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# SAFE STREETS FOR LAKEWOOD

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Safety Action Plan

April 15, 2024



## ACKNOWLEDGEMENTS

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# 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 2023-73. While preventing deaths on streets is something most communities hope to achieve, the adoption of Resolution 2023-73 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.<sup>1</sup> 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.

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<sup>1</sup> FHWA. Zero Deaths and Safe System. <https://highways.dot.gov/safety/zero-deaths>

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.<sup>2</sup> 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.

## 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.<sup>3</sup> 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:

- » **Separating Users in Space** – This includes providing enough physical space as well as level of barrier protection between modes of travel intending to protect the most vulnerable road user.
- » **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.
- » **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.

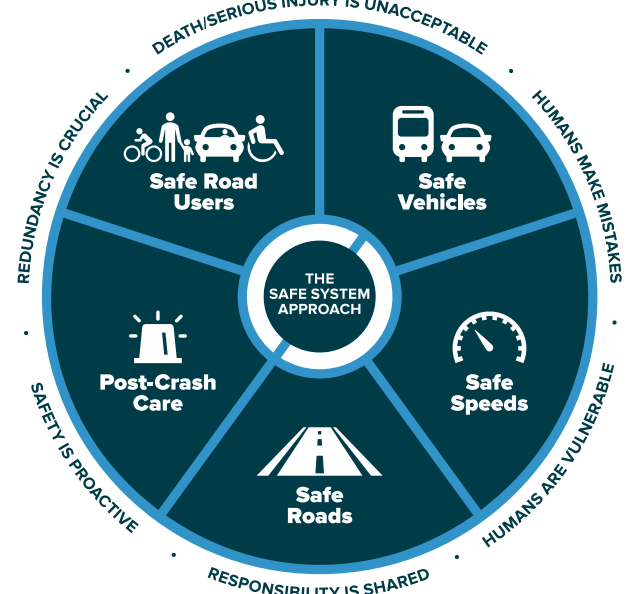


Figure 2. Safe System Approach Principles (FHWA)

<sup>2</sup> <https://www.transportation.gov/sites/dot.gov/files/2022-08/SS4A-NOFO-FY22-Amendment-1.pdf>

<sup>3</sup> <https://www.ite.org/pub/?id=C8B1C6F9-DCB5-C4F3-4332-4BBE1F58BA0D>

- » **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

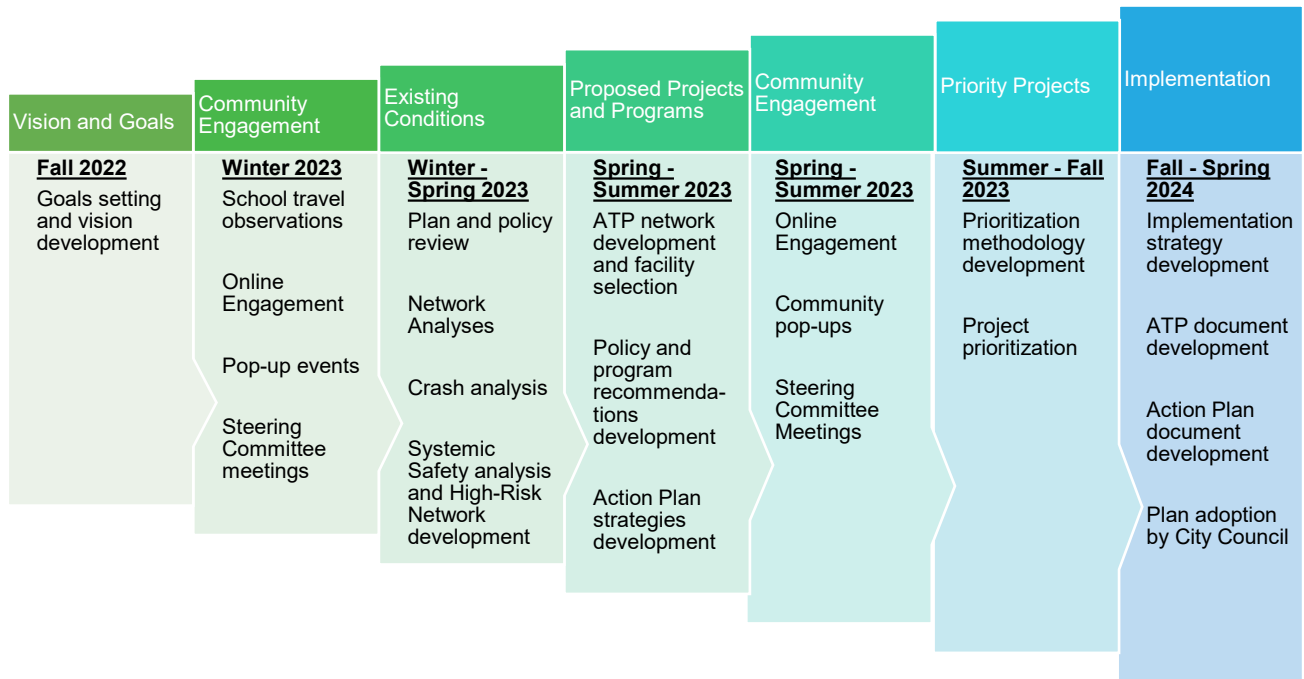


# ACTION PLAN DEVELOPMENT OVERVIEW

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.

## 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:

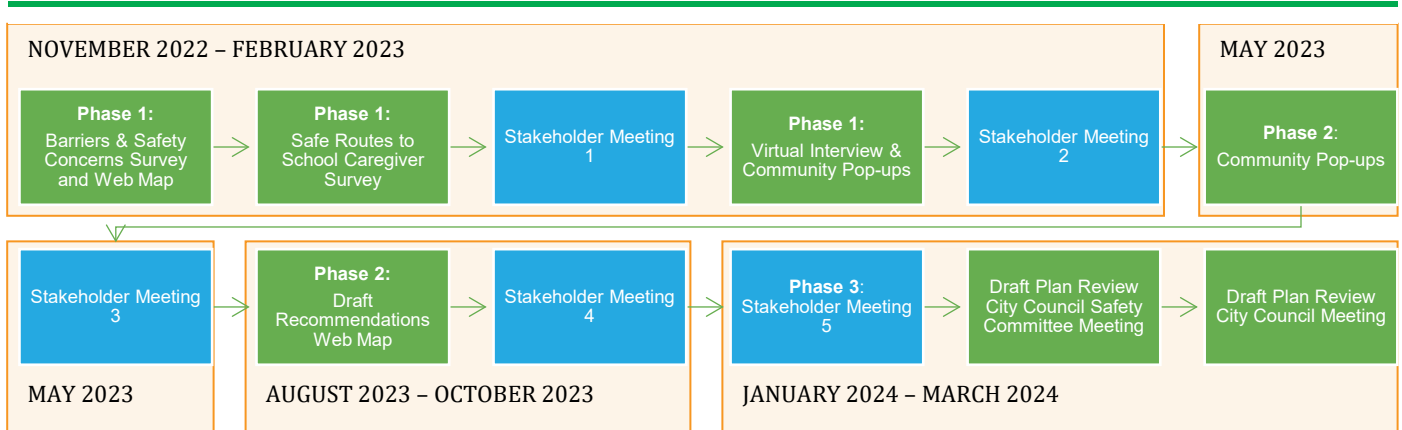
- » Bike Lakewood
- » Bike Cleveland
- » Cove Community Center
- » Lakewood Alive
- » Lakewood City Schools
- » Lakewood Catholic Academy
- » Lakewood City Council
- » Lakewood Department of Planning and Development
- » Lakewood Department of Public Works
- » Lakewood Department of Human Services
- » 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

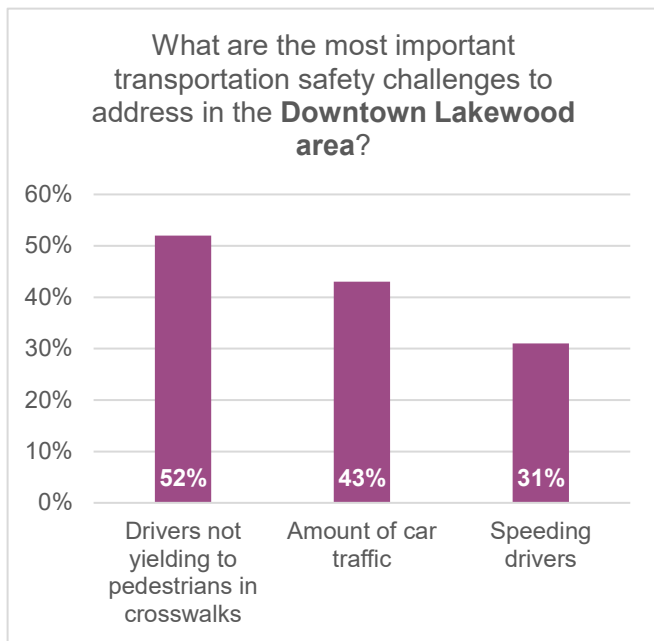
Development of the Action Plan was informed by several community engagement strategies including an online survey, online web map, personal interviews, community pop-ups, and public meetings. Figure 5 below shows the timeline of engagement activities and milestones. Phase 1 describes efforts focused 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. Phase 3 describes the final rounds of engagement which focused on community and stakeholder review of the draft plans.

**Figure 5. Engagement milestones timeline**

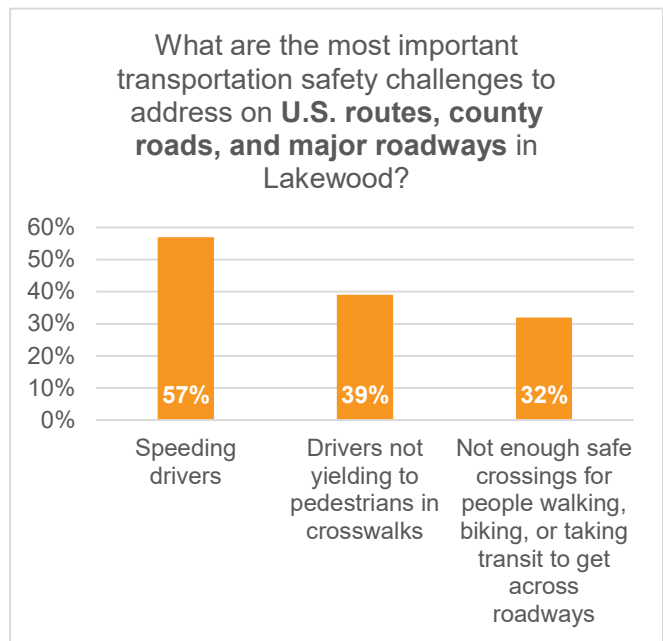


Throughout the planning process, multiple survey tools were used to collect feedback from Lakewood community members and stakeholders. This includes an online survey that asked respondents for information about why they walk and bike in Lakewood, existing challenges for walking and biking in the city, 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 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 (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 the 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 on page 22 of this Action Plan.

## 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	City of 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	City of 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
<b>Sidewalk Replacement Program</b>	City of 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.
<b>NOACA Biking Maps</b>	NOACA; City of 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.<sup>4</sup> 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 D: 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

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<sup>4</sup> 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
<b>2017</b>	10	2	14	2	7	0	602	5
<b>2018</b>	14	3	13	2	7	1	555	2
<b>2019</b>	15	2	14	1	7	0	784	1
<b>2020</b>	14	1	12	3	17	3	594	4
<b>2021</b>	12	4	23	2	5	1	617	6
<b>Total</b>	<b>65</b>	<b>12</b>	<b>76</b>	<b>10</b>	<b>43</b>	<b>5</b>	<b>3152</b>	<b>18</b>

## 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
<b>Parked Vehicle</b>	18%	2	4%
<b>Angle</b>	18%	7	16%
<b>Rear End</b>	18%	2	4%
<b>Sideswipe - Passing</b>	12%	1	2%
<b>Backing</b>	10%	0	0%
<b>Fixed Object</b>	8%	6	13%
<b>Left Turn</b>	5%	0	0%
<b>Right Turn</b>	3%	0	0%
<b>Bicycle</b>	2%	10	22%
<b>Pedestrian</b>	2%	12	27%
<b>Head On</b>	1%	1	2%
<b>Other Non-Collision</b>	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.<sup>5</sup> 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
<b>Intersection</b>	1565	47%	28	62%
<b>Segment</b>	1771	53%	17	38%
<b>Total</b>	<b>3336</b>	<b>100%</b>	<b>45</b>	<b>100%</b>

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
<b>Interstate Route</b>	164	5%	4	9%
<b>Principal Arterial Roads</b>	419	13%	8	18%
<b>Minor Arterial Roads</b>	1131	34%	14	31%
<b>Major Collector Roads</b>	761	23%	7	16%
<b>Local Roads</b>	861	26%	12	27%
<b>Total</b>	<b>3336</b>	<b>100%</b>	<b>45</b>	<b>100%</b>

## 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.

<sup>5</sup> Crashes within 60 feet of the center point of the intersection (80 feet for West 117<sup>th</sup> 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%
<b>Total</b>	<b>3336</b>	<b>100%</b>	<b>45</b>	<b>100%</b>

## 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 (Figure 9). Motorcycle crashes accounted for 1 percent of all crashes yet 11 percent of all fatal and serious injury crashes.

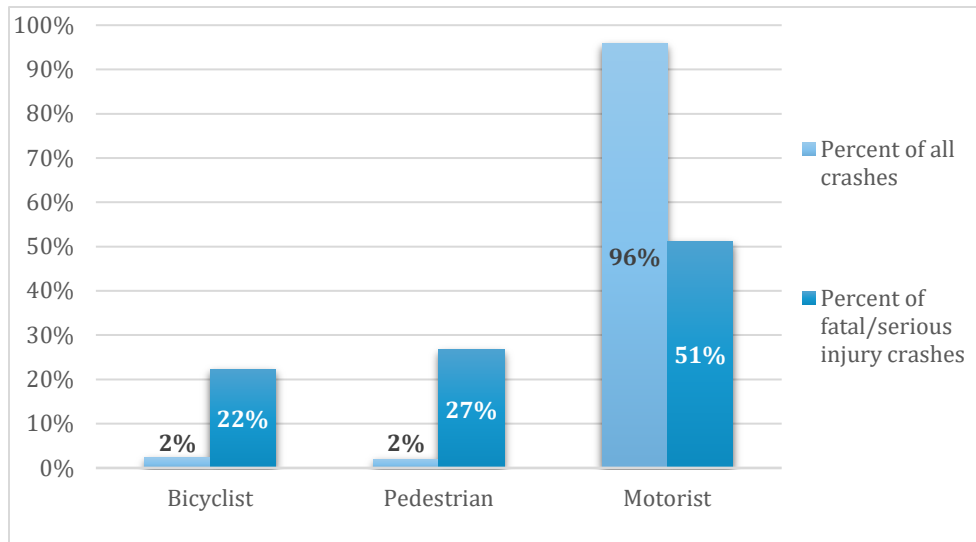


Figure 7. Crashes by severity and mode

## 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)

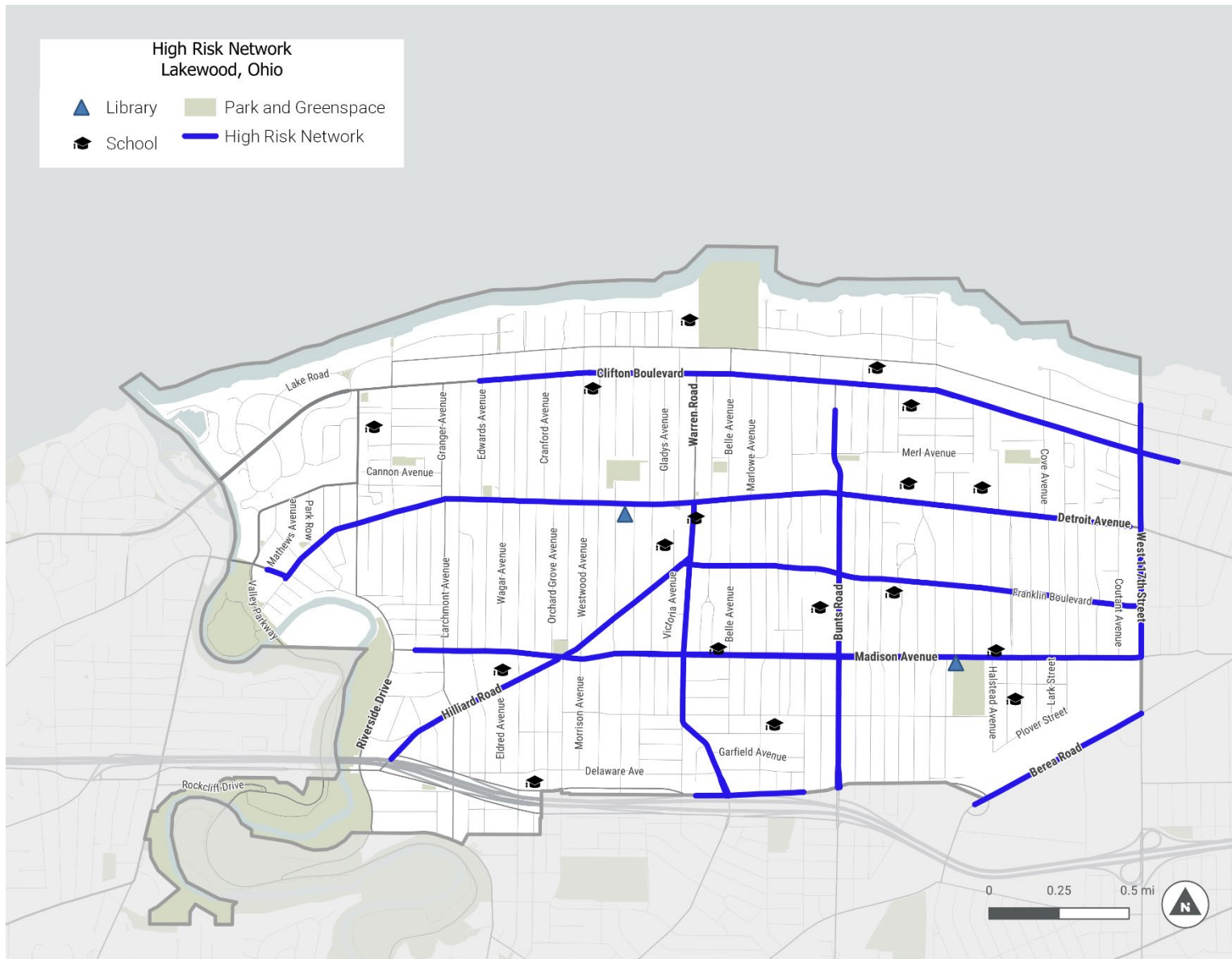
The model estimates crash risk rates per mile for each road segment and each crash mode (pedestrian and bicyclist only) and severity. These values are then converted to crash cost estimates based on the costs assigned to each crash severity.

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 project corridors**

<b>Project name</b>	<b>Project Limits</b>
<b>Clifton Boulevard</b>	Edwards Avenue to West 117th Street
<b>Detroit Avenue</b>	Mathews Avenue to West 117th Street
<b>Franklin Boulevard</b>	Warren Road to West 117th Street
<b>Madison Avenue</b>	Spring Garden Avenue to West 117th Street
<b>Hilliard Road</b>	North Marginal Drive to Warren Road
<b>Bunts Road</b>	Lakewood Heights Boulevard to Clifton Boulevard
<b>West 117th Street</b>	Edgewater Drive to Madison Avenue
<b>Berea Road</b>	Lakewood Heights Boulevard to West 117th Street
<b>Warren Road</b>	Detroit Avenue to Lakewood Heights Boulevard
<b>Lakewood Heights Boulevard</b>	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.*

## OVERLAP WITH ATP

The HRN project corridors listed in Table 7 and Figure 10 overlap with the following ATP recommendations:

**Table 8. ATP route recommendations that overlap with HRN**

Route Location	ATP Recommendation
Clifton Boulevard	Shared use path or separated bike lane
Detroit Avenue	Buffered bike lane
Franklin Boulevard	Buffered bike lane
Madison Avenue	Parking-protected bike lane
Bunts Road (Lakewood Heights Blvd to Detroit Ave)	Shared use path
Bunts Road (Detroit Ave to Merl Ave)	Bicycle boulevard
Warren Road (Detroit Ave to Franklin Blvd)	Buffered bike lane

**Table 9. ATP crossing recommendations that overlap with HRN**

Street 1	Street 2	ATP Recommendation
Detroit Ave	Warren Rd	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	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.
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.
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.
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.
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.
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) or raised crossing.
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.
Warren Rd	Delaware Ave	Install high-visibility crosswalk markings at all approaches to improve access to nearby transit stops.

Street 1	Street 2	ATP Recommendation
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.
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.
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.
Detroit Ave	Waterbury Rd	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue and improving access to nearby schools.
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.
Madison Ave	Cohasset Ave	Install high-visibility crosswalk markings across Madison Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohasset Avenue and access to nearby schools.
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.
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.
Detroit Ave	Cordova Ave	Install high-visibility crosswalk markings across Detroit Avenue.
Detroit Ave	Arthur Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of curb extensions and parking restrictions on crosswalk approach.
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.
Madison Ave	Victoria Ave	Install high-visibility crosswalk markings across Madison Avenue. Consider parking restrictions at crosswalk approach or curb extensions.
Franklin Blvd	Cohasset Ave	Install high-visibility crosswalk markings across Franklin Boulevard. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohasset Avenue and access to nearby schools. Consider installation of curb extensions or pedestrian refuge island.
Detroit Ave	Cohasset Ave	Install high-visibility crosswalk markings across Detroit Avenue. Consider installation of LPI and bicycle detection to support recommended bicycle boulevard project on Cohasset Avenue and access to Garfield Middle School. Consider installation of curb extensions.
Clifton Blvd	West 117th St	Install high-visibility crosswalk markings at all approaches. Consider curb extensions and/or pedestrian refuge island.
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.
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.

Street 1	Street 2	ATP Recommendation
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.
Woodward Ave	Hilliard Rd	Install high-visibility crosswalk markings across Madison Avenue to improve access to Harding Middle School. Consider installation of curb extensions.
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.
Madison Ave	Arthur Ave	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue. Consider installation of curb extensions.
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.
Franklin Blvd	Warren Rd	Install high-visibility crosswalk markings and consider additional safety improvements for vehicles such as hardened centerlines.
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.
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.
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.
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.
Detroit Ave	Graber Dr	Consider installation of bicycle detection to improve access to nearby regional trail.
Detroit Ave	Spring Garden Ave	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Evaluate signal timing.
Detroit Ave	Wagar Ave	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue and improve access to bus stop.
Detroit Ave	Blossom Park Ave	Consider installation of curb ramps to improve pedestrian visibility. Incorporate signage for bicycle use of HAWK beacon.
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.
Detroit Ave	Thoreau Rd	Install high-visibility crosswalk markings and ADA curb ramps to cross Detroit Avenue. Consider installation of curb extensions.
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.
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.
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.

Street 1	Street 2	ATP Recommendation
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 and/or raised crossing.
Madison Ave	Baxterly Ave	Install high-visibility crosswalk marking and ADA curb ramps to cross Madison Avenue. Consider installation of curb extensions.
Hilliard Rd	McKinley Ave	Install high-visibility crosswalk markings at all approaches. Consider installation of curb extensions.
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.
Clifton Blvd	Fry Ave	Install a midblock crossing across Clifton Avenue with high-visibility crosswalk markings and RRFB or PHB to improve access to nearby transit stops. Consider curb extensions.
Madison Ave	Chesterland Ave	Install high-visibility crosswalk markings at all approaches. Install ADA curb ramps for crossing across Madison Avenue to improve access to transit stops.
Madison Ave	Elbur Ave	Install high-visibility crosswalk markings at all approaches. Install ADA curb ramps for crossing across Madison Avenue to improve access to transit stops.

# 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:

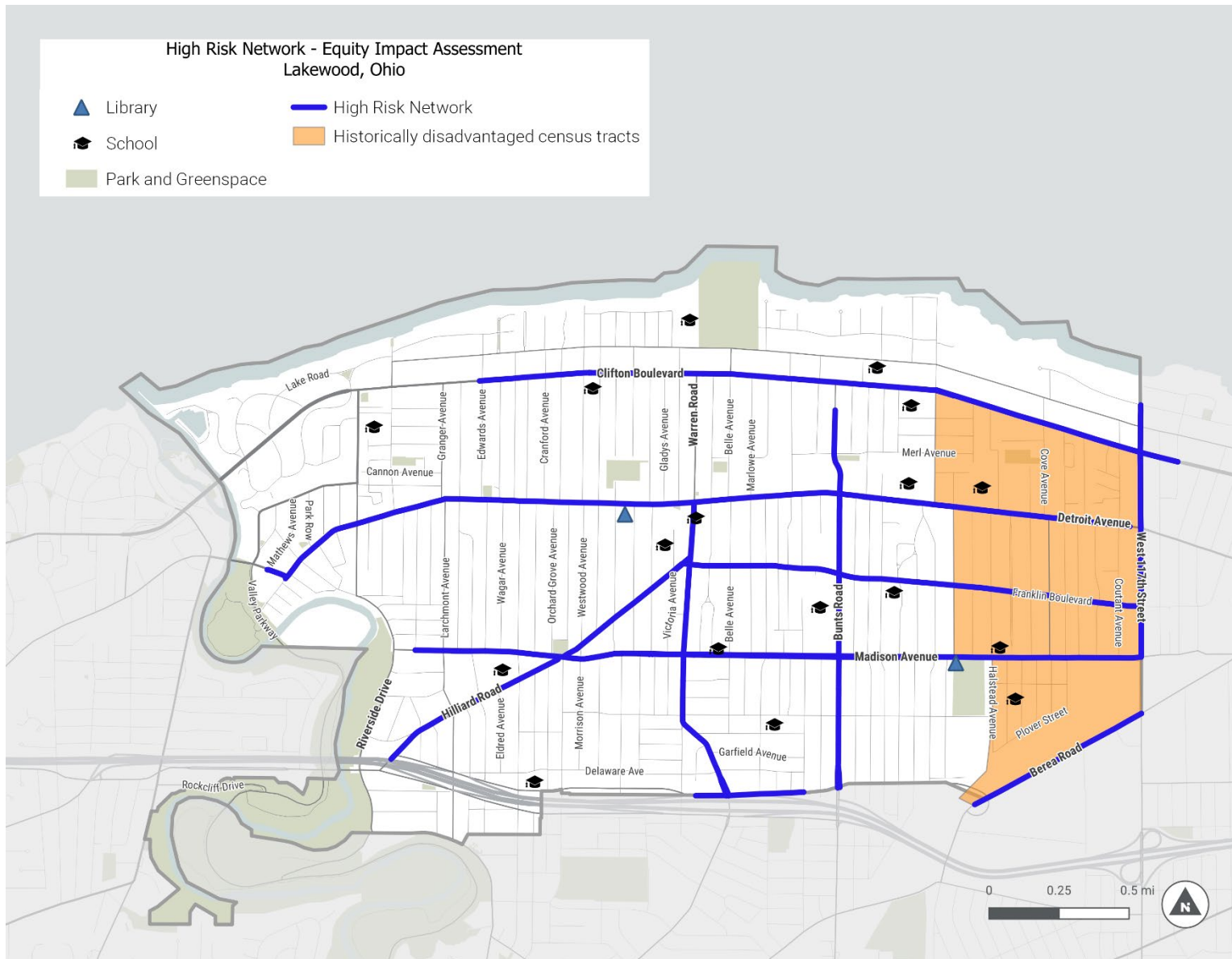
1. **Transportation access**
2. **Health disadvantage**
3. **Environmental disadvantage**
4. **Economic disadvantage**
5. **Resilience disadvantage**
6. **Equity disadvantage**

Figure 11 shows the HRN overlaid on the disadvantaged communities identified by USDOT. The map shows that four census tracts in the eastern parts of Lakewood – south of Clifton Boulevard, between approximately Nicholson Avenue and West 117<sup>th</sup> 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 117<sup>th</sup> Street
- » Berea Road

All four census tracts identified by USDOT are bordered by the HRN on at least two sides and two of the census tracts are bordered on three sides. This suggests that community members in these areas also shoulder a disproportionate risk of crashes and traffic related injuries when trying to walk or bike on major corridors in Lakewood.

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 the Existing Conditions section 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.

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.



Source: Brian C. Tefft. 2013. AAA Foundation for Traffic Safety. Impact speed and a pedestrian's risk of severe injury or death.

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

## 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.<sup>6</sup>

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 the 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 the 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 the ATP and Action Plan development revealed that 60 percent of parents

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<sup>6</sup> <https://www.hsph.harvard.edu/news/press-releases/racial-disparities-traffic-fatalities/>

reported that their child walks to school sometimes. This is far above the national trend of 11 percent.<sup>7</sup> In Lakewood 40 percent of fatal and serious injury bicycle crashes and 67 percent 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.

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<sup>7</sup> <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 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 effectiveness 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
<b>S1</b>	<b>Seek grants and other funding from non-profit, regional, state, and Federal sources to match with committed local funds.</b>				
<b>S1.1</b>	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
<b>S1.2</b>	Prioritize HRN projects within historically disadvantaged communities.	Ongoing	2025	Department of Public Works	Department of Planning and Development
<b>S1.3</b>	Prioritize HRN projects that improve bicycle and/or pedestrian safety.	Ongoing	2025	Department of Public Works	Department of Planning and Development
<b>S1.4</b>	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
<b>S1.5</b>	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
<b>S1.6</b>	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
<b>S1.7</b>	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
<b>S2</b>	<b>Implement safety countermeasures that improve safety of all road users proactively on all development projects and capital improvement projects.</b>				
<b>S2.1</b>	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
<b>S2.2</b>	Incorporate the HRN into local capital improvement project ranking process.	Ongoing	2025	Department of Planning and Development	Department of Public Works
<b>S2.3</b>	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

ID	Strategy Description	Timeline	Start Year	Lead	Partners
<b>S3</b>	<b>Develop a speed management program.</b>				
<b>S3.1</b>	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
<b>S3.2</b>	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
<b>S3.3</b>	Identify and map all speeding citations issued on all roads.	Ongoing	2025	Police Department	Department of Public Works and Department of Planning & Development
<b>S3.4</b>	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
<b>S3.5</b>	Evaluate HRN for design interventions to lower the operating speed.	Short term	2025	Department of Public Works	
<b>S3.6</b>	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
<b>S3.7</b>	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
<b>S3.8</b>	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
<b>S3.9</b>	Identify locations where lower speed limits should be considered.	Medium term	2028	Department of Public Works	Department of Planning and Development

ID	Strategy Description	Timeline	Start Year	Lead	Partners
<b>S4</b>	<b>Make safety improvements for pedestrians and cyclists crossing roadways on the HRN and throughout Lakewood.</b>				
<b>S4.1</b>	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
<b>S4.2</b>	Improve crosswalks on the HRN to high-visibility, continental style crosswalk markings.	Ongoing	2024	Department of Public Works	
<b>S4.3</b>	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
<b>S4.4</b>	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
<b>S4.7</b>	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	
<b>S4.5</b>	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
<b>S4.6</b>	Install pavement markings to daylight 25 - 30 feet of all intersections.	Medium term	2029	Department of Public Works	Department of Planning and Development
<b>S4.8</b>	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
<b>S4.9</b>	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
<b>S5</b>	<b>Maintain safe, high-quality sidewalk network through the Safe System Approach on the HRN.</b>				
<b>S5.1</b>	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

ID	Strategy Description	Timeline	Start Year	Lead	Partners
<b>S6</b>	<b>Build a safe, complete, and connected bicycle network through the Safe System Approach on the HRN.</b>				
<b>S6.1</b>	Build bicycle facilities recommended by the ATP on the HRN.	Ongoing	2025	Department of Public Works	Department of Planning and Development
<b>S6.2</b>	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
<b>S7</b>	<b>Advocate for design changes to state and multijurisdictional roads entering Lakewood that support changes made within Lakewood.</b>				
<b>S7.1</b>	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
<b>S7.2</b>	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
<b>S8</b>	<b>Establish a permanent, dedicated funding source for Action Plan implementation.</b>				
<b>S8.1</b>	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
<b>S8.2</b>	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
<b>S8.3</b>	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
<b>S9</b>	<b>Evaluate major roadways for lane reconfiguration to ensure highest level of safety for all road users and to prevent fatal and serious injury crashes.</b>				
<b>S9.1</b>	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
<b>E1</b>	<b>Prioritize safety improvements in historically disadvantaged communities first.</b>				
<b>E1.1</b>	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
<b>E2</b>	<b>Utilize an existing Committee or establish a standing, voluntary Safe Streets for Lakewood Committee.</b>				
<b>E2.1</b>	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
<b>E2.2</b>	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
<b>E2.3</b>	Include residents with disabilities.	Short term	2024	Department of Planning and Development	Department of Human Services
<b>E2.4</b>	Include residents who are Black, Indigenous, and other People of Color.	Short term	2024	Department of Planning and Development	Department of Human Services
<b>E2.5</b>	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
<b>E2.6</b>	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	
<b>E3</b>	<b>Develop processes to center community participation in the development, implementation, and updates of Action Plan.</b>				
<b>E3.1</b>	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
<b>E3.2</b>	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
<b>C1</b>	<b>Ensure staff are trained to implement the Action Plan.</b>				
<b>C1.1</b>	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
<b>C1.2</b>	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
<b>C1.3</b>	Train Public Safety staff on systemic safety principles and equity considerations.	Ongoing	2025	Department of Public Safety	Department of Planning and Development
<b>C1.4</b>	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
<b>C2</b>	<b>Invest in a comprehensive roadway safety awareness campaign around leading safety issues in Lakewood.</b>				
<b>C2.1</b>	Focus on prioritizing safety for all road users and set an expectation of zero roadway deaths.	Short term	2024	Office of the Mayor	Department of Planning and Development
<b>C2.2</b>	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
<b>C2.3</b>	Continue addressing failure to yield as a top collision factor.	Ongoing	2026	Office of the Mayor	Department of Planning and Development
<b>C2.4</b>	Continue addressing vehicle speeding as a top collision factor.	Ongoing	2026	Office of the Mayor	Department of Planning and Development
<b>C2.5</b>	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
<b>C2.6</b>	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
<b>C2.7</b>	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
<b>C2.8</b>	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
<b>C2.9</b>	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
<b>C2.10</b>	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
<b>C2.11</b>	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
<b>C2.12</b>	Utilize existing resources from NOACA, USDOT, ODOT, and Vision Zero where possible.	Short term	2026	Office of the Mayor	Department of Planning and Development
<b>C3</b>	<b>Incorporate safety data and Action Plan recommendations into transportation elements of future planning efforts.</b>				
<b>C3.1</b>	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
<b>C3.2</b>	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
<b>C4</b>	<b>Advocate for changes in local, regional, and national codes that increase safety for all road users.</b>				
<b>C4.1</b>	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
<b>C4.2</b>	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
<b>C4.3</b>	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
<b>C5</b>	<b>Influence driver behavior along the High-Risk Network.</b>				
<b>C5.1</b>	Implement the policy and program recommendations identified in the ATP related to safety education.	Short term	2025	Department of Planning and Development	
<b>C5.2</b>	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
<b>D1</b>	<b>Conduct before and after studies of safety improvements to assess effectiveness in fatal/serious injury crash reduction.</b>				
<b>D1.1</b>	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
<b>D1.2</b>	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
<b>D1.3</b>	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
<b>D1.4</b>	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
<b>D2</b>	<b>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.</b>				
<b>D2.1</b>	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
<b>D2.2</b>	Fatal and serious injury crash statistics	Short term	2025	Department of Planning and Development	Department of Public Works
<b>D2.3</b>	Key traffic citation metrics or changes to citation practices.	Short term	2025	Department of Planning and Development	Department of Public Works
<b>D2.4</b>	Highlight of metrics in historically disadvantaged communities.	Short term	2025	Department of Planning and Development	Department of Public Works
<b>D2.5</b>	Update HRN every five (5) years.	Medium term	2029	Department of Planning and Development	Department of Public Works

<b>D3</b>	<b>Complete a formal update to the Action Plan every ten years.</b>				
<b>D3.1</b>	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
<b>D4</b>	<b>Further analyze the dynamics of all fatal and serious injury crashes in Lakewood.</b>				
<b>D4.1</b>	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
<b>SC1</b>	<b>Work with one (1) school per year to install safety projects surrounding the school.</b>				
<b>SC1.1</b>	Involve students in identification of issues and potential solutions.	Ongoing	2025	Department of Planning and Development	Department of Public Works, Lakewood City Schools
<b>SC2</b>	<b>Make safety improvements for student pedestrians and cyclists crossing roadways on the HRN and throughout Lakewood.</b>				
<b>SC2.1</b>	Inspect all crosswalks near schools.	Short term	2026	Department of Public Works	Department of Planning and Development, Lakewood City Schools
<b>SC2.2</b>	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
<b>SC2.3</b>	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
<b>SC2.4</b>	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
<b>SC2.5</b>	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 families traffic safety principles, particularly related to safe walking and bicycling behaviors.	Medium term	2029	Department of Planning and Development	Lakewood City Schools
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. This includes projects that are on the following HRN segments:

Project name	Project Limits
<b>Clifton Boulevard</b>	Nicholson Avenue to West 117th Street
<b>Detroit Avenue</b>	Clarence Avenue to West 117th Street
<b>Franklin Boulevard</b>	Clarence Avenue to West 117th Street
<b>Madison Avenue</b>	Clarence Avenue to West 117th Street
<b>West 117th Street</b>	Edgewater Drive to Madison Avenue
<b>Berea Road</b>	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 strategies,
- » 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, and
- » Metrics specifically within historically disadvantaged communities.