12650 DETROIT AVENUE 44107 216-529-6055
www.lakewoodoh.gov

Issued 03/26/24

PUBLIC NOTICE – PUBLIC SAFETY COMMITTEE

Public Safety Committee will meet Monday April 1, 2024 at 6:30 p.m. in the Auditorium of Lakewood City Hall at 12650 Detroit Avenue. The meeting is open to the public.

Individuals with disabilities who require accommodations for participation in meetings must request accommodations at least 3 business days ahead of the scheduled meeting. Contact Michelle Nochta at (216) 529-5906 michelle.nochta@lakewoodoh.net.

The meeting will be livestreamed on the City's website at the following link:

www.lakewoodoh.gov/councilvideos

PUBLIC COMMENT PROTOCOL (Updated 6/21)
The public is invited to comment on agenda items in person or by submitting a written comment in advance of the meeting using the eComment platform available HERE. New users must create an eComment account.

The agenda is as follows:

Approval of the minutes of the March 18th meeting of the Public Safety Committee.

RESOLUTION 2023-73 - A RESOLUTION to take effect immediately provided it receives the vote of at least two thirds of the members of Council, or otherwise to take effect at the earliest period allowed by law, adopting the Active Transportation Plan and accompanying Safe Streets for All (SS4A) Plan. *(referred to Public Safety 12/18/23)*

Kyle Baker, Chair
Jason Shachner, Cindy Strebig; Members
PUBLIC SAFETY COMMITTEE

Referred to Public Safety
12/18/23

RESOLUTION NO. 2023-73 BY:

A RESOLUTION to take effect immediately provided it receives the vote of at least two thirds of the members of Council, or otherwise to take effect at the earliest period allowed by law, adopting the Active Transportation Plan and accompanying Safe Streets for All (SS4A) Plan.

WHEREAS, the Community Vision is the City's long-range vision for the community, upon which future policy decisions are predicated, and outlines broad goals, policies, and programs to strengthen the environmental, social and economic well-being of the community; and

WHEREAS, among other items, the Community Vision includes the following goals that support the implementation of active transportation and Safe Streets for All (SS4A) efforts:

- Build and maintain infrastructure to support active lifestyles.
- Make transportation decisions that aim to reduce greenhouse gas emissions and promote wellness.
- Expand the dedicated bicycle network city-wide.
- Improve and maintain the existing transportation infrastructure considering universal design, affordability, and environmental impact.
- Adopt “vision zero” goal to reduce motor-vehicle related deaths to zero.

WHEREAS, in July 2022, the City was awarded development assistance by the Ohio Department of Transportation (ODOT) to create a new Active Transportation Plan to replace the existing 2010 School Travel Plan and 2012 Bike Master Plan; and

WHEREAS, the 2021 Federal Bipartisan Infrastructure Law (BIL) established the SS4A discretionary program with $5 billion for projects to prevent roadway deaths and serious injuries; and

WHEREAS, in order to apply for SS4A funding an eligible action plan must be adopted by the local community; and

WHEREAS, the prevention of roadway deaths and serious injuries is a priority of the City of Lakewood and the development of a SS4A Plan helps achieve this goal and builds upon the ATP in meeting federal funding eligibility requirements.

WHEREAS, the City, through its consultant, Toole Design, and a public engagement process with guidance from an advisory Stakeholder Committee, has developed an Active Transportation Plan and Safe Streets for All (SS4A) Plan that outline a pathway towards improved and safer bicycle, pedestrian, and vehicular transportation across the City; and

WHEREAS, the City desires to adopt both Plans as guiding documents for future decisions related to safety improvements for all modes of transportation and bicycle and pedestrian infrastructure and programming; and

WHEREAS, as set forth in Section 2.12 of the Third Amended Charter of the City of Lakewood, this Council by a vote of at least two thirds of its members determines that this resolution is an emergency measure and that it shall take effect immediately and that it is necessary for the immediate preservation of the public property, health, and safety and to provide for the usual daily operation of municipal departments in that the resolution will further the goal of providing active and safe transportation throughout the City; now, therefore,

BE IT RESOLVED BY THE CITY OF LAKEWOOD, STATE OF OHIO:

Section 1. The City of Lakewood Active Transportation Plan and Safe Streets for All (SS4A) Plans as generally attached are hereby adopted.

Section 2. It is found and determined that all formal actions of this Council concerning and relating to the passage of this resolution were adopted in an open meeting of this Council, and that all such deliberation of the Council and of any of its committees that resulted in such formal action were in meetings open to the public in compliance with all legal requirements.

Section 3. This resolution is hereby declared to be an emergency measure necessary for the immediate preservation of the public peace, property, health, safety and welfare in the City and for the usual daily operation of the City for the reasons set forth and defined in the preamble to this resolution, and provided it receives the affirmative vote of at least five (5) members of Council, this resolution shall take effect and be in force immediately upon its adoption by the Council and approval by the Mayor; otherwise, it shall take effect and be in force after the earliest period allowed by law.

Adopted:_____

_____
Sarah Kepple, President of Council

_____
Maureen M. Bach, Clerk of Council

Approved:_____

_____
Meghan F. George, Mayor

SAFE STREETS FOR LAKEWOOD

Active Transportation Plan

November 2023 | DRAFT

ACKNOWLEDGEMENTS

Project Team

David Baas – City of Lakewood Department of Planning and Development
William Deucher – City of Lakewood Police Department
Mark Papke – City of Lakewood Department of Public Works
Neil Shop – Ohio Department of Health
Shawn Leininger – City of Lakewood Department of Planning and Development
Mark Walter – Lakewood City Schools

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Tobi Otulana, Project Planner
Ben Silverstein, GIS Analyst
Horizon Starwood, Planner I

CONTENTS

EXECUTIVE SUMMARY

Figure 1. Cyclists on Detroit Avenue

EXECUTIVE SUMMARY

INTRODUCTION

WHAT IS ACTIVE TRANSPORTATION AND WHY IS IT IMPORTANT?

"Active Transportation" is an umbrella term for all the ways people can get around without using a motorized vehicle – walking or biking, using mobility assistance devices (such as wheelchairs and scooters), skating or skateboarding, and more. In short, active transportation is human-powered travel. Active Transportation represents fundamental transportation modes for many Ohioans to access transit, work, school, retail stores or any number of destinations in urban, suburban, and rural settings. Active transportation can provide many community benefits beyond personal mobility, such as improved public health, economic development, greater quality of life, and enhanced environmental quality.

Active transportation planning involves community engagement specific to the needs of people who walk and bicycle and outlines the vision, goals, and strategies needed to support safe, convenient, and accessible active transportation options. It is important and beneficial to meet the needs of people walking and biking by planning for and directing investments in infrastructure and programs that support active transportation options.

Benefits of Active Transportation

Physical Health

Increased opportunity for recreation and destination-oriented trips using active modes of travel are key to increasing daily physical activity and reducing the risk for developing preventable, chronic diseases.

Mental Health

Physical activity reduces depression, can improve the quality of sleep, and has been shown to improve cognitive function for older adults.[1] Active transportation can also improve social conditions in communities, which contributes to positive mental well-being among residents.

Economic Development

There is broad consensus across the country, and in Ohio, that investing in active transportation produces a positive return on investment for host communities. This is especially true when it comes to trails, which serve as major regional attractions for recreational riders.

Quality of Life

Comfortable and accessible options for bicycling and walking provide a host of quality of life benefits. They increase the number of travel options for everyone and can lead to greater independence for older residents, young people, and others who cannot or choose not to drive. Providing a high-quality active transportation network is especially important for the mobility of community members who do not have full access to a vehicle.

Environmental Quality

Shifting to bicycling and walking trips, and concentrating development in dense walkable and bikeable communities can reduce transportation-based emissions and sprawling land use that impacts the natural environment.[2]

1. U.S. Department of Health and Human Services. 2008 PHYSICAL ACTIVITY GUIDELINES FOR AMERICANS. Washington, DC: U.S. Dept of Health and Human Services; 2008. http://health.gov/ paguidelines/pdf/paguide.pdf

2. Federal Highway Administration, National Bicycling and Walking Study, "Case Study No. 15 The Environmental Benefits Of Bicycling And Walking," 1993 http://safety.fhwa.dot.gov/ped_bike/docs/ case15.pdf

PROJECT TIMELINE

The ATP was developed in coordination with the Safe Streets for Lakewood Safety Action Plan (Action Plan) to address multimodal safety through a Safety System Approach. Both planning documents were created under the leadership of a project team consisting of staff from City of Lakewood, Lakewood City Schools, and the Ohio Department of Transportation (ODOT) as well as a Stakeholder Committee representing a variety of community interests. The process to develop the ATP began with an assessment of existing conditions and a review of other relevant plans and studies. Public input and technical analyses provided a foundation for proposed projects and prioritization of recommendations. This document summarizes the findings of the planning process and is organized into the following sections:

- Vision and Goals
- Community Engagement
- Existing Conditions
- Proposed Projects and Programs
- Priority Projects
- Implementation

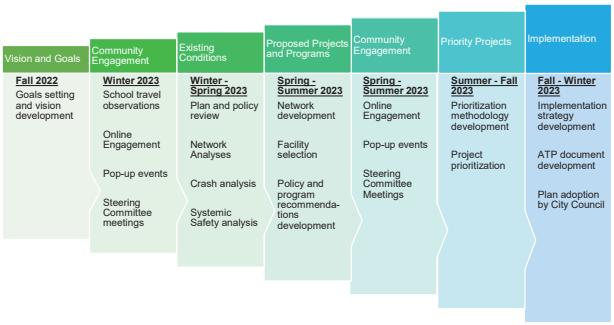

Figure 2. Project Timeline

VISION STATEMENT

Lakewood envisions a complete and connected network for people walking and biking that provides year-round access to local amenities, resources, and the regional bicycle and pedestrian network. Lakewood envisions a culture of respect for all roadway users, and bicycle and pedestrian infrastructure that is safe and comfortable for people of all ages and people with disabilities.

COMMUNITY GOALS

- **Safety** – Eliminate all serious injury and fatal crashes involving people walking and/or biking.
- **Equity** – Ensure the system accommodates all users, and meets the unique needs of children, youth/teens, older adults, people with disabilities, people in low-income households, and people without access to a vehicle. Ensure that all people have the opportunity to provide input about transportation options.
- **Connectivity** – Establish a comfortable and continuous bicycle and pedestrian network that connects people to destinations.
- **Livability** – Improve quality of life and culture of respect between drivers, pedestrians, and cyclists.

ENGAGEMENT EFFORTS

KEY TAKEAWAYS

The project team collected community input through several strategies including: an online community survey, online web maps, personal interviews, community pop-ups, and public meetings. Early engagement identified key barriers to walking and biking, which defined areas of focus for the planning process. These focus areas included: safety around schools, safe intersections, and east-west bicycle routes across the City. See the Community Engagement section of the ATP (page 14) for a summary of all engagement efforts.

EXISTING CONDITIONS

KEY TAKEAWAYS

Lakewood is an ideal location for active transportation due to its compact development, grid transportation network, local amenities, natural assets, low elevation changes, and robust sidewalk network. It is the densest and most walkable city in Ohio and has the potential to be one of the most bikeable cities as well.

The project team completed an existing conditions analysis to understand the current transportation system and where improvements could be made for people walking and biking. The active transportation demand analysis showed that there is demand for walking and biking across the City of Lakewood, particularly in the downtown area and eastern neighborhoods in the City like Gold Coast and Birdtown.

ODOT's active transportation need dataset the ODOT showed that in addition to demand for walking and biking, there is a need for safer and more affordable transportation options for residents of the southeastern portion of Lakewood. This area includes Birdtown and some surrounding census tracts.

Safety analyses and review of bicycle and pedestrian crash data showed high concentrations of bicycle and pedestrian crashes along Detroit Avenue, Madison Avenue, and 117th Street which are primary commercial corridors for multimodal traffic. Other corridors with concentrations of crashes include Clifton Boulevard, Hilliard Road, and Franklin Avenue. All of these corridors are part of the High-Risk Network for Walking and Biking (HRN).

See the Existing Conditions section for a summary of all analyses and the Action Plan for more information about the HRN.

PROPOSED PROJECTS AND PROGRAMS

Stakeholder guidance, review of existing conditions, public input, and systemic safety analysis led to the development of a final active transportation network. Infrastructure recommendations include adding:

- 21 miles of on-street bicycle facilities
- 5 miles of shared use paths; and
- improvements to 60 intersections.

The plan also proposes establishing programs and policies to support active transportation. See Chapter 5 for details on the proposed bicycle and pedestrian projects and supportive programs.

HIGHLIGHT PRIORITY PROJECT(S)

A prioritization process that included input from the community identified projects that should be implemented in the short term. Top projects included:

- Buffered bike lane on Franklin Avenue
- Separated bike facilities on West Clifton Boulevard
- A network of bike boulevards on residential roadways including Cohassett Avenue, Cove Avenue, Ridgewood Avenue, and Delaware Avenue

VISION AND GOALS

Figure 3. Sidewalks on Detroit Avenue

COMMUNITY VISION STATEMENT

Lakewood envisions a complete and connected network for people walking and biking that provides year-round access to local amenities, resources, and the regional bicycle and pedestrian network. Lakewood envisions a culture of respect for all roadway users, and bicycle and pedestrian infrastructure that is safe and comfortable for people of all ages and people with disabilities.

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- **Safety** – Eliminate all serious injury and fatal crashes involving people walking and/or biking.
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- **Connectivity** – Establish a comfortable and continuous bicycle and pedestrian network that connects people to destinations.
- **Livability** – Improve quality of life and culture of respect between drivers, pedestrians, and cyclists.

COMMUNITY ENGAGEMENT

Figure 4. Pop-up engagement event at Madison Park

COMMUNITY ENGAGEMENT

Community engagement was an essential tool in the ATP and Action Plan development process. Involving the public builds trust in the Plan and improves the overall quality of the findings. The project team used several strategies to collect public input including a community survey, an online web map, community pop-ups, stakeholder meetings, and interviews. Figure 5 below shows the timeline of engagement activities and milestones. Phase 1 describes efforts focused on understanding existing conditions and barriers to walking, biking, general traffic safety for all modes. Engagement activities in Phase 2 were focused on receiving feedback from the community about draft project, program, and policy recommendations.

ENGAGEMENT MILESTONES

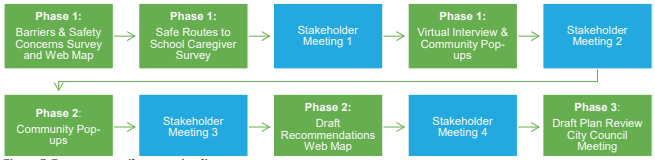

Figure 5. Engagement milestones timeline

STRATEGIES

Stakeholder Committee Meetings

The Stakeholder Committee represented various community interests and transportation agencies across Lakewood. This included Lakewood City Schools, Bike Lakewood, Lakewood Catholic Academy, Lakewood Alive, Lakewood Chamber of Commerce, Northeast Ohio Areawide Coordination Agency (NOACA), Lakewood City Council, Bike Cleveland, and various City of Lakewood departments.

Stakeholder Committee input guided the development of the Lakewood ATP at each key phase – visioning and goals, review of existing conditions, systemic safety analysis, noninfrastructure recommendations, and project recommendations. Stakeholder Committee members are listed in Appendix A of this document.

The Stakeholder Committee met four times over the course of the plan development.

- **Meeting 1** was held in November 2022 and kicked off the planning process. The first meeting introduced active transportation and why Lakewood would benefit from an ATP. Stakeholders reviewed maps of existing infrastructure for walking and biking and discussed their vision for a safe, walkable, and bikeable Lakewood.
- **Meeting 2** was held in February 2023 and provided a summary of existing conditions data analysis and the results of the Safe Routes to School caregiver survey. In this meeting systemic safety and the Action Plan component of this process was introduced to stakeholders.
- **Meeting 3** was held in May 2023. Stakeholders reviewed the results of systemic safety analysis – a High-Risk Network for Walking and Biking in Lakewood (HRN). Discussion then turned to a proposed network of infrastructure for walking and biking and proposed program and policy recommendations.
- **Meeting 4** was held in August 2023. Stakeholders provided their final comments on the ATP recommendations and reviewed Action Plan components. They gave input on the prioritization methodology and received a high-level overview of the remaining steps in the planning process.

In addition to the Stakeholder Committee meetings, Bike Lakewood led an educational bicycle ride for stakeholders and Lakewood City staff to get a firsthand experience of the challenges and opportunities for active transportation.

Pop-Up Events

Pop-up events have a broader reach than conventional public meetings. By leveraging popular destinations, the project team reached a wide cross-section of Lakewood community members, particularly older adults, parents of young children, residents with mobility disabilities, and residents of Color.

The project team held pop-up events over the course of a few days in December, February, and in May. Pop-ups were held at Light Up Lakewood, Cove Community Center, Wagar Park, and Madison Park.

Figure 6. Pop-up event at Cove Community Center

Online Survey and Web Map

Throughout the planning process, multiple survey tools were used to collect feedback from Lakewood community members and stakeholders. The first was an online survey that asked respondents for information about why they walk and bike in Lakewood, existing challenges for walking and biking in the city, and where new active transportation facilities should be built. This survey also asked respondents about their challenges and concerns around multimodal safety and about the types of traffic safety strategies most needed in Lakewood. See the Action Plan for more information about residents' responses to questions about multimodal safety.

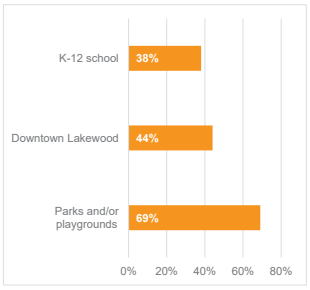

Figure 7. Places people want to be able to walk or bike to the most.

The survey received 745 individual responses between December 2022 and March 2023. Responses helped the project team understand the priority locations that Lakewood residents would like to be able to access by biking and walking (see Figure 7) and their priorities improving walking and biking in Lakewood (Figure 8).

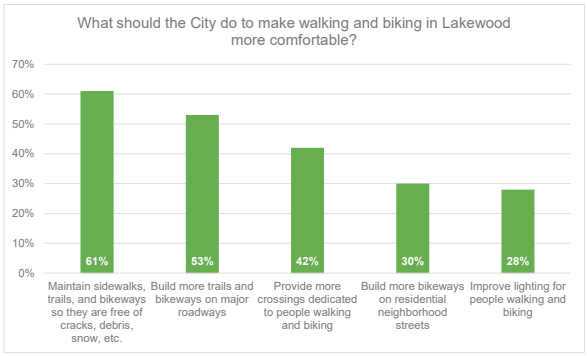

Figure 8. What the City of Lakewood should to make walking and biking more comfortable.

In addition to the online survey, an online web map was distributed during the same time period to allow Lakewood residents an opportunity to give spatial feedback on where there are barriers to walking, biking, and multimodal safety. The online web map received 843 visitors who left 110 individual comments on the map, shown in Figure 9. Major corridors in Lakewood received the most comments about challenges for walking and biking, including Detroit Avenue, Madison Avenue, Hilliard Road, Franklin Boulevard, and Bunts Road.

After the project team developed draft infrastructure recommendations, a second online map was developed to collect community feedback in October 2023. This version of the online map allowed respondents to view the draft recommendations and either vote in support or against the project. A total of 526 responses were received and overall, respondents showed a high level of support for the draft recommendations. There were 470 votes in support of the draft recommendations and 22 votes against projects. The responses from this online map were used to make final revisions to the infrastructure recommendations and incorporated into the final project prioritization. Projects that received the most amount of support include:

- Crossing improvements at Detroit Avenue & Belle Avenue
- Crossing improvements at Detroit Avenue & Westwood Avenue
- Crossing improvements at Madison Avenue & Hilliard Road
- Crossing improvements at Detroit Avenue & Giel Avenue
- East-west shared use path along the railroad
- Parking-protected bike lane on Clifton Avenue
- Shared use path on Riverside Drive
- Bike boulevard on Delaware Avenue

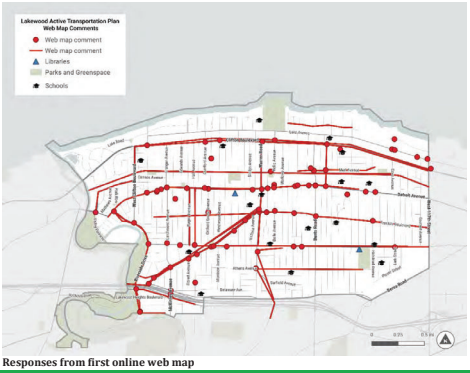

Figure 9. Responses from first online web map

Public Meetings

The project team attended a Lakewood Youth Council meeting to provide information about the ATP and Action Plan in May 2023. An overview of the planning process was provided, along with opportunities for Youth Councilmembers to share their experiences with walking and biking in Lakewood. Youth Councilmembers provided useful feedback about existing conditions – nearly every member shared that they or someone in their life had experienced a crash or near miss while walking or biking in Lakewood.

Figure 10. Lakewood Youth Council Meeting ATP presentation

The Youth Councilmembers then gave input on the proposed active transportation network and provided their suggestions for other ways to support active transportation and multimodal safety in Lakewood, including promotional programs and a bike-friendly business program.

At the end of the planning process, the draft ATP was presented at the December Lakewood City Council meeting. Lakewood staff overviewed the ATP and Action Plan processes and collected final comments from Councilmembers and members of the public before the plan was adopted on DATE.

KEY TAKEAWAYS FROM ENGAGEMENT

Destinations

The priority destinations that Lakewood residents would like to visit by foot or bike include:

- Commercial and retail destinations along Detroit Avenue
- Commercial and retail destinations along Madison Avenue
- Madison Library
- Scenic Park Metroparks
- Lakewood Park
- Rocky River Reservation

Top barriers to walking

- Dangerous intersections
- Distracted, speeding and/or aggressive drivers
- Poor sight lines at intersections
- Sidewalk maintenance

Top barriers to biking

- Lack of signage and wayfinding
- Lack of physically separated bicycle facilities
- Distracted, speeding, and aggressive drivers
- Unsafe road crossings
- Lack of bicycle facility connectivity
- Lack of bicycle parking

Streets currently serving as key routes for bicycling/walking

- Lake Avenue
- Detroit Avenue
- Madison Avenue
- Franklin Boulevard
- Clifton Boulevard
- Hilliard Road
- Warren Road
- Bunts Road
- Edgewater Drive

SAFE ROUTES TO SCHOOL ENGAGEMENT

Lakewood City School District has one of the highest rates of walking and biking to school in Ohio, likely because there is no bussing provided by the district. Input on youth walking and biking was collected through the Stakeholder Committee meetings, pop-up events, and Lakewood Youth Council meeting.

Additionally, input specifically about walking and biking to school was collected through a caregiver survey distributed by Lakewood City School District and Lakewood Catholic Academy in the fall of 2022. The survey was completed by 758 caregivers. 60% of survey respondents indicated that their child currently walks or bikes to school sometimes during the school year. According to the caregiver survey results, the top factor impacting the decisions of parents to walk and bike to school is the safety of intersections and crossings; additional factors are shown in Figure 11.

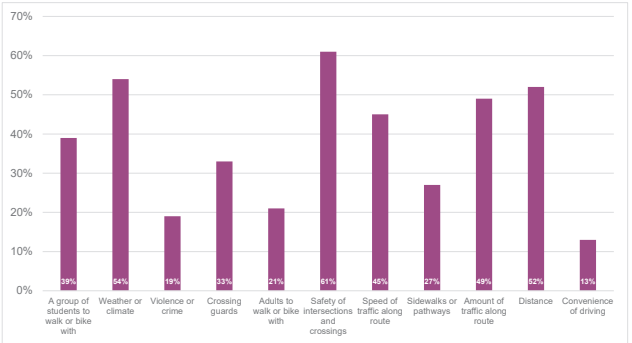

Figure 11. Key issues impacting caregiver decisions to let child walk or bike to school

EXISTING CONDITIONS

Figure 12. Birdtown bike racks at Madison Park

EXISTING CONDITIONS

This chapter examines several elements of Lakewood's transportation system. It presents a demographic profile of Lakewood and a plan and policy review summarizing existing active transportation and related efforts to date, framing the current planning process as a logical next step in Lakewood's active transportation evolution. This chapter also summarizes existing programs that support active transportation. Also included is an overview of analyses that examine the active transportation network from various perspectives – equity, utilization, connectivity, and safety.

DEMOGRAPHIC AND GEOGRAPHIC CONTEXT

Lakewood is a medium-sized city located in the northwest area of Cuyahoga County. Lakewood is bordered by Lake Erie to the north, the City of Cleveland to the east and the south, and the Rocky River Valley to the west separates Lakewood from the City of Rocky River. Lakewood boasts being Ohio's most walkable and densest city with a 2021 population estimate of 50,104 people in a land area of 5.5 square miles.[1]

[1] U.S. Census Bureau (2021). QuickFacts. Retrieved from https://www.census.gov/quickfacts/fact/table/lakewoodcityohio/INC110221

Table 1. Lakewood Demographics (2021)

	Category	Percent
Race	White	85.9%
	Multiracial	4.9%
	Black	6.4%
	Asian	2.3%
	Native American	NC
	Hispanic	4.4%
Age[2]	Under the age of 5	4.5%
	Under the age of 18	15.8%
	65 and over	13.7%
Car Ownership by Household	0	4.6%
	1	32.3%
	2	47.9%
	3+	15.25%
Commute Mode Share[3]	Drove alone	77%
	Carpooled	6.6%
	Walked	2.52%
	Bicycled	.70%
	Transit	3.4%
	Worked at Home	8.45%
	Other	.84%

The city's current population is approximately 87 percent white, 6 percent Black or African American, 2 percent Asian, 5 percent multiracial, and 5 percent Hispanic or Latino. Eight percent of Lakewood residents are foreign-born and approximately 11 percent of residents speak a language other than English at home. [4]

In 2021, Lakewood's median household income was $57,588 which is slightly above Cuyahoga County's median household income of $$55,109.[5]

In 2021, approximately 13 percent of Lakewood residents were living below the federal poverty line. This number jumps to 17 percent when looking at people under the age of 18 or when looking at residents who identify as Black or African American, Asian, Hispanic or Latino, or multiracial.

In regard to transportation habits, the majority of Lakewood residents in the workforce commute by car. In 2021 approximately 81 percent either drive alone or carpooled, while less than 3 percent of people walked and less than 1 percent of people bicycled. The fasted growing type of commute in Lakewood is working from home – the city saw an increase from 4 percent to nearly 12 percent between 2017 and 2021.[6]

Despite the trend, that is only part of the story. Although not tracked by the United States Census in the same way as work commute data, as part of this planning process many Lakewood residents report walking and biking for their daily errands and activities. Lakewood City Schools do not provide bussing service to students in the district, so walking and biking to school is also very common in Lakewood throughout the entire school year.

[2] "Lakewood City, Ohio" Profile, US Census Bureau QuickFacts
[3] "Lakewood, OH", The Census Bureau ACS 5-year Estimate, 2020
[4] U.S. Census Bureau (2021). QuickFacts. Retrieved from https://www.census.gov/quickfacts/fact/table/clevelandcityohio,cuyahogacountyohio,lakewoodcityohio/INC110221
[5] U.S. Census Bureau (2021). QuickFacts. Retrieved from https://www.census.gov/quickfacts/fact/table/clevelandcityohio,cuyahogacountyohio,lakewoodcityohio/INC110221
[6] U.S. Census Bureau, American Community Survey 5-year estimates 2017 – 2021. Table S0801 Commuting Characteristic by Sex. Retrieved from https://data.census.gov/table?q=lakewood+ohio+commuting+characteristics+2017&y=2021&tid=ACSST5Y2021.S0801

HISTORICAL CONTEXT

Before the 1800s, the land where Lakewood is now located was home to the Ottawa, Potawatomi, Chippewa, Wyandot, Munsee, Delaware, and Shawnee Nations until they were pushed west by the Treaty of Fort Industry in 1805.[7] European settlers began arriving around 1805 and by 1819 the area was known as Rockport Township. The Treaty of Fort Industry accelerated settlement growth and in 1889, with just 400 residents, the area that had been known as East Rockport evolved to become an independent community known as the Hamlet of Lakewood. Rapid population and economic growth continued, supported by numerous transportation investments in roadways, railroads, and streetcar transit.[8]

Figure 13. View of Detroit Ave in 1934 *(Source: Cleveland.com)*

Throughout the early 1900s key east-west corridors through Lakewood – including Detroit Avenue, Clifton Boulevard, and Madison Avenue – opened streetcar lines that helped develop neighborhoods and connect residents to areas of work and commerce in Lakewood, Cleveland, and other surrounding communities.[9] During this time, Lakewood's population was at its highest, peaking in 1930 with a population of just over 70,000 people.

The rise of the car led to the removal of streetcar lines in the 1950s and widening of key corridors like Clifton Boulevard to accommodate vehicle traffic. Lakewood maintained a fairly consistent population of 70,000 people until the 1970s, when like nearly every other Rust Belt city, the Cleveland metropolitan area began to experience deindustrialization and population decline. Since then, the city has lost about a third of its population. In 1995, the population was 62,000 and today it is an estimated at just over 50,000[10].

Despite these historical population trends, Lakewood's diverse immigrant population has been growing since the 1980s which has helped offset some of the population decline. Lakewood is home to significant Eastern European, Arab, South Asian, and Southeast Asian immigrant populations who have added to the city's population density and vibrancy.[11] In recent years, much of Lakewood's immigrant population has settled in the Birdtown neighborhood in the southeast area of the city.

[7] The Blade. (2003). *1805 Fort Industry treaty entices Toledo historians.* Retrieved from https://www.toledoblade.com/local/2003/11/16/1805-Fort-Industry-treaty-entices-Toledo-historians/stories/200311160035
[8] The Lakewood Historical Society – Brief History of Lakewood. Retrieved from https://www.lakewoodhistory.org/preservation/lhab-heritage-advisory-board/brief-history-of-lakewood
[9] The Lakewood Historical Society – Brief History of Lakewood. Retrieved from https://www.lakewoodhistory.org/preservation/lhab-heritage-advisory-board/brief-history-of-lakewood
[10] "Lakewood", Encyclopedia of Cleveland History, Case Western Reserve University (2022). Retrieved from https://case.edu/ech/articles/l/lakewood
[11] https://case.edu/ech/articles/l/lakewood

EXISTING PLANS, POLICIES, AND SUPPORTIVE PROGRAMS

This plan builds on prior plans and initiatives developed by entities within Lakewood. It looks to these plans for existing conditions data, issue identification, and recommendation support.

Table 2. Existing Plans and Policies

Plan/ Policy	Lead Agency	Year Completed	Key Takeaways
City Vision Zero Resolution – Resolution NO. 9063-19	City of Lakewood	2019	The resolution provided a commitment between City government, relevant agencies, and community stakeholders to cooperate and collaborate on Vision Zero efforts throughout Lakewood. The resolution examined traffic fatalities and stated how cities across America have implemented the Vision Zero initiative. The resolution concluded with a call of all for support from Lakewood's City Council and administration for supporting Vision Zero Action Plan development.
City of Lakewood Safe Routes to Schools Travel Plan	City of Lakewood	2010	The City of Lakewood produced a Safe Routes to School (SRTS) Travel Plan to increase walking and biking efforts amongst the school-age population and to address active transportation barriers for middle schools. SRTS Team – which consisted of principals, police, engineers, and school staff – observed and assessed the traveling behaviors at Lakewood's Garfield Middle School and Harding Middle School. The SRTS assessed the percentage of the middle school student population that walked and biked to school as well as on-site barriers to the middle schools. Barriers included personal safety, bicycle safety, sidewalk conditions, and snow-covered sidewalks in the winter. The plan concluded with recommendations within the following categories: education, encouragement, enforcement, engineering, and design.
City of Lakewood Bike Master Plan	City of Lakewood	2012	The City of Lakewood Bike Master Plan explored policies, programs, and projects that will help establish biking as one of the most accessible transportation options in Lakewood. The plan reviewed the existing biking infrastructure network in Lakewood, analyzed surveys that examined the population of Lakewood residents that bike, featured design guidelines and standards, and identified methods to improve safety and mobility for cyclists. The plan's goals were to expand the city's supply of bike racks, establish a primary bikeway system/network, earn national recognition as one of the most bicycle friendly communities in the country by 2015, and to continue education and outreach efforts.
Lakewood Community Vision	City of Lakewood	Adopted 2012, updated 2017	the City of Lakewood Master Plan - Lakewood Community Vision, lays out the vision for the future of Lakewood pertaining to six key areas – commercial development, housing, community wellness, safety, mobility, education, and culture. In the mobility section, the plan discussed building network connections, enhancing existing infrastructure such as sidewalks and streetscapes, reducing the idling of cars around schools and major destinations, improving

Plan/ Policy	Lead Agency	Year Completed	Key Takeaways
			timing and reliability of the Greater Cleveland Regional Transit Authority (GCRTA), and educating residents on ways to reduce their mobility carbon footprint.
City of Lakewood Bicycle Planning Update	City of Lakewood	2019	The presentation provided an update on the Lakewood Bicycle Master Plan. The first portion of the presentation reviewed bicycle infrastructure improvements. The updates highlighted progress towards planned infrastructure improvements on major roadways and intersections such as bike boxes, route marking, and bike lane widening. This was followed by a discussion of the Cuyahoga County – Cleveland Bike Share expansion which would include a flexible bike share system across the county. The presentation concluded with a discussion of methods to improve and expand education and outreach initiatives.
Cuyahoga Greenways Vision Plan: A Transportation for Livable Communities Initiative Planning Study	NOACA, Cuyahoga County Planning Commission, Cleveland Metroparks	2019	The Cuyahoga Greenways Vision Plan, developed by numerous regional agencies, consultants, and technical teams, envisioned an interconnected system of on-road and off-road bicycle facilities and trails. The plan also reviewed Cuyahoga County's initiatives, visions, plans, and methods for implementing greenways and urban trail throughout Cuyahoga County. The plan sought to connect public transportation and parks and improve active mobility options. The plan included descriptions of the agency's history, vision plan planning process, design approaches, and goals. The plan also included information regarding existing conditions, evaluated and identified greenway routes, and identified the necessary steps for implementation. There are several design considerations and facility suggestions such as protected bikeways, raised bikeways, and standard bike lanes. The plan stated that 280,00 residents live within a mile of the current regional system, while a fully built out system can reach over 500,000 of the county's population. The plan also stated that if completed, the envisioned system will provide access to over 525,000 jobs.
Community Confluence: Connecting the Cities of Lakewood and Rocky River, and the Rocky River Reservation	NOACA, Cuyahoga County Planning Commission, Cleveland Metroparks, City of Lakewood, City of Rocky River	2021	The plan's objectives were to shorten the perceived distance across the Rocky River Valley, highlight existing connections between neighborhoods and the Rocky River Valley, broaden the awareness of park resources, reinforce connection between cities and Metroparks, serve all populations and modal types, and provide high quality multi-modal connectivity. The plan provided a contextual analysis of the study area and included traffic analysis and identified recommendations, implementation priorities, cost estimates, and funding sources for implementation.

Table 3. Existing Supportive Programs

Program Name	Program Lead	Target Audience	Key Takeaways
Transportation Accessibility Program	Lakewood; Senior Transportation Connection	Lakewood residents between the ages of 18-59	This program provides Lakewood residents between the ages of 18-59 who are certified by their physician of having a permanent disability by offering them round-trip transportation services twice a month to their routine medical appointments. For those that can't access or use active transportation, this provides them with safe and reliable access to and from medical appointments.
Bike Racks for Business	Lakewood	Lakewood business owners	The city provides businesses with bike racks so businesses can install at them. For those that bike, this provides them the opportunity to not only park their bike but also check out and learn about businesses in Lakewood.
Bike/Scooter Share Pilot Program	Lakewood; Cuyahoga County	Lakewood residents and visitors	This pilot program launched in late 2022 as part of the broader Cuyahoga County program. The pilot program, in partnership with private vendors, placed 90 electronic scooters and e-bikes spread across 12 share stations. This provides people with another active and affordable opportunity to travel throughout Lakewood and Cuyahoga County.
Bike Lakewood Parade Roll for Light Up Lakewood	Bike Lakewood	Lakewood residents and visitors	Led by Bike Lakewood, this annual parade roll, encourages people of all ages and abilities to bike through the Light Up Lakewood event and gain a different view of the holiday lights.
National Bike to Work Day	Bike Lakewood	Lakewood residents and visitors	This global celebration encourages people of all ages and abilities to bike to work and learn about the numerous benefits of biking: helping the environment, improving health and wellness, and more.
Sidewalk Replacement Program	Lakewood	Lakewood property owners	This program, part of the city's ten year strategy, seeks to improve the city's 180 miles of sidewalks and keep them among the most pedestrian-friendly in the state. Each year, the city sends inspectors to check the sidewalks for "trip hazards." Residents with identified trip hazards have some options. They can pay to have the sidewalk fixed themselves or participate in a citywide bid with the city's contractor — the idea being to lower the price for property owners.
Cranksgiving	Bike Lakewood	Public	Riders of all ages and skill levels receive a map of local grocery stores and are challenged to ride their bikes and purchase items for the socioeconomically disadvantaged families and senior citizens for the holiday season.
Neighborhood Traffic Calming Program	Lakewood	Public	This program promotes and provides guidance and direction for addressing issues with traffic volume and speed in Lakewood's neighborhoods. By slowing down vehicles and making streets safer, this helps preserve Lakewood's unique walkable characteristics and accessibility for pedestrians and bicyclists.
Lakewood Chocolate Walk	Lakewood Alive; Downtown Lakewood Business Alliance (DBLA)	Public	This annual walking event allows people to visit 25 shops and eateries in Downtown Lakewood to try their delicacies and learn about businesses in Lakewood.

Walk with a Doc	Lakewood Health System	Public	Lakewood community members can walk with medical professionals starting at Lakewood hospital's main campus. During the walk, people can ask questions and learn from health care professionals.
Walking with Purpose Bible Study	St James Lakewood	Women of Lakewood	Walking with Purpose encourages women in Lakewood to walk and chat about their spiritual journeys.
GardenWalk Lakewood	GardenWalk Lakewood	Public	This annual event celebrates the hard work of the gardeners in Lakewood by doing walking tours of Lakewood's gardens.
Family Room Walk & Stroll	Lakewood	Public; families with children under the age of 8	This summer series encourages families to gather and go for a walk at Lakewood Park.
NOACA Biking Maps	NOACA; Lakewood	Public	This Cuyahoga countywide map helps bicyclists navigate the bike network in the county. The maps are free and available at bike shops, libraries, and other tourist information centers.

EXISTING TRANSPORTATION NETWORK

Due to population density as well as historic and recent transportation investments, Lakewood is the most walkable and bikeable city in Ohio, boasting a Walk Score of 70/100 and a Bike Score of 64/100.[12] The project team used GIS data, desk review, and field visits to analyze the existing facilities for walking and biking in the city.

PEDESTRIAN & CROSSING FACILITIES

The project team conducted a digital inventory of existing sidewalks and bicycle facilities data from the City of Lakewood, NOACA, and ODOT Transportation Information Mapping System (TIMS). The inventory helped the team understand the completeness and connectedness of the current active transportation system. The most prevalent gaps in the network

Lakewood has an extremely robust sidewalk network of over 180 miles that provides pedestrians with access to the entire city.[13] Multiuse paths are not a common facility in Lakewood's pedestrian network; most of the city's paths are constrained to local parks or Scenic Park Metropark in the Rocky River Valley area which is part of the regional Emerald Necklace trail network.

Figure 14. Sidewalk chart art in Lakewood ***(Source: Lakewood Alive)***

Figure 15. Sidewalk on Cove Avenue

Almost every roadway in Lakewood has sidewalk on both sides of the street, including all non-local corridors except for Riverside Drive which only has sidewalk on one side of the roadway due to topographical constraints. The only other roadways with noticeable gaps in the sidewalk network are:

- Edgewater Drive between Parkside Drive and Nicholson Avenue
- Clifton Boulevard between West Clifton Boulevard and the western border with Rocky River

As noted in Table 3, Lakewood is entering the final year of a ten-year Sidewalk Replacement Program for improving the city's pedestrian network. The city sends out inspectors annually to assess sidewalks for cracks and trip hazards. On properties where hazards are identified, property owners may opt into the Sidewalk Replacement Program and receive city support for remedying the issue either through grinding the seams of the sidewalk or replacing the hazardous slab

[12] Walk Score. *Cities in Ohio.* Retrieved from https://www.walkscore.com/OH/
[13] Lakewood Community Vision. Mobility and Connectivity (2017). Retrieved from https://vision.lakewoodoh.gov/focus-areas/mobility/

completely.[14] By the final year of the program, the entire City of Lakewood will have been evaluated for needed sidewalk improvements.

Because of Lakewood's dense, grid roadway network, there are a high number of intersections within the city. In Ohio, any intersection is a legal crossing for pedestrians. Marking a crosswalk impacts which roadway users is required to yield (i.e., pedestrian vs vehicle). Not all intersections in Lakewood have marked crosswalks, however the majority of intersections on major east-west corridors – including Lake Avenue, Clifton Boulevard, Detroit Avenue, Franklin Boulevard, Madison Avenue – have two crosswalks marked (typically the north and south legs of the intersection). Where there are destinations that generate pedestrian activity (e.g., Lakewood High School on Franklin Boulevard), there are typically crosswalk markings for all four legs of the intersection. Across the City, there are a number of crosswalks that have a stamped brick pattern and red pavement coloring. These types of crosswalks are most prominent on Detroit Avenue.

BICYCLE FACILITIES

Lakewood's off-street bicycle facilities are limited to the multiuse path trails noted in the section above. In the Rocky River Valley, the Valley Parkway Trail provides Lakewood residents with access into the regional trail network. It is also part of the State Bike Route system – Route 71.

The city's on-street bicycle network is comprised of traditional bike lanes, buffered bike lanes, a small section of protected bike lane, and shared lane markings. Most of these facilities are located on major corridors which also coincide with business clusters or amenities like parks and schools.

Aside from a small section of protected bike lane on Clifton Boulevard between West Clifton Boulevard and the border with Rocky River to the west, existing bicycle facilities in Lakewood do not provide adequate separation from vehicles. This is a barrier that impacts people's ability to feel safe traveling by bicycle.

Noticeably, there are only two on-street bicycle facilities in Lakewood that provide north-south access – a bike lane on Warren Road between Detroit Avenue and Madison Avenue, and a buffered bike lane on Hilliard Road between North Marginal Drive and Franklin Boulevard. Although the majority of north-south roadways in Lakewood are residential, the lack of identified north-south routes for

Figure 16. Protected bikeway on Clifton Boulevard

Figure 17. Cars parked in the conventional bike lane on West Clifton Boulevard

[14] City of Lakewood. Sidewalk Replacement Program (2020). Retrieved from https://www.lakewoodoh.gov/wp-content/uploads/2016/02/SidewalkReplacementPrg_rev022020.pdf

cyclists creates gap in the network that limit people's ability to travel by bicycle within the City.

In Lakewood, it is legal for both children and adults to ride a bicycle on the sidewalk. The only exceptions are if sidewalks are congested with pedestrian traffic or bicycles explicitly prohibited on the sidewalk as indicated by signage. Cyclists under the age of eight are prohibited from riding on Berea Road, Detroit Avenue, Madison Avenue, and Warren Road without adult supervision.[15] When riding on the sidewalk, cyclists are required to abide by all laws relevant to pedestrians. When riding in the roadway they are required to abide by all laws relevant to vehicles.[16]

U.S. Bike Route 30 runs approximately 225 miles from Conneaut to Toledo.[17] In Lakewood, the route enters from the east on Lake Avenue and runs the length of the corridor between West 117th Street and West Clifton Boulevard as shown in Figure 18. It continues into Rocky River to the west via West Clifton Boulevard, Sloane Avenue, and Detroit Avenue. U.S. Bike Route 30 intersects with State Route 71 at the intersection of Detroit Avenue and Valley Parkway.

[15] Knabe Law Firm. *Lakewood, Ohio Bike Ordinances for Sidewalk Riding Explained* (2022). Retrieved from https://klfohio.com/lakewood-ohio-bike-ordinances-for-sidewalk-riding-explained/
[16] City of Lakewood. Biking Lakewood. Retrieved from https://www.lakewoodoh.gov/bikinglakewood/
[17] Adventure Cycling Association. *USBRS maps and route resources*. Retrieved from https://www.adventurecycling.org/routes-and-maps/us-bicycle-route-system/maps-and-route-resources/?route=ohio30

Figure 18. State and US Bike Routes in Lakewood

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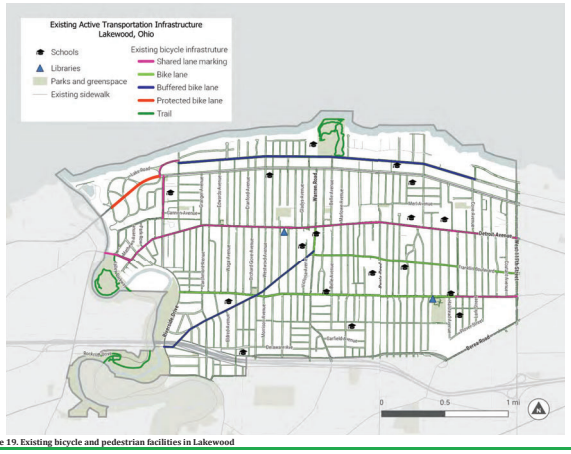

Figure 19. Existing bicycle and pedestrian facilities in Lakewood

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PUBLIC TRANSIT SERVICES

Public transportation in Lakewood is provided by the Greater Cleveland Regional Transit Authority (GCRTA). The City's only train station is located on the border with Cleveland at West 117th Street and Madison Avenue. Via the Red Line, this station connects residents to downtown Cleveland to the northeast or Cleveland-Hopkins International Airport to the southwest. The Red Line operates 24 hours, seven days a week.[18]

There are eight bus lines that provide access across the city and connect to the adjacent communities of Cleveland and Rocky River:

- Warren-West 130: Line 83 provides north-south access along Warren Road up to Lakewood Park. It runs from approximately 5 A.M. to 12 A.M. on weekdays, and 5 A.M. to 10 P.M. on weekends.[19]
- West 117-Puritas: Line 78 also provides north-south access and runs along West 117th Street. It runs from approximately 5 A.M. to 1 A.M. every day.[20]
- Madison Clark: Line 25 runs east-west along the length of Madison Avenue 24 hours a day, seven days a week.[21]
- Detroit: Lines 26 and 26A both run east-west along the entire Detroit Avenue corridor within Lakewood. They run 24 hours a day, seven days a week.[22]
- Cleveland State Lines: Lines 55, 55B, and 55C all run on Clifton Boulevard. They run from approximately 4 A.M. to 12 A.M. on weekdays. On weekends, the 55 runs from 4 A.M. to 12 A.M. with reduced frequency.[23]

The Cleveland State Lines on Clifton Boulevard provide service via a bus and bike only lane during peak hours.

In addition to the public transportation service provided by GCRTA, the City of Lakewood Division of Aging also provides accessible medical and non-medical transportation specifically for seniors. To access this service, eligible seniors may schedule rides ahead of time no later than three business days prior to when transportation is needed. [24]

[18] Greater Cleveland Regional Transit Authority. Red Line (2022). Retrieved from https://www.riderta.com/sites/default/files/schedule-pdfs/RedLine_0.pdf
[19] Greater Cleveland Regional Transit Authority. 83 Warren-West 130 (2021). Retrieved from https://www.riderta.com/sites/default/files/schedule-pdfs/83.pdf
[20] Greater Cleveland Regional Transit Authority. 78 West 117-Puritas (2021). Retrieved from https://www.riderta.com/sites/default/files/schedule-pdfs/78.pdf
[21] Greater Cleveland Regional Transit Authority. 25 Madison-Clark (2022). Retrieved from https://www.riderta.com/sites/default/files/schedule-pdfs/25.pdf
[22] Greater Cleveland Regional Transit Authority. 26-26A Detroit (2022) Retrieved from https://www.riderta.com/sites/default/files/schedule-pdfs/26-26A.pdf
[23] Greater Cleveland Regional Transit Authority. Cleveland State Line (2022) Retrieved from https://www.riderta.com/sites/default/files/schedule-pdfs/ClevelandStateLine.pdf
[24] City of Lakewood. Division of Aging Senior Service Flyer. Retrieved from https://www.lakewoodoh.gov/wp-content/uploads/2019/10/SeniorServicesFlyer.pdf

SCHOOL TRAVEL

There are 11 schools in Lakewood City School District including seven elementary schools, two middle schools, one high school, and one center for innovation.

- Emerson Elementary School
- Grant Elementary School
- Harrison Elementary School
- Hayes Elementary School
- Horace Mann Elementary School
- Lincoln Elementary School
- Roosevelt Elementary School
- Garfield Middle School
- Harding Middle School
- Lakewood High School
- Taft Center for Innovation

Figure 20. Bike racks at Lakewood High School in December

Lakewood City Schools does not offer any bussing to students in the district, resulting in high rates of students either walking and biking to school or being driven by caregivers. In addition to public schools, there are a number of private and charter schools in Lakewood including Lakewood Catholic Academy, St. Edward High School, Lakewood Lutheran School, Padre Pio Academy, and Albert Einstein Academy.

To better understand student travel trends, student travel tallies were conducted by teachers in October 2022 to evaluate rates of walking and biking to school. The analysis included 138 classrooms across Lakewood City Schools (which does not include Lakewood Catholic Academy). Weather conditions during the travel tally collection period ranged from sunny to rainy to snowy (see Figure 21).

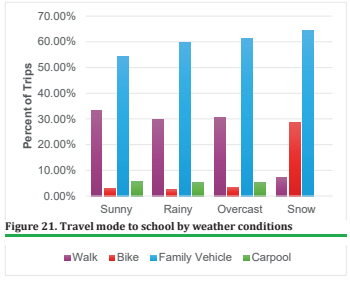

Figure 21. Travel mode to school by weather conditions

As noted in the Community Engagement section, a caregiver survey was distributed through Lakewood City Schools and Lakewood Catholic Academy. 60% of survey respondents indicated that their child currently walks or bikes to school sometimes during the school year. The survey also showed a 40% increase in the number of students who walk or bike home from school in the afternoon, compared to walking or biking to school in the morning.

ANALYSES

After mapping the existing transportation system, the project team performed several analyses to better understand the equity of the network, its connectivity, use of walking and bicycling facilities, safety, and infrastructure conditions. The following section provides a summary of each existing conditions analysis. The full analysis is available in Appendix B: State of Walking, Biking, and Safety Report.

EQUITY

Incorporating Equity in Active Transportation Planning

Active transportation options contribute to a more equitable transportation system by reducing barriers for people who do not use a motor vehicle. Many people do not drive because of ability, income, age, or a combination of these factors. The cost of owning and maintaining a vehicle can be a major burden, especially on low-income families. People without a vehicle need to access employment, school, grocery shopping, and a variety of other activities to fully participate in society. Transit, walking, and bicycling play a vital role in the overall transportation system by offering increased mobility, independence, and access to opportunity for people without vehicles.

National statistics point towards the need for equity in active transportation planning and design. Across the country and in Ohio, a disproportionate share of walking and bicycling fatalities occur among communities of color, older adults, and low-income populations.[1] Connected and accessible active transportation infrastructure for these groups results in better access to daily physical activity and improved quality of life.

1. *Ohio Department of Transportation. (2020), Walk.Bike.Ohio Safety Analysis Reports. https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/walkbikeohio/existing-future-conditions-analysis/safety-analysis-reports*

Equity analysis

As part of its statewide bicycle and pedestrian plan, *Walk Bike Ohio*, ODOT performed a statewide analysis of need and demand for active transportation.

The indicators used in the demand analysis include employment density, population density, walk and bike commute mode share, park density, presence of colleges and universities, retail employment density, and number of people below 200% of the federal poverty line. These inputs are used to create a composite score for every census tract in the state.

The need analysis also results in a composite score for every census tract in the state, with the need scores assigned based on the presence of non-white groups, youth, older adults, poverty, low educational attainment, limited English proficiency, and low motor vehicle access. Higher scores correspond to a higher presence of underserved groups and indicate a greater need to increase equitable outcomes.

Areas of high need and high demand should be prioritized for bicycle and pedestrian improvements, because residents in these areas likely rely more heavily on active transportation options for getting around and to make use of investments in active transportation.

Areas with high demand for active transportation in Lakewood include the eastern half of Lakewood between West 117th Street and Warren Road; western parts of the city including the residential areas surrounding Edwards Park and Kaufman Park; residential areas near Scenic Park Metropark and the Rocky River Valley; and a small census tract surrounding Lincoln Elementary School.

Areas of high need in Lakewood are located across the southern and eastern parts of the city including Birdtown, the residential areas around Cove Community Center, parts of Downtown Lakewood[25], and a small census tract east of Edwards Park.

Areas with overlapping high demand and high need are key areas to invest in pedestrian and bicycle infrastructure are shown in Figure 22 and include:

- Birdtown
- Residential areas around Cove Community Center
- Eastern parts of Downtown Lakewood and adjacent areas between Madison Avenue and Clifton Boulevard
- Residential areas east of Hilliard Road near Wager Park and Harding Middle School

An additional review of equity-related data was conducted as part of the Action Plan development, using data from the USDOT Historically Disadvantaged Communities dataset. A summary of that analysis is available in the Crash Data and Safety Analysis section of the Action Plan.

[25] Downtown Lakewood is defined as the areas along and around Detroit Avenue between Bunts Road to the west and Arthur Avenue to the east, including areas around Warren Road. Map developed by Lakewood Alive available here: https://www.lakewoodalive.org/wp-content/uploads/2019/09/Downtown-Lakewood-Map-FINAL-web-version.pdf

Level of walking and bicycling activity in Lakewood

Network utilization describes who is walking and bicycling, where, and how often. Several factors impact network usage, including land use and development patterns, the presence or absence of active transportation facilities, proximity of destinations, safety concerns, and socioeconomic need. Understanding the level of walking and bicycling activity in Lakewood provides an understanding of where people are already walking and bicycling and where there may be a lack of infrastructure, because there are low levels of walking and bicycling activity.

Walking and bicycling activity

The project team used StreetLight to analyze levels of walking and bicycling (Figure 23 and Figure 24) and better understand where and when walking and bicycling activity is occurring within Lakewood. Based on the analysis the following areas have high levels of walking and biking:

- Walking activity:
  - Downtown Lakewood
  - Lakewood Park and surrounding area
  - Residential neighborhood directly south of Downtown Lakewood between Detroit Avenue and Madison Avenue
  - Lakewood High School and surrounding area
- Bicycling activity:
  - Downtown Lakewood
  - Lakewood Park and surrounding area
  - Residential neighborhoods surrounding Downtown Lakewood to the north (up to Clifton Boulevard) and to the south (down to Madison Avenue)

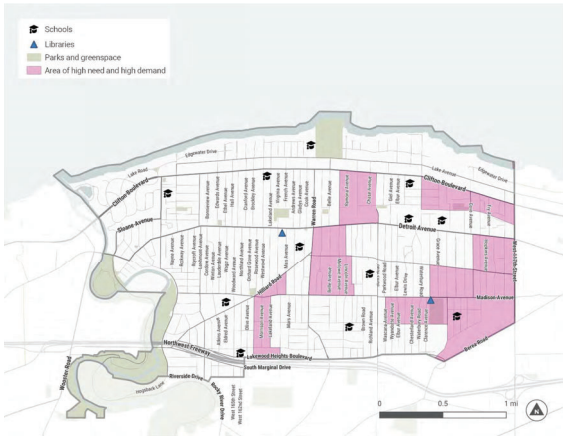

Figure 22. Composite Active Transportation Need and Demand Analysis

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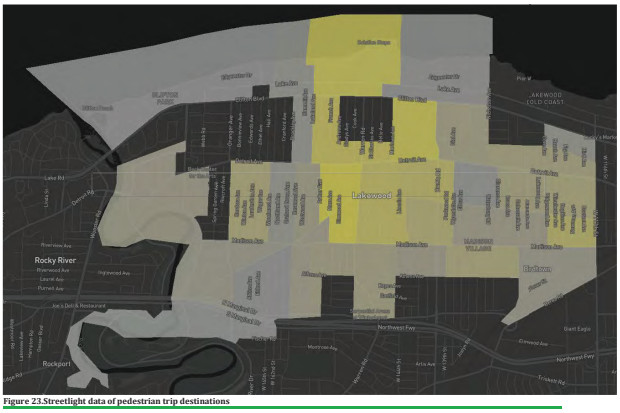

Figure 23.Streetlight data of pedestrian trip destinations

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Figure 24. Streetlight data of bicycle trip destinations

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NETWORK CONNECTIVITY

Completeness of active transportation system

Active transportation facilities that connect people to jobs, schools, parks, and other destinations form a complete network. Filling in missing connections expands access and mobility for people walking and bicycling and providing multiple route options accommodates people of all ages and abilities. Evaluating network connectivity provides an understanding of where gaps in the network exist and whether low comfort or high comfort walking and bicycling facilities exist.

Network Gaps and generators

A review of gap and generators to biking and walking trips helps examine physical breaks in an active transportation network, such as sidewalk gaps or missing connections between bicycle facilities. This type of review also identifies generators to biking and walking trips that can may influence project prioritization and implementation. During stakeholder meetings, attendees identified the following gaps and generators:

- Gaps
  - For cyclists – North-south routes across multimodal roadways on the HRN – Clifton Avenue, Detroit Avenue, Madison Avenue, and Franklin Boulevard
  - For cyclists – A major low-stress east-west connection across the City
  - For pedestrians – Edgewater Drive between Parkside Drive and Nicholson Avenue
  - For pedestrians – Clifton Boulevard between the border with Rocky River and West Clifton Boulevard
- Generators for cyclists and pedestrians
  - Schools
  - Business clusters along the western end and downtown area of Detroit Avenue
  - Business clusters along Madison Avenue
  - Lakewood Park

The key takeaway is informed by stakeholder and community engagement. Lakewood has a well-connected sidewalk network with minimal gaps but lacks a connected network for bicyclists. Many bicyclists in Lakewood would feel more comfortable riding in the roadway on a low stress facility. However in current conditions, many cyclists feel more comfortable riding on the sidewalk which can lead to multimodal conflicts as pedestrians and cyclists travel to activity generators across the City.

SAFETY

Evaluating crash trends and patterns

Evaluating crash trends and patterns identifies where crashes are currently occurring and provides a better understanding of what factors may be contributing to crashes. Understanding these crashes can lead to projects that have the greatest likelihood of improving safety for pedestrians and bicyclists. These analyses are especially important because Ohio is not trending in the right direction for bicyclist and pedestrian safety.

Crash analysis

Five years of bicycle and pedestrian crash data were reviewed and mapped using ODOT's GIS Crash Analysis Tool; this exercise identified problem locations for people walking and bicycling. During the time period reviewed (2017 -2021), there were 141 crashes involving bicyclists and pedestrians in Lakewood, 21 of which resulted in serious injuries and 1 of which resulted in a fatality. Table 4 shows the percentage of bicycle and pedestrian crashes near schools in Lakewood.

	Pedestrian		Bicyclist	
	Crashes	Fatal or serious injury crashes	Crashes	Fatal or serious injury crashes
Within 1/4 mi. of schools	66%	67%	53%	40%
Within 1/2 mi. of schools	31%	17%	41%	50%
More than 1/2 mi. from schools	3%	17%	7%	10%
Total	100%	100%	100%	100%

Table 4. Bicycle and pedestrian crashes near schools.

Concentrations of pedestrian crashes are located:

- Along Detroit Avenue, and near the intersection with Warren Road
- Along the eastern section of Clifton Boulevard, and near the intersections with Belle Avenue and West 117th Street
- Along Madison Avenue, and near the intersections with Hilliard Road and Warren Road

Concentrations of bicycle crashes are located:

- Along Sloane Avenue near the Emerald Necklace Arena and Scenic Park Metropark
- Along Madison Avenue, and near Harding Middle School, Madison Park, and the intersection with Warren Road
- Along Detroit Avenue, near the intersections with Larchmont Avenue, Warren Road, and Bunts Road
- Hilliard Road between Madison Avenue and Warren Road
- Along Franklin Road

The following pages visualize the 2017 – 2021 pedestrian and bicycle fatalities in Lakewood (Figure 25 and Figure 26). Additional multimodal crash data analysis is available in the Action Plan.

Figure 25. Pedestrian crashes in Lakewood (2017- 2021)

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Figure 26: Bicycle crashes in Lakewood (2017 – 2021)

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Bicycle Level of Traffic Stress

A Bicycle Level of Traffic Stress (Bike LTS) analysis assesses the comfort level of the existing bicycle network. The analysis provides a score for each roadway based on how stressful it is to ride for an average person who is interested in cycling more but concerned about doing so in traffic. This describes most of the adult population. Bike LTS is based on the premise that a cyclist's level of comfort on a road increases as separation from cars increases and as traffic volumes and/or speeds decrease.

The Bike LTS analysis is useful for identifying roadways that may benefit from upgrading an existing high-stress facility to a lower-stress option or recommending a new bicycle facility where one does not exist. The analysis helps identify appropriate bicycle facilities that are comfortable for people of all ages and people with disabilities. The Bike LTS analysis groups roads into one of four categories:

- **Bike LTS 1** – A low stress facility suitable for all ages and people with disabilities. These facilities have strong separation from motor vehicle traffic or are well-established on low speed, low volume roads.
- **Bike LTS 2** – A facility suitable for people who are "interested but concerned" about riding a bicycle, which includes most adults and families. These facilities are separated from moderate speed and multilane roads or are shared lanes on lower speed, lower volume roads.
- **Bike LTS 3** – A facility suitable for people who are "enthused and confident" about riding a bicycle. These facilities are shared lanes on moderate speed or separated from multilane, medium to high volume, and higher speed roads.
- **Bike LTS 4** – A high stress facility is uncomfortable for most adults. These facilities are mixed flow on moderate speed or higher volume roads or in close proximity to high speed, high volume, or multilane roads.

Figure 27 illustrates the results of the LTS analysis. The majority of streets in Lakewood are residential with low traffic volumes and speeds that are comfortable for most cyclists. However, nearly all of Lakewood's major corridors (where most amenities and destinations are located) have a score of LTS 3 or LTS 4, indicating the need for low-stress facilities that better connect people to the places they need and want to go. One notable exception is the segment of Clifton Boulevard between West Clifton Boulevard and East Lake Road. Although it is an arterial, there is a protected bike lane which results in a score of LTS 1.

The high stress roads (LTS 4) are primarily the following:

- Clifton Boulevard
- Detroit Avenue
- Riverside Drive
- Hilliard Road
- Franklin Boulevard
- Lakewood Heights Boulevard
- West 117th Street
- Berea Road

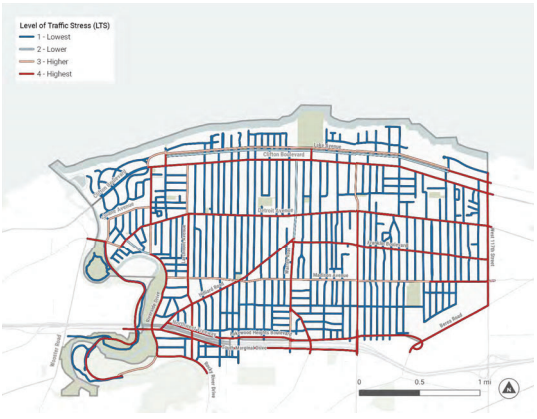

Figure 27. Bicycle Level of Traffic Stress

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Pedestrian Crossing Level of Traffic Stress

One of the primary factors influencing the safety and comfort of people walking is the level of stress they experience with crossing paths with cars. This occurs at intersections and driveways. Like the Bike LTS analysis, a Pedestrian Crossing LTS (PxLTS) assesses the comfort level of legal crossings. Except where pedestrians are prohibited, every intersection is a legal crossing for pedestrians whether marked or unmarked.

For this analysis each intersection receives a rating indicating the traffic stress experienced by an average pedestrian. PxLTS is useful for identifying crossings that could be enhanced to improve walkability and accessibility. The PxLTS groups intersections into one of the four categories below.

- **PxLTS 1** – Segments and crossings are highly comfortable, pedestrian-friendly, and easily navigable for pedestrians of all ages and abilities, including seniors or school-aged children walking unaccompanied to school. PxLTS 1 indicates an ideal "pedestrian-friendly" environment.
- **PxLTS 2** – Generally comfortable for many pedestrians, but parents may not feel comfortable with children walking alone. Seniors may have concerns about the walking environment and take more caution.
- **PxLTS 3** – Walking is uncomfortable but possible. Minimal crossing facilities may be present, but barriers are present that make the crossing experience uninviting or uncomfortable.
- **PxLTS 4** – Crossings have limited or no accommodation for pedestrians.[26]

Similar to the results of the Bike LTS, the PxLTS indicates that high-stress conditions are most concentrated on major corridors, particularly east-west corridors. High stress crossings are primarily concentrated on the roadways below:

- Clifton Boulevard
- Detroit Avenue
- Hilliard Road
- Madison Avenue
- Franklin Boulevard
- Lake Avenue just west of Lakewood Park
- Lakewood Heights Boulevard east of Bunts Road (shared with City of Cleveland)

Some of the roadways listed above have business clusters that generate pedestrian activity (specifically Detroit Avenue and Madison Avenue), and most are roadways with schools, community centers, and/or parks. Improving the comfort level of high-stress crossings is important for improving walkability, particularly near destinations that generate pedestrian activity. The PxLTS results are shown in Figure 28. Figure 29 shows the distance to the nearest low stress crossing for all non-residential streets in Lakewood. This data reveals where people would need to walk 250 feet or more out of their way to find a low stress crossing and therefore where there may be need to prioritize crossing improvements.

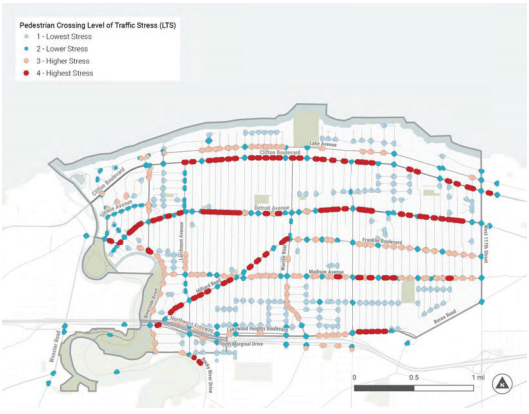

Figure 28. Pedestrian Crossing Level of Traffic Stress

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[26] *Low-Stress Walk and Bike Network Plan.* City of Boulder, Colorado (2021). https://bouldercolorado.gov/sites/default/files/2021-07/low-stress-walk-and-bike-network-plan-updated-63021.pdf

Figure 29. Distance to Nearest Low Stress Crossing

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High-Risk Network for Walking and Biking

As part of the Action Plan, a High-Risk Network for Walking and Biking (HRN) was developed for the City of Lakewood. The development of the HRN was informed by two analyses, described in Table 4. The outcome is a visualization of the corridors with the highest potential risk for bicycle and pedestrian crashes to occur in the future informed by both historical crash data and a statistical model based on roadway characteristics. Figure 30 shows the High-Risk Network for Lakewood.

Corridors on the HRN include:

- Clifton Boulevard
- Bunts Road
- Detroit Avenue
- Franklin Boulevard
- Madison Avenue
- Hilliard Road
- Warren Rad
- West 117th Street
- Berea Road
- Lakewood Heights Boulevard

For more information about the HRN, its inputs, and safety recommendations to address crashes on the HRN, see the Action Plan.

Table 4. Description of High-Risk Network for Walking and Biking inputs

High Risk Network Input	What it tells us	Outputs included in High-Risk Network
Safe Streets Priority Finder (SSPF) [27]	Identifies segments with the highest estimated crash risk (and crash costs) based on statical modeling that uses roadway characteristics information (functional roadway classification).	Roadway segments that scored "Highest Risk" from SSPF analysis
Severity-weighted Sliding Window Analysis	Identifies segments with the highest crash density, weighted by crash severity (all modes) based on historical data (2017-2021). Fatal crashes are given the highest weight, followed by serious injury crashes.	Roadway segments that scored "High Risk" from the SSPF tool and had a severity-weighted sliding window analysis score higher than one standard deviation.

[27] The SSPF was developed by Toole Design in collaboration with the City of New Orleans, University of New Orleans Transportation Institute, and New Orleans Regional Transit Authority. It is a free, interactive open-source resource available at the national scale. https://www.saferstreetspriorityfinder.com/

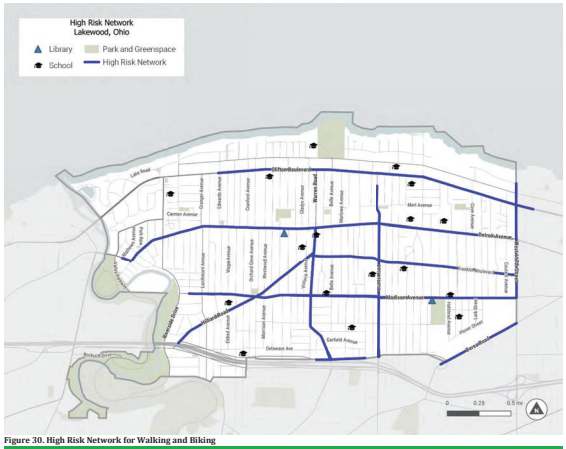

Figure 30. High Risk Network for Walking and Biking

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PROPOSED PROJECTS AND PROGRAMS

Figure 31. Cyclist in Birdtown

PROPOSED PROJECTS AND PROGRAMS

This plan makes recommendations that will promote and support active transportation through a combination of infrastructure projects, policies, and programs. Infrastructure recommendations refer to physical, built projects that will change how roadways are configured to provide space for all users. Policy and program recommendations aim to re-prioritize walking and bicycling and to change the culture around active transportation and help increase its use through engagement, education, encouragement, and evaluation.

INFRASTRUCTURE PROJECTS

The final network is based on the existing conditions analysis, Stakeholder Committee meetings, and public input. The recommendations include new shared us paths and on-street bikeways to fill gaps between existing facilities and create a connected network. See Figure 31 for a network recommendations map and Table 5 for a complete list of all proposed projects with descriptions. Some project recommendations will require further study to determine the appropriate bikeway facility. For those projects, multiple bikeway recommendations options are listed with the preferred facility listed first.

21 miles of on-street bikeway

60 crossing improvements

5 miles of shared use path

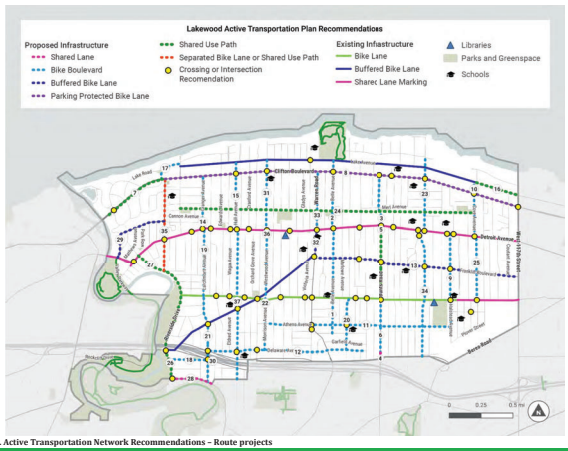

Figure 32. Active Transportation Network Recommendations – Route projects

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Table 5. Route project ATP recommendations

Project ID	Recommendation	Roadway	Project Extents
1	Bike boulevard	Belle Ave	Detroit Ave to Bayes Ave
2	Bike boulevard	Belle Ave	Lake Rd to Detroit Ave
3	Bike boulevard	Bunts Rd	Clifton Blvd to Detroit Ave
4	Shared lane	Bunts Rd	To Lakewood Heights Boulevard
5	Shared use path	Bunts Rd	Detroit Ave to Madison Ave
6	Bike boulevard	Bunts Rd	Madison Ave to approximately Lakewood Heights Blvd
7	Shared use path	Clifton Blvd	West Clifton Blvd to jurisdictional boundary
8	Parking protected bike lane or buffered bike lane	Clifton Blvd	West Clifton Blvd to West 117th St
9	Bike boulevard	Cohassett Ave / Halstead Ave	Detroit Ave to Athens Ave
10	Bike boulevard	Cove Ave	Lake Rd to Detroit Ave
11	Bike boulevard	Delaware Ave	Morrison Ave to Halstead Ave
12	Bike boulevard	Delaware Ave	Glenbury Ave to Brown Rd
13	Buffered bike lane	Franklin Ave	Hilliard Rd to West 117th St
14	Bike boulevard	Granger Ave	Clifton Blvd to Detroit Ave
15	Bike boulevard	Hall Ave	Lake Rd to Detroit Ave
16	Shared use path	Lake Rd	Cove Ave to West 117th St
17	Bike boulevard	Lake Rd	Clifton Blvd to Webb Rd
18	Bike boulevard	Lakewood Heights Blvd	Riverside Drive to McKinley Ave
19	Bike boulevard	Larchmont Ave	Detroit Ave to Madison Ave
20	Bike boulevard	Lincoln Ave	Madison Ave to Delaware Ave
21	Bike boulevard	McKinley Ave	Madison Ave to Rocky River Dr
22	Bike boulevard	Morrison Ave	Madison Ave to Delaware Ave
23	Bike boulevard	Nicholson Ave	Edgewater Rd to Detroit Ave
24	Shared use path	Railroad Path	Cove Ave to Webb Rd
25	Bike boulevard	Ridgewood Ave	Detroit Ave to Madison Ave
26	Shared use path or buffered bike lane	Riverside Dr	Hilliard Blvd to Rocky River Dr
27	Shared use path or buffered bike lane	Riverside Dr	Hilliard Blvd to Detroit Ave
28	Shared lane	Rocky River Dr	Riverside Drive to Ogontz Ave
29	Buffered bike lane or bike lane	Sloane Ave	West Clifton Blvd to Detroit Ave
30	Shared use path	South Marginal Dr	McKinley Ave to Ogontz Ave
31	Bike boulevard	Summit Ave	Lake Road to Detroit Ave
32	Buffered bike lane or bike lane	Warren Rd	Detroit Ave to Franklin Blvd
33	Bike boulevard	Warren Rd	Clifton Blvd to Detroit Ave
34	Bike boulevard	Waterbury Rd	Detroit Ave to Lakewood Heights Blvd

Project ID	Recommendation	Roadway	Project Extents
35	Separated bike lane or shared use path	West Clifton Blvd	Clifton Blvd to Riverside Dr
36	Bike boulevard	Westwood Ave	Detroit Ave to Madison Ave
37	Bike boulevard	Woodward Ave	Detroit Ave to Fischer Ave

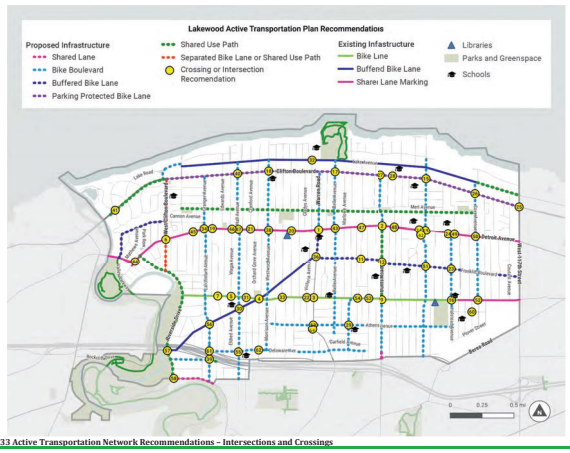

Figure 33 Active Transportation Network Recommendations – Intersections and Crossings

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Table 6. Intersection and crossing project ATP recommendations

Project ID	Recommendation	Street 1	Street 2
1	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of Leading Pedestrian Interval (LPI) and bicycle detection to support recommended bicycle boulevard project on Warren Road and access to Albert Einstein Academy. Consider installation of curb extensions or pedestrian refuge island.	Detroit Ave	Warren Rd
2	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to nearby schools. Consider installation of curb extensions or pedestrian refuge island.	Detroit Ave	Bunts Rd
3	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and curb extensions to improve access to bus stop and nearby private school.	Madison Ave	Warren Rd
4	Install high-visibility crosswalks at all approaches. Consider installation of curb extensions and/or pedestrian refuge islands. Consider installation of LPI and bicycle detection to support existing buffered bike lane on Hilliard Road.	Madison Ave	Hilliard Rd
5	Install high-visibility crosswalk markings across Madison Avenue to improve access to bus stop and Harding Middle School. Consider installation of curb extension or pedestrian refuge island.	Madison Ave	Wagar Ave
6	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle facility on West Clifton Blvd and access to Horace Mann. Consider installation of curb extensions.	Detroit Ave	West Clifton Blvd
7	Install high-visibility crosswalk markings and ADA curb ramps to cross Madison Avenue and improve access to Harding Middle School. Consider installation of Rectangular Rapid-Flashing Beacon (RRFB) or Pedestrian Hybrid Beacon (PHB).	Madison Ave	Atkins Ave
9	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to Lakewood High School. Consider installation of curb extensions.	Madison Ave	Bunts Rd
11	Install high-visibility crosswalk markings across Franklin Boulevard to improve access to bus stop and Lakewood High School. Consider installation of curb extension or pedestrian refuge island.	Franklin Blvd	Blossom Park Ave
12	Install high-visibility crosswalk markings across Franklin Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to Lakewood High School. Consider installation of curb extensions or pedestrian refuge island.	Franklin Blvd	Bunts Rd

Project ID	Recommendation	Street 1	Street 2
13	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Nicholson Avenue and access to Lakewood High School. Consider installation of curb extensions or pedestrian refuge island.	Detroit Ave	Nicholson Ave
14	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue and improving access to nearby schools.	Detroit Ave	Waterbury Rd
15	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Nicholson Avenue and access to Emerson Elementary School.	Clifton Blvd	Nicholson Ave
16	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohassett Avenue and access to nearby schools.	Madison Ave	Cohassett Ave
17	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Belle Avenue. Evaluate if increased crossing time is needed.	Clifton Blvd	Belle Ave
18	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Summit Avenue and access to Lincoln Elementary School.	Clifton Blvd	Summit Ave
19	Install high-visibility crosswalk markings across Detroit Avenue.	Detroit Ave	Cordova Ave
20	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of curb extensions and parking restrictions on crosswalk approach.	Detroit Ave	Mars Ave
21	Install high-visibility crosswalk markings and ADA curb ramps to Detroit Avenue and improve access to bus stop. Consider parking restrictions on crosswalk approach.	Detroit Ave	Cranford Ave
22	Install high-visibility crosswalk markings across Madison Avenue. Consider parking restrictions at crosswalk approach or curb extensions.	Madison Ave	Victoria Ave
23	Install high-visibility crosswalk markings across Franklin Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohassett Avenue and access to nearby schools. Consider installation of curb extensions or pedestrian refuge island.	Franklin Blvd	Cohassett Ave
24	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohassett Avenue and access to Garfield Middle School. Consider installation of curb extensions.	Detroit Ave	Cohassett Ave

Project ID	Recommendation	Street 1	Street 2
25	Install high-visibility crosswalk markings at all approaches. Consider curb extensions and/or pedestrian refuge island.	Clifton Blvd	West 117th St
26	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cove Avenue. Evaluate if increased crossing time is needed.	Clifton Blvd	Cove Ave
27	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to bus stop.	Clifton Blvd	Bunts Rd
28	Install pedestrian-activated crossing - consider PHB - high-visibility crosswalk markings, and ADA curb ramps to support access to Taft Center for Innovation.	Clifton Blvd	Whippoorwill Ave
29	Install high-visibility crosswalk markings across Athens Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Athens Avenue and access to Roosevelt Elementary School.	Athens Ave	Lincoln Ave
30	Install high-visibility crosswalk markings across Madison Avenue to improve access to Harding Middle School. Consider installation of curb extensions.	Hilliard Rd	Woodward Ave
31	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue and improve access to Harding Middle School. Consider installation of curb extensions.	Madison Ave	Northland Ave
32	Install high-visibility crosswalk markings across Franklin Boulevard to improve access to Lakewood Catholic Academy. Consider installation of LPI.	Lake Rd	Cook Ave
33	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue. Consider installation of curb extensions.	Madison Ave	Arthur Ave
34	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Granger Avenue. Consider installation of curb extensions.	Detroit Ave	Granger Ave
36	Install high-visibility crosswalk markings and consider additional safety improvements for vehicles such as hardened centerlines.	Franklin Blvd	Warren Rd
37	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Woodward Avenue. Consider installation of curb extensions.	Detroit Ave	Woodward Ave
38	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Westwood Avenue. Consider installation of curb extensions or pedestrian refuge island.	Detroit Ave	Westwood Ave

Project ID	Recommendation	Street 1	Street 2
39	Install high-visibility crosswalk marking across South Marginal Drive. Consider installation of curb extensions.	South Marginal Dr	McKinley Ave
40	Install pedestrian-activated crossing - consider - high-visibility crosswalk markings, and ADA curb ramps to support recommended bicycle boulevard project on Hall Avenue.	Clifton Blvd	Hall Ave
41	Install roundabout in accordance with recommendations from Lake Road-Clifton Boulevard Corridor Improvement Study	Clifton Blvd	Lake Rd
42	Consider installation of a mini roundabout to address multimodal conflicts.	Lewis Dr	Waterbury Rd
43	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Belle Avenue Consider installation of curb extensions or pedestrian refuge island.	Detroit Ave	Belle Ave
44	Consider installation of bicycle detection to improve access to nearby regional trail.	Detroit Ave	Graber Dr
45	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Evaluate signal timing.	Detroit Ave	Spring Garden Ave
46	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue and improve access to bus stop.	Detroit Ave	Wagar Ave
47	Consider installation of curb ramps to improve pedestrian visibility. Incorporate signage for bicycle use of HAWK beacon.	Detroit Ave	Blossom Park Ave
48	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Consider installation of in-street pedestrian crossing sign.	Detroit Ave	Giel Ave
49	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Consider installation of curb extensions.	Detroit Ave	Thoreau Rd
50	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cove Avenue. Consider installation of curb extensions and/or pedestrian refuge island.	Detroit Ave	Cove Ave
51	Install high-visibility crosswalk markings across Franklin Boulevard to support recommended bicycle boulevard project on Waterbury Road. Consider installation of curb extensions or pedestrian refuge island.	Franklin Blvd	Waterbury Rd
52	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Ridgewood Avenue.	Madison Ave	Ridgewood Ave
53	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue and improve access to Lakewood High School. Consider installation of curb extensions and parking restrictions at crosswalk approach.	Madison Ave	Brown Rd
54	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue. Consider installation of curb extensions	Madison Ave	Baxterly Ave

Project ID	Recommendation	Street 1	Street 2
55	Install high-visibility crosswalk markings across Delaware Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Delaware Avenue and access to Hayes Elementary School. Consider installation of curb extension and pedestrian refuge island.	Delaware Ave	Woodward Ave
56	Install high-visibility crosswalk markings at all approaches. Consider installation of curb extensions.	Hilliard Rd	McKinley Ave
57	Install high-visibility crosswalk markings and crossing improvements identified in Community Confluence Plan.	Hilliard Blvd	Riverside Dr
58	Install high-visibility crosswalk markings and crossing improvements identified in Community Confluence Plan.	Rocky River Dr	Riverside Dr
60	Install high-visibility crosswalk markings and ADA curb ramps to cross Thrush Street and improve access to Harrison Elementary School. Consider installation of curb extensions.	Thrush St	Robin St
61	Install high-visibility crosswalk marking across North Marginal Drive. Consider installation of curb extensions.	North Marginal Dr	McKinley Ave
62	Install high-visibility crosswalk markings across Delaware Avenue to improve access to Hayes Elementary School. Consider installation of curb extension and pedestrian refuge island.	Delaware Ave	Carabel Ave
63	Install high-visibility crosswalk markings across Athens Avenue. Consider LPI and bicycle detection to support recommended bicycle boulevard project on Athens Avenue.	Athens Ave	Warren Rd
64	Install high-visibility crosswalk markings at all approaches. Consider curb extensions.	Arden Ave	Alger Rd

ACTIVE TRANSPORTATION NETWORK RATIONALE.

A primary goal of this plan is to increase the safety and convenience of walking and biking and to that end, recommendations include a variety of route options and facility types to accommodate the majority of community members. The ATP recommendations add over 21 miles of on-street bikeways and 5 miles of shared use paths to the transportation system, and 60 intersection or crossing improvements. The following section goes into more detail on how and why facilities in the network were selected.

Pedestrian Facilities

Pedestrian infrastructure is primarily provided in the form of crossing improvements and shared use path recommendations. The incorporation of low stress bicycle facilities will also help address conflicts between bicyclists and pedestrians on the currently robust network of sidewalks across the City.

These improvements can improve people's bicycling and walking experience, encourage more walking, and decrease the number of crashes that occur. Crossing improvements proposed in this plan include high-visibility crosswalk markings, ADA curb ramps, and considerations for pedestrian refuge islands, curb extensions, and Leading Pedestrian Intervals.

Facility Selection Methodology

Pedestrian crossings should be safe, intuitive, and accessible to people with mobility and/or vision disabilities. Both pedestrian and vehicular conditions factor into the design of pedestrian crossings. For example, in areas of high active transportation demand or high need where there is potential for more pedestrian activity, crosswalks and pedestrian queuing areas need enough space to accommodate users. Or in areas with higher traffic volumes and wider roadways, additional countermeasures are needed to assist pedestrians using longer crossings.

Countermeasures such as high-visibility crosswalks or pedestrian refuge islands can help address safety issues like drivers not yielding to crossing pedestrians or inadequate visibility. Figure 34 from the Federal Highway Administration (FHWA) Guide for Improving Pedestrian Safety at Uncontrolled Crossings depicts other safety issues that can be addressed with pedestrian crash countermeasures. This report along with resources like the ODOT Multimodal Design Guide

Pedestrian Crash Countermeasure for Uncontrolled Crossings	Safety Issue Addressed: Conflicts at crossing locations	Excessive vehicle speed	Inadequate conspicuity/ visibility	Drivers not yielding to pedestrians in crosswalks	Insufficient separation from traffic
Crosswalk visibility enhancement	●	●	●	●	●
High-visibility crosswalk markings*	●		●	●	
Parking restriction on crosswalk approach*	●		●	●	
Improved nighttime lighting*	●		●		
Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line*	●		●	●	●
In-Street Pedestrian Crossing sign*	●	●	●	●	
Curb extension*	●	●	●		●
Raised crosswalk	●	●	●	●	
Pedestrian refuge island	●	●	●		●
Pedestrian Hybrid Beacon	●	●	●	●	
Road Diet	●	●	●		●
Rectangular Rapid-Flashing Beacon	●		●	●	●

*These countermeasures make up the STEP countermeasure "crosswalk visibility enhancements." Multiple countermeasures may be implemented at a location as part of crosswalk visibility enhancements.

Figure 34. Safety issues addressed per countermeasure *(FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations Table 2)*

(MDG), and the National Cooperative Highway Research Program Report 562: Improving Pedestrian Safety at Unsignalized Crossings Appendix A: Guidelines for Pedestrian Crossing Treatments provide best practices for multimodal transportation design standards. See these full resources for further detail on intersection countermeasure selection.

Bicycle Facilities

Local infrastructure and routes will help riders of varying abilities access their daily destinations such as schools, grocery stores, parks, and work. There are several important factors to consider during bicycle facility selection, such as design users and roadway conditions. This section describes the different types of bicyclists, highly confident, somewhat confident, and interested but concerned, who make up the majority of the population. It also provides an introduction to the FHWA bicycle facility selection matrix that identifies what type of facility is appropriate for majority of bicyclists based on speed, volume, and context.

Design Users

Understanding which types of bicyclists feel comfortable using a given facility is key to building a safe, convenient, and well-used network.

Design User Profiles

Highly Confident Bicyclist (~4-7%)

- Smallest group.
- Prefer direct routes and will operate in mixed traffic, even on roadways with higher motor vehicle operating speeds and volumes.
- Many also enjoy separated bikeways.
- May avoid bikeways perceived to be less safe, too crowded with slower moving users, or requiring deviation from their preferred route.

Somewhat Confident Bicyclist (~5-9%)

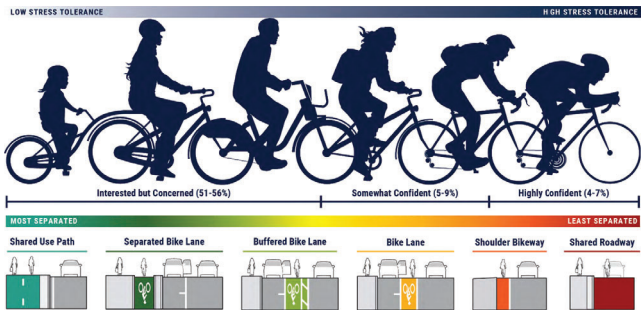
- Comfortable on most types of facilities.
- Lower tolerance for traffic stress, prefer striped or separated bike lanes on major streets and low-volume residential streets.
- Willing to tolerate higher levels of traffic stress for short distances.

Interested but Concerned Bicyclist (~51-56%)

- Largest group.
- Lowest tolerance for traffic stress.
- Avoid bicycling except with access to networks of separated bikeways or very low-volume streets with safe roadway crossings.
- Tend to bicycle for recreation but not transportation.
- Generally, the recommended design user profile to maximize potential for bicycling.

Bicyclists are most commonly classified according to their comfort level, bicycling skill and experience, age, and trip purpose. These characteristics can be used to develop generalized profiles of various bicycle users and trips, also known as "design users," which inform bicycle facility design. Comfort, skill, and age may affect bicyclist behavior and preference for different types of bicycle facilities. Selecting a design user profile is often the first step in assessing a street's compatibility for bicycling. The design user profile should be used to select a preferred type of bikeway treatment for different contexts (see Figure 35 and Figure 36). People who bicycle are influenced by their relative comfort operating with or near motor vehicle traffic. To accommodate the majority of the population, the "Interested but Concerned" rider should be the primary user type that facilities are designed for. In some contexts, such as rural roadways where less people may be expected to be traveling by bike, the Somewhat Confident or Highly Confident rider is the most relevant design user.

Figure 35: Types of Bicyclists (Source: Toole Design)

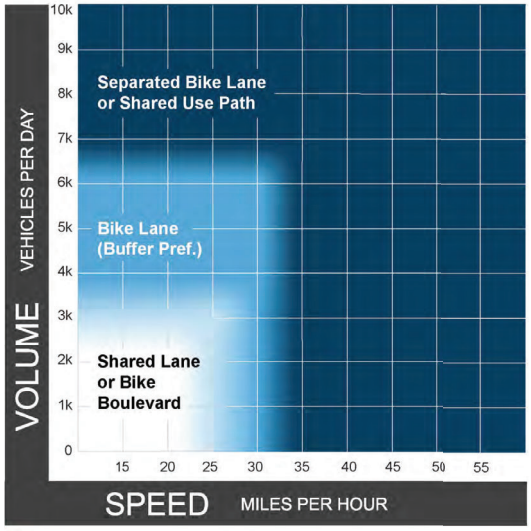


Facility Selection Methodology

Bicycle networks should be continuous, connect seamlessly across jurisdictional boundaries, and provide access to destinations. Anywhere a person would want to drive to for utilitarian purposes, such as commuting or running errands, is a potential destination for bicycling. As such, planning connected low-stress bicycle networks is not achieved by simply avoiding motor vehicle traffic. Rather, planners should identify solutions for lowering stress along higher traffic corridors so that bicycling can be a viable transportation option for the majority of the population.

Before projects can be implemented the type of on-street bicycle facility will need to be defined. The Federal Highway Administration (FHWA)'s Bikeway Selection Guide's facility selection matrices (Figure 36) can be used to help determine the best facility for the roadway based on context, speed, and volume as well as the relevant design user type. See the full guide for further detail on facility selection.

Figure 36: FHWA Bikeway Facility Matrix: Preferred Bikeway Type for Urban, Urban Core, Suburban and Rural Town Contexts (Design User: Interested but Concerned)



Notes

1 Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.
2 Advisory bike lanes may be an option where traffic volume is <3K ADT.
3 See page 32 for a discussion of alternatives if the preferred bikeway type is not feasible.

Facility Toolkit

There are numerous facility types which accommodate people of varying abilities and in different environments. Research shows that the provision of low stress, connected bicycle networks improves bicyclist safety and encourages bicycling for a broader range of user types.[28] Pedestrian infrastructure is primarily provided in the form of sidewalks, shared-use paths, and crossing treatments.

Sidewalks

Sidewalks are intended to be used by people walking. They are adjacent to but separated from the roadway by a curb and/or buffer, such as a tree lawn. As roadway speeds and volumes increase, more separation is needed to maintain a safe and comfortable walking environment for pedestrians. Common in urban areas, they may also be necessary in rural areas with pedestrian generators, such as schools and businesses. For further guidance on pedestrian design, refer to ODOT's Multimodal Design Guide, Chapter 4 -Pedestrian Facilities.

Figure 37. Sidewalk *(Toole Design)*

Crossing Improvements

A variety of solutions can be employed to make intersections and mid-block crossings safer and more convenient for people walking. These treatments range from painted facilities, such as high-visibility crosswalks, to signs, lights, and signals. Painted crosswalks delineate the safest pathway for pedestrians, and rectangular rapid flashing beacons (RRFBs) enhance user safety and convenience at crossing points when full signalization is not warranted. For further guidance on pedestrian design, refer to ODOT's Multimodal Design Guide (MDG) Chapter 4 -Pedestrian Facilities, MDG Chapter 8 – Signals, Beacons, and Signs, and FHWA's Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.

Figure 38. Crossing Improvement *(Toole Design)*

Bicycle Facilities

As part of the existing conditions assessment, the project team conducted a Level of Traffic Stress (LTS) analysis (see Figure 27), which uses broadly available road characteristics to classify the experience of riding a bicycle on different streets. The LTS analysis grouped roads into one of four catego ries:

- LTS 1 – A low stress facility suitable for all ages and abilities.
- LTS 2 – A facility suitable for people who are "interested but concerned" about riding a bicycle, which includes most adults and families.

Figure 39. Floating bus stop along parking protected bike lane *(Toole Design)*

[28] AASHTO (2021). Guide to Bicycle Facilities, 4th Edition, 2.2. Why Planning for Bicycling is Important.

- LTS 3 – A facility suitable for people who are "enthused and confident" about riding a bicycle.
- LTS 4 – A high stress facility is uncomfortable for most adults.

Table 8 defines the appropriate bicycle facility or facilities based on the roadway's LTS score. For further guidance on bicycle infrastructure design, refer the following ODOT Multimodal Design Guide chapters:

- Chapter 5 – Shared Use Paths
- Chapter 6 – On-Road Bicycle Facilities
- Chapter 7 – Motor Vehicle Facilities Supporting Multimodal Accommodation
- Chapter 9 – Multimodal Accommodations at Interchanges & Alternative Intersections

Table 7. Bicycle Facility Toolkit

Level of Traffic Stress (LTS)	Type of Facility	Description
LTS 1	**Bicycle Boulevard** 	Where traffic volumes and speeds are low, many bicyclists can comfortably share lanes with motor vehicles. Shared lane markings and signs are added to inform people driving that bicyclists may operate in the lane and where to expect bicyclists. Wayfinding signage, traffic calming, and intersection treatments need to be incorporated into bicycle boulevards to increase user comfort and prioritize bicycle travel.
LTS 2	**Bike Lane / Buffered Bike Lane** 	Bike lanes and buffered bike lanes are one-way facilities within the roadway demarcated with painted lane lines. Standard bike lanes provide some improvements to bicyclist safety, and can be enhanced with painted buffers, bike lane extensions through intersections, green colored pavement, and regulatory signs.
LTS 3 and LTS 4	**Separated Bike Lane** 	A separated bike lane is a one- or two-way facility within the roadway and physically separated from adjacent travel lanes with vertical elements such as a curb, flex posts or on-street parking. Such facilities reduce the risk of injury and can increase bicycle ridership due to increased safety and comfort. Separated bike lanes and/or parking protected bike lanes can accommodate bicyclists on multimodal corridors through improvements such as floating bus stops (see Figure 39).
LTS 4	**Shared Use Paths** 	Typically designed as two-way facilities physically separated from motor vehicle traffic and used by bicyclists, pedestrians, and other non-motorized users, shared use paths provide a low-stress and comfortable travel environment for users of all confidence levels. They are used for recreational opportunities in addition to transportation and can be located along roadways or completely separated from the road network, sometimes along rivers or old railroad corridors.

PROGRAMS AND POLICIES

Establishing safe and convenient active transportation infrastructure is critical to improving walking and bicycling conditions. But without programs and policies in place to support active transportation, infrastructure projects can only go so far. A variety of non-infrastructure tools can increase pedestrians' and bicyclists' safety by establishing a culture of walking and biking and creating a friendly regulatory and political environment for active transportation.

Programs and policies can typically be implemented relatively quickly and inexpensively. Programs can be easily scaled to a wide audience, such as elementary school students, transit riders, or business owners or they can target specific groups for programming, like speeding motorists in school zones. Individual programs can increase walking and bicycling in specific circumstances and locations but should be coordinated with policy development to ensure lasting change. See for a list of proposed programs and policies. These proposed programs and policies aim to accomplish the following goals:

- **Foster culture change:** shift community members mindset so that walking and bicycling is normal and expected.
- **Maintain momentum:** help maintain momentum and excitement around active transportation while infrastructure projects are in development.
- **Build support:** encourage new people to try active transportation and help community partners recognize the value of increased active transportation options.
- **Support efficient operations and maintenance:** help institutionalize best practices in active transportation operations and maintenance.

The timeframes outlined in the recommendations are defined as follows:

- **Short-term:** One year
- **Medium-term:** Two to three years
- **Long-term:** Three years or more

The status of programs and policies should be assessed and updated each time the overall plan is updated. Status is defined as:

- **New:** A program or policy that is proposed in this Plan.
- **Ongoing:** An existing program or policy that will be continued.
- **On-hold:** A program or policy that has been stalled or deferred.
- **Completed:** When regularly updating the plan, update the program or policy status to complete when applicable to help track progress.

SRTS RECOMMENDATIONS

1: Establish an annual Walking School Bus & Bike to School Day
Lead Implementor: Lakewood City Schools
Time frame: Short-term
Status: Ongoing

Establish an annual Walk/Bike to School Day program with support from Bike Lakewood and the City of Lakewood. Walking school buses and special events like Bike to School Day are a way for families to break their routines and try something new. They also highlight school travel issues to local leaders and build political support for SRTS funding.

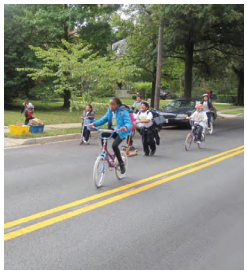


Figure 40. Students participating in Bike to School Day *(Toole Design)*

2: Update student travel and arrival/dismissal policies
Lead Implementor: Lakewood City Schools
Time frame: Medium-term
Status: New

Develop policies to ensure the safety of students who travel to school via active transportation. These policies may establish guidance for early student entry, inclement weather policies, idling policies, and/or crossing guard placement. Work with crossing guards, teachers, parents, students, and other school community members to develop and implement the policy.

3: Establish a Safe Routes to School Program
Lead Implementors: Lakewood City Schools and City of Lakewood
Time frame: Short-term
Status: New

Establish a funding source for Safe Routes to School programming, education, planning, and infrastructure projects. Lead implementors of this strategy should coordinate to apply for grant funding to keep Lakewood's School Travel Plan requirements up to date. Program funds can be used to implement other strategies listed in the ATP that are relevant to SRTS efforts.

4: Provide free helmets and educational materials to elementary students
Lead Implementor: City of Lakewood and Lakewood City Schools
Time frame: Medium-term
Statues: Ongoing

The Lakewood Safety Town summer program is open to children entering kindergarten in the fall and educates children on how navigate streets and towns via a real town setup consisting of stop signs, crosswalks, stop signs and traffic signals. In partnership with this program, Lakewood can provide helmets to all public school elementary students and provide educational materials and lesson plans on safe cycling practices for students pre-k through middle school.

ATP RECOMMENDATIONS

1: Review and update city maintenance practices for walking and biking facilities
Lead Implementor: City of Lakewood
Time frame: Short-term
Statues: New

Compile, review, and update existing relevant maintenance practices for walking and biking facilities, such as routine maintenance and snow removal. Ensure alignment with the City of Lakewood's Snow Removal Plan.

2: Establish a Complete Streets policy
Lead Implementor: City of Lakewood
Time frame: Medium-term
Statues: New

Develop a Complete Streets policy that includes the 10 Elements of a Complete Streets policy as identified by Smart Growth America and establishes a process for selecting and reviewing projects. The policy will ensure that considerations for all types of roadway users – including pedestrians, bicyclists, and motorists – have access to safe, comfortable, and convenient mobility.

3: Implement strategies to improve equitable processes and transportation outcomes
Lead Implementor: City of Lakewood
Time frame: Long-term
Statues: New

In coordination with the City of Lakewood Community Relations Committee, implement the following strategies to improve equitable processes and outcomes related to transportation:

- Ensure equitable distribution of transportation spending and funds – Conduct a thorough review of transportation spending, complaint response (and non-response) and outreach to better understand who transportation projects are currently serving, especially if there are projects that improve transportation infrastructure in the County's Equity Zones. The equitable distribution of funds will allow Lakewood to proactively address disparities. The projects should seek to be reviewed by the Community Relations Committee and if applicable, Anti-Racism Task Force.
- Improve project outreach and public participation – Require that every major active transportation project implements an outreach plan that includes receiving feedback from the public, especially those from underserved populations (older adults, children, low-income residents, People of Color). When looking to better understand and address the active transportation needs of historically marginalized communities, formalize community engagement practices that partner with Black, Indigenous, and People of Color (BIPOC) community organizations. Consider engaging with civil liberty, racial equity, and economic justice organizations.

4: Create a Barrier-free and Inclusive Design Plan
Lead Implementor: City of Lakewood and ADA Transition Task Force
Time frame: Long-term
Statues: Ongoing

This plan will outline a strategy contingent upon the recommendations in the 2023 Lakewood Self-Evaluation and ADA Transition Plan, the feedback received from the ADA survey, and issues covered in the City's ADA Task Force meetings. The plan will examine all sidewalks, curb ramps, and crosswalks to ensure they comply Americans with Disabilities Act (ADA) standards. This plan should prioritize locations according to input from the community based on their access to schools, parks, medical facilities, business districts, and places with high concentrations of older adults.

5: Establish a Bicycle-Friendly Business program
Lead Implementor: City of Lakewood
Time frame: Medium-term
Statues: Ongoing

Establish a Bicycle Friendly Business program to encourage active transportation to local businesses and build support amongst business programs. Incentivize business owners to participate by providing bike racks (as Lakewood already does), repair stations, hosting bicycle events at their businesses, and highlighting Bicycle Friendly Businesses on signage and the City's website. Businesses participating in bicycle friendly businesses often display a sign provided by the program that states they are a bicycle friendly business.

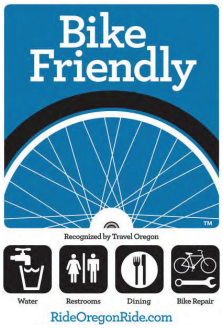


Figure 41. Example Bike-Friendly Business program logo *(Bike Portland)*

6: Establish a Bike Library Program
Lead Implementor: City of Lakewood
Time frame: Long-term
Statues: New

Many people lack access to bikes. Work with bike shops, hospitals, and charities to provide free or affordable bicycles, e-bikes, cargo bikes, and trikes or other adaptive devices. Explore developing a bike library where bikes can be checked out or a bike and gear giveaway program for low-income community members, to foster a culture of safe riding practices.

7: Implement active transportation encouragement and education programs
Lead Implementor: City of Lakewood and Bike Lakewood
Time frame: Medium-term
Statues: New

Support public education and outreach initiatives aimed at giving Lakewood residents the information, skills, and practical experience to take advantage of existing and future active transportation infrastructure. Recommended strategies for Lakewood include:

- Work with local media to support and highlight existing community-led activities such as the Lakewood Garden Walk.

- Develop a Transportation Buddy Program in partnership with Bike Lakewood that provides community members with individualized assistance for transit, bicycle, or multimodal trip planning. Transportation Buddies may also provide training rides for first-time bicycle commuters.
- Include Bike Rodeo Programming at local events (e.g., Lakewood Community Festival) to teach parents and kids about bike safety and build biking confidence. Coordinate with the Lakewood Human Services Department to provide bike rodeo programming.

8: Implement monthly or quarterly walking and biking events for older adults
Lead Implementor: City of Lakewood and Bike Lakewood
Time frame: Medium-term
Statues: New

Host organized events focused on using active transportation. This could include events, such as themed walking tours to encourage walking in different parts of the city, how we roll rides, and bike month events. Events could highlight city history, local businesses, or local parks. Consider coordinating with Cove Community Center and other local agencies that provide support to older adults.

PRIORITY PROJECTS

Figure 42.

PRIORITY PROJECTS

The infrastructure recommendations in the previous chapter are conceptual routes, meant to show the potential of a comprehensive active transportation system Lakewood. The recommendations are planning level in scope and are not necessarily constrained by existing challenges. Funding, land use, property rights, terrain, and other project specific factors may make certain recommendations less practicable than others. Project prioritization uses measurable data to determine which projects are both feasible, given real-world constraints, and align with stakeholders' priorities.

PRIORITIZATION METHODOLOGY

Table 8 summarizes the method that was used to prioritize the identified projects for implementation. The full methodology can be found in Appendix C: Prioritization Methodology.

Table 8. Project Prioritization Methodology

Category	Weight	Description	Variables
Proximity to point of interest	20	Considers if a project is close to points of interests that generate active transportation activity.	Schools
			Libraries
			Parks
			Business clusters
Equity	20	Considers if a project is in a historically disadvantaged community.	USDOT SS4A Historically Disadvantaged Communities
Safety & Comfort	20	Weighted safety and comfort scores among the street segments which make up a project.	2017-2021 bicycle and pedestrian crash history
			High-Risk Network
			Level of Traffic Stress (BLTS of PxLTS)

Category	Weight	Description	Variables
Plan & Project Synergy	15	Considers if a project was previously identified by Lakewood in an existing planning effort.	Community Confluence Plan, Lake Road-Clifton Boulevard Corridor Improvements Study, and ODOT District Work Plan
			Lakewood Capital Improvement Budget
			Pavement condition rating
Network Connectivity	10	Considers if a project expands or connects the active transportation network within Lakewood or to the greater region.	To existing bicycle facilities
			To other jurisdictions
Community Input	10	Factors in stakeholder input and public feedback from the online map.	Stakeholder engagement
			Public engagement
Cost	5	Relative cost of facility recommendation	Relative cost (high, medium, low)

PRIORITIZED INFRASTRUCTURE PROJECT LIST

Implementing this plan will take time and significant effort. The following table identifies Priority 1, Priority 2 and Priority 3 level projects. Implementation will require working with a larger number of partners, as well as building public support for priority projects. Whenever possible, recommendations in this plan should be incorporated into other roadway projects. Every year Lakewood should re-evaluate the priority list to track which projects have been implemented and to make adjustments as needed.

Prioritization for route projects and intersection projects was assessed separately. Figures 43 and 44 and Tables 9 and 10 show the prioritized active transportation projects.

Table 9. Prioritized Infrastructure Project List

Project ID	Roadway	Project Extents	Facility Type	Priority Level
8	Clifton Blvd	West Clifton Blvd to West 117th St	Parking protected bike lane or buffered bike lane	Priority 1
13	Franklin Ave	Hilliard Rd to West 117th St	Buffered bike lane	Priority 1
24	Railroad Path	Cove Ave to Webb Rd	Shared use path	Priority 1
9	Cohassett Ave / Halstead Ave	Detroit Ave to Athens Ave	Bike boulevard	Priority 1
5	Bunts Rd	Detroit Ave to Madison Ave	Shared use path	Priority 1
10	Cove Ave	Lake Rd to Detroit Ave	Bike boulevard	Priority 1
25	Ridgewood Ave	Detroit Ave to Madison Ave	Bike boulevard	Priority 1
34	Waterbury Rd	Detroit Ave to Lakewood Heights Blvd	Bike boulevard	Priority 1
23	Nicholson Ave	Edgewater Rd to Detroit Ave	Bike boulevard	Priority 1
26	Riverside Dr	Hilliard Blvd to Rocky River Dr	Shared use path or buffered bike lane	Priority 1

Project ID	Roadway	Project Extents	Facility Type	Priority Level
6	Bunts Rd	Madison Ave to ~Lakewood Heights Blvd	Bike boulevard	Priority 1
11	Delaware Ave	Morrison Ave to Halstead Ave	Bike boulevard	Priority 1
16	Lake Rd	Cove Ave to West 117th St	Shared use path	Priority 1
27	Riverside Dr	Hilliard Blvd to Detroit Ave	Shared use path or buffered bike lane	Priority 1
35	West Clifton Blvd	Clifton Blvd to Riverside Dr	Separated bike lane or shared use path	Priority 1
29	Sloane Ave	West Clifton Blvd to Detroit Ave	Buffered bike lane or bike lane	Priority 2
37	Woodward Ave	Detroit Ave to Fischer Ave	Bike boulevard	Priority 2
32	Warren Rd	Detroit Ave to Franklin Blvd	Buffered bike lane or bike lane	Priority 2
31	Summit Ave	Lake Road to Detroit Ave	Bike boulevard	Priority 2
1	Belle Ave	Detroit Ave to Bayes Ave	Bike boulevard	Priority 2
7	Clifton Blvd	West Clifton Blvd to jurisdictional boundary	Shared use path	Priority 2
3	Bunts Rd	Clifton Blvd to Detroit Ave	Bike boulevard	Priority 2
2	Belle Ave	Lake Rd to Detroit Ave	Bike boulevard	Priority 2
21	McKinley Ave	Madison Ave to Rocky River Dr	Bike boulevard	Priority 2
22	Morrison Ave	Madison Ave to Delaware Ave	Bike boulevard	Priority 2
30	South Marginal Dr	McKinley Ave to Ogontz Ave	Shared use path	Priority 2
36	Westwood Ave	Detroit Ave to Madison Ave	Bike boulevard	Priority 2
4	Bunts Rd	To Lakewood Heights Boulevard	Shared lane	Priority 3
20	Lincoln Ave	Madison Ave to Delaware Ave	Bike boulevard	Priority 3
28	Rocky River Dr	Riverside Drive to Ogontz Ave	Shared lane	Priority 3
33	Warren Rd	Clifton Blvd to Detroit Ave	Bike boulevard	Priority 3
14	Granger Ave	Clifton Blvd to Detroit Ave	Bike boulevard	Priority 3
15	Hall Ave	Lake Rd to Detroit Ave	Bike boulevard	Priority 3
17	Lake Rd	Clifton Blvd to Webb Rd	Bike boulevard	Priority 3
12	Delaware Ave	Glenbury Ave to Brown Rd	Bike boulevard	Priority 3
19	Larchmont Ave	Detroit Ave to Madison Ave	Bike boulevard	Priority 3
18	Lakewood Heights Blvd	Riverside Drive to McKinley Ave	Bike boulevard	Priority 3

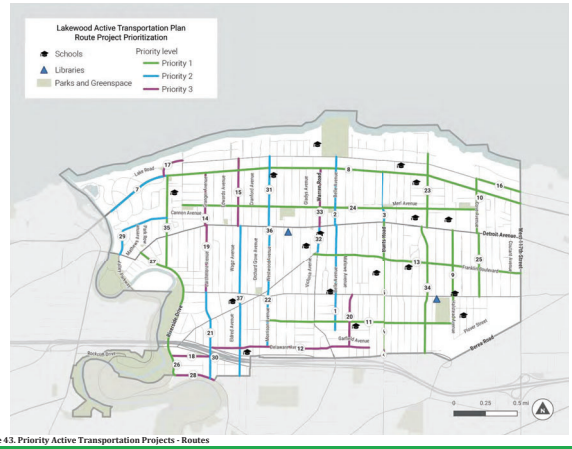


Figure 43. Priority Active Transportation Projects - Routes

Geographic and mapping information presented in this document is for informational purposes only, and is not suitable for legal, engineering, or surveying purposes. Mapping products presented herein are based on information collected at the time of preparation. Toole Design Group, LLC makes no warranties, expressed or implied, concerning the accuracy, completeness, or suitability of the underlying source data used in this analysis, or recommendations and conclusions derived thereform.

Table 10.

Project ID	Street 1	Street 2	Recommendation	Priority Level
50	Detroit Ave	Cove Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cove Avenue. Consider installation of curb extensions and/or pedestrian refuge island.	Priority 1
52	Madison Ave	Ridgewood Ave	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Ridgewood Avenue.	Priority 1
49	Detroit Ave	Thoreau Rd	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Consider installation of curb extensions.	Priority 1
1	Detroit Ave	Warren Rd	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Warren Road and access to Albert Einstein Academy. Consider installation of curb extensions or pedestrian refuge island.	Priority 1
24	Detroit Ave	Cohassett Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohassett Avenue and access to Garfield Middle School. Consider installation of curb extensions.	Priority 1
20	Detroit Ave	Mars Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of curb extensions and parking restrictions on crosswalk approach.	Priority 1
23	Franklin Blvd	Cohassett Ave	Install high-visibility crosswalk markings across Franklin Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohassett Avenue and access to nearby schools. Consider installation of curb extensions or pedestrian refuge island.	Priority 1
15	Clifton Blvd	Nicholson Ave	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Nicholson Avenue and access to Emerson Elementary School.	Priority 1
37	Detroit Ave	Woodward Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Woodward Avenue. Consider installation of curb extensions.	Priority 1
38	Detroit Ave	Westwood Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Westwood Avenue. Consider installation of curb extensions or pedestrian refuge island.	Priority 1
43	Detroit Ave	Belle Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Belle Avenue Consider installation of curb extensions or pedestrian refuge island.	Priority 1
46	Detroit Ave	Wagar Ave	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue and improve access to bus stop.	Priority 1
60	Thrush St	Robin St	Install high-visibility crosswalk markings and ADA curb ramps to cross Thrush Street and improve access to Harrison Elementary School. Consider installation of curb extensions.	Priority 1
31	Madison Ave	Northland Ave	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue and improve access to Harding Middle School. Consider installation of curb extensions.	Priority 1
36	Franklin Blvd	Warren Rd	Install high-visibility crosswalk markings and consider additional safety improvements for vehicles such as hardened centerlines.	Priority 1
4	Madison Ave	Hilliard Rd	Install high-visibility crosswalks at all approaches. Consider installation of curb extensions and/or pedestrian refuge islands. Consider installation of LPI and bicycle detection to support existing buffered bike lane on Hilliard Road.	Priority 1
16	Madison Ave	Cohassett Ave	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohassett Avenue and access to nearby schools.	Priority 1
51	Franklin Blvd	Waterbury Rd	Install high-visibility crosswalk markings across Franklin Boulevard to support recommended bicycle boulevard project on Waterbury Road. Consider installation of curb extensions or pedestrian refuge island.	Priority 1
19	Detroit Ave	Cordova Ave	Install high-visibility crosswalk markings across Detroit Avenue.	Priority 1
33	Madison Ave	Arthur Ave	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue. Consider installation of curb extensions.	Priority 1
53	Madison Ave	Brown Rd	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue and improve access to Lakewood High School. Consider installation of curb extensions and parking restrictions at crosswalk approach.	Priority 1
54	Madison Ave	Baxterly Ave	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue. Consider installation of curb extensions	Priority 1
3	Madison Ave	Warren Rd	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and curb extensions to improve access to bus stop and nearby private school.	Priority 2
21	Detroit Ave	Cranford Ave	Install high-visibility crosswalk markings and ADA curb ramps to Detroit Avenue and improve access to bus stop. Consider parking restrictions on crosswalk approach.	Priority 2

30	Hilliard Rd	Woodward Ave	Install high-visibility crosswalk markings across Madison Avenue to improve access to Harding Middle School. Consider installation of curb extensions.	Priority 2
48	Detroit Ave	Giel Ave	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Consider installation of in-street pedestrian crossing sign.	Priority 2
2	Detroit Ave	Bunts Rd	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to nearby schools. Consider installation of curb extensions or pedestrian refuge island.	Priority 2
7	Madison Ave	Atkins Ave	Install high-visibility crosswalk markings and ADA curb ramps to cross Madison Avenue and improve access to Harding Middle School. Consider installation of Rectangular Rapid-Flashing Beacon (RRFB) or Pedestrian Hybrid Beacon (PHB).	Priority 2
9	Madison Ave	Bunts Rd	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to Lakewood High School. Consider installation of curb extensions.	Priority 2
11	Franklin Blvd	Blossom Park Ave	Install high-visibility crosswalk markings across Franklin Boulevard to improve access to bus stop and Lakewood High School. Consider installation of curb extension or pedestrian refuge island.	Priority 2
34	Detroit Ave	Granger Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Granger Avenue. Consider installation of curb extensions.	Priority 2
41	Clifton Blvd	Lake Rd	Install roundabout in accordance with recommendations from Lake Road-Clifton Boulevard Corridor Improvement Study	Priority 2
63	Athens Ave	Warren Rd	Install high-visibility crosswalk markings across Athens Avenue. Consider LPI and bicycle detection to support recommended bicycle boulevard project on Athens Avenue.	Priority 2
5	Madison Ave	Wagar Ave	Install high-visibility crosswalk markings across Madison Avenue to improve access to bus stop and Harding Middle School. Consider installation of curb extension or pedestrian refuge island.	Priority 2
45	Detroit Ave	Spring Garden Ave	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Evaluate signal timing.	Priority 2
6	Detroit Ave	West Clifton Blvd	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle facility on West Clifton Blvd and access to Horace Mann. Consider installation of curb extensions.	Priority 2
13	Detroit Ave	Nicholson Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Nicholson Avenue and access to Lakewood High School. Consider installation of curb extensions or pedestrian refuge island.	Priority 2

14	Detroit Ave	Waterbury Rd	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue and improving access to nearby schools.	Priority 2
22	Madison Ave	Victoria Ave	Install high-visibility crosswalk markings across Madison Avenue. Consider parking restrictions at crosswalk approach or curb extensions.	Priority 2
25	Clifton Blvd	West 117th St	Install high-visibility crosswalk markings at all approaches. Consider curb extensions and/or pedestrian refuge island.	Priority 2
47	Detroit Ave	Blossom Park Ave	Consider installation of curb ramps to improve pedestrian visibility. Incorporate signage for bicycle use of HAWK beacon.	Priority 2
58	Rocky River Dr	Riverside Dr	Install high-visibility crosswalk markings and crossing improvements identified in Community Confluence Plan.	Priority 2
12	Franklin Blvd	Bunts Rd	Install high-visibility crosswalk markings across Franklin Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to Lakewood High School. Consider installation of curb extensions or pedestrian refuge island.	Priority 2
17	Clifton Blvd	Belle Ave	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Belle Avenue. Evaluate if increased crossing time is needed.	Priority 2
28	Clifton Blvd	Whippoorwill Ave	Install pedestrian-activated crossing - consider PHB - high-visibility crosswalk markings, and ADA curb ramps to support access to Taft Center for Innovation.	Priority 2
32	Lake Rd	Cook Ave	Install high-visibility crosswalk markings across Franklin Boulevard to improve access to Lakewood Catholic Academy. Consider installation of LPI.	Priority 2
44	Detroit Ave	Graber Dr	Consider installation of bicycle detection to improve access to nearby regional trail.	Priority 2
56	Hilliard Rd	McKinley Ave	Install high-visibility crosswalk markings at all approaches. Consider installation of curb extensions.	Priority 2
57	Hilliard Blvd	Riverside Dr	Install high-visibility crosswalk markings and crossing improvements identified in Community Confluence Plan.	Priority 2
64	Arden Ave	Alger Rd	Install high-visibility crosswalk markings at all approaches. Consider curb extensions.	Priority 2
26	Clifton Blvd	Cove Ave	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cove Avenue. Evaluate if increased crossing time is needed.	Priority 3
27	Clifton Blvd	Bunts Rd	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Bunts Road and access to bus stop.	Priority 3

18	Clifton Blvd	Summit Ave	Install high-visibility crosswalk markings across Clifton Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Summit Avenue and access to Lincoln Elementary School.	Priority 3
39	South Marginal Dr	McKinley Ave	Install high-visibility crosswalk marking across South Marginal Drive. Consider installation of curb extensions.	Priority 3
61	North Marginal Dr	McKinley Ave	Install high-visibility crosswalk marking across North Marginal Drive. Consider installation of curb extensions.	Priority 3
40	Clifton Blvd	Hall Ave	Install pedestrian-activated crossing - consider - high-visibility crosswalk markings, and ADA curb ramps to support recommended bicycle boulevard project on Hall Avenue.	Priority 3
55	Delaware Ave	Woodward Ave	Install high-visibility crosswalk markings across Delaware Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Delaware Avenue and access to Hayes Elementary School. Consider installation of curb extension and pedestrian refuge island.	Priority 3
62	Delaware Ave	Carabel Ave	Install high-visibility crosswalk markings across Delaware Avenue to improve access to Hayes Elementary School. Consider installation of curb extension and pedestrian refuge island.	Priority 3
42	Lewis Dr	Waterbury Rd	Consider installation of a mini roundabout to address multimodal conflicts.	Priority 3
29	Athens Ave	Lincoln Ave	Install high-visibility crosswalk markings across Athens Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Athens Avenue and access to Roosevelt Elementary School.	Priority 3

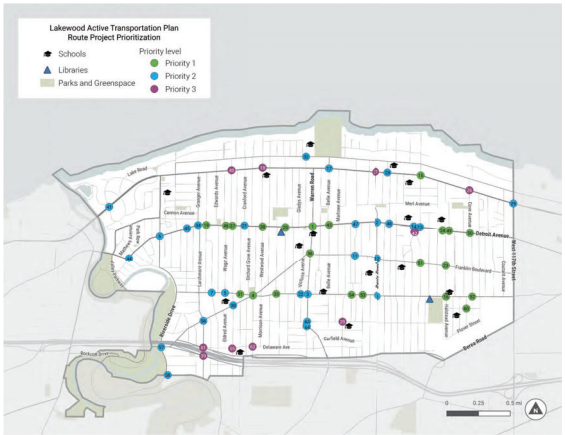


Figure 44. Priority Active Transportation Projects – Intersections & Crossings

Geographic and mapping information presented in this document is for informational purposes only, and is not suitable for legal, engineering, or surveying purposes. Mapping products presented herein are based on information collected at the time of preparation. Toole Design Group, LLC makes no warranties, expressed or implied, concerning the accuracy, completeness, or suitability of the underlying source data used in this analysis, or recommendations and conclusions derived therefrom.

IMPLEMENTATION

Figure 45. Cyclists on Lake Avenue bike lane

IMPLEMENTATION

ROLES AND RESPONSIBILITIES

Collaboration is the first step towards successful implementation of the Lakewood ATP. Stakeholders involved in the planning process will be collectively responsible for the design, funding, construction, maintenance, monitoring, and/or evaluation of the network. See Table 11 for a list of responsibilities.

Table 11. Implementation Responsibilities

Agency	Responsibility	Description
City of Lakewood	City-owned facilities	Adopt and publish the ATP and Action Plan
		Evaluate and submit applications for new bicycle and pedestrian facilities (NOACA funding / SRTS / HSIP / SS4A etc.).
		Evaluate and submit applications for bicycle and pedestrian non-infrastructure projects (SRTS / NOACA funding / etc.).
		Design, build, and maintain recommended bicycle and pedestrian facilities on City-owned roadways.
		Implement recommended policies and programs within Lakewood City Schools and across the City.
		Collaborate with adjacent jurisdictions and relevant agencies (City of Cleveland, City of Rocky River, Cuyahoga County, NOACA, ODOT) to ensure a continuous system for users.
ODOT	State-owned facilities	Incorporate bicycle and pedestrian facilities and intersection improvements into state and U.S. highways.
		Support implementation of local projects through technical resources and funding.
Bike Lakewood and Lakewood City Schools	N/A	Support implementation of recommended policies and programs through technical assistance and staff/volunteer time.

FUNDING STRATEGIES

Active transportation projects comprise a fraction of overall transportation network construction and maintenance. While pedestrian and bicycle infrastructure generally does not serve as many users as highways, bridges, and other critical infrastructure, it can have a substantial positive effect on local economies. Additionally, providing opportunities for active living promotes public health and may reduce the burden on tax-payer funded healthcare systems over time. In this light, active transportation infrastructure is a critical component of a complete transportation network and results in a positive return on investment for communities that fund such projects.

Several state and federal funding sources can be used to supplement local funding sources to build out the active transportation network and fund related programming efforts. Table 14 lists the primary funding sources for active transportation projects in Ohio; click on the name of each funding source to access web pages with further information. In addition, ODOT and the Ohio Department of Health (ODH) have developed an Active Transportation Funding Matrix. Communities may use this tool to search for additional potential funding sources to support infrastructure and non-infrastructure projects that advance walking and bicycling. As part of the statewide Walk.Bike.Ohio Plan, ODOT published a Funding Overview Report that provides more details on types of funding available, schedules, and eligibility requirements. For information on funding for public transit, visit the ODOT Office of Transit's website.

Table 12. Primary Active Transportation Funds in Ohio

Funding Source	Distributed by	Eligible Project Examples	Eligible Project Sponsor
Transportation Alternatives	NOACA	Bicycle & pedestrian facilities Safe routes for non-drivers Conversion & use of abandoned railroad facilities Overlooks & viewing areas	Local governments
Safe Routes to School	ODOT	Infrastructure Non-Infrastructure School Travel Plan assistance	Local governments (infrastructure) Local governments, school or health district, or non-profit (non-infrastructure)
Highway Safety Improvement Program	ODOT (Coordinate with local ODOT District to submit a safety study)	Signalization Turn lanes Pavement markings Traffic signals Pedestrian signals/crosswalks Bike lanes Road diets	Local governments
Recreational Trails Program	Ohio Department of Natural Resources (ODNR)	New recreational trail construction Trail maintenance/restoration Trailside and trailhead facilities Purchase/lease of construction & maintenance equipment Acquisition of easements Educational programs	Local governments State and federal agencies Park districts Conservancy districts Soil and water conservation districts Non-profits
Clean Ohio Trails Fund	ODNR	New trail construction Land acquisition for a trail	Local governments Park districts Conservancy districts

		Trail planning/engineering and design (must include construction)	Soil and water conservation districts Non-profits
Clean Ohio Green Space Conservation Program	Ohio Public Works Commission (OPWC)	Open space acquisition including easements Bike racks Kiosks/Signs Hiking/Biking trails Pedestrian bridges Boardwalks	Local governments Park districts Conservancy districts Soil and water conservation districts Non-profits

MAINTENANCE STRATEGIES

The long-term performance of bicycle and pedestrian networks depends on both the construction of new facilities and an investment in continued maintenance. Maintaining bicycle and pedestrian facilities is critical to ensuring those facilities are accessible, safe, and functional.

FREQUENCY

The first step to approaching maintenance is to understand how often maintenance should be performed. Many activities, such as signage updates or replacements, are performed as needed, while other tasks such as snow removal are seasonal (see Table 13). Creating a winter maintenance approach is important to encourage year-round travel by walking and biking. One key component of this approach should be identifying priority routes for snow removal. More information on winter maintenance such as types of equipment needed for different facility types and how to consider snow removal in the design of facilities can be found in Toole Design's Winter Maintenance Resource Guide.

Table 13: Maintenance Activity Frequency

Frequency	Facility Type	Maintenance Activity
As Needed	Shared Use Paths	Tree/brush clearing and mowing
		Replace/repair trail support amenities (parking lots, benches, restrooms, etc.)
		Map/signage updates
		Trash removal/litter clean-up
		Repair flood damage: silt clean-up, culvert clean-out, etc.
		Patching/minor regrading
	Shared Use Paths/ Separated Bike Lanes / Paved Shoulders/ Bike lanes	Sweeping
	Bicycle Boulevards	Sign replacement
	Sidewalks	Concrete panel replacement
Seasonal	All	Snow and Ice control
	Shared Use Paths	Planting/pruning/beautification
		Culvert/drainage cleaning and repair
		Installation/removal of seasonal signage
Yearly	Shared Use Paths/ Sidewalks	Evaluate support services to determine need for repair/replacement
		Perform walk audits to assess ADA compliance of facilities
	Separated Bike Lanes / Paved Shoulders/ Bike lanes	Surface evaluation to determine need for patching/regrading/re-striping of bicycle facilities
5-year	Shared Use Paths	Repaint or repair trash receptacles, benches, signs, and other trail amenities, if necessary
		Sealcoat asphalt shared use paths

Frequency	Facility Type	Maintenance Activity
10-year	Shared Use Paths	Resurface/regrade/re-stripe shared use paths
20-year	Shared Use Paths/ Sidewalks	Assess and replace/reconstruct shared use paths/ sidewalks

PLAN FOR MAINTENANCE

Creating a strong maintenance program begins in the design phase. The agency that will eventually own the completed project should collaborate with partners to determine the infrastructure placement, final design, and life cycle maintenance cost. Maintenance staff should help identify typical maintenance issues, such as areas with poor drainage or frequent public complaints. They may have suggestions for design elements that can mitigate these issues or facilitate maintenance activities and can provide estimates for ongoing maintenance costs for existing and proposed facilities.

COORDINATION & RESPONSIBILITY BETWEEN AGENCIES

Many jurisdictions struggle with confusion around which entity – city, village, township, county, or state – is responsible for the maintenance of trails and other active transportation facilities. Frequently there is no documentation showing who is responsible for maintenance of existing facilities, which can prolong unsafe conditions for trail users. Coordination between the government agencies is key for effective maintenance programs. Intergovernmental agreements (IGAs) are used to codify the roles and responsibilities of each agency regarding ongoing maintenance. For example, a local government may agree to conduct plowing, mowing, and other maintenance activities on trails in its jurisdiction that were built by another agency. Clarifying who is responsible for maintenance costs and operations ensures that maintenance problems are resolved in a timely manner.

MAINTENANCE ACTIVITIES

Different facility types require different types of strategies to be maintained. Table 16 breaks down maintenance activities and strategies for each by facility type.

Table 14: Maintenance Strategy Recommendations

Facility Type	Maintenance Activity	Strategy
Shared Use Paths/ Separated Bike Lanes	Pavement Preservation	Develop and implement a comprehensive pavement management system for the shared use path network.
	Snow and Ice Control	Design shared-use paths to accommodate existing maintenance vehicles.
	Drainage Cleaning/Repairs	Clear debris from all drainage devices to keep drainage features functioning as intended and minimize trail erosion and environmental damage.
		Check and repair any damage to trails due to drainage issues.
	Sweeping	Implement a routine sweeping schedule to clear shared-use paths of debris.
		Provide trail etiquette guidance and trash receptacles to reduce the need for sweeping.
	Vegetation Management	Implement a routine vegetation management schedule to ensure user safety.

		Trim or remove diseased and hazardous trees along trails.
		Preserve and protect vegetation that is colorful and varied, screens adjacent land uses, provides wildlife habitats, and contains prairie, wetland and woodland remnants.
	ADA Requirements	Conduct walk and bike audits to assess accessibility of new, proposed, and existing shared-use paths.
		Ensure that ADA compliance is incorporated into the design process for new facilities.
Paved Shoulders/ Bike Lanes	Pavement Markings	Explore approaches to routinely inspect pavement markings for bicycle infrastructure and replace as needed.
		Consider preformed thermoplastic or polymer tape on priority bikeways (identified in this Plan) adjacent to high-volume motor vehicle routes (preformed thermoplastic or polymer tape are more durable than paint and requires less maintenance).
	Snow and Ice Control	Clear all signed or marked shoulder bicycle facilities after snowfall on all state-owned facilities that do not have a maintenance agreement with a local governmental unit in place.
	Sweeping	Implement a routine sweeping schedule to clear high-volume routes of debris.
Bicycle Boulevards	Sign Replacement	Repair or replace damaged or missing signs as soon as possible.
Sidewalks	Pavement Preservation and Repair	Conduct routine inspections of high-volume sidewalks and apply temporary measures to maintain functionality (patching, grinding, mud jacking).
		Consider using public agency staff or hiring contractors for sidewalk repairs, rather than placing responsibility on property owner (property owner can still be financially responsible).
	Snow and Ice Control	Educate the public about sidewalk snow clearance.
		Require sidewalk snow clearance to a width of five feet on all sidewalks.
		Establish required timeframes for snow removal.
		Implement snow and ice clearing assistance programs for select populations.

ON-GOING MONITORING AND EVALUATION

Measuring the performance of active transportation networks is essential to ongoing success. Bicycle and pedestrian counts, crash records, and other data contribute to a business case for continued improvement of and investment in multimodal infrastructure. As recommendations are implemented, Lakewood must be able to measure whether these investments are paying active transportation dividends (i.e., safer outcomes for people walking and biking). An affirmative answer reinforces this Plan's legitimacy and provides evidence that future investments will also yield positive results. The performance measures in Table 15 have will chart progress towards making walking and bicycling safe, connected, and comfortable. Lakewood should establish baseline targets and revisit these metrics as new plans and priorities occur. Data on these measures should be documented and published for public review annually. A robust performance measures program includes establishing baseline measurements, performance targets, data collection frequency, and data collection and analysis responsibility.

Table 15. Performance measures

Performance Measure	Goal		Timeline (how often is data collected/ updated)
Safety	Number of intersection improvements implemented	City of Lakewood	Annually
	Number of Safe Routes to School countermeasures by school year	City of Lakewood	
	Average vehicle speed on proposed project corridors	City of Lakewood	
	Number of bicycle and pedestrian crashes	ODOT	
Equity	Number of ATP recommendations implemented in historically marginalized communities	City of Lakewood	
	Number of ADA curb ramps and accessible crossing signals implemented	City of Lakewood	
	Number of facilities in "good" conditions	City of Lakewood	
Connectivity	Number of shared-use path projects built	City of Lakewood	
	Number of on-street bicycle facility projects built	City of Lakewood	
	Number of projects implemented that connect to existing network	City of Lakewood	
Livability	Number of projects implemented within ¼ mile of schools, libraries, parks, and business clusters	City of Lakewood	
	Number of commuters that use active transportation	US Census	
	Number of students that use active transportation	Lakewood City Schools	
	Number of facilities with routine maintenance	City of Lakewood	

SAFE STREETS FOR LAKEWOOD

Safety Action Plan

November 2023 | DRAFT

ACKNOWLEDGEMENTS

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DISCLAIMER

CONTENTS

INTRODUCTION

Figure 1. Cyclists on Detroit Avenue

INTRODUCTION

SAFETY ACTION PLAN PURPOSE

In the five-year window between 2017 and 2021, five people died and 40 people were seriously injured as a result of crashes on Lakewood streets. This loss of life and life altering injuries are unacceptable. For many people, being involved in a crash changes their life physically, mentally, and emotionally. The impacts of these tragedies extend beyond personal loss to the entire community, including significant taxpayer spending on emergency response and long-term healthcare costs.

This Safe Streets for Lakewood Safety Action Plan (Action Plan) lays out the steps to reach the goal of zero traffic deaths and serious injuries by 2038 as stated in Resolution XXXX. While preventing deaths on streets is something most communities hope to achieve, the adoption of Resolution XXXX and development of this Action Plan is an intentional shift to prioritize safety in every roadway-related decision and prevent deaths and serious injuries of all users.

The target year of 2038 was selected based on the present levels of funding and City staff resources that will be devoted to this effort. It accounts for the lead time necessary to fill any additional staff positions and obtain additional funding sources to move forward with the Action Plan. The target year accounts for the time it takes to program, design, fundraise, and implement capital improvement projects and safety countermeasures. Finally, it considers the funding challenges of maintaining infrastructure and sustaining programs so that the strategies of the Action Plan will be realized.

The Action Plan establishes zero roadway deaths and serious injuries as a top priority for the City's transportation plans, policies, programs, and projects moving forward. In addition to saving lives, the Action Plan will help ensure that moving around Lakewood, regardless of age, disability status, or mode choice is more accessible, equitable, and enjoyable for all users.

Achieving this goal will require sustained commitment to leadership, collaboration, and accountability for City departments, partners, and the broader Lakewood community. This Action Plan provides a roadmap and a collaborative process to eliminate roadway fatalities and serious injuries in Lakewood by 2038 by applying the Safe System Approach. It is intended to be implemented in coordination with the Lakewood Active Transportation Plan (ATP) which provides project, policy, and program recommendations for improving safety and mobility for pedestrians and cyclists in Lakewood.

SAFE SYSTEM APPROACH BACKGROUND

The Safe System Approach is a fundamental change from traditional approaches to roadway safety. It recognizes that humans make mistakes and streets should be designed to minimize the impacts of those mistakes. This approach acknowledges that all elements of the transportation system – safe roads, safe road users, safe speeds, safe vehicles, and post-crash care – must be safe to achieve zero roadway deaths and serious injuries. Implementation of the Safe System Approach in Lakewood will require interdepartmental and interagency collaboration to address each element.

The following six principles as shown in Figure 2 and described below form the foundation of the Safe System Approach:

- **Death and Serious Injury is Unacceptable** – While no crashes are desirable, the Safe System Approach focuses on eliminating crashes that cause deaths or serious injuries.
- **Humans Make Mistakes** – The transportation system can be designed to accommodate inevitable human mistakes.
- **Humans Are Vulnerable** – Human bodies have physical limits for tolerating a crash and the transportation system must be human-centric and consider these vulnerabilities.
- **Safety is Proactive** – Instead of waiting for a crash to happen, proactive tools such as the crash analysis in this Action Plan, should be used to mitigate risks in the transportation system.
- **Responsibility is Shared** – All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes don't lead to fatal or serious injuries.
- **Redundancy is Critical** – Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails, the other parts still protect people.

As the Federal Highway Administration (FHWA) states, the Safe System Approach refocuses our transportation system to prioritize safety. It recognizes that humans make mistakes and therefore the street system should be designed to ensure that mistakes do not result in death or serious injury.[1] The Safe System Approach is a paradigm shift that requires creating a positive street safety culture, increasing collaboration across the community, and ensuring safety improvements are being made equitably and where need and impact are greatest. Incorporating equity is also a key aspect of safety efforts and the City of Lakewood is committed to ensuring that streets in historically disadvantaged communities are safe.

Figure 2. Safe System Approach Principles *(FHWA)*

THE SAFE SYSTEM APPROACH FRAMEWORK

The Safe System Approach Framework is a proven lens to ensure every transportation decision considers how to eliminate deaths and serious injury on streets.[2] The City of Lakewood will now use a Safe System Approach framework as the lens to make project, policy, and program decisions for its roadways. It will ensure that safety is a top priority in all roadway decisions in order to reach the goal of zero roadway deaths and serious injuries by 2038.

The Safe System Approach Framework is how the City can work towards ensuring that if a crash occurs, it does not result in death or serious injury. Below is guidance on how to apply the Safe System Approach framework in Lakewood based on national guidance and as shown in Figure 3 below:

- **Separating Users in Space** – This includes providing enough physical space as well of level of barrier protection between modes of travel thinking about the protecting the most vulnerable road user at risk to crash.
- **Separating Users in Time** – In locations where people must use the same space, such as an intersection, separate users in time (e.g., a left turn phase or a bike phase at an intersection) to reduce potential conflicts.
- **Increase Visibility** – Ensure people using the street have every opportunity to see other people. A couple techniques include installing curb bump outs at intersections and installing lighting along a street.
- **Increasing Attentiveness** – Install systems that encourage increased awareness in key locations, such as a rectangular rapid flashing beacons (RRFB) at a pedestrian crossing. This also includes preventing impairment and distracted driving.

[1] https://www.transportation.gov/sites/dot.gov/files/2022-08/SS4A-NOFO-FY22-Amendment-1.pdf
[2] https://www.ite.org/pub/?id=C8B1C6F9-DCB5-C4F3-4332-4BBE1F58BA0D

- **Reducing Speeds** - For vulnerable users, speed is a determining factor in whether the person survives a crash or not. Survivability decreases as speeds rise. Reducing speeds includes preventing speeding to a safe speed for all road users.
- **Reducing Impact Forces** – Reduce the potential for injury by reducing crash forces is key to all road users surviving a crash. This includes techniques such as reducing curb radiuses at intersections, smaller vehicles, front end pedestrian crash avoidance, and automated braking systems.

Figure 3. Safe System Approach Framework to be used in Lakewood *(Toole Design)*

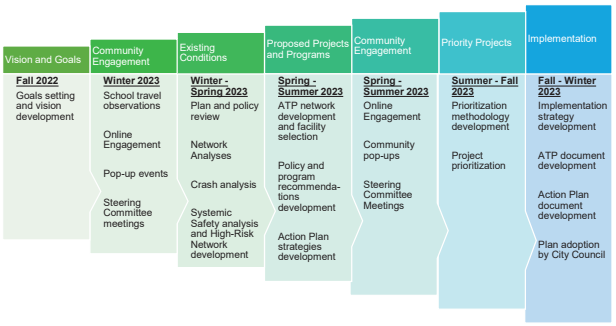
ACTION PLAN DEVELOPMENT OVERVIEW

ACTION PLAN DEVELOPMENT OVERVIEW

The Action Plan was developed in coordination with the Lakewood Active Transportation Plan. Both processes began in Fall 2022 and were led by a project team consisting of staff from Lakewood Department of Planning and Development, Lakewood Department of Public Works, Lakewood City Schools, and the Ohio Department of Transportation (ODOT). A timeline of the process is shown in Figure 4 below.

TIMELINE

Figure 4. ATP and Action Plan Timeline



STAKEHOLDER COMMITTEE

A Stakeholder Committee representing a cross-section of the Lakewood community provided input and oversight of the ATP and Action Plan processes over the course of four project meetings. They included interdepartmental City staff members, agency partners, as well as community organizations and residents that represent the broader Lakewood community. The following agencies and organizations were represented in the Stakeholder Committee:

- Bike Lakewood
- Bike Cleveland
- Bialosky Cleveland
- Cove Community Center
- Lakewood Alive
- Lakewood City Schools
- Lakewood Catholic Academy
- Lakewood City Council
- Lakewood Department of Planning and Development
- Lakewood Department of Public Works
- Lakewood Department of Human Services
- Greater Cleveland Regional Transit Authority (GCRTA)
- Northeast Ohio Areawide Coordinating Agency (NOACA)

Additional information about stakeholder meetings, members, and activities is provided in the ATP.

COMMUNITY ENGAGEMENT

Development of the Action Plan was informed by several community engagement strategies including an online survey, online web map, personal interviews, community pop-ups, and public meetings. Figure 5 below shows the timeline of engagement activities and milestones. Phase 1 describes efforts focused on understanding concerns related to walking, biking, and general traffic safety. Engagement activities in Phase 2 were focused on receiving feedback from the community about draft infrastructure projects, program, and policy recommendations for improving safety for people walking, biking, and driving in Lakewood. Figure 5 below shows the timeline of engagement activities and milestones. More information about community engagement activities is provided in the ATP.

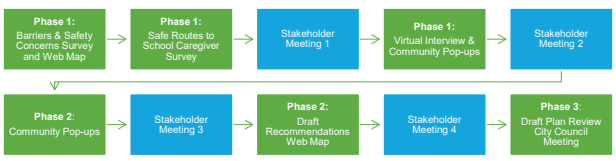


Figure 5. Engagement activities and milestones

Throughout the planning process, multiple survey tools were used to collect feedback from Lakewood community members and stakeholders. This includes an online survey that asked respondents for information about why the walk and bike in Lakewood, existing challenges for walking and biking in the city, and where new active transportation facilities should be built. This survey also asked respondents about their challenges and concerns around multimodal safety and about the types of systemic safety approaches that they would like to see in Lakewood.

There were a total of 745 responses to the survey between December 2022 and March 2023. Responses helped the project team understand residents' priorities for addressing safety in Lakewood's three main land use and transportation contexts – the downtown area and business districts, major multimodal corridors such as U.S. routes and county roads, and neighborhood streets (see Figures 6-8).

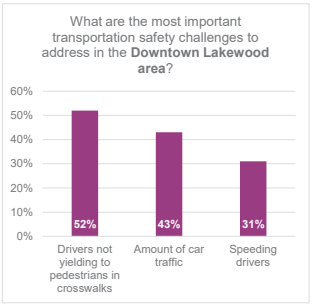


Figure 6. Transportation safety challenges on downtown streets

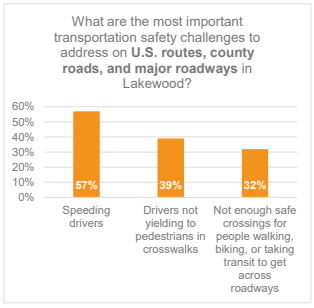


Figure 7. Transportation safety challenges on major roadways like U.S. routes and county roads

Figure 6. Transportation safety challenges on residential streets

When asked what they think are the most important strategies for reducing crashes and improving transportation safety overall, respondents answered:

- Intersection and crossing improvements to reduce conflicts between roadway users
- Traffic calming to slow down speeding cars on residential neighborhood streets
- Adding more sidewalks, trails, and/or bikeways for people walking and biking

Additional takeaways from the online survey results, open-ended comments, and other engagement strategies are:

- Because of Lakewood's robust pedestrian infrastructure and dense neighborhoods, many of the adults that project team talked to during in-person events use multiple modes of transportation on a weekly basis – walking, biking, and driving.
- When asked about experiences of a crash or a near-miss, a key theme that emerged was distracted, speeding, and/or aggressive drivers.
- The lack of low-stress bicycle facilities in Lakewood contributes to many cyclists, particularly youth and teens, riding exclusively on sidewalks. This contributes to multimodal conflicts between active transportation users.
- Many of Lakewood's intersections have poor visibility between approaching drivers, crossing pedestrians, and cyclists who may be riding on the sidewalk. This is often due to the density of the built environment in Lakewood, but also to parking (legal and illegal) close to intersections.
- Lakewood residents support education campaigns as a strategy for improving safety. Campaigns should be focused on both drivers and cyclists.
- Most of the corridors that Lakewood residents expressed the most concern about were reflected in the High-Risk Network (HRN) discussed in section 3 this Action Plan (page 22).

REVIEW OF EXISTING PLANS, POLICIES, AND SUPPORTIVE PROGRAMS

This plan builds on prior plans and initiatives developed by entities within Lakewood. It looks to these plans for existing conditions data, issue identification, and recommendation support. See Table 1 on the following page for a summary of key takeaways.

Table 1. Plan, policy, and program review

Plan/ Policy/Program	Lead Agency	Year Completed	Key Takeaways
City Vision Zero Resolution – Resolution NO. 9063-19	City of Lakewood	2019	The resolution provided a commitment between City government, relevant agencies, and community stakeholders to cooperate and collaborate on Vision Zero efforts throughout Lakewood. The resolution examined traffic fatalities and stated how cities across America have implemented the Vision Zero initiative. The resolution concluded with a call of all for support from Lakewood's City Council and administration for supporting Vision Zero Action Plan development.
City of Lakewood Safe Routes to Schools Travel Plan	City of Lakewood	2010	The City of Lakewood produced a Safe Routes to School (SRTS) Travel Plan to increase walking and biking efforts amongst the school-age population and to address active transportation barriers for middle schools. SRTS Team – which consisted of principals, police, engineers, and school staff – observed and assessed the traveling behaviors at Lakewood's Garfield Middle School and Harding Middle School. The SRTS assessed the percentage of the middle school student population that walked and biked to school as well as on-site barriers to the middle schools. Barriers included personal safety, bicycle safety, sidewalk conditions, and snow-covered sidewalks in the winter. The plan concluded with recommendations within the following categories: education, encouragement, enforcement, engineering, and design.
City of Lakewood Bike Master Plan	City of Lakewood	2012	The City of Lakewood Bike Master Plan explored policies, programs, and projects that will help establish biking as one of the most accessible transportation options in Lakewood. The plan reviewed the existing biking infrastructure network in Lakewood, analyzed surveys that examined the population of Lakewood residents that bike, featured design guidelines and standards, and identified methods to improve safety and mobility for cyclists. The plan's goals were to expand the city's supply of bike racks, establish a primary bikeway system/network, earn national recognition as one of the most bicycle friendly communities in the country by 2015, and to continue education and outreach efforts.
Lakewood Community Vision	City of Lakewood	Adopted 2012, updated 2017	the City of Lakewood Master Plan - Lakewood Community Vision, lays out the vision for the future of Lakewood pertaining to six key areas – commercial development, housing, community wellness, safety, mobility, education, and culture. In the mobility section, the plan discussed building network connections, enhancing existing infrastructure such as sidewalks and streetscapes, reducing the idling of cars around schools and major destinations, improving timing and reliability of the Greater Cleveland Regional Transit Authority (GCRTA), and educating residents on ways to reduce their mobility carbon footprint.
City of Lakewood Bicycle	City of Lakewood	2019	The presentation provided an update on the Lakewood Bicycle Master Plan. The first portion of the presentation reviewed bicycle infrastructure improvements. The updates highlighted progress towards planned infrastructure improvements on

Plan/ Policy/Program	Lead Agency	Year Completed	Key Takeaways
Planning Update			major roadways and intersections such as bike boxes, route marking, and bike lane widening. This was followed by a discussion of the Cuyahoga County – Cleveland Bike Share expansion which would include a flexible bike share system across the county. The presentation concluded with a discussion of methods to improve and expand education and outreach initiatives.
Cuyahoga Greenways Vision Plan: A Transportation for Livable Communities Initiative Planning Study	NOACA, Cuyahoga County Planning Commission, Cleveland Metroparks	2019	The Cuyahoga Greenways Vision Plan, developed by numerous regional agencies, consultants, and technical teams, envisioned an interconnected system of on-road and off-road bicycle facilities and trails. The plan also reviewed Cuyahoga County's initiatives, visions, plans, and methods for implementing greenways and urban trail throughout Cuyahoga County. The plan sought to connect public transportation and parks and improve active mobility options. The plan included descriptions of the agency's history, vision plan planning process, design approaches, and goals. The plan also included information regarding existing conditions, evaluated and identified greenway routes, and identified the necessary steps for implementation. There are several design considerations and facility suggestions such as protected bikeways, raised bikeways, and standard bike lanes. The plan stated that 280,00 residents live within a mile of the current regional system, while a fully built out system can reach over 500,000 of the county's population. The plan also stated that if completed, the envisioned system will provide access to over 525,000 jobs.
Community Confluence: Connecting the Cities of Lakewood and Rocky River, and the Rocky River Reservation	NOACA, Cuyahoga County Planning Commission, Cleveland Metroparks, City of Lakewood, City of Rocky River	2021	The plan's objectives were to shorten the perceived distance across the Rocky River Valley, highlight existing connections between neighborhoods and the Rocky River Valley, broaden the awareness of park resources, reinforce connection between cities and Metroparks, serve all populations and modal types, and provide high quality multi-modal connectivity. The plan provided a contextual analysis of the study area and included traffic analysis and identified recommendations, implementation priorities, cost estimates, and funding sources for implementation.
Transportation Accessibility Program	Lakewood; Senior Transportation Connection	Lakewood residents between the ages of 18-59	This program provides Lakewood residents between the ages of 18-59 who are certified by their physician of having a permanent disability by offering them round-trip transportation services twice a month to their routine medical appointments. For those that can't access or use active transportation, this provides them with safe and reliable access to and from medical appointments.
Bike/Scooter Share Pilot Program	Lakewood; Cuyahoga County	Lakewood residents and visitors	This pilot program launched in late 2022 as part of the broader Cuyahoga County program. The pilot program, in partnership with private vendors, placed 90 electronic scooters and e-bikes spread across 12 share stations. This provides people with another active and affordable opportunity to travel throughout Lakewood and Cuyahoga County.

Plan/ Policy/Program	Lead Agency	Year Completed	Key Takeaways
Sidewalk Replacement Program	Lakewood	Lakewood property owners	This program, part of the city's ten year strategy, seeks to improve the city's 180 miles of sidewalks and keep them among the most pedestrian-friendly in the state. Each year, the city sends inspectors to check the sidewalks for "trip hazards." Residents with identified trip hazards have some options. They can pay to have the sidewalk fixed themselves or participate in a citywide bid with the city's contractor — the idea being to lower the price for property owners.
NOACA Biking Maps	NOACA; Lakewood	Public	This Cuyahoga countywide map helps bicyclists navigate the bike network in the county. The maps are free and available at bike shops, libraries, and other tourist information centers.

CRASH DATA & SAFETY ANALYSES

CRASH DATA & SAFETY ANALYSES

This Action Plan utilizes a data-informed approach to understanding the systemic factors behind traffic deaths and serious injuries in Lakewood. Although there are limitations, analyzing crash data is a good way to understand where people are severely injured or killed while traveling on Lakewood's streets. Crash data is generated from individual crash reports which includes information about location, contributing factors, and demographic information such as age and gender of people involved.

CRASH DATA LIMITATIONS

Although crash reports are the best way to obtain information about a large quantity of crashes, they have limitations. Crash data is known to have problems with underreporting which can happen for a variety of reasons.[3] Some people have concerns about interacting with police for reasons unrelated to a crash. Black people and other People of Color may have a general fear of police because of concerns around racism. Another reason for unreported crashes is that the police departments often do not have enough officers to respond to high crash volumes during rain, snow, or other inclement weather events. This means even when police are called, they do not have the staff to respond to all crashes. In those situations, a crash report would only be filed if one of the involved parties had the resources and ability to either self-report the crash online or to travel to police headquarters to self-report.

A final limitation of crash reports is that they may underestimate the severity of a crash. Adrenaline at the time of a crash may mask injury or the severity of an injury and cause the severity of the crash to be underestimated. It is useful to keep these limitations in mind when considering what information is presented by crash reports and what information is not documented.

DESCRIPTIVE CRASH ANALYSIS

The project team began analyzing the crash data from 2017 through 2021 by conducting a descriptive crash analysis – a statistical analysis of key factors used to understand circumstances of crashes. The Action Plan focus areas and strategies are informed by the leading causes of these historical crashes. An overview of the crashes reviewed by mode, year, and severity is shown in Table 2. The full summary of the crash data evaluated for the ATP and Action Plan is available in Appendix B: State of Walking, Biking, and Safety Report.

A serious injury involves one or more of the following factors:

- Severe laceration resulting in exposure of muscle, tissue, organs or resulting in significant loss of blood
- Broken or distorted arm or leg
- Crush injuries
- Suspected skull, chest, or abdominal injury
- Second or third degree burns over 10% of the body
- Unconsciousness
- Paralysis

[3] Stutts, J. C., & Hunter, W. W. (1998). Police Reporting of Pedestrians and Bicyclists Treated in Hospital Emergency Rooms. Transportation Research Record, 1635(1), 88–92. https://doi.org/10.3141/1635-12

Between 2017 and 2021, there were 3,336 crashes in Lakewood, 40 of which resulted in a serious injury and five of which resulted in a fatality. Each crash is a person – people that were getting around in different ways, were different ages, and traveling on different parts of the roadway network. The results of the descriptive crash analyses indicate key trends, described in the following subsections.

Table 2. Crashes in Lakewood by year, mode, and severity

	Pedestrian		Bicyclist		Motorcycle		Motorist	
	Crashes	Fatal or serious injury crashes	Crashes	Fatal or serious injury crashes	Crashes	Fatal or serious injury crashes	Crashes	Fatal or serious injury crashes
2017	10	2	14	2	7	0	602	5
2018	14	3	13	2	7	1	555	2
2019	15	2	14	1	7	0	784	1
2020	14	1	12	3	17	3	594	4
2021	12	4	23	2	5	1	617	6
Total	**65**	**12**	**76**	**10**	**43**	**5**	**3152**	**18**

WHAT ARE THE MOST COMMON FATAL AND SEVERE TYPES OF CRASHES?

The most common types of severe and fatal crashes in Lakewood involve a pedestrian (27 percent) or cyclist (22 percent) even though bicycle and pedestrian crashes each only account for 2 percent of all crashes. Table 3 shows the top crash types in Lakewood. Crash types are used to inform the types of safety countermeasures that are needed on streets with the highest number of fatal and severe crashes. They may also inform systemic enhancements such as speed reduction or signal modifications that are applied citywide to prevent future crashes.

Table 3. Crashes in Lakewood by Crash Type

Crash Type	Percent of crashes	Fatal or serious injury crashes	Percent of fatal or serious injury crashes
Parked Vehicle	18%	2	4%
Angle	18%	7	16%
Rear End	18%	2	4%
Sideswipe - Passing	12%	1	2%
Backing	10%	0	0%
Fixed Object	8%	6	13%
Left Turn	5%	0	0%
Right Turn	3%	0	0%
Bicycle	2%	10	22%
Pedestrian	2%	12	27%
Head On	1%	1	2%
Other Non-Collision	0.4%	4	9%

WHERE ON THE ROAD ARE FATAL/SEVERE CRASHES HAPPENING?

Crashes occurred most frequently at mid-block locations compared to intersections, however the majority of fatal and serious injury crashes occurred within 80 feet of an intersection.[4] Signalized intersections had the highest number of fatal and serious injury crashes, followed by intersections with a partial stop control (e.g., two-way stop).

Table 4. Crashes in Lakewood by Intersection or Segment

	All Crashes	Percent of crashes	Fatal or serious injury crashes	Percent of fatal or serious injury crashes
Intersection	1565	47%	28	62%
Segment	1771	53%	17	38%
Total	**3336**	**100%**	**45**	**100%**

Minor arterial streets (i.e., Clifton Boulevard, Detroit Avenue, and Hilliard Road) accounted for the largest share of fatal and severe injury crashes. While 34 percent of all crashes occurred on minor arterials, they only comprise 10 percent of Lakewood's street network.

In Lakewood minor arterial streets typically have a posted speed limit of 25 mph or 35 mph. Roadways with a posted speed limit of 25 mph accounted for 68 percent of all crashes and 56 percent of severe and fatal injury crashes. This is likely due to Lakewood's grid network and majority residential context as streets with higher posted speed limits typically see higher amounts of crashes. Approximately 75 percent of Lakewood's roadways are local roads. Local roads accounted for 26 percent of all crashes and 27 percent of all serious and fatal injury crashes.

Table 5. Crashes in Lakewood by Functional Class

Functional Class	All Crashes	Percent of crashes	Fatal or serious injury crashes	Percent of fatal or serious injury crashes
Interstate Route	164	5%	4	9%
Principal Arterial Roads	419	13%	8	18%
Minor Arterial Roads	1131	34%	14	31%
Major Collector Roads	761	23%	7	16%
Local Roads	861	26%	12	27%
Total	**3336**	**100%**	**45**	**100%**

WHAT ARE THE CONTRIBUTING BEHAVIOURS TO CRASHES IN LAKEWOOD?

In addition to analyzing the crash types, the project team explored behavioral factors contributing to fatal and severe injury crashes. Many crashes involve multiple crash factors and, furthermore, these data do not perfectly capture crash circumstances due to the limitations of the crash reports and investigations.

[4] Crashes within 60 feet of the center point of the intersection (80 feet for West 117th Street and Clifton Boulevard due to their larger right-of-way) were counted as intersection crashes. Crashes outside of that radius were counted as segment crashes.

Keeping that in mind, the descriptive analysis revealed several behavioral factors that contributed to a relatively large share of fatal and severe injury crashes in Lakewood.

- **22 percent** involved speeding (though this number does not include situations where the driver was travelling under the posted speed but too fast for the conditions)
- **16 percent** involved alcohol impairment
- **4 percent** involved driver distraction

WHAT ARE THE CONTRIBUTING CIRCUMSTANCES TO CRASHES IN LAKEWOOD?

The project team evaluated other contributing circumstances that could be impacting crash trends in Lakewood including time of day, weather conditions, roadway conditions, and light conditions. The crash data indicates that the top contributing circumstances for fatal and serious injury crashes in Lakewood are failure to yield, and time of day (60 percent of crashes occur during the evening and night hours of 6:00 PM – 3:00 AM), which also impacts roadway lighting conditions.

Table 6. Crashes in Lakewood by Lighting Condition

Lighting Conditions	All crashes	Percent of crashes	Fatal or serious Injury crashes	Percent of fatal or serious injury crashes
Daylight	2056	62%	20	44%
Dark - Lighted Roadway	1022	31%	21	47%
Dawn/Dusk	151	5%	2	4%
Dark - Roadway Not Lighted	18	1%	1	2%
Dark - Unknown Roadway Lighting	3	0%	0	0%
Other / Unknown	86	3%	1	2%
Total	**3336**	**100%**	**45**	**100%**

WHAT INEQUITIES DOES THE CRASH DATA REVEAL?

Drivers (of motor vehicles and motorcycles) are the most common victim type involved in overall crashes and fatal and severe injury crashes throughout Lakewood. This result is expected as driving is the most common mode of transportation in Lakewood. Vulnerable roadway users (pedestrians, bicyclists, and motorcyclists) represent a smaller share of overall crashes but are overrepresented in fatal and serious injury crashes.

Crashes involving a pedestrian or cyclists accounted for 4 percent of all crashes in the time observed but represented 49 percent of fatal and serious injury crashes. Motorcycle crashes accounted for 1 percent of all crashes yet 11 percent of all fatal and serious injury crashes.

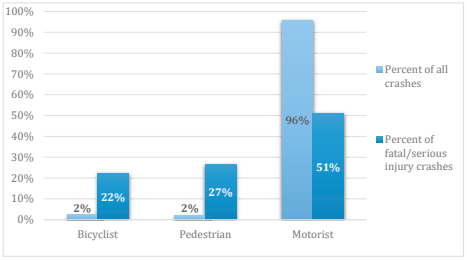


Figure 7. Crashes by severity and mode

HIGH RISK NETWORK

One of the most important reasons to conduct crash data analysis is to understand where to prioritize safety improvements based on the prevalence of past crashes as well as the risk of future crashes. A High-Risk Network (HRN) was developed for Lakewood using the Safe Streets Priority Finder (SSPF) which identifies street segments with the highest crash density, weights by crash severity, and identifies areas that have factors present likely to contribute to future risk for people walking and biking.

The SSPF was developed by Toole Design in collaboration with the City of New Orleans, University of New Orleans Transportation Institute, and New Orleans Regional Transit Authority. It is a free, interactive open-source resource available at the national scale. It produces two main outputs that were used to develop the HRN for Lakewood:

1. **Sliding Windows Analysis (all modes)**
   This type of analysis helps visualize crashes throughout a transportation network and identify segments with the highest crash density and weighted by crash severity. For Lakewood, the analysis was done by determining the number and severity of all modes of crashes in a half-mile window on a roadway and shifting that window along the roadway 1/10 of a mile at a time.

2. **Safer Street Model: Estimated Future Societal Costs (bicycle and pedestrian crashes only)**
   The model estimates crash risk rates per mile for each road segment and each crash mode (pedestrian and bicyclist only) and severity. These values are then converted to crash cost estimates based on the costs assigned to each crash severity.

Lakewood's HRN includes roadway segments that scored "Highest Risk" from the SSPF analysis. It also includes roadway segments that scored "High Risk" from the SSPF analysis and also had a severity-weighted sliding window analysis score higher than one standard deviation. The HRN is show in Figure 10.

Projects on the HRN are listed in Table 7 below:

Table 7. HRN projects

Project name	Project Limits
Clifton Boulevard	Edwards Avenue to West 117th Street
Detroit Avenue	Mathews Avenue to West 117th Street
Franklin Boulevard	Warren Road to West 117th Street
Madison Avenue	Spring Garden Avenue to West 117th Street
Hilliard Road	North Marginal Drive to Warren Road
Bunts Road	Lakewood Heights Boulevard to Clifton Boulevard
West 117th Street	Edgewater Drive to Madison Avenue
Berea Road	Lakewood Heights Boulevard to West 117th Street
Warren Road	Detroit Avenue to Lakewood Heights Boulevard
Lakewood Heights Boulevard	Agler Road to Brown Road

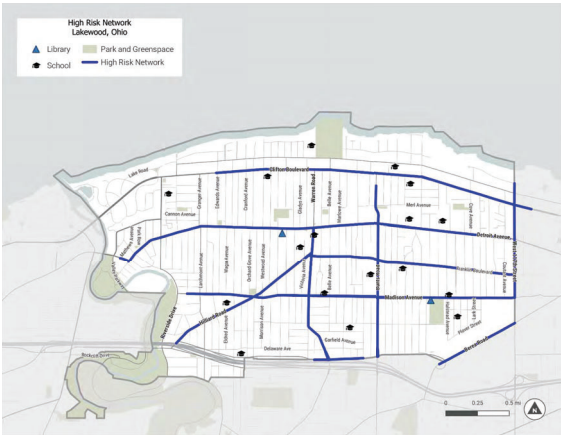


Figure 8. High Risk Network for Lakewood

Geographic and mapping information presented in this document is for informational purposes only, and is not suitable for legal, engineering, or surveying purposes. Mapping products presented herein are based on information collected at the time of preparation. Toole Design Group, LLC makes no warranties, expressed or implied, concerning the accuracy, completeness, or suitability of the underlying source data used in this analysis, or recommendations and conclusions derived therefrom.

EQUITY IMPACT ASSESSMENT

EQUITY IMPACT ASSESSMENT

The City of Lakewood recognizes that it is impossible to eliminate traffic fatalities and severe injuries without acknowledging and addressing racial, socioeconomic, and disability-related disparities in the transportation system. While everyone is affected by crashes, they do not affect everyone equally. Vulnerable users of the City's transportation infrastructure include, but are not limited to: children, older adults, people in low-income households, people walking and biking, and people with a disability. Making roadways safer for vulnerable users is an important part of making the roadways safer for everyone.

The project team conducted an equity impact analysis by evaluating the HRN against the SS4A Underserved Communities Census Tracts dataset developed by the USDOT. The dataset uses 2019 population data from the 2019 American Community Survey: 5-Year Data. It is meant to help jurisdictions identify and prioritize projects that benefit communities facing barriers to affordable, equitable, reliable, and safe transportation by using the six indicators listed below:

1. **Transportation access**
2. **Health disadvantage**
3. **Environmental disadvantage**
4. **Economic disadvantage**
5. **Resilience disadvantage**
6. **Equity disadvantage**

Figure 11 shows the HRN overlayed on the disadvantaged communities identified by USDOT. The map shows that the eastern parts of Lakewood – south of Clifton Boulevard, between approximately Nicholson Avenue and West 117th Street – including Birdtown and neighborhoods around Cove Park are disadvantaged communities based on the six indicators above. Major multimodal corridors that go through these census tracts are also part of the HRN:

- Madison Avenue
- Franklin Boulevard
- Detroit Avenue
- Clifton Boulevard
- West 117th Street
- Berea Road

The following sections of the Action Plan were informed by this equity impact assessment, as well as by a review of the ODOT active transportation need and demand dataset, discussed in section 4 of the ATP.

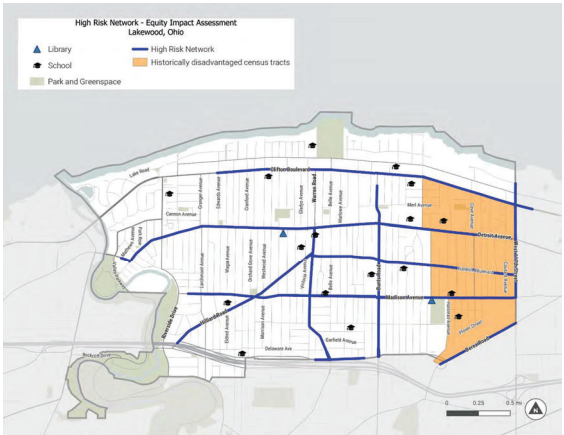


Figure 9. High Risk Network and Historically Disadvantaged Communities

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FOCUS AREAS

FOCUS AREAS

Lakewood will need to work collaboratively and cooperatively with partners throughout the City to achieve its goal of eliminating roadway deaths and serious injuries by 2038. There are five focus areas – safety, equity, culture changes, data-driven focus, and safe routes for youth – that will guide the work to achieve the vision. These focus areas emerged from stakeholder committee input, community engagement, crash analysis, and review of current agency practices across Lakewood.

SAFETY

The overall message from ATP and Action Plan community engagement was clear: Lakewood residents want streets that are safe for everyone, including safe pedestrian crossings, bicycle facilities, and roadways. Pedestrians, bicyclists, and motorcyclists are especially vulnerable when involved in crashes because they are less protected, and therefore streets should be designed with these road users in mind. Together, these three modes account for just over five percent of crashes, but they make up 60 percent of all roadway deaths and serious injuries in Lakewood.

Figure 10. Likelihood of pedestrian death and severe injury due to speed

Street design directly influences driver, pedestrian, and bicyclist behavior. Though people will always make mistakes and all human behavior cannot be predicted, Lakewood's streets should slow traffic, provide clear paths for all modes of travel, have safe crossings, and generally encourage safe behaviors. A safe system is one where different types of street users, each with different travel tendencies and speeds, are physically separated and protected such that if a crash does occur, it happens at a slow enough speed to avoid death or severe injury.

EQUITY

Transportation-related deaths and serious injuries impact some residents more than others, and that is unacceptable. National trends consistently show that past transportation investments (and disinvestments) have created street networks that are inherently safer for white, wealthier, and able-bodied people and less safe for People of Color, lower-income residents, and those with disabilities.[5]

Equity will be an essential component of planning and implementation of the Action Plan. The City of Lakewood can work towards equity in process and outcome through meaningful engagement and relationship-building with marginalized communities, the expansion of safe streets and safety improvements in areas that are historically disadvantaged, and by supporting and protecting the most vulnerable populations, especially children and older residents. The safety of people who have been marginalized by structures that perpetuate racism, ableism, and classism should be centered in all the plan's strategies, recommendations, and designs.

CULTURE CHANGE

A commitment to zero roadway deaths and serious injuries is a commitment to changing the status quo and creating a culture where everyone understands the role they play in preventing traffic violence. The implementation of the Safe System Framework requires a shift in transportation practices and behaviors, from residents, transportation professionals, and City leadership. Street design does not guarantee that individuals will eliminate distractions while driving or not drive under the influence. The culture of how people behave must change to achieve zero fatalities and serious injuries on Lakewood's streets.

This culture change must include not only pedestrians, bicyclists, and drivers but also policymakers, engineers, planners, and leaders in the community. All Lakewood residents and stakeholders should reject the idea that transportation-related fatalities and severe injuries are an accepted downside to people's mobility.

DATA-DRIVEN APPROACH

Understanding what has happened on Lakewood's streets, why it happens, who it happens to, and how it is changing is a key part of Action Plan implementation and eliminating roadway deaths and serious injuries. This will only be possible with clear, consistent, and honest data. The City should collect and analyze crash and speed data to measure the impact of Action Plan implementation as it occurs.

In addition, improving data quality and transparency is essential for a greater understanding of street design, human behavior, and other factors that lead to fatal and severe crashes. The City should also work to continually improve their current crash reporting procedures. Police crash reports are currently the best way to obtain information about crashes, but they have limitations.

SAFE STREETS FOR YOUTH

Youth and teens are some of the most active pedestrians and cyclists in Lakewood. A Safe Routes to School survey conducted during ATP and Action Plan development revealed that 60 percent of parents reported that their child walks to school sometimes. This is far above the national trend of 11 percent[6]. In Lakewood 40 percent of fatal and serious injury bicycle crashes and 67% of fatal and serious injury pedestrian crashes occurred within a ¼ of a school between 2017 and 2021. The City of Lakewood and Lakewood City Schools are well-positioned to partner on infrastructure and programming strategies to prevent fatal and serious injury crashes involving youth and teens as they walk, bike, scooter, and drive in Lakewood.

[5] https://www.hsph.harvard.edu/news/press-releases/racial-disparities-traffic-fatalities/

[6] https://www.rutgers.edu/news/young-children-who-walk-or-bike-school-are-more-likely-continue-habit-they-age#:~:text=In%20the%20United%20States%2C%20about,t%20changed%20in%20a%20decade

RECOMMENDED STRATEGIES AND ACTIONS

RECOMMENDED STRATEGIES AND ACTIONS

The crash analysis, HRN development, public input, stakeholder guidance, and ATP development helped create the following recommendations. Each recommended action includes associated strategies. Each strategy includes a general timeline and anticipated start year, as well as the identified lead and potential partners. These actions and strategies should be reviewed and revised regularly to ensure that the Lakewood's goal to eliminate fatal and serious injury roadway crashes by 2038 will be achieved.

Specific strategies for Lakewood to accomplish the actions below are listed in Tables 8 - 11. The timeframes outlined in the recommended strategies are defined as follows:

- **On-going:** Already in progress
- **Short-term:** One to five years
- **Medium-term:** Five to seven years
- **Long-term:** Seven or more years

ACTION PLAN

Actions are categorized by the focus areas listed in the previous section. They are listed in order of priority within each focus area.

Safety

S1. Seek grants and other funding from non-profit, regional, state, and Federal sources to match with committed local funds.
S2. Implement safety countermeasures that improve safety of all road users proactively on all development projects and capital improvement projects.
S3. Develop a speed management program.
S4. Make safety improvements for pedestrians and cyclists crossing roadways on the HRN and throughout Lakewood.
S5. Maintain safe, high-quality sidewalk network through the Safe System Approach on the HRN.
S6. Build a safe, complete, and connected bicycle network through the Safe System Approach on the HRN.
S7. Advocate for design changes to state and multijurisdictional roads entering Lakewood that support changes made within Lakewood.
S8. Establish a permanent, dedicated funding source for Action Plan implementation.
S9. Evaluate major roadways for lane reconfiguration to ensure highest level of safety for all road users and to prevent fatal and serious injury crashes.

Equity

E1. Prioritize safety improvements in historically disadvantaged communities first.
E2. Utilize an existing committee or establish a standing, voluntary Safe Streets for Lakewood Committee to oversee Action Plan implementation.
E3. Develop processes to center community participation in the development, implementation, and updates of the Action Plan.

Data-Driven Approach

D1. Conduct before and after studies of safety improvements to assess effective in fatal and serious injury crash reduction.
D2. Publish an annual report on the City website to document prioritized efforts, Action Plan funding, and progress towards the elimination of fatal and serious crashes in Lakewood by 2038.

Culture Change

C1. Ensure staff are trained to implement the Action Plan.
C2. Invest in a comprehensive roadway safety awareness campaign around leading safety issues in Lakewood.
C3. Incorporate safety data and Action Plan recommendations into transportation elements of future planning.
C4. Advocate for changes in local, regional, and national codes that increase safety for all road users.
C5. Influence driver behavior along the HRN.

Safe Streets for Youth Strategies

SC1. Work with one school per year to install safety projects surrounding the school.
SC2. Make safety improvements for student pedestrians and cyclists crossing roadways on the HRN and throughout Lakewood.
SC3. Promote Safe Routes to School programming to all schools and daycares in Lakewood.

SAFETY STRATEGIES

Table 8. Safety Strategies

ID	Strategy Description	Timeline	Start Year	Lead	Partners
S1	**Seek grants and other funding from non-profit, regional, state, and Federal sources to match with committed local funds.**				
S1.1	Build three (3) HRN projects per year, addressing greatest safety and equity needs first based on available resources.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S1.2	Prioritize HRN projects within historically disadvantaged communities.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S1.3	Prioritize HRN projects that improve bicycle and/or pedestrian safety.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S1.4	Conduct road safety audit(s), community engagement, and walk audits to identify safety issues and determine effective safety countermeasures to eliminate fatal and serious injury crash risk on HRN corridors.	Ongoing	2024	Department of Public Works	Department of Planning and Development
S1.5	Utilize design guidance from SS4A Infrastructure Toolkit, ODOT Multimodal Design Guide, and Safe System Approach to improve multimodal roadway safety.	Ongoing	2024	Department of Public Works	Department of Planning and Development
S1.6	After implementation of effective safety countermeasures that prevent fatal and serious injury crashes in Lakewood, apply those countermeasures to roadways with similar conditions to where crashes could occur.	Long term	2025	Department of Public Works	Department of Planning and Development
S1.7	As resources allow, proactively implement safety countermeasures to improve safety of all road users on the HRN or citywide.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S2	**Implement safety countermeasures that improve safety of all road users proactively on all development projects and capital improvement projects.**				
S2.1	Review all ongoing, planned, and funded projects on the HRN, including Capital Improvement Plans and ODOT District Work Plan, for opportunity to proactively incorporate safety countermeasure(s) that improve safety of all road users.	Ongoing	2024	Department of Planning and Development	Department of Public Works
S2.2	Incorporate the HRN into local capital improvement project ranking process.	Ongoing	2025	Department of Planning and Development	Department of Public Works
S2.3	Consider HRN impacts during planning and zoning reviews for sites abutting the HRN. Coordinate interdepartmentally to identify and, where feasible, implement appropriate safety countermeasure(s).	Ongoing	2025	Department of Planning and Development	Department of Public Works
S3	**Develop a speed management program.**				
S3.1	Develop a program for systemically collecting speed data throughout the city.	Short term	2025	Department of Public Works	Department of Planning and Development and Police Department
S3.2	Inventory all posted speed limits and all speeding-related crashes on all roads.	Short term	2025	Department of Public Works	Department of Planning and Development and Police Department
S3.3	Identify and map all speeding citations issued on all roads.	Ongoing	2025	Police Department	Department of Public Works and Department of Planning & Development
S3.4	Conduct speed studies on all HRN corridors where speeding has been identified through analyses or community engagement as an issue or where speed-related crashes have been identified.	Ongoing	2025	Department of Planning & Development	Police Department and Department of Public Works
S3.5	Evaluate HRN for design interventions to lower the operating speed.	Short term	2025	Department of Public Works	
S3.6	Integrate existing Lakewood Traffic Calming Program into the speed management program, including community engagement opportunities.	Short term	2025	Department of Planning & Development	Department of Public Works
S3.7	Construct speed management and traffic calming countermeasures along the HRN and within historically disadvantaged communities to provide road context that only allows drivers to operate at the safe posted speed limit or target speed.	Ongoing	2024	Department of Public Works	Department of Planning and Development
S3.8	Focus on passive solutions (such as speed radar signs) and enforcement within school zones until design changes can be made to reduce speeding.	Ongoing	2024	Police Department	Department of Planning and Development and Department of Public Works
S3.9	Identify locations where lower speed limits should be considered.	Medium term	2028	Department of Public Works	Department of Planning and Development
S4	**Make safety improvements for pedestrians and cyclists crossing roadways on the HRN and throughout Lakewood.**				

ID	Strategy Description	Timeline	Start Year	Lead	Partners
S4.1	Build intersection and crossing improvements identified in the ATP that align with all HRN corridors.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S4.2	Improve crosswalks on the HRN to high-visibility, continental style crosswalk markings.	Ongoing	2024	Department of Public Works	
S4.3	Inspect all crosswalks on the HRN, especially in Downtown Lakewood, or near libraries, parks, and community centers.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S4.4	Implement Leading Pedestrian Intervals at all crosswalks in Downtown Lakewood and crosswalks along the HRN. Consider citywide applications for Leading Pedestrian Intervals and "No Turn on Red" at signalized intersections.	Medium term	2029	Department of Public Works	Department of Planning and Development
S4.7	Reprogram signaling to automatically display the walk signal in areas with high active transportation demand (including areas with an LPI implemented as part of S4.4).	Short term	2026	Department of Public Works	
S4.5	Review, update, and enforce restricted parking guidelines (including Lakewood Municipal Code) within 25 - 30 feet of any intersection and midblock crossing along the HRN.	Short term	2026	Department of Public Works	Department of Planning and Development and Police Department
S4.6	Install pavement markings to daylight 25 - 30 feet of all intersections.	Medium term	2029	Department of Public Works	Department of Planning and Development
S4.8	Develop criteria for implementing "No Turn on Red" at priority intersections on HRN corridors. Inform based on safety studies and community engagement.	Medium term	2028	Department of Public Works	Department of Planning and Development
S4.9	Consider protected turn phases at HRN intersections where there are 2+ fatal/serious crashes within a 5-year period.	Medium term	2028	Department of Public Works	Department of Planning and Development
S5	**Maintain safe, high-quality sidewalk network through the Safe System Approach on the HRN.**				
S5.1	Conduct community engagement and internal assessments to inform the relaunch of the Lakewood's 10-year Sidewalk Maintenance Program as part of the City's annual resurfacing program. Prioritize improvements on HRN.	Medium term	2028	Department of Public Works	Department of Planning and Development and Department of Human Services
S6	**Build a safe, complete, and connected bicycle network through the Safe System Approach on the HRN.**				

ID	Strategy Description	Timeline	Start Year	Lead	Partners
S6.1	Build bicycle facilities recommended by the ATP on the HRN.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S6.2	Build bicycle facilities recommended by the ATP on corridors identified through the SSPF analysis output as Medium-High Risk and High-Risk.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S7	**Advocate for design changes to state and multijurisdictional roads entering Lakewood that support changes made within Lakewood.**				
S7.1	Obtain commitments from ODOT to make local roadway safety improvements on state roads in the HRN.	Medium term	2029	Department of Planning and Development	Department of Public Works
S7.2	Coordinate with the City of Cleveland and City of Rocky River to implement safety countermeasures on multijurisdictional HRN corridors.	Medium term	2029	Department of Planning and Development	Department of Public Works
S8	**Establish a permanent, dedicated funding source for Action Plan implementation.**				
S8.1	Incorporate evaluation of the following safety metrics when considering all roadway capital improvement projects: - Bicycle and pedestrian crash history - Motorcycle crash history - Fatal and severe vehicle crash history - Alignment with HRN	Ongoing	2024	Department of Public Works	Department of Planning and Development
S8.2	Fund safety improvements as needed to eliminate fatal and serious injury crashes in Lakewood by 2038.	Ongoing	2025	Department of Public Works	Department of Planning and Development
S8.3	Seek grants and other funding from non-profit, regional, state, and Federal sources to match with committed local funds.	Ongoing	2024	Department of Planning and Development	Department of Public Works
S9	**Evaluate major roadways for lane reconfiguration to ensure highest level of safety for all road users and to prevent fatal and serious injury crashes.**				
S9.1	Conduct appropriate traffic studies to evaluate multilane roadways for implementation of lane reconfiguration. These roadways include Clifton Boulevard, West 117th Street, and Berea Road. Coordinate with appropriate agencies including City of Cleveland, Cuyahoga County, GCRTA, and ODOT.	Medium term	2029	Department of Public Works	Department of Planning and Development

EQUITY STRATEGIES

Table 9. Equity Strategies

ID	Strategy Description	Timeline	Start Year	Lead	Partners
E1	**Prioritize safety improvements in historically disadvantaged communities first.**				
E1.1	Incorporate considerations for historically disadvantaged communities into local capital improvement project ranking process.	Short term	2025	Department of Planning and Development	Department of Public Works
E2	**Utilize an existing Committee or establish a standing, voluntary Safe Streets for Lakewood Committee.**				
E2.1	Include City staff, community-based organizations, partner institutions, and state and regional partners who have a role in advancing equity in Lakewood and a role in Action Plan implementation.	Short term	2024	Department of Planning and Development	Department of Human Services
E2.2	Include people who walk, use mobility devices, transit, bicycles, scooters, other micromobility, and ride motorcycles.	Short term	2024	Department of Planning and Development	Department of Human Services
E2.3	Include residents with disabilities.	Short term	2024	Department of Planning and Development	Department of Human Services
E2.4	Include residents who are Black, Indigenous, and other People of Color.	Short term	2024	Department of Planning and Development	Department of Human Services
E2.5	Monitor implementation to ensure no strategies result in racial profiling or otherwise exacerbate racial inequities.	Ongoing	2024	Department of Planning and Development	Department of Human Services
E2.6	Meet as necessary to coordinate and oversee implementation of priority Action Plan and ATP strategies, including ODOT SRTS grant applications.	Ongoing	2024	Department of Planning and Development	
E3	**Develop processes to center community participation in the development, implementation, and updates of Action Plan.**				
E3.1	When implementing safety countermeasures, attend existing events in historically disadvantaged communities along the HRN.	Ongoing	2024	Department of Planning and Development	Department of Public Works
E3.2	Coordinate with community-based organizations to conduct engagement and/or provide translation and interpretation into other languages such as Spanish or sign language.	Ongoing	2024	Department of Planning and Development	Department of Human Services

CULTURE CHANGE STRATEGIES

Table 10. Culture Change Strategies

ID	Strategy Description	Timeline	Start Year	Lead	Partners
C1	**Ensure staff are trained to implement the Action Plan.**				
C1.1	Conduct ODOT Multimodal Design Guide training for planners and engineers designing, building, and working with contractors on projects in Lakewood. Utilize ODOT Active Transportation Academy in-person and/or online training resources.	Ongoing	2024	Department of Planning and Development	Department of Public Works
C1.2	Send key staff responsible for implementing the Action Plan and elected officials to Vision Zero or other systemic safety related conferences and trainings.	Ongoing	2025	Department of Planning and Development, Department of Public Works	Office of the Mayor, City Council
C1.3	Train Public Safety staff on systemic safety principles and equity considerations.	Ongoing	2025	Department of Public Safety	Department of Planning and Development
C1.4	Provide training for community partner organizations (e.g., Bike Lakewood) on systemic safety principles.	Ongoing	2028	Department of Planning and Development	Department of Human Services
C2	**Invest in a comprehensive roadway safety awareness campaign around leading safety issues in Lakewood.**				
C2.1	Focus on prioritizing safety for all road users and set an expectation of zero roadway deaths.	Short term	2026	Office of the Mayor	Department of Planning and Development
C2.2	Shift transportation assumptions from driving culture toward a multimodal culture emphasizing the rights of people who walk, use mobility devices, bicycle, or use other micromobility devices.	Short term	2026	Office of the Mayor	Department of Planning and Development
C2.3	Continue addressing failure to yield as a top collision factor.	Ongoing	2026	Office of the Mayor	Department of Planning and Development
C2.4	Continue addressing vehicle speeding as a top collision factor.	Ongoing	2026	Office of the Mayor	Department of Planning and Development
C2.5	Continue addressing bicycle and pedestrian safety as a priority.	Ongoing	2026	Office of the Mayor	Department of Planning and Development

ID	Strategy Description	Timeline	Start Year	Lead	Partners
C2.6	Include information relevant to people using all types of transportation networks, including: drivers, pedestrians, transit riders, cyclists, and micromobility users.	Short term	2026	Office of the Mayor	Department of Planning and Development
C2.7	Create safety communications and education materials in Spanish.	Short term	2026	Office of the Mayor	Department of Planning and Development and Department of Human Services
C2.8	Create safety communications and education materials in a variety of accessible formats for people with disabilities.	Short term	2026	Office of the Mayor	Department of Planning and Development and Department of Human Services
C2.9	Pair major infrastructure changes and enforcement activities with messaging to communicate why roadway safety is important.	Short term	2026	Office of the Mayor	Department of Planning and Development
C2.10	Develop standard language regarding SS4A and roadway safety for use by all City partner agencies when interacting with the media and with the public directly.	Short term	2026	Office of the Mayor	Department of Planning and Development
C2.11	Include messaging that focuses on children, youth, families, and people with disabilities as travelers in the transportation network.	Short term	2026	Office of the Mayor	Department of Planning and Development and Department of Human Services
C2.12	Utilize existing resources from NOACA, USDOT, ODOT, and Vision Zero where possible.	Short term	2026	Office of the Mayor	Department of Planning and Development
C3	**Incorporate safety data and Action Plan recommendations into transportation elements of future planning efforts.**				
C3.1	Evaluate ongoing and upcoming planning efforts for the incorporation of Action Plan strategies (e.g., zoning code updates).	Short term	2024	Department of Planning and Development	Department of Public Works
C3.2	Identify necessary changes to city processes such as development review, street design processes, enforcement and other areas where the safety of all road users is not prioritized over other factors like the ease of use of automobiles.	Medium term	2029	Department of Planning and Development	Department of Public Works
C4	**Advocate for changes in local, regional, and national codes that increase safety for all road users.**				
C4.1	Advocate for the adoption and implementation of universal design standards that promote safe mobility for disabled residents.	Medium term	2029	Office of the Mayor	Department of Planning and Development

ID	Strategy Description	Timeline	Start Year	Lead	Partners
C4.2	Advocate for changes in the Ohio Revised Code that clarify the rights of pedestrians and bicyclists.	Medium term	2029	Office of the Mayor	Department of Planning and Development
C4.3	Advocate for changes in the Ohio Revised Code to allow for more local flexibility in speed limit setting.	Long term	2034	Office of the Mayor	Department of Public Works and Police Department
C5	**Influence driver behavior along the High-Risk Network.**				
C5.1	Implement the policy and program recommendations identified in the ATP related to safety education.	Short term	2025	Department of Planning and Development	
C5.2	Implement a re-education program for drivers that receive multiple traffic violations. Provide education on key safety risks in Lakewood including impairment, distraction, and speeding.	Long term	2034	Lakewood Municipal Court	Department of Law and Police Department

DATA-DRIVEN APPROACH STRATEGIES

Table 11. Data-driven Approach Strategies

ID	Strategy Description	Timeline	Start Year	Lead	Partners
D1	**Conduct before and after studies of safety improvements to assess effectiveness in fatal/serious injury crash reduction.**				
D1.1	Include evaluation counts of past crashes, design changes implemented, increased/decreased vulnerable road user counts, speed recording and traffic counts.	Ongoing	2025	Department of Planning and Development	Department of Public Works
D1.2	Include qualitative evaluation using intercept surveys, public surveys, walk audits, bike audits, pop-ups, and/or focus groups.	Ongoing	2025	Department of Planning and Development	Department of Public Works
D1.3	Develop overall project evaluations including interviews with stakeholders at key project stages and discussion of lessons learned.	Short term	2026	Department of Planning and Development	Department of Public Works
D1.4	Use before and after assessments to inform applications of safety countermeasure(s) in similar locations across Lakewood where crashes could occur.	Long term	2034	Department of Planning and Development	Department of Public Works
D2	**Publish an annual report on the City website to document prioritized efforts, Action Plan funding, and progress towards the elimination of fatal/serious crashes in Lakewood by 2038 that includes:**				
D2.1	Implementation status of the Action Plan actions and safety countermeasure projects and when available, include quantitative and qualitative project evaluation.	Short term	2025	Department of Planning and Development	Department of Public Works
D2.2	Fatal and serious injury crash statistics	Short term	2025	Department of Planning and Development	Department of Public Works
D2.3	Key traffic citation metrics or changes to citation practices.	Short term	2025	Department of Planning and Development	Department of Public Works
D2.4	Highlight of metrics in historically disadvantaged communities.	Short term	2025	Department of Planning and Development	Department of Public Works
D2.5	Update HRN every five (5) years.	Medium term	2029	Department of Planning and Development	Department of Public Works
D3	**Complete a formal update to the Action Plan every ten years.**				

D3.1	Routinely update the document as progress is made and/or information is gathered.	Medium term	2029	Department of Planning and Development	Department of Public Works
D4	**Further analyze the dynamics of all fatal and serious injury crashes in Lakewood.**				
D4.1	Advocate to the State of Ohio to add more action codes on the crash report form to better understand additional factors impacting fatal and serious injury crashes in Lakewood	Medium term	2029	Department of Planning and Development	Department of Public Works

SAFE STREETS FOR YOUTH STRATEGIES

ID	Strategy Description	Timeline	Start Year	Lead	Partners
SC1	**Work with one (1) school per year to install safety projects surrounding the school.**				
SC1.1	Involve students in identification of issues and potential solutions.	Ongoing	2025	Department of Planning and Development	Department of Public Works, Lakewood City Schools
SC2	**Make safety improvements for student pedestrians and cyclists crossing roadways on the HRN and throughout Lakewood.**				
SC2.1	Inspect all crosswalks near schools.	Short term	2026	Department of Public Works	Department of Planning and Development, Lakewood City Schools
SC2.2	Improve crosswalks near schools to high-visibility, continental style crosswalk markings. Inform decision-making based on student address locations.	Ongoing	2025	Department of Public Works	Department of Planning and Development, Lakewood City Schools
SC2.3	Consider use of Leading Pedestrian Intervals at all school crosswalks, crosswalks in Downtown Lakewood, and crosswalks along the HRN.	Medium term	2027	Department of Public Works	Department of Planning and Development, Lakewood City Schools
SC2.4	Consider use of traffic signal bike detection within school zones and along the HRN to reduce unsafe crossing behaviors.	Medium term	2029	Department of Public Works	Department of Planning and Development, Lakewood City Schools
SC2.5	Install high visibility green bike conflict zone markings within school zones.	Medium term	2029	Department of Public Works	Department of Planning and Development, Lakewood City Schools
SC3	**Promote Safe Routes to School programming to all schools and daycares in Lakewood.**				
SC3.1	Identify and develop education tools, tip sheets, and activities that parents school and daycare administrators and staff can use to teach children and	Medium term	2029	Department of Planning and Development	Lakewood City Schools

	families traffic safety principles, particularly related to safe walking and bicycling behaviors.				
SC3.2	Create SRTS Program Toolkits with resources that encourage and support schools in expanding their SRTS program offerings more independently.	Medium term	2029	Department of Planning and Development	Lakewood City Schools
SC3.3	Identify and invest in safety messaging around safe driving, bicycling, and walking behaviors around schools and daycares, prioritizing audiences of parents and nearby residents.	Medium term	2029	Department of Planning and Development	Lakewood City Schools

IMPLEMENTATION

IMPLEMENTATION

The City of Lakewood will use this Action Plan to implement projects, programs, and policies that make streets safe for all people regardless of their race, age, income, or mode of travel. Making on-the-ground safety improvements to streets across Lakewood – starting with the HRN – is the key to reaching zero roadway fatalities and serious injuries by 2038. Although implementation will start on the HRN and in historically disadvantaged communities, the City will work to include safety improvements in all streets projects and identify conditions where fatal and serious crashes *could* occur to proactively make safety improvements.

STRATEGY PRIORITIZATION

The City of Lakewood will prioritize implementation of safety countermeasure projects and Action Plan strategies on segments and intersections of the HRN that are within the four census tracts identified in the SS4A Underserved Communities dataset. These projects include:

Project name	Project Limits
Clifton Boulevard	Nicholson Avenue to West 117th Street
Detroit Avenue	Clarence Avenue to West 117th Street
Franklin Boulevard	Clarence Avenue to West 117th Street
Madison Avenue	Clarence Avenue to West 117th Street
West 117th Street	Edgewater Drive to Madison Avenue
Berea Road	Lakewood Heights Boulevard to West 117th Street

MEASURING PROGRESS

The following performance measures will be tracked and reported annually to assess progress on implementation of the Action Plan, per strategy D2:

- Implementation status of Action Plan actions
- Number and status of safety countermeasure projects implemented on the HRN
  - If available, quantitative and qualitative project evaluation
- Fatal and serious injury crash statistics
- Traffic citation metrics and/or changes to citation practices
- Metrics specifically within historically disadvantaged communities