – development of updated funding goals and funding alternatives, based on the prioritization updates, the condition assessments, and the Peer Cities Report

While the 2016 Sidewalk Master Plan/ADA Transition Plan Update was principally an asset management tool for sidewalks, the Plan functioned in tandem with other planning guidance to provide for the safe movement of people walking in the City of Austin including the Pedestrian Safety Action Plan, Vision Zero Action Plan, Bicycle Master Plan, Urban Trails Master Plan, Community Health Improvement Plan, and Austin Strategic Mobility Plan.

APPENDIX C. ATX WALK BIKE ROLL CRASH ANALYSIS

C.1 Crash Data

Geocoded crash data is critical to understanding traffic safety patterns. Police reports of collisions are the primary source for crash data. While this data is known to have problems with underreporting[1,2], it is often the most complete data source and provides necessary details for informing engineering treatments, such as the location of the collision and dynamics between the parties involved in the crash. Crash records that have missing or partial crash location coordinates were inputted to a geocoding tool using the primary and secondary street names.

The Texas Department of Transportation (TxDOT) maintains statewide crash records in the Crash Record Information System (CRIS)[3]. For this analysis, a dataset of all crashes from 2016 to 2020 within the City of Austin boundary was generated and extracted by the City of Austin using CRIS and delivered to Toole Design.

C.2 Victim Analysis (Who is involved in crashes)

Victim demographic attributes included in the CRIS crash reports have been compared to U.S. Census ACS estimates to evaluate proportionality. When looking at proportionality, values greater than 1.0 indicates that a particular cohort is overrepresented, meaning they represent a larger share of victims than they do the general population. This analysis has looked at who is impacted by crashes by comparing the distribution of victims by age, race, and sex and compared those distributions to those populations using U.S. Census ACS 5-year estimates. Analyzing these victim attributes allows us to gain more insight into who is affected by traffic violence in the City of Austin. The results of this victim analysis should be interpreted with some caution for the following reasons.

- Census ACS data used in this analysis are population counts for residents of Austin. Non-Austin residents are also victims in crashes, thereby contributing to some margin of error inherent in this approach.
- The victim race/ethnicity attributes reported in CR3 crash reports are completed by responding officers. This may often or usually be based on their visual assessment.[4] Additionally, the CR3 race/ethnicity categories do not align perfectly with U.S. Census race categories.[5] Some aggregation of U.S. Census race categories has been performed to compare the two datasets. One way to improve the accuracy of demographic reporting is to ask people involved in crashes to self-identify their race/ethnicity.

[1] Stutts, J., & Hunter, W. (1998). Police reporting of pedestrians and bicyclists treated in hospital emergency rooms. Transportation Research Record: Journal of the Transportation Research Board, (1635), 88-92.

[2] San Francisco Department of Public Health-Program on Health, Equity and Sustainability. 2017. Vision Zero High Injury Network: 2017 Update – A Methodology for San Francisco, California. San Francisco, CA. Available at: https://www.sfdph.org/dph/files/EHSdocs/PHES/VisionZero/Vision_Zero_High_Injury_Network_Update.pdf

[3] https://www.txdot.gov/government/enforcement/crash-statistics.html

[4] The Texas Department of Transportation "Instructions to Police for Reporting Crashes – 2019 Edition" does not specify whether officers should ask individuals their ethnicity.

[5] The CR3 does not include the "Native Hawaiian or Other Pacific Islander" or "Two or More" categories used by the Census, but does include an "Other" category. For purposes of this analysis, we grouped these Census race/ethnicity classifications and compared them to the CR3 "Other" category to assess proportionality.

C.2.2 *Victim Age*

Victim ages for bicyclists and pedestrians were evaluated to determine if there were any age cohorts that are disproportionately involved in crashes. Victims were analyzed looking at all injury types as well as fatal and serious injuries separately (crashes resulting in fatalities or serious injuries are referred to as KA, which refers to categories used in Texas to show fatal (K) and incapacitating injury (A) crashes).

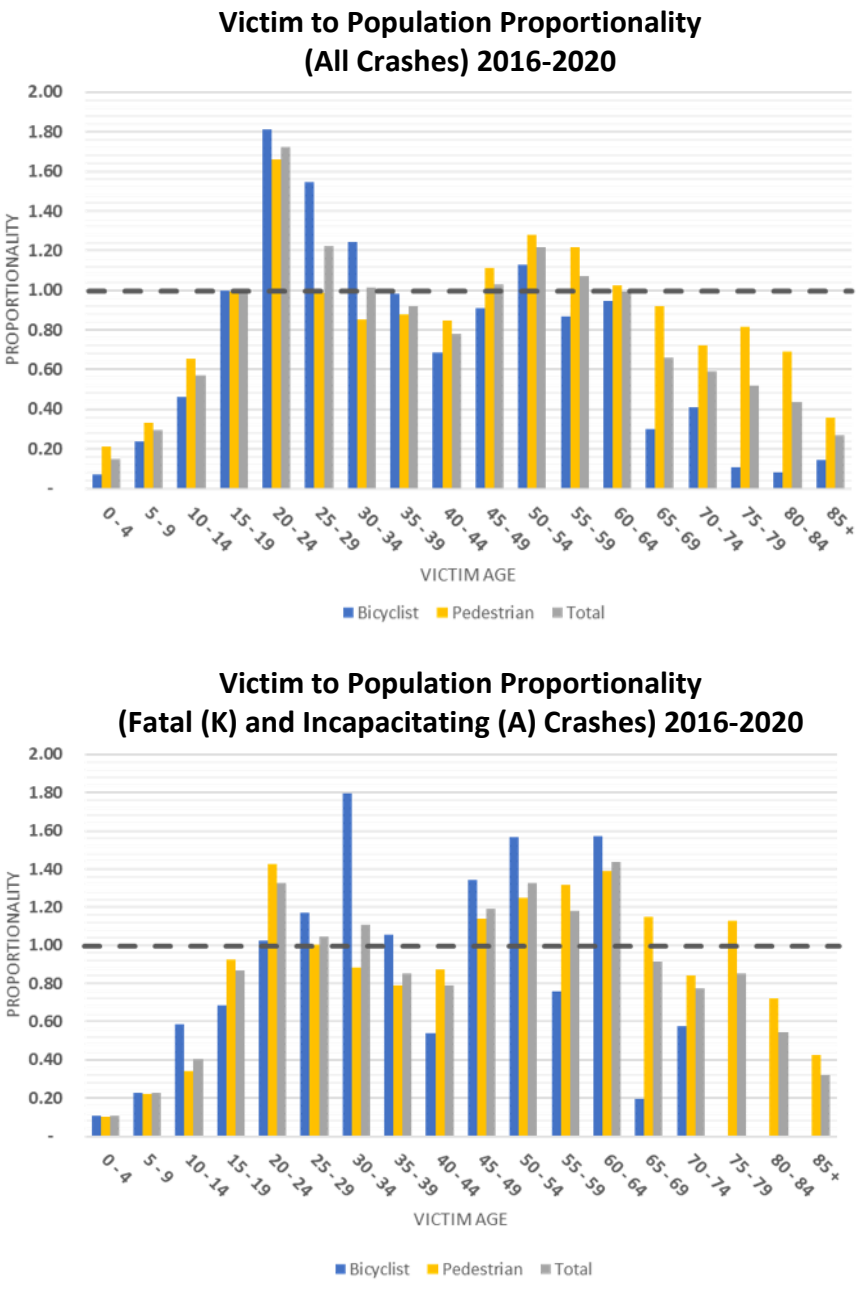


Figure C.1 – Crash Proportionality by Age

Bicyclists

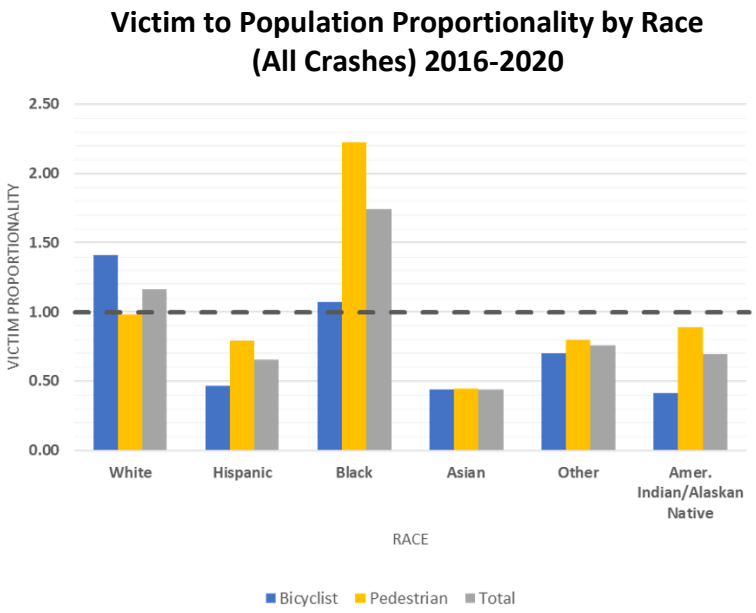
- For all injury types, the 20-34 age cohort was the most overrepresented age cohort, specifically the 20-24 cohort. Victims who are younger than 15 years of age or 65 years or older are substantially underrepresented. This suggests lower exposure due to less trips being made by bike, especially with some portions of those populations unable or unwilling to ride a bicycle along or across a street.
- For fatal and serious injuries, the 25-34 and 45-64 age cohorts were the most overrepresented, specifically the 30-34, 50-54, and 60-64 cohorts. Compared to overall crashes, victim to population proportionality is slighter higher for older age cohorts in KA crashes, though there were zero 75+ KA victims.

Pedestrians

- For all injury types, victims aged between 20-24 were the most overrepresented, with victims aged between 50-59 being slightly overrepresented. Similar to bicyclist victims, victims aged under 15 and over 65 are less involved in crashes relative to their overall population share.
- For fatal and serious injuries, victims aged between 20-24, 45-69, and 75-79 cohorts were all overrepresented. Older age cohorts were overrepresented in KA compared to overall crashes. This finding suggests a higher vulnerability to fatal or serious injury for these older age cohorts compared to younger cohorts.

C.2.3 *Victim Race*

Victim race for bicyclists and pedestrian were evaluated to determine if there were any race cohorts that are disproportionately involved in crashes. As noted earlier in this memo, victim race statistics should be interpreted with caution as race is visually reported by the responding officer and the race categories do not neatly align with the race (by Hispanic/Latino origin) categories used by the US Census. Victims were analyzed looking at all injury types as well as fatal and serious injuries separately.



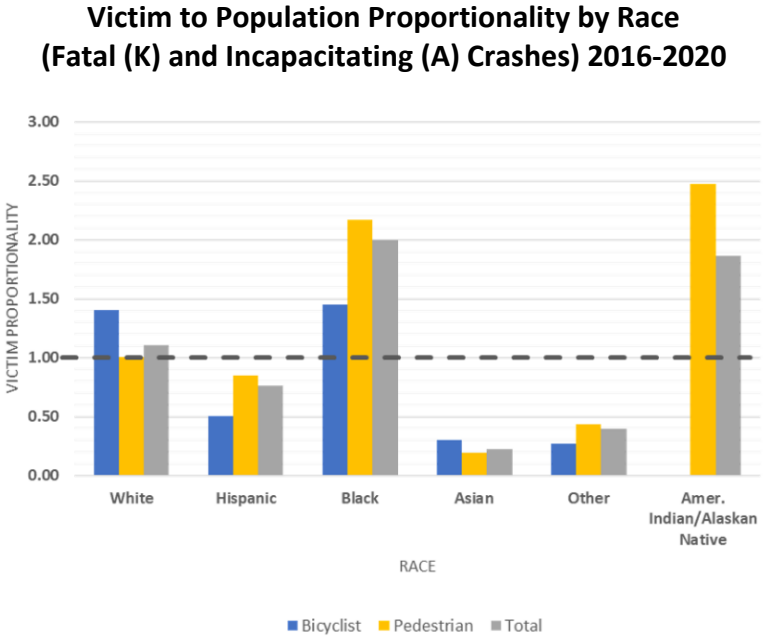


Figure C.2 – Crash Proportionality by Race

Bicyclists

- For all injury types, white people are the most reported victims. Black people are slightly overrepresented. This may mean that white people are more likely to bike in Austin compared to other populations.
- For fatal and serious injuries, both white and Black people are the most overrepresented. The increased disproportionality for Black bicyclists compared to all crashes is notable and may imply that Black bicyclists have to use less safe routes or that drivers are less likely to yield to Black bicyclists (an outcome that is statistically known to exist based on nationwide research).

Pedestrians

- For all injury types, Black people are substantially overrepresented. Multiple studies have shown that drivers across the United States are less likely to yield for Black pedestrians and people with darker skin tones. However, this can also indicate less safe conditions on streets near neighborhoods where Black people live.

- For fatal and serious injuries, Black people are again substantially overrepresented. American Indian/Alaskan Native people appear to be overrepresented, though the population size is quite small (2 fatal/serious injuries over five years with 0.18% of the population).

Victim Sex

Victim sex for bicyclists and pedestrian were evaluated to determine disproportionality. Victims were analyzed looking at all injury types as well as fatal and serious injuries separately.

Bicyclists and Pedestrians

- Male victims are overrepresented for overall crashes and fatal / incapacitating crashes for both bicyclists and pedestrians. This could be a result of multiple factors, including males being more likely than females to bike, increased risk-taking behavior amongst males, and driver biases in yielding.

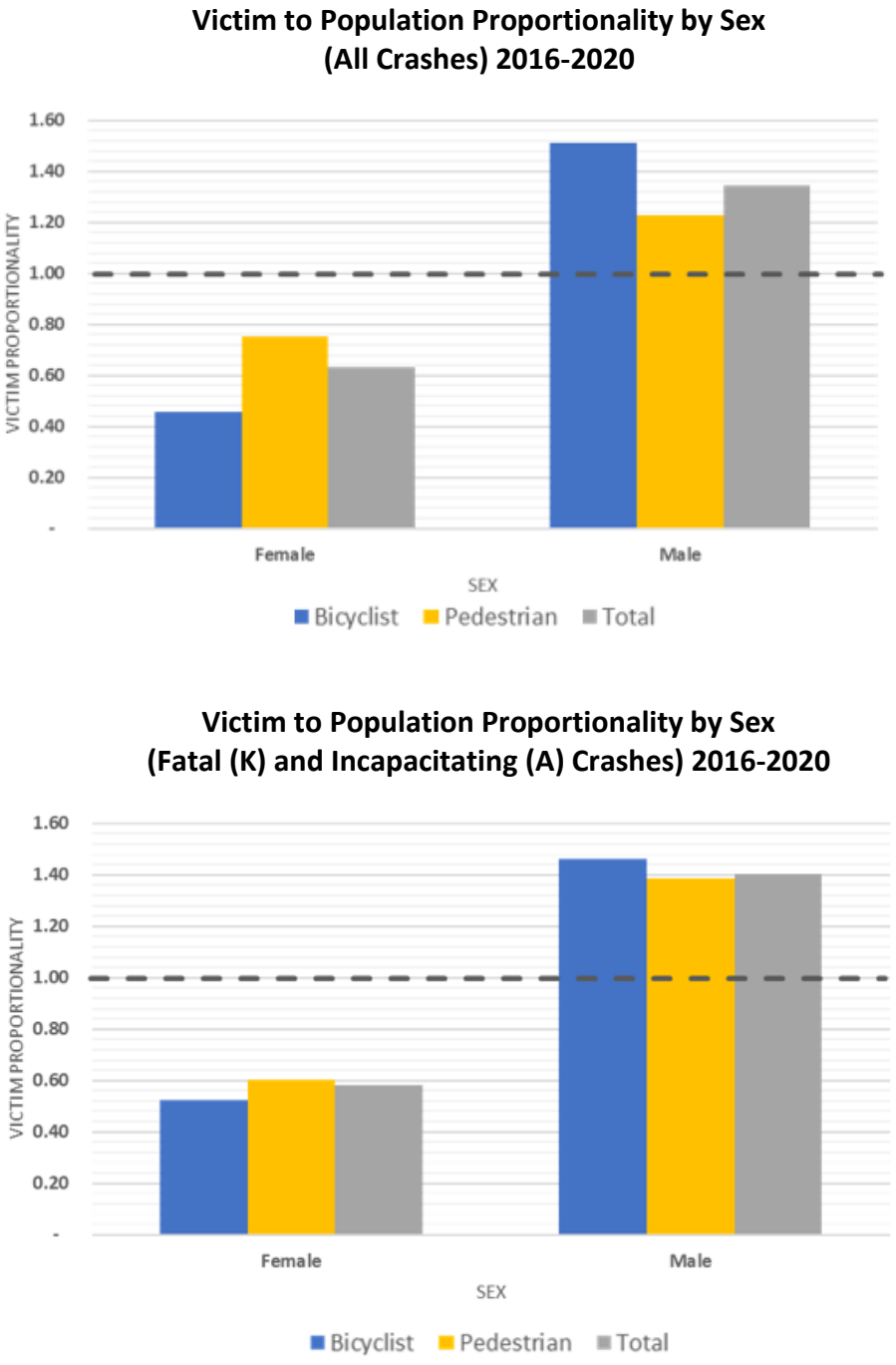


Figure C.3 – Crash Proportionality by Sex

C.3 High Injury Network Disparities

C.3.1 *Equity Analysis Zones (EAZ)*

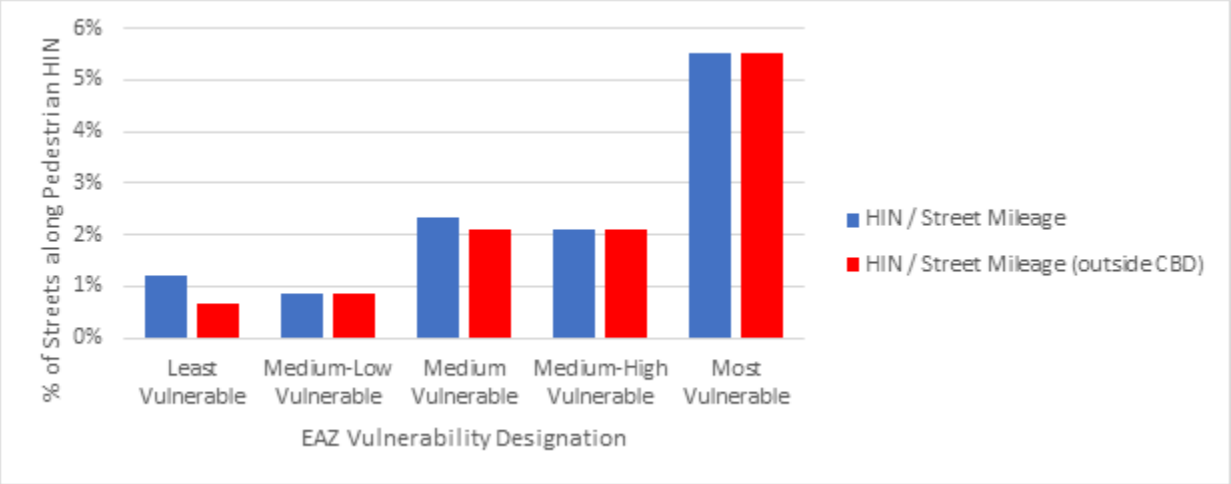
An analysis was performed to evaluate any relationship between the pedestrian High Injury Network (HIN) and City of Austin Equity Analysis Zones (EAZ). The Pedestrian HIN are streets in Austin with a relatively high number of serious injury and fatal crashes involving pedestrians. The results of the Pedestrian HIN and EAZ analysis indicate that vulnerable areas tend to be affected disproportionately by pedestrian-related crash risk.

The relationship between the HIN and EAZs was evaluated by calculating the percent of streets within each EAZ category that are designated as being on the Pedestrian HIN (i.e., HIN mileage / street network mileage within each vulnerability classification of EAZ)[6].The resulting measure aims to assess crash density[7] of the street network as a whole for pedestrians within each EAZ. Summarizing the results as a percent of the street network that is along the pedestrian HIN reduces the effect of EAZ size on the outcome.

Some EAZs have sparser street networks or fewer crossing opportunities than other similarly sized EAZs, which limit the number of routes for pedestrians to choose from. In such locations, outsize importance is given to the major thoroughfares that tend to have elevated risk for people walking. This analysis did not control for the connectivity of the street network directly.

Figure C.4 summarizes the results of this spatial analysis and differentiates the results through summarizing the results by EAZs citywide and only EAZs that are outside of the central business district (CBD).[8] Both location types (citywide and only locations outside CBD) show a positive association between pedestrian HIN and level of vulnerability assigned in the EAZ. This suggests that areas considered more vulnerable according to the EAZ designation have a higher proportion of roadways within that community that are part of the pedestrian HIN and are potentially higher risk compared to communities that are less vulnerable. **In other words, more vulnerable EAZs are experiencing more frequent and more severe pedestrian crashes according to this analysis.**

Figure C.4 – Percent of streets within each EAZ designation that are along the Pedestrian HIN



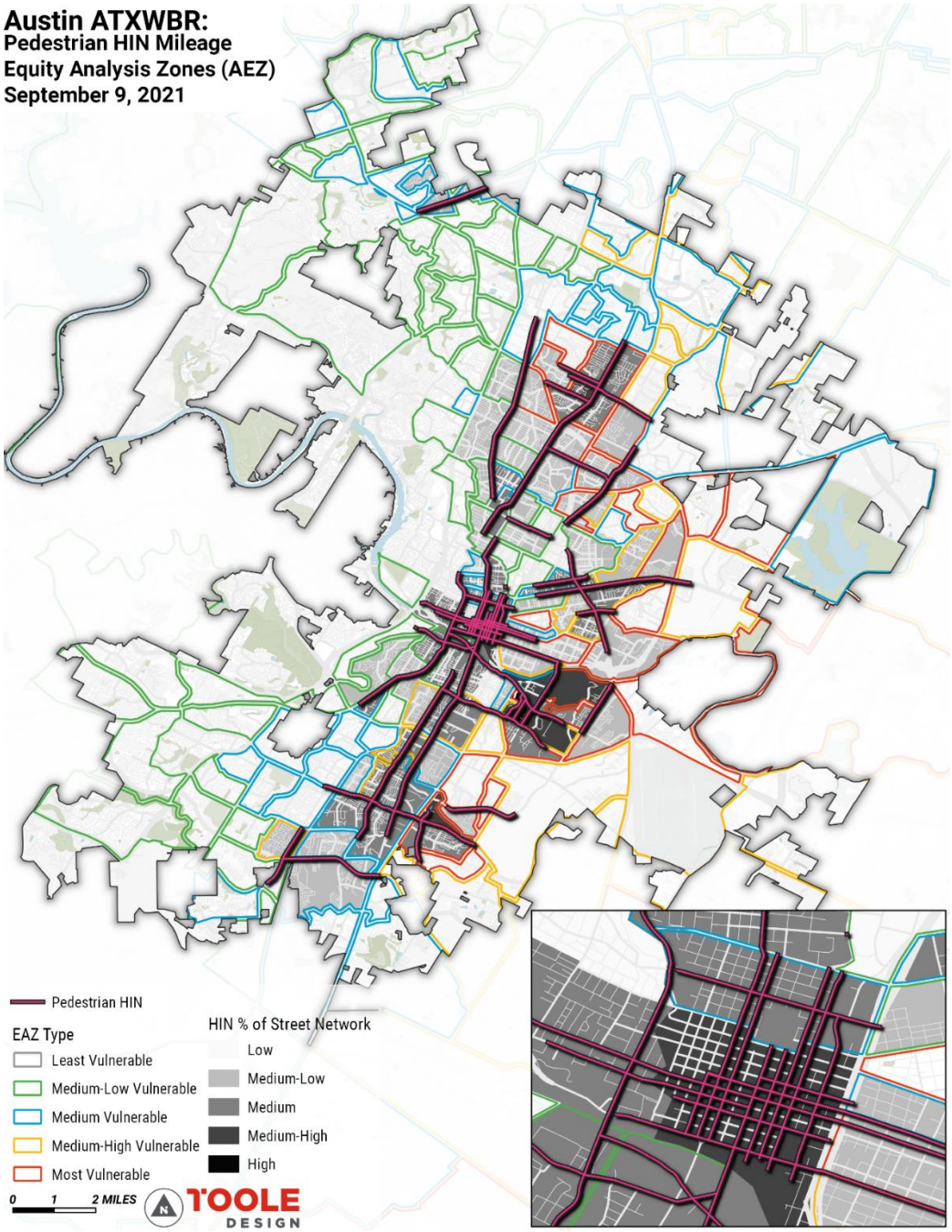
[6] A 50 foot buffer was used around each EAZ to account for streets that are located directly along EAZ boundaries.

[7] Note: This approach is not a statistical analysis that measures real pedestrian crash risk, but rather measures the percent of street network within each EAZ geography that had high pedestrian crash densities as defined by the pedestrian HIN analysis methodology.

[8] A significant portion of the pedestrian HIN exists in the CBD. Comparing results that omit the CBD helps compare predominately residential neighborhoods.

The map in Figure C.5 displays the pedestrian HIN overlayed on top of EAZs. The EAZs are symbolized using a color ramp that is correlated to the percent of the roadway within each that is along the pedestrian HIN. This illustrates the density of HIN within individual EAZs. EAZs with higher shares of the roadway network along the pedestrian HIN are generally located within four clusters: downtown/UT campus, North Lamar/Rundberg, Montopolis/Riverside, and South Austin/Onion Creek. These clusters include EAZs that are within the medium, medium-high, and most vulnerable EAZ designations and suggest these communities experience a higher degree of burden than other communities.

Figure C.5 – Pedestrian HIN Compared to Equity Analysis Zones



C.4 Pedestrian HIN and Demographics

The pedestrian HIN was reviewed in relation to demographic data at the Census block group level. The total pedestrian HIN mileage was calculated for each block group[9] and was summarized by overall HIN mileage by race and income variables. The results of this analysis help provide insight into possible disparities between pedestrian crashes and equity-related issues.

C.4.1 *Race*

Figure C.6 through C.8 display the pedestrian HIN mileage by population for each race[10] and illustrate disproportionality examples. Population density was grouped into deciles to help compare the HIN mileage between the race/ethnicity categories. The ***orange***-colored bar represents the middle decile (which includes the 50th percentile, or the median). To the left of the orange bar are the lower deciles (lower population density) and to the right of the orange bar are the upper deciles (higher population density). Figure C.7 displays the results for all block groups and Figure C.8 displays all block groups except for the block group that encompasses the central business district (CBD). This figure excludes the CBD because of the unique trip characteristics that are associated with CBDs compared to areas outside of the CBD and the fact that the CBD has a very high concentration of the pedestrian HIN.

Maps that display population density by race with the pedestrian HIN are included at the end of this document.

When looking at overall population density regardless of race, it appears population density and the pedestrian HIN mileage are both generally positively associated. This means that as population density increases, the pedestrian HIN mileage also increases. This finding is expected as we typically expect there to be higher levels of exposure (i.e., trips, activity, volume) in areas with higher population densities and therefore higher crash frequencies.

When looking at population density by race, a different pattern emerges. Block groups that have higher densities of Black and Hispanic populations appear to have higher mileage of the pedestrian HIN within the block group (e.g., they are positively skewed). However, block groups with higher densities of white, Asian, and two or more race populations do not appear to have a positive association with pedestrian HIN mileage, meaning the HIN mileage does not appear to be higher or lower as it relates to population density. **This suggests there are pedestrian crash disparities in Black and Hispanic neighborhoods and communities with higher densities of people of color**[11]; these neighborhoods tend to have a higher proportion of the pedestrian HIN compared to predominately white, Asian, or two or more race neighborhoods.

When looking at the same block group data but excluding the block group that generally encompasses the CBD, the same patterns are present (see Figure C.8). However, the distribution for the white population is even more uniform, whereas Black, Hispanic, and communities of color are even more positively skewed (e.g., a stronger positive association and higher level of disparity).

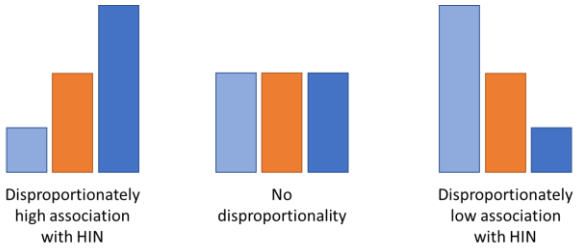
The findings suggest there is a positive association between block groups that have higher population densities of Black and Hispanic populations and pedestrian HIN mileage. This indicates that these communities have a disproportionate number of systemic safety issues.

[9] For each Census block group, the total mileage of the pedestrian HIN within 50 feet of the block group boundary was calculated. The 50-foot buffer was used to account for possible errors associated with the pedestrian HIN being located along Census block group edges.

[10] Native Hawaiian or Other Pacific Islander and American Indian or Alaska Native statistics were analyzed but are not displayed in these figures. The HIN mileage for those populations did not provide meaningful insight due to the relatively low population size.

[11] Includes all non-white populations.

Figure C.6 – Disproportionality Examples



Bar clusters that have higher values to the right and lower/fewer values to the left (such as the cluster on the left side of these examples) indicate there is more pedestrian HIN mileage associated with that demographic category. This would indicate there may be a disproportionate association between pedestrian HIN mileage and a particular racial/ethnic group. Where there are no discernable patterns between HIN mileage and population density (i.e. even distribution or the bar cluster in the middle of these examples), then there appears to be no discernable disproportionality. When there are higher values to the left and lower values to the right (the bar cluster on the right side of these examples), that may indicate a low association between race and the pedestrian HIN mileage.

Figure C.7 – Pedestrian HIN Mileage by Population Density and Race

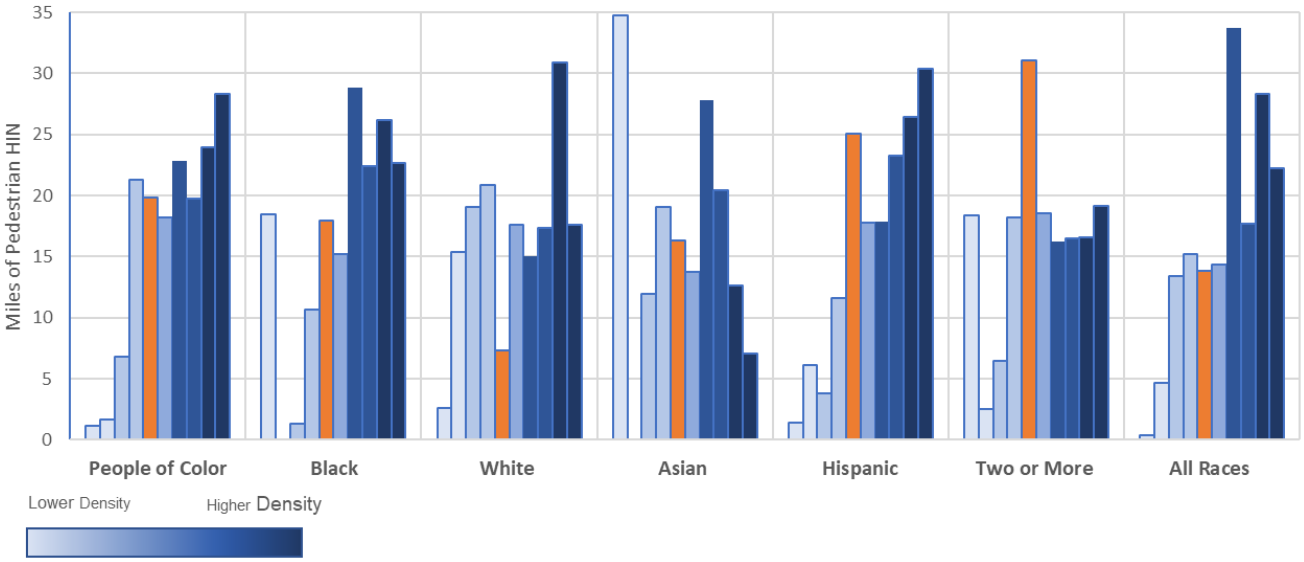
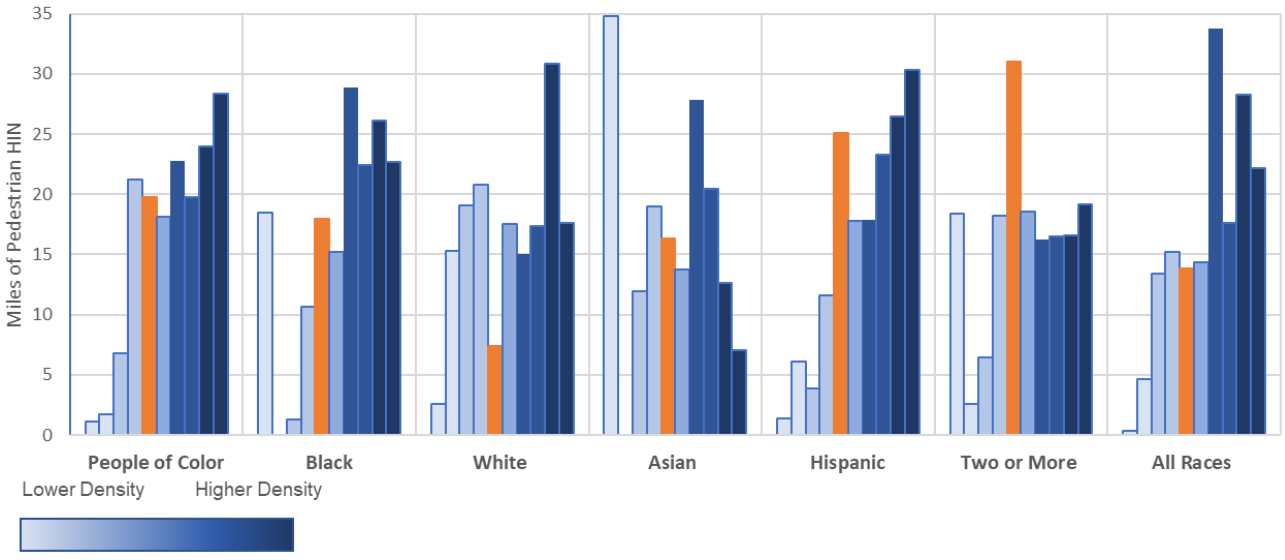


Figure C.8 – Pedestrian HIN Mileage by Population Density and Race – Excluding the CBD

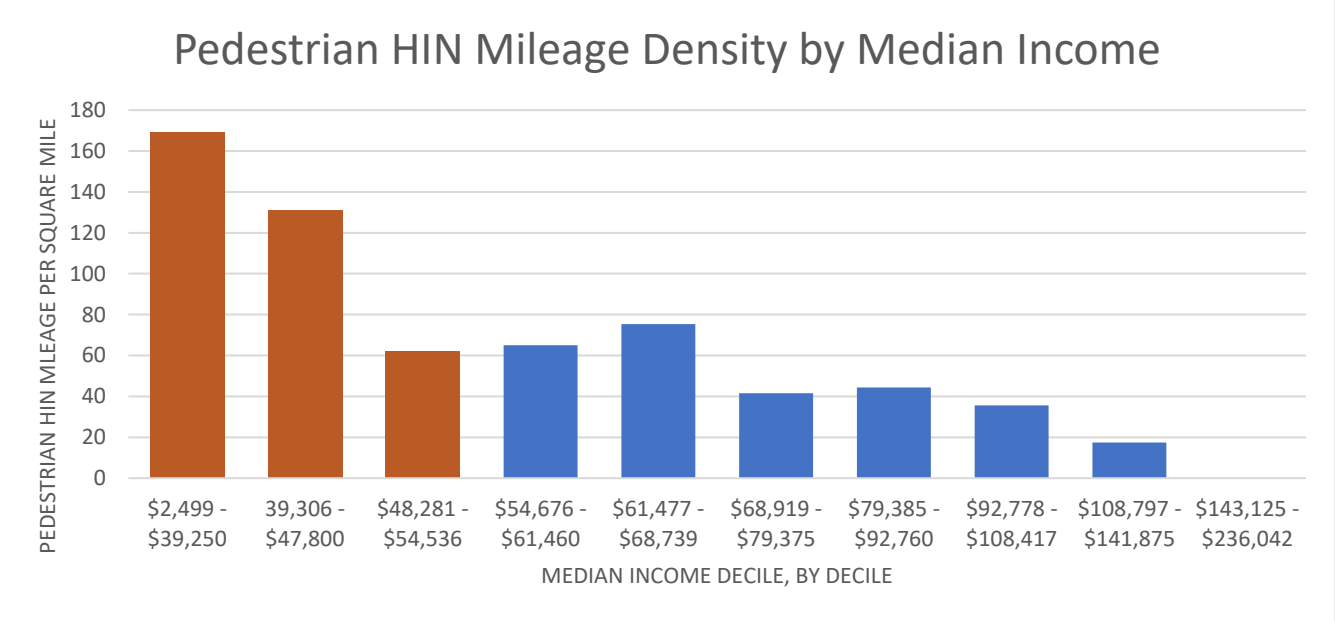


C.4.2 *Median Household Income*

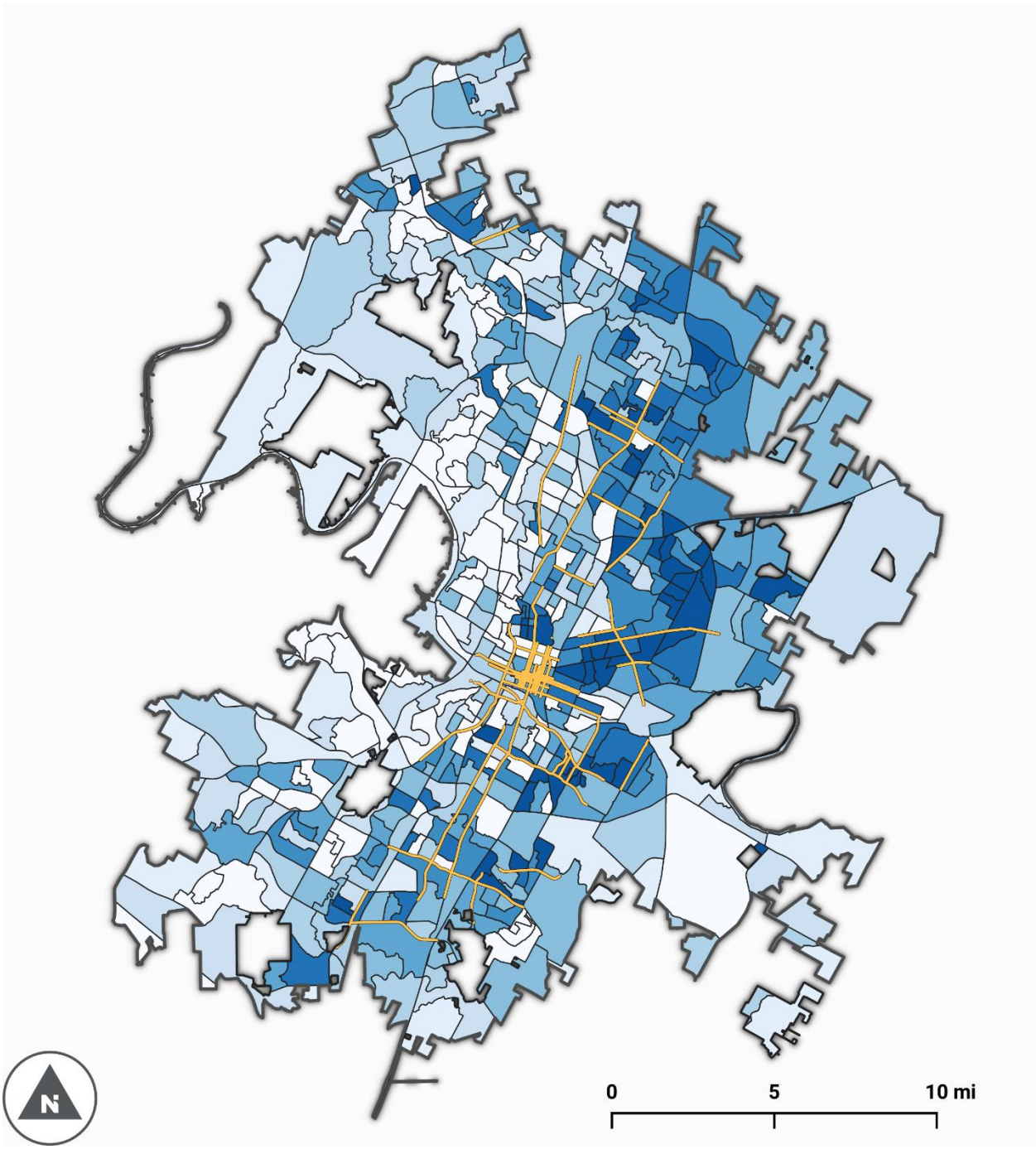
Median household income was analyzed as it relates to the density of the pedestrian HIN within Census block groups and is summarized in Figure by median incomes grouped into deciles. The lower three deciles (***orange*** colored columns) represent block groups that are at or below 80 percent of the median income in the City of Austin.

Figure C.9 suggests there are disparities when it comes to median household income and systemic safety issues. A negative association between pedestrian HIN density and median household income is observable by the higher pedestrian HIN density in neighborhoods that have lower median incomes compared to neighborhoods that have higher median incomes. In other words, as median income increases, the pedestrian HIN density decreases. This indicates that lower-income communities experience a greater burden in relation to systemic safety issues. A map that displays median household income with the pedestrian HIN can be viewed at the end of this document.

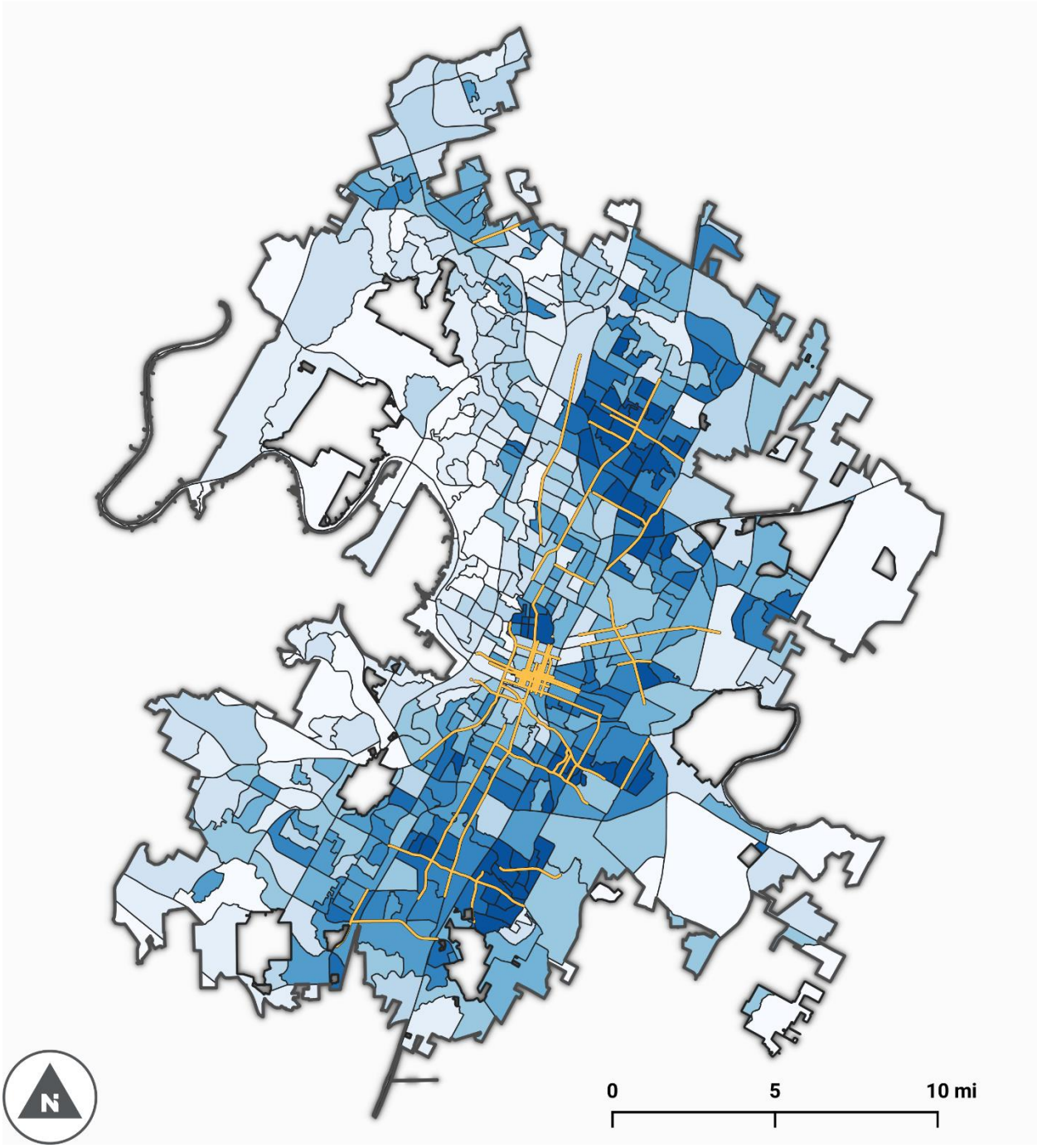
Figure C.9 – Pedestrian HIN Density by Median Income



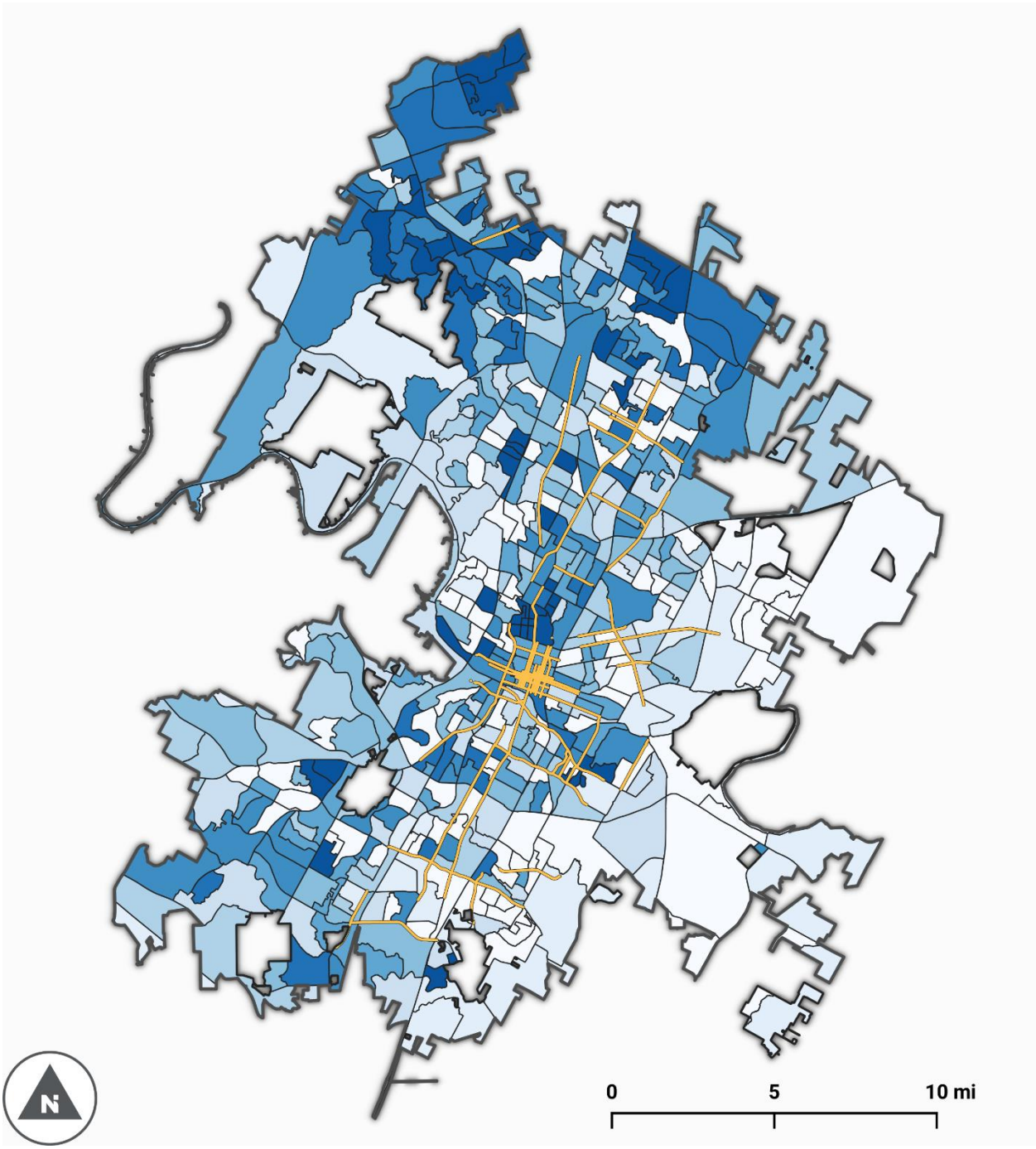
Austin ATXWBR:
Pedestrian HIN Mileage
Black Population Density
July 12, 2021



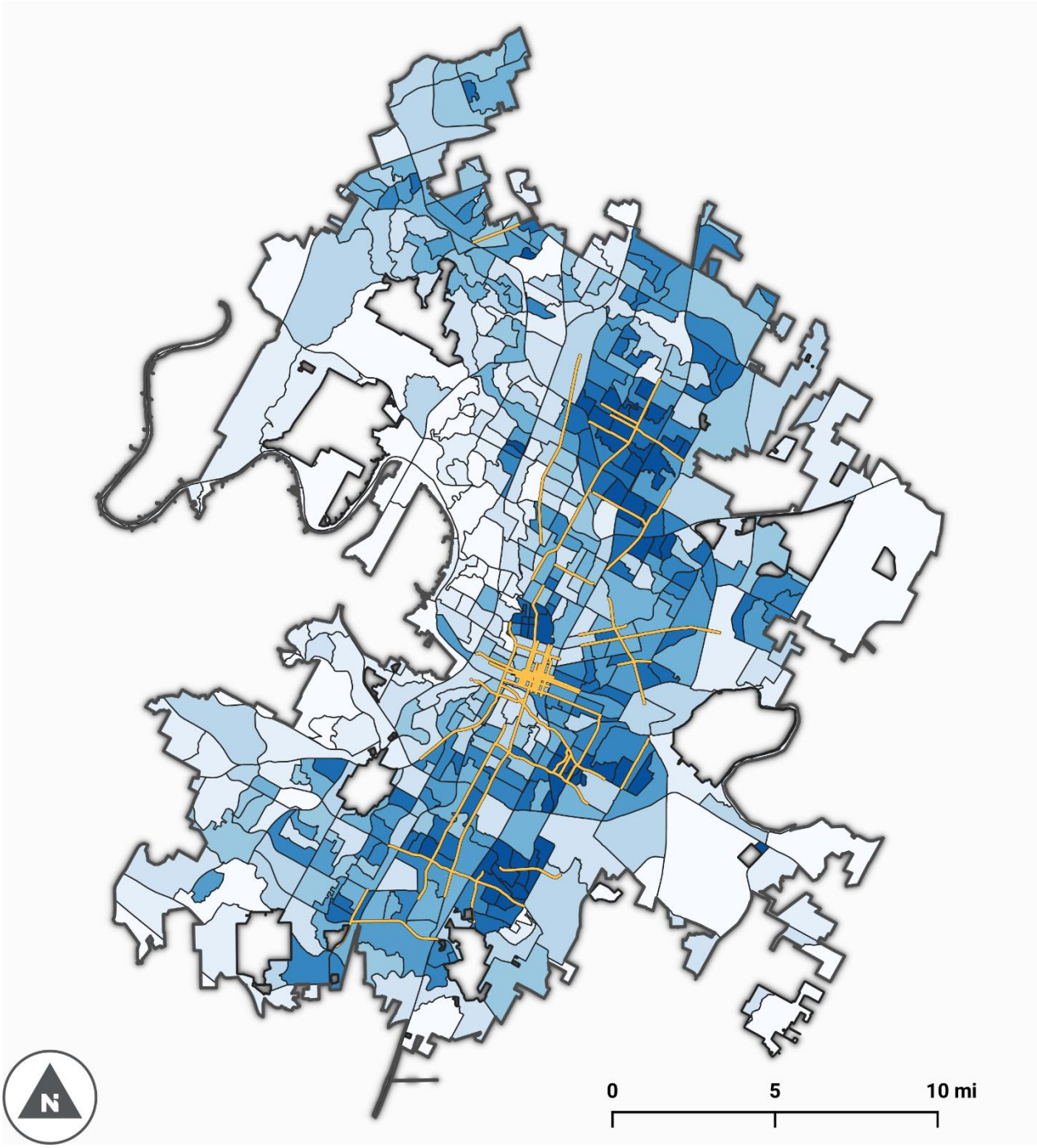
Austin ATXWBR:
Pedestrian HIN Mileage
Hispanic Population Density
July 12, 2021



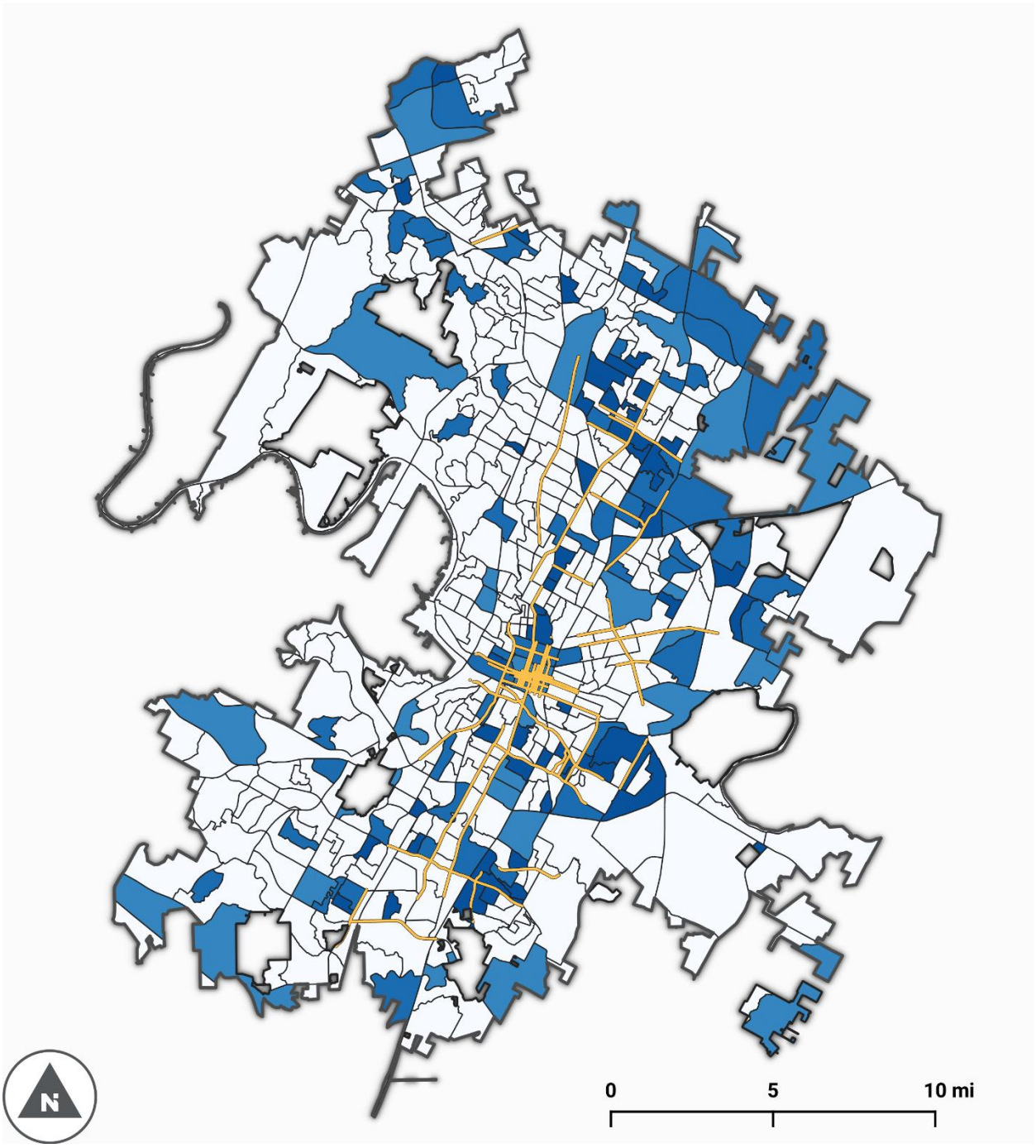
Austin ATXWBR:
Pedestrian HIN Mileage
Asian Population Density
July 12, 2021



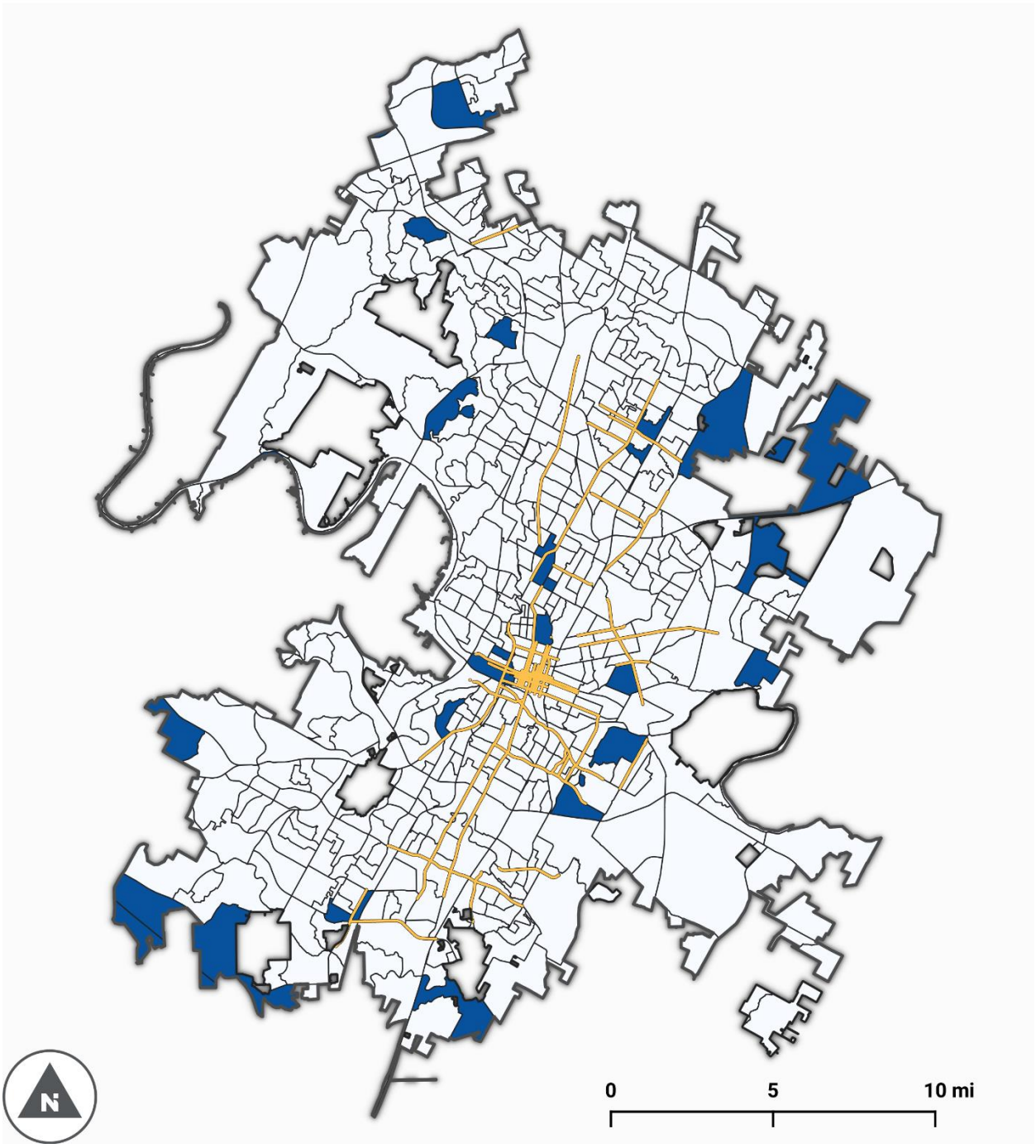
Austin ATXWBR:
Pedestrian HIN Mileage
People of Color Population Density
July 12, 2021



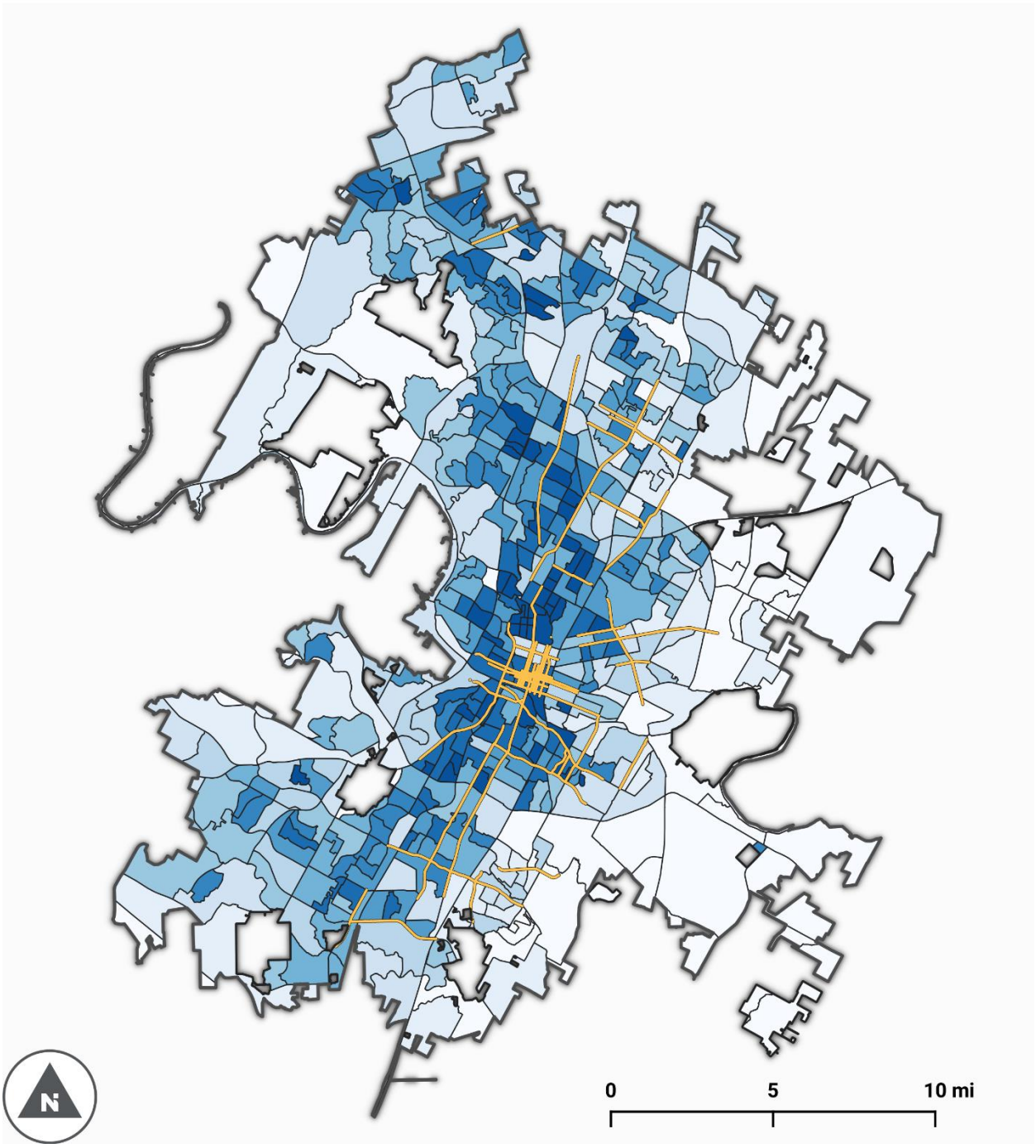
Austin ATXWBR:
Pedestrian HIN Mileage
Native Population Density
July 12, 2021



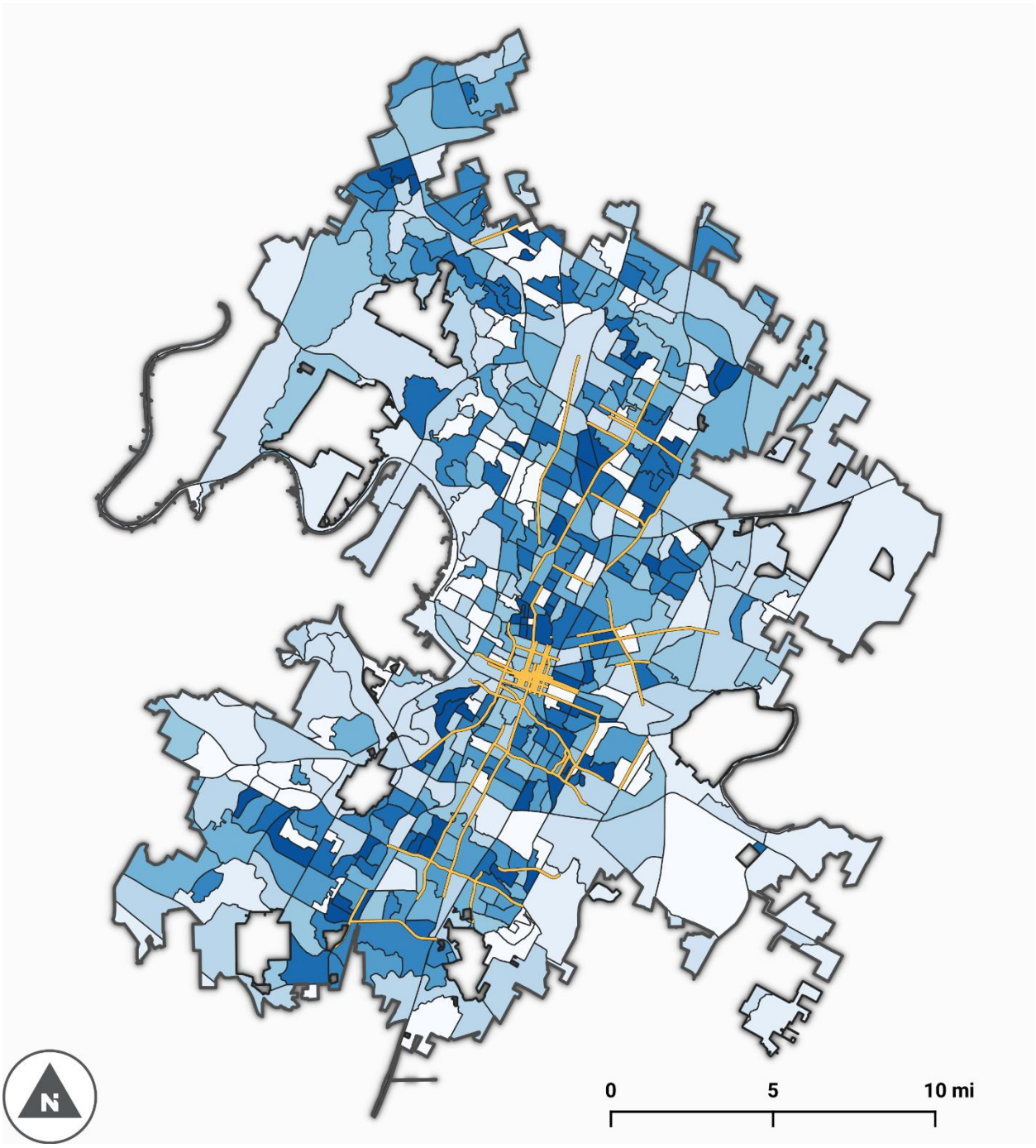
Austin ATXWBR:
Pedestrian HIN Mileage
Pacific Islander Population Density
July 12, 2021



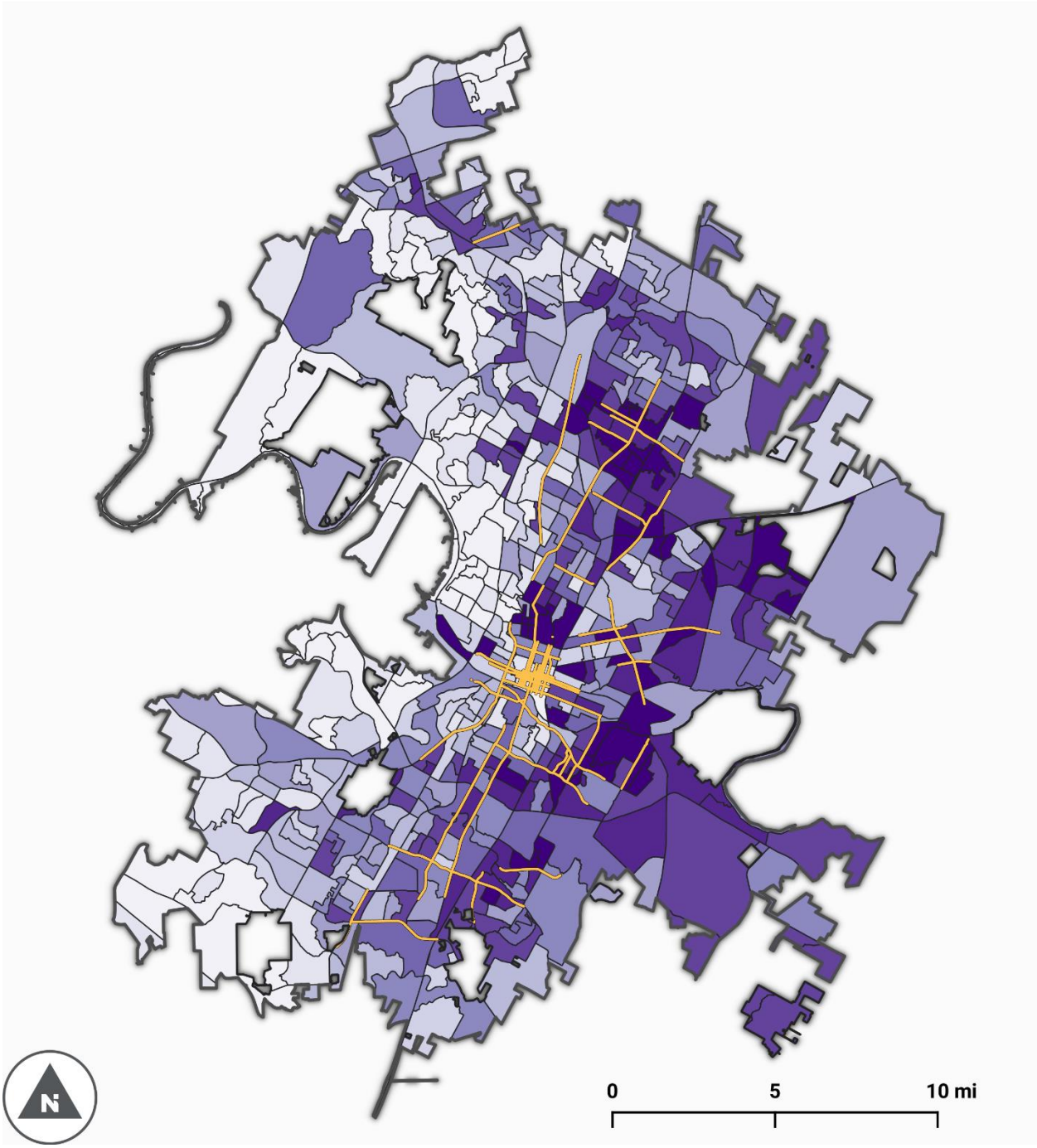
Austin ATXWBR:
Pedestrian HIN Mileage
White Population Density
July 12, 2021



Austin ATXWBR:
Pedestrian HIN Mileage
Two or More Races Population Density
July 12, 2021



Austin ATXWBR:
Pedestrian HIN Mileage
Median Household Income
July 12, 2021



APPENDIX D. NETWORK SCENARIOS

Given the cost and timeframe for complete buildout of the pedestrian network using only sidewalks, the Sidewalk Program developed three scenarios that mix levels of sidewalk and shared street investments for evaluation and presentation to the public. These scenarios were presented to the public during Phase 3 of the ATX Walk Bike Roll public engagement process. Participants were able to provide feedback on the scenarios themselves, as well as state their ideal mix of sidewalks and shared streets and voice level of support or opposition to the shared streets concept.

In addition to public feedback, the three 20-year sidewalk and shared streets scenarios were compared using three main criteria: the miles of pedestrian facilities added in each scenario, the percentage of the city that would be covered by the sidewalk network as a result of each scenario, and the percentage of properties that would have a continuous pedestrian route to a school/transit as a result of each scenario. Results of this evaluation are shown in Figure D.1.

Because all three scenarios are adding mileage to the pedestrian network, all three scenarios increase citywide coverage and access. Since shared streets cost less than sidewalks, more miles of shared streets can be built at the same investment level. Therefore, the scenario with the most shared streets—Scenario 3—added the most mileage and increased coverage the most. When comparing the scenarios based on improved access, Scenario 3 also increases access to schools the most. However, this is not the case for transit. Because transit is typically along busier streets where shared street treatments are not compatible, Scenario 2 (which includes more miles of sidewalks than Scenario 3) provides the greatest increase in access to transit. In most ways, each scenario benefits *Most Vulnerable* and *Medium-High Vulnerable* EAZs[12] to a greater degree than the citywide average. However, Scenario 2 puts these areas at a slight disadvantage for access to schools while Scenario 3 yields a slight disadvantage for total coverage.

Public input and the coverage and access evaluation support a significant proportion of shared streets in the buildout plan for the pedestrian network. Therefore, the scenario chosen for moving forward is a blend of sidewalks and shared streets, which means building approximately 34 miles of new sidewalk and 20 street centerline miles of shared street each year over the next 20 years.

[12] Equity Analysis Zones (EAZ) are based on Census tracts and include nine different US Census American Community Survey (ACS) variables that reflect an area's social and Economic vulnerability. The EAZs are classified into five different categories, from Least Vulnerable to Most Vulnerable.

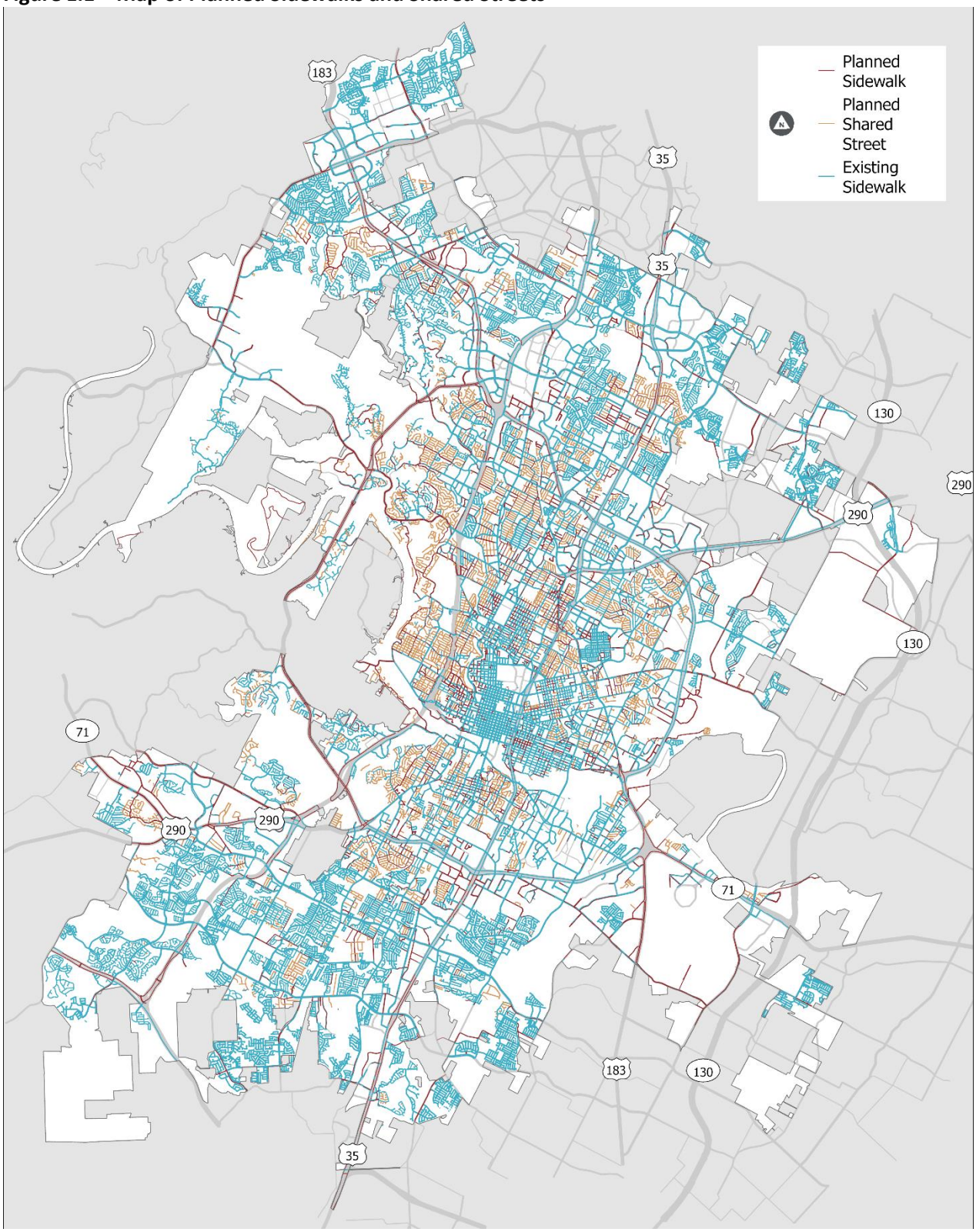
Figure D.1 Sidewalk and Shared Street Scenario Comparison

Criteria	Current Conditions	 Mostly Sidewalks	 An Even Mix	 Lots of Shared Streets
Network Additions (20 years)		**300** miles of sidewalks **90** miles of shared streets	**250** miles of sidewalks **250** miles of shared streets	**200** miles of sidewalks **390** miles of shared streets
Coverage (citywide)	61%	70%	78%	82%
Coverage (Most Vulnerable and Medium-High Vulnerable EAZs)	60%	72%	80%	81%
Access to Schools* (citywide)	51%	62%	68%	71%
Access to Schools* (Most Vulnerable and Medium-High Vulnerable EAZs)	53%	66%	67%	73%
Access to Transit** (citywide)	35%	49%	53%	52%
Access to Transit** (Most Vulnerable and Medium-High Vulnerable EAZs)	38%	52%	56%	55%

**Percent of properties within 2 miles of a school with continuous sidewalk or shared street access to a school.*
**Percent of properties within 0.25 miles of a transit stop or station with continuous sidewalk or shard street access to a stop or station.*

APPENDIX E. SIDEWALK AND SHARED STREET NETWORK PLAN MAP

Figure E.1 – Map of Planned Sidewalks and Shared Streets



APPENDIX F. SIDEWALK AND SHARED STREET PROJECT PRIORITIZATION METHODOLOGY

A primary focus of the 2009 Sidewalk Plan was the development of an objective prioritization method with diverse stakeholder input to produce prioritization maps for the citywide network. The methodology and the datasets were updated for the 2016 Update with only minor changes to the prioritization criteria matrix previously developed. The methodology has been further refined for the 2023 Sidewalks, Crossings, and Shared Streets Plan.

The method uses GIS software to analyze hundreds of thousands of planned and existing sidewalk and shared street segments using dozens of geographic datasets to provide an objective score for each segment. The scored segments can be reviewed within the GIS software or displayed on a map. The tool produces planned and existing sidewalk and shared street prioritization layers using the methodology and scoring system initially developed in the 2009 Sidewalk Master Plan, updated to reflect better data sources and to make it easier for the City to update the data and run the tool as frequently as needed.

Sidewalk and shared street prioritization scores have two components – the Pedestrian Attractors Score, which estimates pedestrian activity, and the Pedestrian Safety Score, which estimates safety risks. Figure F.1 shows a summary of the factors and weights used for sidewalk prioritization.

Pedestrian Attractors Score (PAS) Base Score Weight 56%	
Factor	**Weight**
Proximity to Attractors	45%
Residential Population	25%
Median Household Income	5%
Existing Facilities on the Street	10%
Requests	10%
Core Transit Corridors	2.5%
Bicycle Lanes	2.5%
Pedestrian Safety Score (PSS) Base Score Weight 44%	
Factor	**Weight**
Street Classification	45%
Pedestrian Health & Safety Status	35%
Pedestrian Automobile Crashes	35%

Figure F.1 Sidewalk Prioritization Factors and Weights

Prioritization rankings are intended as a tool to allocate limited City of Austin sidewalk and shared street resources; just because a particular section of sidewalk is ranked as a lower priority does not mean it is not a necessary component of a complete pedestrian network. Prioritization scores are divided into five categories from *Very High* to *Very Low* priority. Maps of the planned sidewalk and planned shared street network by priority are shown in Appendix E. Implementation of *Very High* and *High* priority projects is the focus of the 2023 Plan. An estimated 43 percent of the *Very High* and *High* priority sidewalks and shared streets are located in Focus EAZs (which contains only 28 percent of the planned sidewalk and shared street network).

F.1 Changes to the Methodology

Changes to the methodology compared to the 2016 version include:

- Use of more consistently updated input datasets, some of which are open source (the previous models required City staff to manually compile data).
- Expansion of the definition of "grocery store" to include smaller stores where people can buy food.
- Development of a new Pedestrian Health and Safety Status component, which uses regularly updated data from the Centers for Disease Control (CDC).
- Changes to which affordable housing data points are considered, so that the tool only considers affordable housing that will be guaranteed affordable for at least 5+ years and that serves the people at or below 80% of the median family income level.
- Adjusting the methodology to score entire blocks (all planned or existing sidewalks or shared streets on the same block) to improve clarity and provide flexibility in implementation.
- Removal of the Neighborhood Plan Score component, due to the inconsistent presence of neighborhood plans across the city, outdatedness of many of these plans, and inequity of this component.
- Creating a new Geographic Information System (GIS)-based prioritization tool that is compatible with the City of Austin's current GIS software while being faster and easier to run.

F.2 Scoring Matrix

The sidewalk prioritization methodology was developed to provide consistent, unbiased prioritization results in an analytical, objective manner to the City of Austin for over 300,000 sidewalk segments. The sidewalk base score is divided into two parts: the Pedestrian Attractor Score (PAS) and the Pedestrian Safety Score (PSS). Points are awarded to each sidewalk segment based on its proximity to PAS and PSS elements. Proximity is measured by two buffers around the sidewalk segment, at 1/8 mile and 1/4 mile. The Pedestrian Attractor Score accounts for 56% of the base score. Points are awarded based on the elements shown in Figure F.2

Figure F.2 – Pedestrian Attractors Score (PAS) Scoring Matrix

Score Range: 0 – 100 Base Score Weight: 56%

Element	Criteria	Data Source	Points	
Proximity to Attractors Weight 45% (max 100 pts)	Multiply Possible Points by number of attractors within specific radius of:		**1/8 Mile**	**1/4 Mile**
	State or Local Government Offices	COA Parcels Data (Land Use Code 630) and COA Building Footprints layer	10x	5x
	Commuter Rail Stations	Open Streets Map	10x	5x
	Public or Private Schools	Open Streets Map	10x	5x
	Transit Stops (Rail and Bus) (Max of 50 pts)	Cap Metro	9x	4.5x
	Grocery Stores (Supermarkets, Bakeries, Convenience Stores, Butchers, General Stores, Green Grocers)	Open Streets Map	9x	4.5x
	Places of Public Accommodation (Police and fire stations, post offices, libraries, community centers, arts centers, museums, attractions, parks, playgrounds, sports centers, healthcare facilities)	Open Streets Map	8x	4x
	Places Older Adults Frequent (Community centers, nursing homes, pharmacy, healthcare facilities)	Open Streets Map	8x	4x
	Employers with > 500 Employees	LEHD; US Census Bureau	8x	4x
	Income Restricted Affordable House Secured though City and Federal Programs for every 25 units	COA Affordable Housing Inventory	7x	3.5x
	Public Parking Facilities	Open Streets Map	5x	2.5x
	Religious Institutions	Open Streets Map	5x	2.5x
Residential Population Weight 25%	Total population residing within 1/2-mile radius of proposed project?	US Census Bureau		
	a) Population >/= 8,000		100	
	b) Population >/= 4,000 and < 8,000		75	
	c) Population >/= 1,000 and < 4,000		50	
	d) Population >/= 500 and < 500		25	
	e) Population < 500		0	
Element	**Criteria**	**Data Source**	**Yes**	**No**
Median Household Income Weight 5%	Within a census tract at or below Median Household Income	US Census Bureau	100	0
Existing Facilities on Street Weight 10%	For Level 2, 3, and 4 streets and Level 1 streets in commercial areas (defined in Section 2.4 of the Transportation Criteria Manual), are there complete sidewalks on both sides of the street?	COA Street Centerline Data	0	100
	For Level 1 residential streets, is there an existing complete sidewalk on either side of the street?	COA Street Centerline Data	0	100
Requests Weight 10%	Was the project requested by ADA Task Force?		75	0
	Was the project requested by a citizen through 311?		25	0
Core Transit Corridors Weight 2.5%	Is the sidewalk within a 1/4 mile of a Core Transit Corridor?	Cap Metro	100	0
Bicycle Lanes Weight 2.5%	Are there bike lanes on both sides of the street?	Austin Transportation Department	100	0

The Pedestrian Safety Score accounts for 44% of the base score. Points are awarded based on the elements shown in Figure F.3 below.

Figure F.3 – Pedestrian Safety Score (PSS) Scoring Matrix

Score Range: 0 – 100 Base Score Weight: 44%

Element	Criteria	Data Source	Points
Street Classification Weight 45%	a) Street Level 3, 4, or 5	COA Street Centerline Data	100
	b) Street Level 2		75
	c) Street Level 1		50
Pedestrian Health and Safety Status Weight 35%	a) Very High Needs	CDC PLACES Database	100
	b) High Needs		75
	c) Moderate Needs		50
	d) Low Needs		25
	e) Very Low Needs		0
Pedestrian/Automobile Crashes Weight 20%	Number of crashes reported to APD involving pedestrians and motorized vehicles in previous 36 months multiplied by 10 (only applied to sidewalk on the street where the incident took place)	Austin Police Department	10x (max 100 pts)

F.3 Data Sources

The GIS datasets used in the prioritization tool are from a variety of sources, but can be generally categorized in three ways:

- datasets actively maintained by COA Public Works, such as sidewalks and ramps
- datasets maintained by other City departments, such as bike lanes and street levels
- datasets maintained by others, such as census blocks and pedestrian attractors

The GIS data for sidewalks, ramps, and driveways were originally developed from aerial imagery flown in 2003 and 2006, and updated in 2009. These data are actively maintained by the City, as new sidewalks are constructed in place of absent sidewalks or with new development.

Ongoing Maintenance
The GIS datasets will require ongoing maintenance so that the prioritization scoring is based on current data. The City of Austin Sidewalk Program is responsible for maintaining updates to the GIS datasets. The dataset maintenance procedures vary based on the source and condition of the datasets. Some datasets are used by the tool with little or no preprocessing, while other datasets require processing prior to use.

Several new datasets are incorporated in the 2022 Update of this tool, including pedestrian attractor data from Open Street Map, employment data from the US Census Bureau's Longitudinal Employer-Household Dynamics database, and a composite dataset created from the Centers for Disease Control's PLACES database. The purpose of these new datasets is to provide a more consistently updated source of information so that the Sidewalk and Shared Street Prioritization Tool can be rerun more easily, more regularly, and more confidently.

F.3.1 *Open Street Map (OSM)*

Open Street Map is an open-source geospatial database that includes data on a variety of destination types. OSM Data can be downloaded from http://download.geofabrik.de/north-america/us/texas.html This website is maintained by a German company that offers cleaned/modified OSM datasets for a fee. However, they provide

the raw datasets for free. Data is downloaded as a ZIP file that contains statewide data for Texas and more layers than are necessary for this analysis. The relevant layers are:

- Points of Interest (POI)
- Places of worship
- Transport
- Traffic

The following filters are applied to the data to create each of the attractor inputs listed below:

- Commuter Rail Station (Transport) – Code – 5601 ('railway_station')
- Public/Private Schools (POI) – Code = 2082 ('school'), 2083 ('kindergarten')
- Grocery (POI) – Code = 2501 ('supermarket'), 2502 ('bakery'), 2511 ('convenience'), 2503 ('kiosk'), 2510 ('general'), 2516 ('butcher'), 2528 ('greengrocer')
- Public Accommodation (POI) – Code = 2001 ('police'), 2002 ('fire_station'), 2005 ('post_office'), 2007 ('library'), 2012 ('community_centre'), 2014 ('arts_centre'), 2721 ('attraction'), 2722 ('musuem'), 2204 ('park'), 2205 ('playground'), 2251 ('sports_centre'), 2110 ('hospital'), 2120 ('doctors'), 2121 ('dentist'), 2101 ('pharmacy'), 2111 ('clinic')
- Places Older Adults Frequent (POI) – Code = 2012 ('community_centre'), 2013 ('nursing_home'), 2101 ('pharmacy'), 2120 ('doctors'), 2111 ('clinic')
- Religious Institutions (Places of Worship) – Full layer dataset
- Public Parking Facilities (Traffic) – Code = 5260 ('parking'), 5261 ('parking_site'), 5263 ('parking_underground'), 5262 ('parking_multistory')

F.3.2 *Longitudinal Employer-Household Dynamics (LEHD; US Census Bureau)*

The US Census Bureau published data on where jobs are located and provides a data viewer (https://onthemap.ces.census.gov/) that can easily be used to download GIS data. The data download provides count of employees (jobs) per Census block.

F.3.3 *Pedestrian Health and Safety Status*

For previous versions of the Sidewalk Prioritization Tool, the Pedestrian Health and Safety Status dataset was prepared by another department within the City. However, the original dataset is no longer being updated. Therefore, an alternative dataset that is regularly updated and can serve as an appropriate replacement was identified. The Centers for Disease Control's CDC PLACES includes a database of various public health indicators. They are grouped as A) Health Outcomes indicators (obesity rates, etc.), B) Prevention indicators (prevalence of health insurance, etc.), C) Health Risk Behaviors indicators (binge drinking, etc.) and D) Health Status indicators (reported general health status).

CDC PLACES is based on the annual Behavioral Risk Factor Surveillance System survey. PLACES reports county-, place-, census tract-, and ZCTA-level data and uses small area estimation methods to obtain 29 (27 in the 2020 release) chronic disease measures for the entire United States. PLACES was last updated December 2021 based on the BRFSS 2019 survey.

Dataset Factors for PSS

Walking has been demonstrated to improve specific health outcomes related to: high blood pressure, depression, cardiovascular disease, diabetes, and obesity (Walking and Health, Walking and Diabetes). Research shows physical activity reduces risk of heart disease, high blood pressure, obesity, diabetes, depression, stroke. PLACES includes multiple datasets that indicate the prevalence of health outcomes that could be improved by increased access to comfortable places to walk. The following specific outcome indicators are used to create a composite score:

1. Obesity
2. Cardiovascular Disease
3. High Blood Pressure
4. Diabetes
5. Depression
6. Stroke

Scale and Creating a Composite

The indicators identified above are combined into a composite dataset at the Census Tract scale. After downloading the six datasets above, the raw values (which represent percent of population affected) must be manually rescaled in a range of 0 to 100. Then, an evenly-weighted composite of the 0-100 values is manually created. City of Austin staff should perform this process regularly (annually or as updated data is available is recommended). Points are then awarded as follows:

Composite Score	Classification	Points awarded in the PSS
80-100	Very High Needs	100
60-80	High Needs	75
40-60	Moderate Needs	50
20-40	Low Needs	25
0-20	Very Low Needs	0

F.4 Updated Calculation Methodology

Below is documentation of how the Sidewalk and Shared Street Prioritization Tool calculates scores.

PAS Score (56% or overall score)

- "pas_attractor_score" (45% of PAS Score)
    - This score is calculated by looking at the following destinations and assigning scores based on how many destinations are within 1/8 mile, 1/4 mile. Each category is capped to a certain maximum number of points and the "pas_attractor_score" is also capped to a maximum number of 100 points. The score for each destination below follows the format of (X,Y,Z) where X is points per destination within 1/8 miles, Y is points per destination within 1/4 miles and Z is the maximum number of points that a given destination type can receive.
        - "State or Local government offices": (10, 5, 100) – This is calculated by counting the number of features in the "building_foorptints" layer that intersect with "land_use_parcels" features coded as government buildings (land_use_code = 630).
        - "Commuter Rail Stops": (10, 5, 100) – OSM data
        - "Public or Private Schools": (10, 5, 100) – OSM data
        - "Transit Stops": (9, 4.5, 50) – CapMetro data
        - "Grocery Stores": (9, 4.5, 100) – OSM data
        - "Public Accommodations": (8, 4, 100) – OSM data
        - "Places Older Population Frequent": (8, 4, 100) – OSM data
        - "Blocks with > 500 Jobs": (8, 4, 100) – Census LEHD data
        - "Affordable Housing": (7, 3.5, 100) – this is per 25 units – COA data (only include those whose affordable period is at least 5 years into the future)
        - "Parking Facilities": (5, 2.5, 100) – OSM data

        - "Places of Worship": (5, 2.5, 100) – OSM data
- “pas_population_score": 25% of PAS score
    - Count the total population living within 0.5 miles of a segment based on intersection between Census blocks and 0.5 mile segment buffer
- "pas_income_score": 5% of PAS score
    - If a segment intersects with a Census tract with median household income <= $50000, then it receives 100 pts, otherwise it receives 0 pts
- "pas_sw_coverage_score": 10% of PAS score
    - We use a street network layer which is an output of Network Tools which joins sidewalks to street centerlines. This layer has information on whether there is existing sidewalk on one side, both sides, or no sides of the street. This layer also has information on street level
    - This layer is joined with the prioritization layer using ArcGIS’s conflation tools.
    - For street_level = 1 with sidewalk coverage on one side and for street_level > 1 with sidewalk coverage on both sides, there is adequate sidewalk coverage and they receive 0 points. For streets without adequate sidewalk coverage, they receive 100 points
- "pas_requests_score": 10% of PAS score
    - 75 points if a segment overlaps with ADA task force request layer for 100 feet. The ADA task force layer is the same one used in the previous plan
    - 25 points if a segment is within 100 feet of a 311 request which is categorized as ‘Sidewalk Repair’. The data is obtained from the city’s open data portal
- "pas_transit_score": 2.5% of PAS score
    - If the segment overlaps with the transit corridors layer, it receives 100 pts, otherwise it receives 0 pts.
    - This transit layer is obtained by merging the following layers
        - ASMP network with the query *“PRIORITY_NETWORK LIKE '%Transit%' Or PRIORITY_NETWORK LIKE '%transit%'”*
        - Core transit corridors layer from the city’s open data layer
        - Project Connect routes layer from the city
- "pas_bike_lane_score": 2.5% of PAS score
    - If a segment overlaps with bike lanes layer, it receives 100 pts. Otherwise, it receives 0 pts

PSS Score (44% of overall score)

- "pss_street_level_score": 45% of PSS score
    - Scores based on street level

Street Level	Score
1	50
2	75
3, 4, or 5	100

- "pss_health_safety_score": 35% of PSS score
    - Health and safety score data set is updated from a selection of CDC PLACES layer

    - The scores are all rescaled based on percentiles instead of linear so that there is an even spread of scores
    - Scores are assigned based on the highest health needs level in Census tracts that intersect with a segment as follows
- "pss_crash_score": 20% of PSS score
    - 10 points for every pedestrian crash within 100 feet of the features (up to a maximum of 100 points)

APPENDIX G. SIDEWALK AND SHARED STREET CONDITIONS AND PRIORITIES (MAPS AND TABLES)

Figure G.1 – Map of Planned Sidewalk and Shared Street Priorities

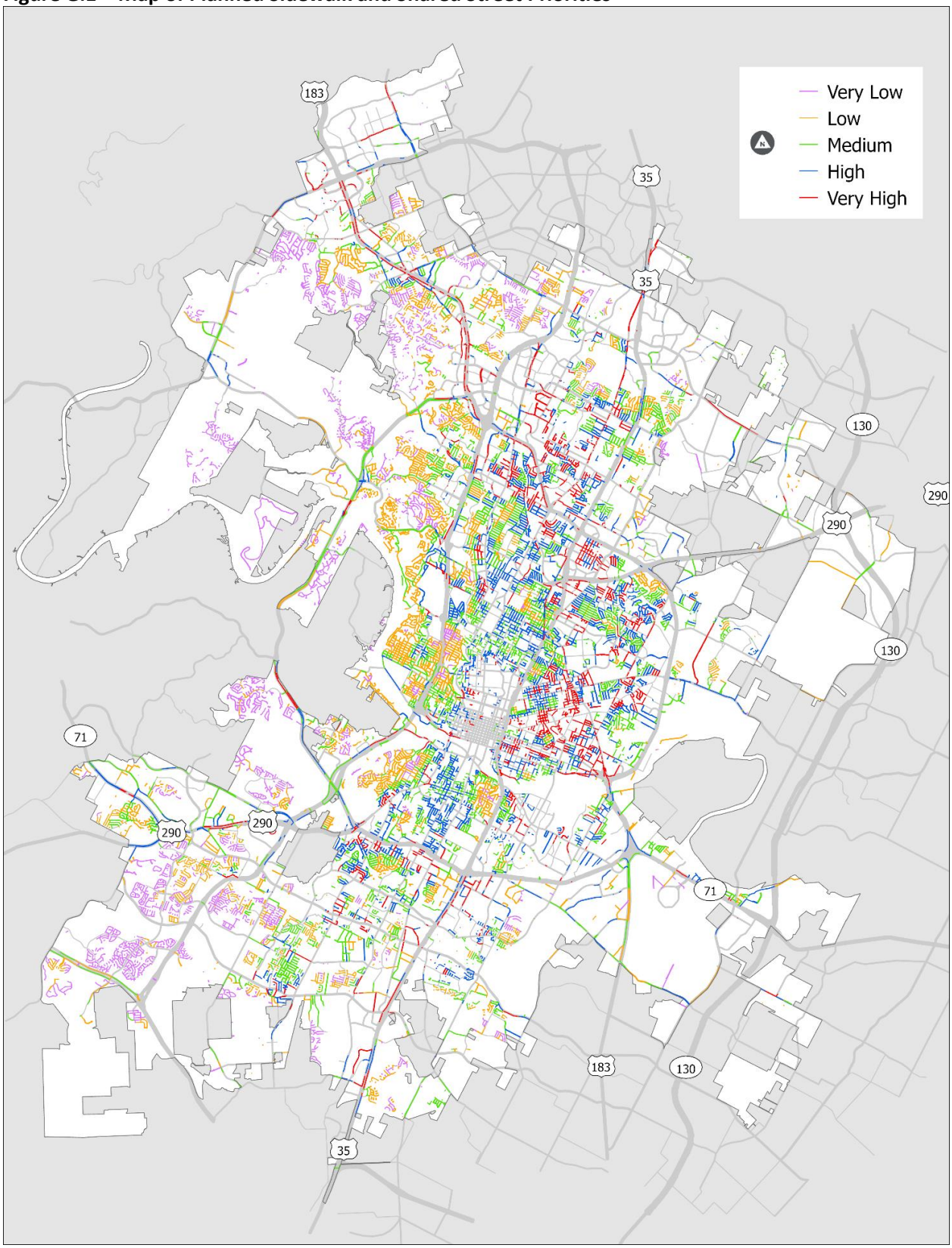


Figure G.2 – Map of Existing Sidewalk Priorities

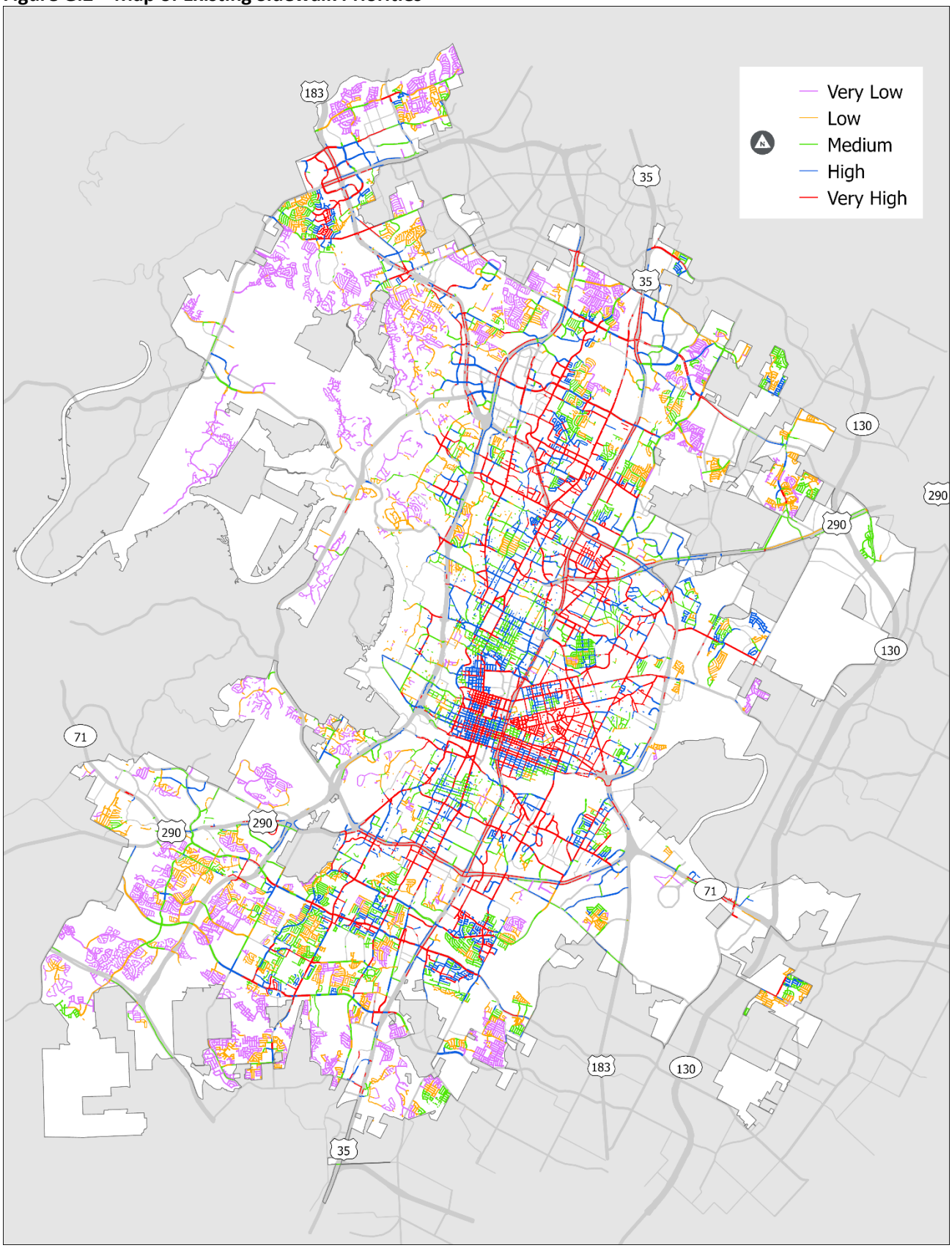


Figure G.3 – Map of Existing Sidewalk Conditions Assessment

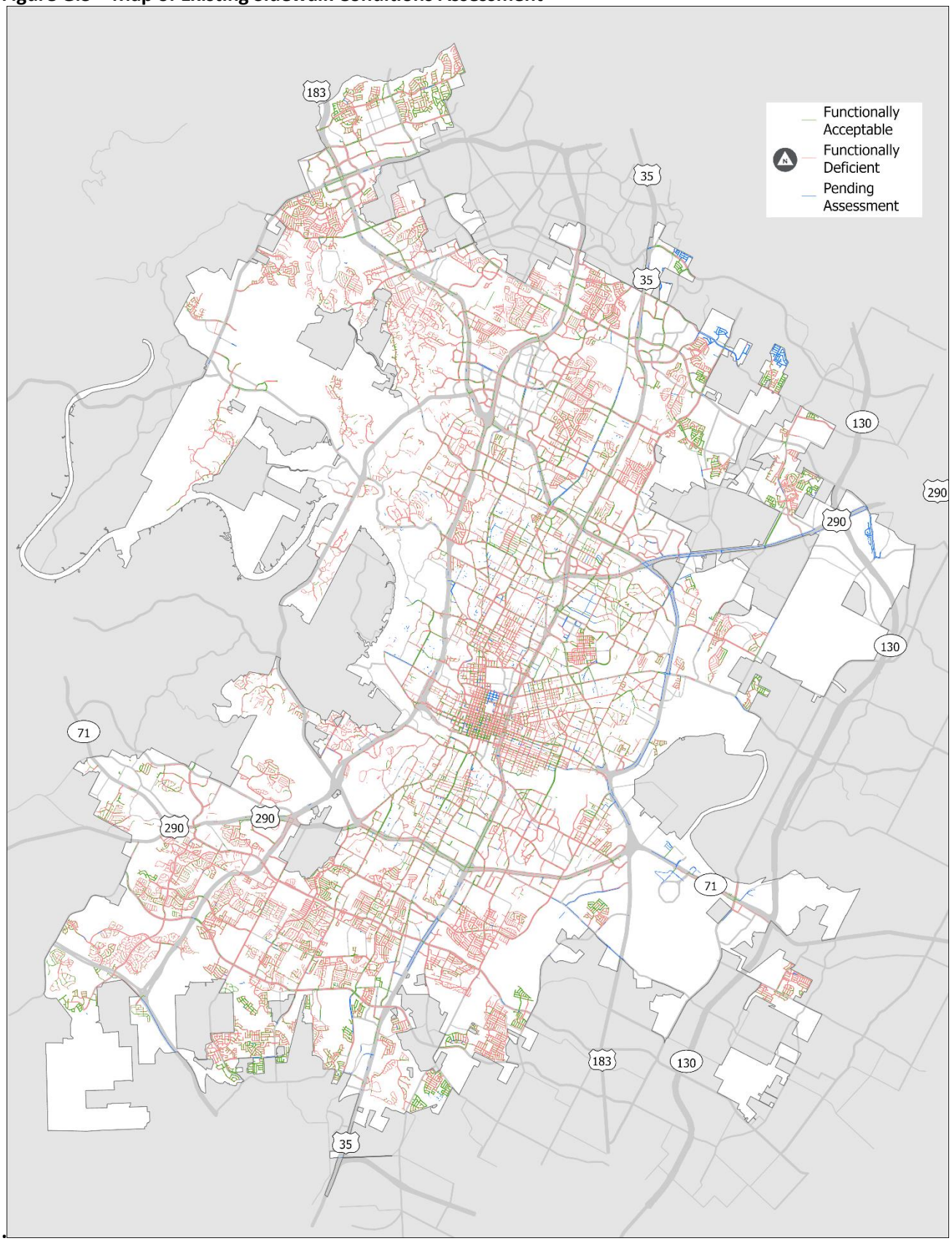


Figure G.4 – Miles of Planned Sidewalk by Council District and Priority

Council District	Very High	High	Medium	Low	Very Low	Unknown Score*	District Total
Council District 1	22.1	28.7	20.6	13.0	1.2	19.7	**105.3**
Council District 2	9.0	14.6	13.4	16.6	4.2	12.1	**69.9**
Council District 3	23.2	23.8	13.2	8.0	0.1	0.8	**69.1**
Council District 4	20.0	18.2	9.8	0.9	0.0	2.6	**51.6**
Council District 5	11.0	16.3	16.1	9.1	0.9	8.9	**62.3**
Council District 6	9.5	11.5	13.5	12.2	7.3	14.4	**68.2**
Council District 7	17.8	27.2	15.5	11.3	2.3	6.1	**80.1**
Council District 8	4.9	15.1	24.0	18.9	3.6	14.2	**80.8**
Council District 9	7.1	37.2	31.0	14.8	0.8	0.1	**91.0**
Council District 10	9.4	16.0	33.7	37.6	13.8	20.4	**130.8**
Priority Level Total	**134.1**	**208.4**	**190.7**	**142.4**	**34.2**	**99.2**	**809.0**

Figure G.5 – Miles of Planned Shared Street by Council District and Priority**

Council District	Very High	High	Medium	Low	Very Low	Unknown Score*	District Total
Council District 1	17.2	29.5	30.8	11.5	2.5	4.4	**95.8**
Council District 2	1.4	3.3	8.8	5.9	0.1	3.9	**23.3**
Council District 3	5.1	17.9	16.1	5.1	0.0	0.2	**44.3**
Council District 4	12.4	22.5	13.8	0.7	0.0	0.0	**49.3**
Council District 5	4.6	16.2	30.7	35.9	4.4	1.1	**92.9**
Council District 6	0.0	0.5	4.2	19.6	8.6	1.8	**34.8**
Council District 7	11.4	28.9	29.3	27.9	0.6	1.7	**99.9**
Council District 8	0.0	1.1	8.8	19.3	8.9	2.5	**40.6**
Council District 9	4.1	17.8	24.6	19.2	3.0	0.1	**68.7**
Council District 10	0.6	9.6	32.7	114.0	24.7	6.4	**187.9**
Priority Level Total	**56.6**	**147.2**	**199.6**	**259.0**	**52.8**	**22.1**	**737.4**

* The prioritization tool is run on street centerlines in order to standardize and normalize the scores and the priority score is then joined to sidewalk features based on a unique ID field in the GIS data. Some sidewalk segments did not receive a score because they are not associated with a single street centerline, often due to data incompleteness in the street centerline data used.

** Planned shared streets mileage is the frontage mileage not the street centerline mileage

Figure G.6 – Miles of Existing Sidewalk by Council District and Priority

	Very High	High	Medium	Low	Very Low	Unknown Score*	District Total**
Council District 1	93.1	67.6	80.0	74.7	37.0	11.4	**363.9**
Council District 2	44.0	63.8	84.4	80.3	52.1	5.7	**330.3**
Council District 3	88.3	58.8	40.8	19.0	2.9	3.3	**213.0**
Council District 4	82.7	44.7	34.6	16.9	0.4	0.7	**180.0**
Council District 5	37.6	42.2	59.7	69.0	88.5	1.0	**298.0**
Council District 6	30.4	34.1	45.8	68.0	164.3	1.8	**344.4**
Council District 7	58.8	61.6	54.3	54.4	78.2	3.1	**310.4**
Council District 8	4.6	15.4	50.1	91.6	188.3	4.7	**354.8**
Council District 9	66.3	85.3	65.4	12.0	2.8	1.0	**232.8**
Council District 10	17.3	26.7	30.0	50.2	80.1	2.0	**206.2**
Priority Level Total	**523.0**	**500.4**	**545.1**	**536.0**	**694.6**	**34.6**	**2,833.7**

* The prioritization tool is run on street centerlines in order to standardize and normalize the scores and the priority score is then joined to sidewalk features based on a unique ID field in the GIS data. Some sidewalk segments did not receive a score because they are not associated with a single street centerline, often due to data incompleteness in the street centerline data used.

**Due to data complexity and analytical margin of error these numbers do not total to the exact same amount shown within the plan.

Figure G.7 – Existing Sidewalk Condition Assessment

	Acceptable	Deficient	Pending Assessment	Percent Acceptable
All Existing Citywide	**871.8**	**1,796.8**	**166.1**	**33%**
Very High Priority Citywide	167.0	324.0	32.0	34%
High Priority Citywide	150.5	306.9	43.4	33%
All Existing in EAZ	**260.9**	**507.9**	**81.8**	**34%**
Very High Priority in Focus EAZs	87.7	168.2	17.5	34%
High Priority in Focus EAZs	57.3	117.9	25.0	33%

APPENDIX H. CROSSING GAP IDENTIFICATION AND PRIORITIZATION METHODOLOGY

This appendix describes the methodology for 1) identifying corridor segments where there are insufficient opportunities for a safe and comfortable crossing (also referred to as "gaps" or "crossing gaps"), and 2) prioritizing these segments. Identifying corridor segments where there are insufficient crossing opportunities is itself a two-part process that involves first identifying crossings that are already suitable for use, and second, evaluating corridors to measure the gap in suitable crossings, described in Parts 1 and 2 below. The prioritization approach for deficient segments is described in Section H.3.

H.1 Crossing Suitability Analysis

The Oregon Department of Transportation (ODOT) has developed a framework for evaluating the suitability of pedestrian crossings. The framework applies the simple logic of the Bicycle Level of Traffic Stress to pedestrian street crossings. The methodology considers basic details including the speed of cross traffic, distance to cross, and mitigating features like signals and refuge islands. The thresholds identified by ODOT result in a Pedestrian Level of Traffic Stress (PLTS) score from PLTS1 through PLTS4 representing the following conditions, as described in ODOT's *Analysis Procedures Manual*[13] (PLTS descriptions quoted directly from the manual):

- **PLTS 1**- Represents little to no traffic stress and requires little attention to the traffic situation.
- **PLTS 2**- Represents little traffic stress but requires more attention to the traffic situation than of which young children (defined by ODOT as 10 years of age or older) may be capable.
- **PLTS 3**- Represents moderate stress and is suitable for adults. An able-bodied adult would feel uncomfortable but safe using this facility.
- **PLTS 4**- Represents high traffic stress. Only able-bodied adults with limited route choices would use this facility.

ODOT's manual identifies PLTS2 as a reasonable target for most situations.[14]
The methodology described here include some modifications to the original ODOT tables to better reflect conditions in the City of Austin, and to better align with Austin's guidelines for selecting countermeasures for street crossings. As with the original ODOT methodology, these modifications are informed by FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations and FHWA's Crash Modification Factors (CMF) Clearinghouse. Unless otherwise stated, the tables in this document refer to the configuration, speeds, and traffic volumes of the street that is being crossed.

H.1.1 *Assumptions*

To apply this model to Austin, the suitability analysis was adjusted by making assumptions based on the Street Level as assigned in the Austin Strategic Mobility Plan (ASMP). Due to the low-speed, low-volume characteristics of a Level 1 street it is assumed that all crossings of Level 1 streets are suitable for the purposes of this analysis. In some cases, an individual assessment by an Austin Transportation Department (ATD) Engineer may find that an individual crossing of a Level 1 street may not be suitable due to unique characteristics of that crossing. Further assumptions based on Street Level relate to gaps in data quality. There are many cases where data is incomplete or unavailable for traffic speed, number of travel lanes, and vehicle volumes. In these cases, assumptions will be applied based on the Street Level as follows:

[13] https://www.oregon.gov/ODOT/Planning/Pages/APM.aspx see Chapter 14 section 5
[14] https://www.oregon.gov/ODOT/Planning/Documents/APMv2_Ch14.pdf section 14.5.3 (page 14-37)

Figure H.1 – Street Configuration Assumptions When Data is Incomplete

Street Level	Intersecting Street Level	Speed	# of Lanes at unsignalized intersection*	# of lanes at signalized intersection*	AADT>=
2	1	30	2	N/A	9,000
2	2	30	3	3	9,000
2	3+	30	3	4	9,000
3	all	35	5	6**	15,000
4	all	45	5	6**	25,000
5	all	45	5	7***	25,000

**At intersection; total, both directions*

***Assumes 4 through lanes, plus left **and** right turn lanes*

****Assumes 6 through lanes, plus left **or** right turn lanes.*

H.1.2 *Unsignalized Crossings*

The comfort and safety of a crossing is completely different for an unsignalized intersection compared with a signal-controlled intersection. In addition, the presence of a median refuge can impact the comfort and safety of an intersection. The base rating tables for unsignalized intersections are separated depending on whether there is a median refuge or not to account for the safety and comfort differences for users.

Base Unsignalized PLTS Ratings

Below are three Base PLTS tables, which assume no additional countermeasures at partially-controlled intersections (e.g., the intersecting street is stop-controlled but the street being crossed is not).

Figure H.2 – Base PLTS for Unsignalized Crossing with No Median Refuge

Prevailing Speed or Speed Limit	Total Lanes Crossed (Both Directions)						
	2 Lanes			3 Lanes			4+ Lanes
	<5,000 vpd*	5,000-9,000 vpd	>9,000 vpd	<9,000 vpd	9,000-15,000 vpd	>15,000 vpd	any
25 or less	1	2	3	3	3	4	4
30	2	3	3	3	3	4	4
35	3	3	4	4	4	4	4
40 or more	3	4	4	4	4	4	4

**Vehicles per day*

Figure H.3 – Base PLTS for Unsignalized Crossing with Median Refuge*

Prevailing Speed or Speed Limit	Total Lanes Crossed (Both Directions)						
	2/3 Lanes			4/5 Lanes			6+ Lanes
	<5,000 vpd	5,000-9,000 vpd	>9,000 vpd	<9,000 vpd	9,000-15,000 vpd	>15,000 vpd	Any
25 or less	1	2	2	2	3	3	4
30	2	2	2	2	3	3	4
35	2	2	3	3	3	4	4
40 or more	3	3	4	3	4	4	4

**Note: crosswalk markings and roadside warning signage are assumed to be included with median refuge.*

Figure H.4 – Base PLTS for Unsignalized Crossing for One-Way Streets

Prevailing Speed or Speed Limit	Maximum Lanes Crossed (per direction)							
	1 Lane	2 Lanes			3 Lanes			4+ Lanes
	any	<5,000 vpd	5,000-9,000 vpd	>9,000 vpd	<9,000 vpd	9,000-15,000 vpd	>15,000 vpd	any
25 or less	1	1	2	2	2	2	3	4
30	2	2	2	2	2	2	3	4
35	2	2	2	3	3	3	4	4
40 or more	3	3	3	4	4	4	4	4

PLTS Adjustments for Unsignalized Crossings

Base PLTS scores are adjusted based on the presence of common countermeasures. This is accomplished by reducing the score (thereby reflecting better conditions) depending on the countermeasure. This table should not be interpreted as recommendations for how to treat high stress crossings. These are simply factors used to estimate the likely stress of intersections across the city. This estimation is intended to identify locations where crossing improvements may be warranted. The selection of treatments for a specific crossing project should be determined during an engineering study of the individual intersection.

Figure H.5 – Adjustment Factors for Unsignalized Crossings

Treatment	Adjustment
RRFB – Assumes high-visibility crosswalk markings, roadside warning signage, and advance yield markings (if appropriate based on FHWA countermeasure guidance) are also present.	-1
Raised crosswalk – Only appropriate on streets that are <30 MPH and <9,000 vpd.	-1
Stop control – On the street being crossed. It is assumed that any street that intersects a street with a higher Street Level classification will be stop-controlled if there is no signal present. For example, where a Street Level 2 intersects a Street Level 3, it is assumed the Level 2 street is stop-controlled and the 1 point deduction to the PLTS score is applied.	-1

Adjustments can only improve (reduce) the score by 1 point to a minimum of PLTS 2 regardless of how many treatments are present. In potential future updates to PLTS ratings, City staff may apply a manual override at locations where crossings have been improved using other appropriate countermeasures as identified in FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.

H.1.3 *Signalized Crossings*

Note: signalized crossings were rated using the methodology below. However, whether these ratings apply to the identification of crossing gaps is a user-selectable function in the tool described in Section H.2. For the initial gap identification performed in 2022, all signalized crossings were deemed to be suitable so that the analysis and prioritization could focus on identifying needs for changes to unsignalized crossings.

The original ODOT methodology does not include detailed guidance for signalized intersections. Following the general principles for unsignalized intersections, the methodology was expanded for Austin.

Because cross traffic is stopped by the signal, the speed and volume of traffic on the street that is being crossed has less influence on the comfort of a signalized crossing. Instead, roadway width and interactions with turning traffic are the primary determinants of safety and comfort at signalized intersections. Various other factors

influence the comfort and safety of a signalized intersection (including presence of turn lanes on the street being crossed and on the intersecting street, whether right-turn-on-red is allowed, whether left turn signals are "permissive" or "protected", and the speed and volume of tuning traffic from the intersecting street). However, data and computational limitations prevent many of these nuances from being incorporated into a citywide analysis of this scale. Therefore, assumptions are made based on Street Level classification as to the number of lanes and presence of features such as medians.

Base Signalized PLTS Ratings

Below is the base PLTS table for signalized crossings, which assumes all crossings have pedestrian countdown timers, but DO NOT have refuge islands, prohibit right turn on red, have protected left turn phases, or leading pedestrian intervals.

Figure H.6 – Base PLTS for Signalized Crossings

Configuration of the intersecting street*	Total Lanes Crossed*				
	2 Lanes	3 Lanes	4 lanes	5 lanes	6+ Lanes
PHB/HAWK at midblock location	1	2	3	3	3
2 Lanes	2	2	3	3	4
3 Lanes	2	3	3	3	4
4 Lanes	2	3	3	4	4
5 Lanes	3	3	4	4	4
6+ Lanes	3	4	4	4	4

**Total number of lanes, including turning lanes. Where accurate data is not available, this analysis defaults to the Street Configuration Assumptions table at the beginning of this document.*

The number of lanes includes any turning lanes being crossed. Because of data limitations and incompleteness regarding presence and number of turn lanes, the assumptions in the Street Configuration Assumptions table at the beginning of this document were used to estimate number of lanes at intersections based on Street Level classification. Manual edits may be made by City staff at a later point.

PLTS Adjustments for Signalized Crossing

The Base PLTS is adjusted for crossings at signalized intersections that contain certain features that either have demonstrated crash reduction factors (CRFs) or are otherwise considered best practices to lower stress at intersections. Figure I.7 identifies the adjustments used in the 2022 rating of crossings, as well as additional adjustment factors that could be used in the future if complete data were created.

Adjustment factors are applied to the base score using the following protocol:

1. PLTS scores are rounded up. For example, a street with a base PLTS score of 3 that has a leading pedestrian interval will receive a score of 2.5, which would round back up to PLTS 3. To achieve PLTS 2, that crossing would need an additional treatment(s).
2. PLTS scores at signalized intersection can be adjusted a maximum of two points (e.g., the best possible score for an intersection with a base PLTS score of 4 that has all of the treatments listed above) is PLTS 2.

Figure H.7 – Adjustment Factors for Signalized Crossings

Treatment	Adjustment	Notes
Pedestrian refuge (island or within median)*	-0.5 (-1 for PHB crossings)	CRF of 31.5% for vehicle-pedestrian crashes.
Leading Pedestrian Interval	-0.5	CRF of 13% for vehicle-pedestrian crashes.
Due to data limitations, the factors below were NOT included in the 2022 evaluation.		
All-red signal phase	-1	
No right turn on red	-0.25	Not well studied from a crash reduction perspective, but believed to decrease stress
Tightened corner radius	-0.5	Decreases turning speeds. Radius should be at or less than 20 feet.
>20 degree crossing angle	+0.25	Lengthens crossing.
Protected Left Turn	-0.5	CRF of 33% for vehicle-pedestrian crashes.

H.1.4 *Determining Suitability and Future Updates*

For this analysis, a crossing with a PLTS score of 1 or 2 is considered suitable. A crossing with a PLTS 3 or 4 score is not considered suitable. However, the gap identification tool described in Section H.2 allows users to adjust which crossings are considered suitable to vary the analysis.

As the City implements new crossing treatments and develops better data on existing treatments, it can manually update individual crossing scores, which will impact the identification of gaps in Section H.2 of this methodology.

H.2 Crossing Gap Identification Tool

Building upon the crossing suitability analysis, the City of Austin has a new GIS-based tool that allows it to identify gaps between suitable crossings. Gaps are defined as exceeding the maximum desirable distance between marked crossings, as defined by the Transportation Criteria Manual[15] (TCM). These guidelines depend on factors such as the ASMP Street Level and whether or not the crossing is on the Transit Priority Network. The spacing guidelines in the TCM are summarized in Table 4-1 of the TCM as follows:

Table 4-1 – Pedestrian Crossing Spacing

Street Level	Context	Maximum Desirable Distance Between Marked Crossings (ft)
2	On Transit Priority Network	600
	All other streets	600
3	On Transit Priority Network	600
	All other streets	1,200
4	All	1,200
5	All	All vehicle crossings & every ½ mile maximum where vehicle crossings don't exist
All	All	Within 100 of all transit stops

The Crossing Gap Identification Tool evaluates the street network comprising Level 2 streets and above and consolidates street segments streets into continuous corridors. Corridors are defined as the continuation of a street until its terminus. In most cases, corridors are identified by a consistent street name and street level. In cases where the trajectory of one approaching leg of an intersection creates ambiguity for whether it continues through the intersection, the street name is used to determine continuity (i.e. if the street name continues through the intersection, the corridor is assumed to continue through even if the geometries are skewed). Due to data limitations, this analysis and the associated tool do not factor in Level 5 streets (which primarily include expressways and other limited-access roadways).

With the network broken into continuous corridors, the tool then looks at the crossing suitability scores and user-selected variables to divide each corridor anywhere where there is a crossing that meets the definition of suitability. The divided segments are then trimmed by half the maximum desirable distance lengths (e.g., if the maximum desirable distance is 600 feet, then 300 feet is trimmed from each end of the divided segments). The resulting divided and trimmed segments visually represent the impact of gaps between suitable crossings.

H.2.1 *Suitability Variables*

By default, the Crossing Gap Identification Tool considers crossings with PLTS scores of 1 or2 to be suitable, and all other crossings to not be suitable. However, the tool allows users to adjust the definition of suitable crossings to produce different results for different planning purposes. Namely, the tool allows the user to filter out the following crossings from the analysis (meaning they do not contribute to the identification of gaps:

1. Signalized intersections (selecting this variable omits signalized intersections from the analysis)

[15] https://library.municode.com/tx/austin/codes/transportation_criteria_manual

2. Streets with 1 lane per direction and pedestrian refuge islands (selecting this variable omits these crossings from the analysis)

The analysis performed to identify gaps for the 2023 Sidewalks, Crossings, and Shared Streets Plan used both of these variables, omitting both from the analysis.

H.2.2 *Crossing Gap Identification Tool Outputs*

The outputs of this tool are individual corridor segments that are not permeated by a comfortable crossing. These are considered gaps between suitable crossings, but do not specify exactly where crossings should be added (which is a decision requiring further case-by-case evaluation and engineering judgement).
The tool outputs three GIS layers:

1. A layer illustrating 600-foot gaps (gaps on Level 2 streets and Level 3 streets that are on the transit priority network and 1,200 foot gaps (gaps on all other street levels).
2. A layer illustrating gaps near transit stops, trimmed to within 100 feet of transit stops. These gaps overlap the 600- and 1,200-foot gaps and are represented separately for clarity.

H.3 Crossing Gap Prioritization Tool

The Crossing Gap Prioritization Tool builds upon the outputs of the Crossing Gap Identification Tool to prioritize gaps (deficient corridors) for crossing improvement projects. Prior to running this tool, users must run a separate data consolidation tool ("Sidewalks to Streets") to determine which gap segments have complete sidewalks on both sides.

For accurate prioritization, this tool should be run after crossing gaps are recalculated.

The output from the tool is a GIS dataset of crossing gaps with a composite 0-100 priority score, as well as component scores for each of the variables described below.

H.3.1 *Factors, Variables, and Weights*

The prioritization factors and weighting below were chosen to align with ASMP goals, ATXWBR values, and the goals of the 2023 Sidewalks, Crossings, and Shared Streets Plan. The variables and data sources were chosen to align with sidewalk prioritization and based on available data.

Figure H.8 – Crossing Prioritization Logic

Factor	Weight	Variable / Data Source	Scoring
Mode Shift	20%	Highest Pedestrian Trip Potential score intersected by the gap corridor (see below).	Up to 20 points
Safety	25%	Number of Lanes & Posted Speed Limit Gap corridors are divided into 200 foot segments. 2 points are awarded to any segment with a max posted speed limit of 30 MPH and 2 lanes of traffic; with 2 extra points for every additional 5 MPH, and 5 points for any additional lane. Segments are then reaggregated into corridors and a weighted average score is calculated. Examples: 2 lanes, 25 mph = 0 points // 2 lanes, 30 mph = 2 points // 3 lanes, 35 mph = 9 points	Up to 15 points
		Part of Pedestrian HIN	Yes – 10 points
Equity	30%	Pedestrian Health and Safety Status (see Appendix F) Health needs per zip code, based on factors such as crime statistics, obesity, diabetes, heart disease, and respiratory disease)	Very High Needs – 15 points High Needs – 10 points Moderate Needs – 5 points
		Corridor segment is within 1/8 mile or 1/4 mile of long term (20+years) affordable housing according to the City's Affordable Housing Inventory	1/8 mile – 15 points 1/4 mile – 10 points
Network Connectivity	10%	For Level 2, 3, and 4 streets (defined in Section 2.4 of the Transportation Criteria Manual), are there complete sidewalks on both sides of the street?	Yes – 10 points No – 0 points
Requests	15%	Was the project requested by ADA Task Force?	Yes - 15 points
		Was the project requested by a citizen through 311 or ATXWBR process?	Yes - 4 points per request per location, up to 12 points

H.3.2 *Pedestrian Trip Potential Variable*

Trip potential (sometimes referred to as "demand") is an evaluation of factors that are likely to lead to higher levels of walking activity and therefore pedestrian crossing usage. The trip potential variable is similar to the "Proximity to Attractors" portion of the Sidewalk Prioritization Tool, but because of differences in the network elements being prioritized, a different approach to calculation was needed and results in a heat map of trip potential.

The methodology developed Crossing Gap Prioritization employs an origin-destination model for estimating potential. Demographic factors (population density and household income) and intersection density are incorporated into the model. The following categories of data are included as inputs:

- Population
- Employment
- Campuses of higher education
- Transit stops
- Parks
- K-12 Schools
- Commercial activity

Because the origin-destination connections are modeled without regard for the underlying transportation network, this analysis identifies locations where trip activity could occur regardless of whether crossings (or sidewalks for that matter) currently exist. This is useful for highlighting areas where new or improved connections would be expected to increase walking activity.

Composite Trip Potential Index

The composite index for trip potential (weighting of various origin-destination pairs) was based on an evaluation of the National Household Travel Survey (NHTS), which surveys trip activity across the population and distinguishes between different origins and destinations.

Figure H.9 – Composite Trip Potential Weighting

Origin features	Destination features	Comparable NHTS trip type	Composite index weighting
Population	Parks (major and minor)	Social or recreational	15
Population	Transit	n/a	20
Higher education	Transit	School or church	3
Transit	Employment	Work	2
Population	Employment	Work	2
Population	K-12 Schools	School or church	3
Population	Higher education	School or church	3
Population	Commercial activity	Shopping; family or personal business	15
Employment	Commercial activity	Shopping; work-related business	7
Transit	Commercial activity	Shopping; family or personal business	15
Higher education	Commercial activity	Shopping; family or personal business	15

Adjustment Factors

Beyond the raw pull between origins and destinations, there are underlying demographic or built environment factors that can affect the magnitude of walking activity. This model applies two multiplicative factors that boost the trip potential results.

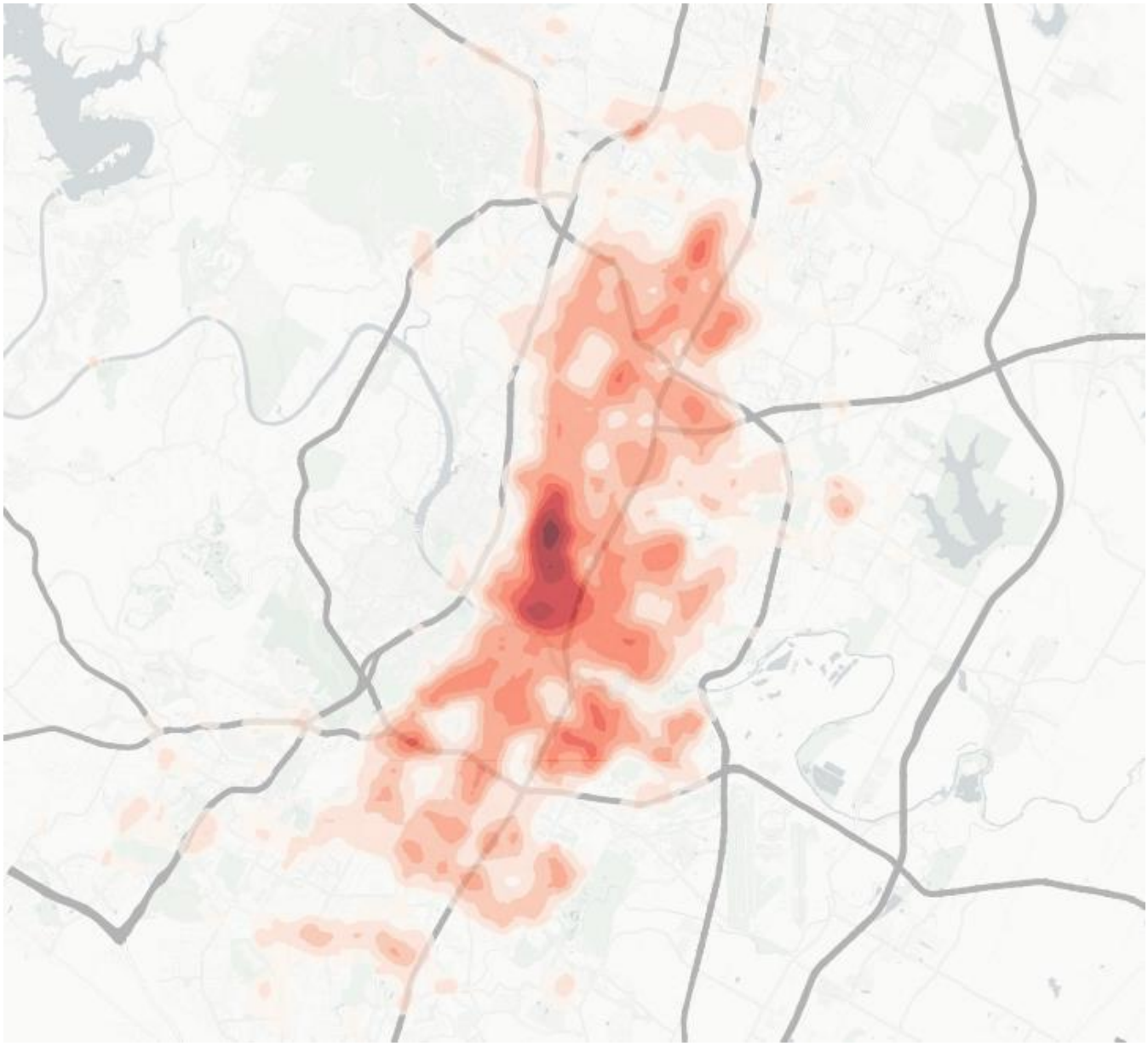
1. **Intersection Density –** Some studies have indicated the density of intersections as a factor in walking trips. This analysis applies an adjustment to the various origin-destination indices. An adjustment of up to 25% is used in areas with the highest intersection density. In areas with the lowest density, no adjustment is made. The intersection density is calculated as the number of intersections within ¼ mile.

While a correlation between intersection density and walking activity exists, no correlation with biking activity has been shown so this factor is only used for walking trips.

2. **Household Income** – The model uses household income as another factor in walking trips. Lower-income households are less likely to own cars and more likely to use walking as a regular form of transportation. The model applies an increase to population-based measures based on the proportion of households below the poverty level, scaling linearly from 0% to 10%. In other words, a census tract with the highest proportion of low-income households will receive an increase of 10% above its raw score. A census tract with the lowest proportion of low-income households will receive no increase (0%). And tracts between them will have their adjustment factor scaled linearly between the two.

The resulting trip potential index heat map is shown below.

Figure H.10 – Composite Trip Potential Index Heat Map



APPENDIX I. CROSSING GAP MAPS

Figure I.1 – Map of Existing Crossing Gaps

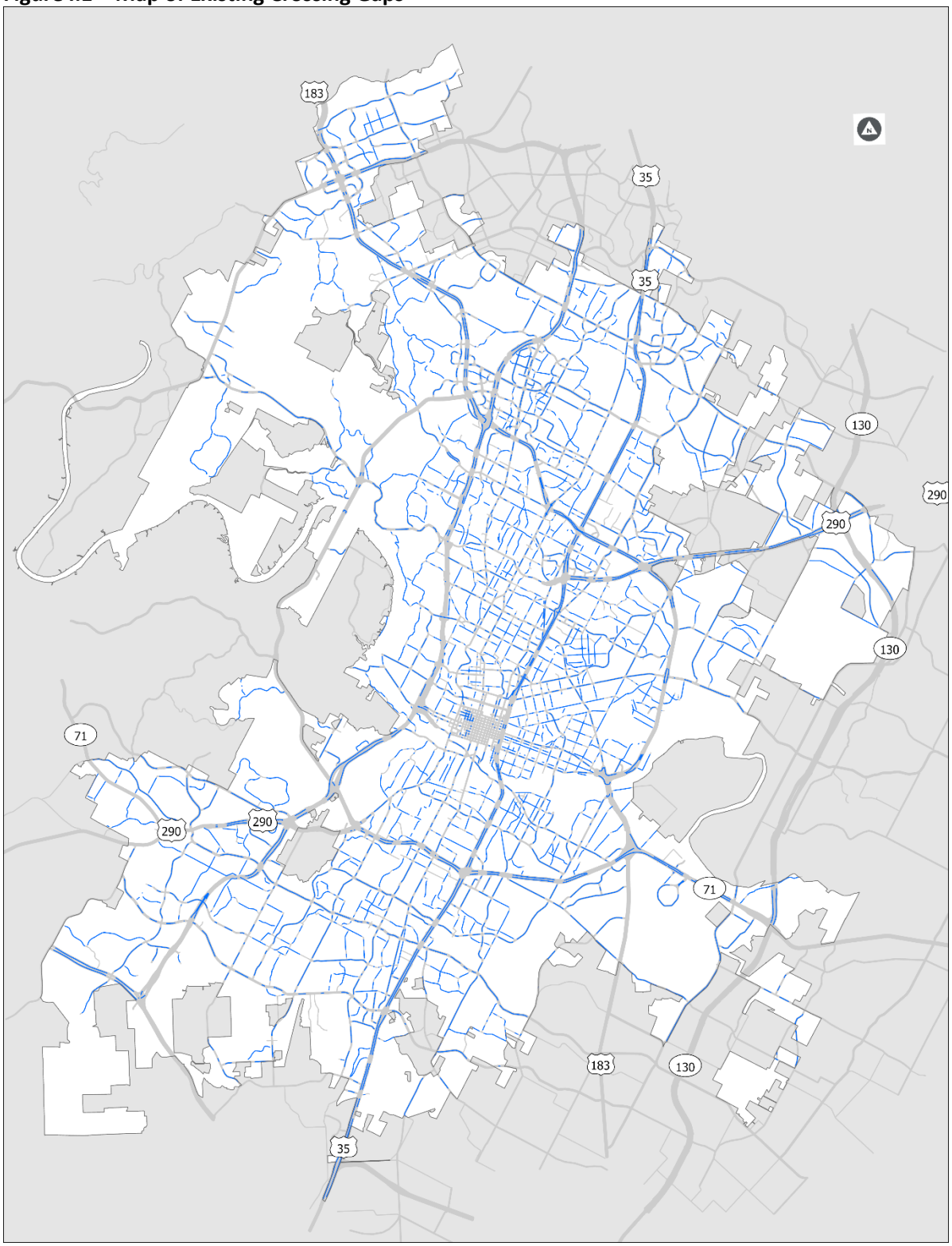


Figure I.2 – Map of Crossing Gaps by Priority