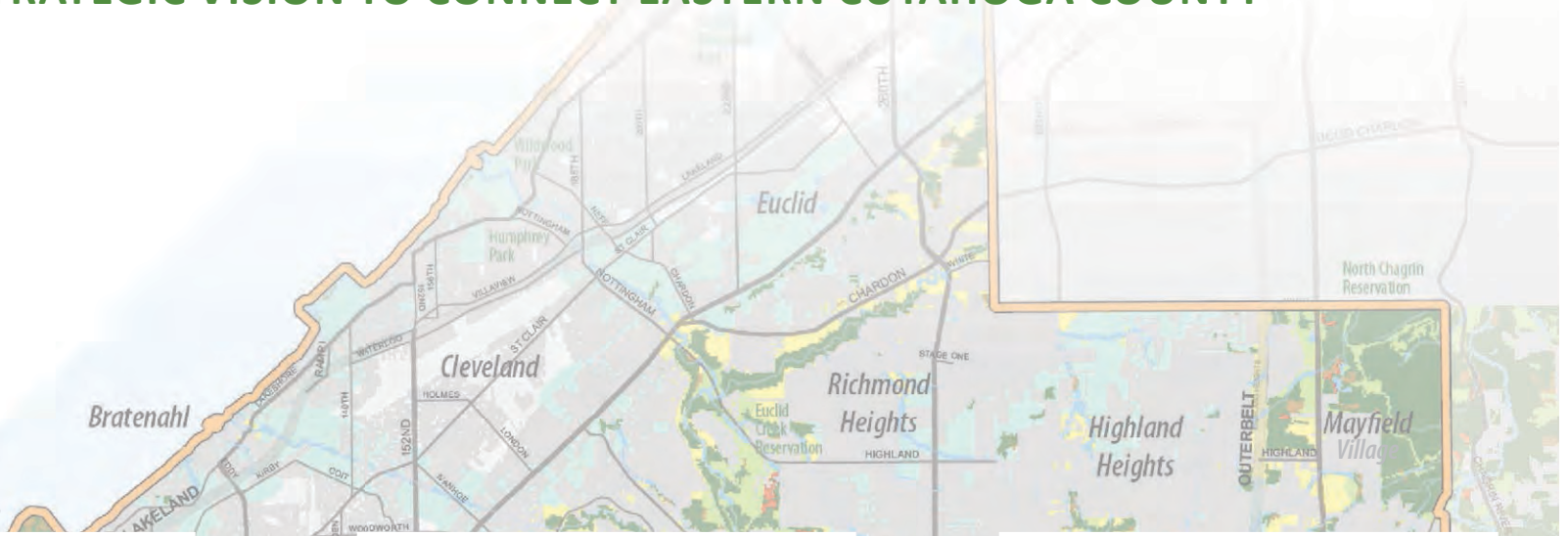




EASTSIDE GREENWAY PLAN

A STRATEGIC VISION TO CONNECT EASTERN CUYAHOGA COUNTY



SEPTEMBER 18, 2015



ACKNOWLEDGMENTS

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TABLE OF CONTENTS

CHAPTER 1 PROJECT INTRODUCTION	5	3.2 Goal Scores	29	CHAPTER 5 RECOMMENDATIONS	81
1.1 Project Overview	6	Goal 1- Connectivity	29	5.1 Implementation Recommendations	82
Intent & Project Area	6	Goal 2- Economy Impact.	30	Greenway Governance Structure.	82
Project Needs.	7	Goal 3- Health & Safety	31	Project Development Process	83
1.2 Greenway Basics	8	Goal 4- Environmental	32	Greenway Maintenance/Management	84
What are Greenways?.	8	Combined Goals Evaluation Results.	33	Safety & Security	85
Greenway Benefits	11	3.3 Greenway Network.	34	Wayfinding & Branding.	86
1.3 Planning Process	12	Assembling A Coherent Network	34	Funding Resources & Opportunities.	87
Overall Process	12	Primary Greenway Routes	35	Sustainable Design Opportunities.	87
Project Structure & Stakeholder Engagement	13	CHAPTER 4 ROUTE IMPLEMENTATION	36	HIA Recommendations	88
1.4 Vision & Goals.	15	4.1 Route Priorities	37		
Vision Statement	15	Implementation Levels	38	APPENDICES	
Goals.	15	Implementation Summary Table	39	Appendix A: Analysis Details & Additional Routes	89
CHAPTER 2 COMMUNITY ANALYSIS.	16	4.2 Priority Projects: Transformative.	44	Appendix B: MetroQuest Summary	105
2.1 Spatial Inventory & Analysis	17	Euclid Ave. (A1)	44	Appendix C: Potential Funding Sources	110
Analysis Topics	17	SOM Center Rd. (D2).	47	Appendix D: Health Impact Assessment Summary	115
2.2 Route Identification	22	Warrensville Center Rd. (K).	50	Appendix E: Meeting Summaries	122
Preliminary Greenway Routes	22	4.3 Priority Project: Near-Term	54		
2.3 Community Feedback.	23	E. 222nd St. (A3)	54		
CHAPTER 3 ROUTE EVALUATION.	26	Belvoir Blvd. (B)	57		
3.1 Technical Route Evaluation.	27	South Park Rd. (C)	59		
Intent	27	Gates Mills Blvd. (D1)	61		
Goals, Criteria, & Weight	27	Lakeshore Blvd. (E)	63		
Evaluation Process.	28	Monticello Blvd. (F)	66		
		Highland Rd. (G).	69		
		Noble Rd. (J).	71		
		Lee Rd. (P)	73		
		Harvard Rd. (R)	77		

TABLE OF CONTENTS (CONTINUED)

MAPS

- 1.1A Project Study Area & Involved Communities. 6
- 1.1B Major Existing Trails & Missing Links 7
- 2.1A Existing Non-Motorized Facilities & Missing Links . . 18
- 2.1B Transit Infrastructure 18
- 2.1C Population Density (People Per Acre). 19
- 2.1D Car Ownership 19
- 2.1E Job Centers 20
- 2.1F Commercial & Civic Land Areas. 20
- 2.1G Population Density (People Per Acre) 21
- 2.1H Public & Vacant Land Potential. 21
- 2.2A Preliminary Greenway Routes. 22
- 2.3A MetroQuest Origin-Destination Results 24
- 3.2A Goal 1 Evaluation Map for All Routes. 29
- 3.2B Goal 2 Evaluation Map for All Routes. 30
- 3.2C Goal 3 Evaluation Map for All Routes. 31
- 3.2D Goal 4 Evaluation Map for All Routes. 32
- 3.2E Overall Route Scores 33
- 3.3A Primary Greenway Network by Source of Input 34
- 3.3B Primary Greenway Routes. 35
- 4.1A Route Implementation Priorities 37
- 4.2A Euclid Ave. Existing Condition 43

- 4.2B SOM Center Rd. Existing Condition 46
- 4.2C Warrensville Center Rd. Existing Condition 49
- 4.3A E. 222nd St. Existing Condition 53
- 4.3B Belvoir Blvd. Existing Condition. 56
- 4.3C South Park Blvd. Existing Condition 57
- 4.3D Gates Mills Blvd. Existing Condition 60
- 4.3E Lakeshore Blvd. Existing Condition 62
- 4.3F Monticello Blvd. Existing Condition 65
- 4.3G Highland Rd. Existing Condition 68
- 4.3H Noble Rd. Existing Condition. 70
- 4.3I Lee Rd. Existing Condition 72
- 4.3J Harvard Rd. Existing Condition 76





CHAPTER 1

PROJECT INTRODUCTION

1.1 PROJECT OVERVIEW

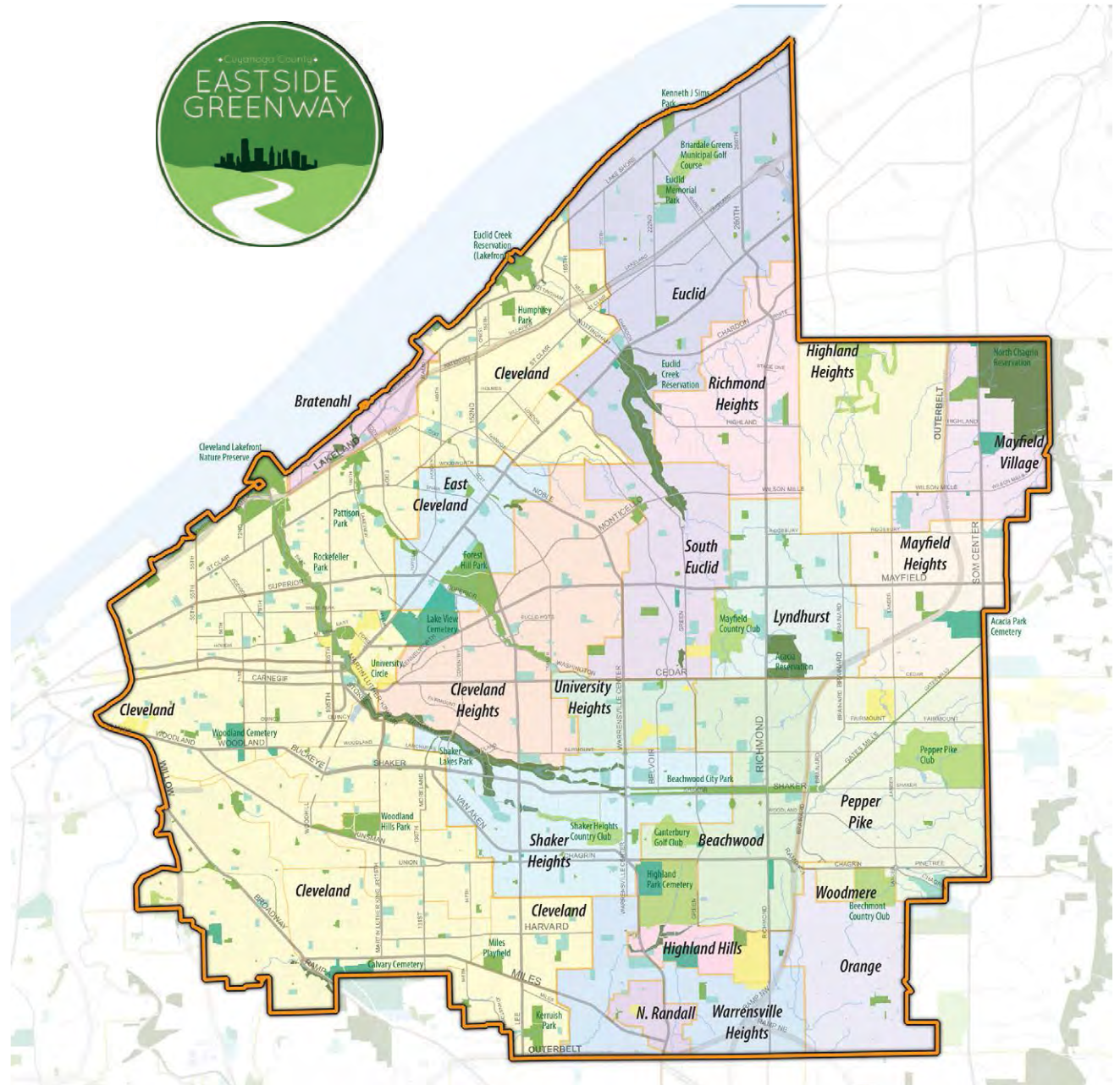
INTENT & PROJECT AREA

The Eastside Greenway Plan is a multi-jurisdictional greenway and non-motorized planning study in eastern Cuyahoga County, Ohio. The study examines existing and potential greenways across the region that can better connect residents to jobs, recreation, services, commercial centers, and natural resources through enhanced multi-modal facilities.

The study is a significant opportunity for coordinating greenway connectivity across municipal boundaries and developing a system of greenways that have regional significance. The following communities were engaged throughout the planning process:

- Beachwood
- Bratenahl
- Cleveland
- Cleveland Heights
- East Cleveland
- Euclid
- Highland Heights
- Highland Hills
- Lyndhurst
- Mayfield Village
- Mayfield Heights
- North Randall
- Orange
- Pepper Pike
- Richmond Heights
- Shaker Heights
- South Euclid
- University Heights
- Warrensville Heights
- Woodmere

These 20 communities (MAP 1.1A) are all unique. Creating a greenway network is an opportunity to both knit these communities together and celebrate their differences and local character.



MAP 1.1A - PROJECT AREA & INVOLVED COMMUNITIES

PROJECT NEEDS

Greenway Needs & Missing Links

The Eastside Greenway project area contains a diverse range of communities each with their own established open spaces, natural areas and important commercial and economic destinations. There are many significant businesses and institutions in the project area that represent vital job centers for the region. In addition, close proximity to the Cleveland Metroparks Reservations, Lake Erie, and numerous streams and natural areas provide recreation opportunities for people as well as habitat for plants and animals.

Numerous off-street trails and on-road bike facilities exist in the project area, and provide connections to many of these community assets. However, in many cases there are significant gaps or “Missing Links” in the existing network between where one path ends and another begins. In other instances, there are major destinations or job centers that are not easily accessible by non-motorized transportation.

The Eastside Greenway planning effort began by identifying a number of initial **Missing Links** (MAP 1.1B) in the existing non-motorized network. These initially identified Missing Links would connect existing trail systems together. However, there were other needs and opportunities identified through the public outreach that necessitated a more comprehensive review of potential greenway connections, the populations they could serve, and the destinations to which they can connect people. In particular, there are large residential areas that are not in close proximity to the existing trails or proposed Missing Links. Without adequate connections to these facilities, many residents would not be able to access the greenway system.

Transportation Planning & Project Coordination

Implementing greenway projects can take considerable time and resources, and it is essential that planning work coordinate with current projects and plans for all modes of transportation. Routine projects, such as street resurfacing, can provide an opportunity for non-motorized projects to occur in concert, such as re-striping narrower vehicle lanes to provide room for dedicated bike lanes.

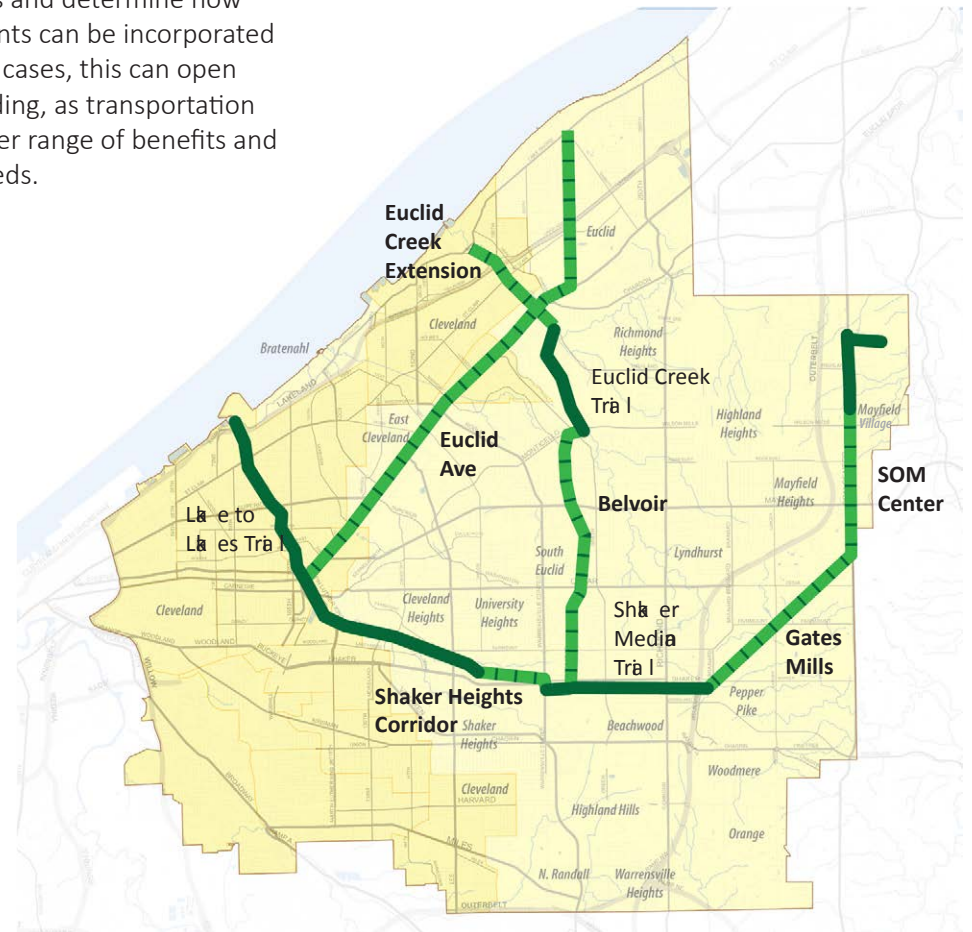
As a comprehensive greenway planning effort, the Eastside Greenway Plan is an opportunity to explore other transportation projects and determine how future greenway improvements can be incorporated into those projects. In many cases, this can open up additional sources of funding, as transportation projects can provide a broader range of benefits and better serve multi-modal needs.

Serving Diverse User Groups

A critical recognition for greenways is that they can and should serve a diverse range of users across the entire system. The needs and desires of a commuting cyclist is different from that of a walker / jogger or people cycling with children. The greenway system needs to meet different user’s needs by providing a range of facilities. In some cases, providing multiple overlapping facilities (e.g. bike lanes and a multi-use side path trail) may be needed to best meet the needs of the community.

MAP 1.1B - MAJOR EXISTING TRAILS & MISSING LINKS INITIALLY IDENTIFIED

- Major Existing Trails
- Initial Missing Links



1.2 GREENWAY BASICS

WHAT ARE GREENWAYS?

Greenways are an important part of a community's green infrastructure system. Greenways can take a number of different forms and incorporate different design elements to suit the specific needs and conditions of where the greenway is located. However, most greenways typically include enhanced facilities for pedestrians and cyclists.

A greenway is a dedicated space providing opportunities for recreation and non-motorized transportation. This includes a variety of treatments that may include on-road or off-road facilities.

Bike Facilities

There are a number of different types of on-road and off-road facilities that can be incorporated into a greenway. These include:

- A Bike Routes** are designated by municipalities to guide cyclists to preferred destinations or to serve as part of a non-motorized network.
 - » May or may not include bike facilities (e.g. bike lanes, etc.)
 - » Signs frequently placed at decision points and to advise motorists of bike route status

- B Shared Lane Markings (SLMs)**, or “sharrows,” are road markings used to indicate a shared lane environment for bikes and vehicles.
 - » Reinforces the legitimacy of bike traffic on the street
 - » Recommends proper cyclist positioning
 - » May offer directional and wayfinding guidance

- C Conventional Bike Lanes** are defined as a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of cyclists.
 - » No physical barrier (e.g. bollards, medians, raised curbs, etc.)
 - » Run curbside when no parking is present, or adjacent to parked cars on the right-hand side of the street
 - » Bikes typically travel in the same direction as the adjacent traffic lane
 - » Typically 5 feet wide
 - » (4 feet minimum to 6 feet maximum width)

- D Buffered Bike Lanes** are like conventional bike lanes with the addition of a designated buffer space separating the bike lane from the adjacent vehicle travel lane and/or parking lane.
 - » Encourage wider separation between vehicles and cyclists
 - » Appeal to a wider cross-section of bike users (high vs. low experience riders for example)
 - » Encourage cycling by contributing to the perception of safety among users





E Separated Bike Facilities (also called cycle tracks or protected bike lanes) are physically set apart from motorized traffic and are distinct from the sidewalk. Separated bike facilities may take different forms but all share common elements—they provide space that is to be used exclusively for bikes.

- » Dedicate and protect space for cyclists in order to improve perceived comfort and safety
- » More attractive to a wider range of cyclists at all levels and ages than less separated facilities
- » Barriers keep motorists from easily entering the bike lanes



F Side Paths & Multi-Use Trails are physically separated from vehicle traffic. They can be located within the road right-of-way (a side path) or along an independent right-of-way, like a linear park. Multi-use trails include bike paths, side paths, rail-trails or other facilities built for both bike and pedestrian traffic.

- » Provide corridors for both short and long distance recreational activities
- » Connect with and/or along multiple destinations
- » Frequently incorporates habitat corridors and natural systems
- » For the purposes of this study, all “side paths” are intended to be designed as multi-use trails to accommodate a broad range of users.



Pedestrian Facilities

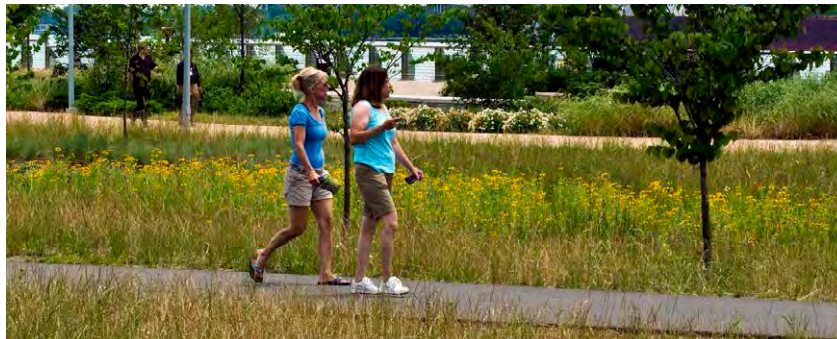
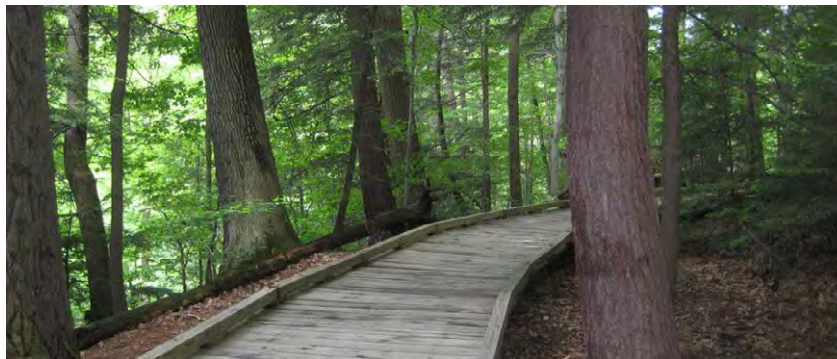
Greenways are designed to serve a range of mobility types including walkers, joggers, and cyclists. While bike facilities are often a key component of greenways, other enhancements are important for serving the pedestrians.

- **Shade Trees and Landscaping:** Shade trees provide aesthetic benefits as well as providing a cooler and more comfortable place to walk. Tree planting along greenways is vitally important.
 - » Other landscaping enhancements, such as perennials, grasses, and other ornamental species can make greenways more visibly attractive for all users, but especially pedestrians.
- **Lighting:** Greenways should facilitate safe travel at all times. Providing adequate lighting levels with pedestrian scaled light fixtures is important for a safe and secure environment.
- **Safety and Security:** In less visible locations where there are fewer “eyes on the street” additional safety features such as emergency call boxes and video cameras can be used to provide additional safety measures for greenway users.
- **Public Art:** Greenways can be an opportunity for incorporating artwork into the public realm. Artwork can range from aesthetic works such as sculptures or murals to more “functional artwork” like special crosswalk treatments. Artwork provides an opportunity to speak to local cultures and traditions.

Green Infrastructure

Greenways are an opportunity to incorporate green infrastructure into the built environment. Green infrastructure can include many different features, but most commonly includes:

- **Stormwater Management Facilities:** Rain gardens, bioswales, infiltration planters, porous pavings, underground infiltration, and stormwater wetlands are all stormwater best management practices (BMPs) that can be incorporated into the design of greenways. These practices capture and infiltrate runoff close to where it falls, filtering the water to protect water quality and protecting rivers and water bodies from excess erosion.
- **Habitat and Native Landscaping:** Greenways can provide habitat for plants and animals or help reconnect patches of habitat in the urban landscape. Select plant materials can provide places for animals to forage or rest and help maintain healthy ecosystems close to home.



GREENWAY BENEFITS

Combining facilities for non-motorized transportation with environmental and natural resource enhancements (e.g. stormwater management or habitat creation, greenways) can bring a number of key benefits to a community:

- **Improving bike and pedestrian transportation options**

- » Surveys by the Federal Highway Administration (FHWA) show Americans will walk up to 2 miles and cycle 5 miles to get to a destination.
- » Two-thirds of all trips we make are 5 miles or less.
- » Trail networks offer effective transportation alternatives by connecting homes, workplaces, schools, parks, downtown, and cultural attractions.

- **Generating economic activity**

- » Trails and greenways increase property values for residences and businesses.
- » Trails and greenways promote economic investment and attract businesses.
- » Trail tourism creates measurable economic impacts.

- **Improving health through active living**

- » A region's trail network contributes to the overall health of its residents by offering people attractive, safe, accessible places to bike, walk, hike, jog, skate, and access natural resources.
- » Trail networks create better opportunities for active lifestyles.

- **Providing environmental benefits**

- » Stormwater runoff reduction, flood reduction, water quality protection, habitat connectivity, preservation of biological diversity.
- » Non-motorized transportation options reduce dependence on vehicle use, saving energy and reducing pollution.

- **Enhancing cultural awareness and strengthening community identity**

- » Provide connections to local heritage by preserving historic places and by providing access to them.
- » Provide access to open space where people can enjoy outdoor activities like picnicking and games.
- » Activities in these spaces facilitate communication among neighbors, strengthening community bonds.

- **Ecology**

- » Greenways can incorporate or help restore natural vegetation and provide corridors to connect habitat areas together.

The overarching desire is to locate greenways in off-street locations where pedestrians and cyclists can be safely separated from vehicle traffic. However, opportunities for off-street greenway routing can be a challenge where lands are not publicly owned or where vacancy status and ownership is unclear. As a result, on-street greenways are necessary for building a logical and functioning greenway network, taking advantage of the public right-of-way to locate greenway facilities and is a focus of this report. When specific greenway projects are advanced for implementation, opportunities to utilize off-street alignments should be considered in detail.



1.3

PLANNING PROCESS

OVERALL PROCESS

Planning, designing, and implementing a network of greenways across a large region is a challenging endeavor and requires a broad range of expertise and knowledge to conduct successfully. Key to achieving success is having a clear planning process and engaging stakeholders throughout that process.

Phases

The Eastside Greenway Plan was developed over a 12-month process beginning in June 2014. The plan proceeded through a number of key phases:

- **Phase 1 - Community Analysis**

(June 2014 - September 2014)

- » This phase combined an extensive review of spatial data, including all modes of transportation infrastructure, job centers, community destinations, and demographics, to understand key issues and opportunities facing greenway development. In addition, an initial round of Community Workshops helped validate the analysis work while identifying additional opportunities or ideas for future improvements.
- » The Phase 1 results are summarized in Chapter 2.

- **Phase 2 - Potential Route Discovery**

(August 2014 - January 2015)

- » Throughout Phase 1, many different potential greenway routes were identified either by the community or through the technical analysis of spatial data. These routes were examined in further detail on-site to determine the viability of greenway improvements and what the needs and nature of such improvements would be. These preliminary routes formed an overall potential greenway network that considered the missing links, existing trails, and other major and minor greenway opportunities. These routes were then reviewed by the community through a second round of public meetings to better understand community priorities and needs for implementation.
- » Phase 2 culminated in a preliminary network plan, which is described in Chapter 2.

- **Phase 3 - Route Evaluation and Proposed Greenway Network**

(January 2015 - May 2015)

- » The project goals established a number of criteria specific to each goal (see Chapter 3). All of the routes identified in the preliminary network were evaluated across these criteria to determine the potential benefits they might provide. The route evaluation criteria were developed in collaboration with the Steering Committee, and the results helped determine which routes might be prioritized for implementation.
- » See Chapter 3 for a summary of the route evaluation by project goal. This evaluation resulted in the Proposed Greenway Network.

- **Phase 4 - Route Implementation**

(March 2015 - June 2015)

- » The route implementation phase examined existing conditions and proposed cross-section designs for high priority routes within the Proposed Greenway Network. These routes are recommended to be studied and advanced in the near-term for planning, design, and construction.

- **Phase 5 - Recommendations**

(May 2015 - July 2015)

- » The final phase of work developed a number of key recommendations to help advance the design and implementation of the greenway. These recommendations relate to: greenway design best practices, funding initiatives and strategies, greenway maintenance and management strategies, plan updating and tracking, branding, wayfinding, and additional strategies described in Chapter 5.

PROJECT STRUCTURE & STAKEHOLDER ENGAGEMENT

Stakeholder engagement is a critical component of planning greenways as they are a part of the public realm - many different people and communities can utilize greenways and many different agencies have responsibility for developing and managing them.

Project Team

The project team was the main body responsible for developing and advancing the Eastside Greenway Plan. This group was comprised of the following:

- **Project Sponsors**
 - » Cuyahoga County Planning Commission
 - » LAND studio
- **Advisory Members**
 - » Northeast Ohio Areawide Coordinating Agency (NOACA)
 - » Bike Cleveland
 - » Greater Cleveland Regional Transit Authority (RTA)
 - » Cleveland Metroparks
- **Technical Consultants**
 - » SmithGroupJJR
 - » Parsons Brinckerhoff

Steering Committee

The Eastside Greenway Plan Steering Committee was comprised of representatives from the municipalities in the project area, including:

- Beachwood
- Bratenahl
- Cleveland
- Cleveland Heights
- East Cleveland
- Euclid
- Highland Heights
- Highland Hills
- Lyndhurst
- Mayfield Village
- Mayfield Heights
- North Randall
- Orange
- Pepper Pike
- Richmond Heights
- Shaker Heights
- South Euclid
- University Heights
- Warrensville Heights
- Woodmere

In addition, the Steering Committee included a number of advisory members to help facilitate decision making as the plan and recommendations were developed:

- Ohio Department of Transportation (ODOT)
- Cuyahoga County Department of Public Works
- GreenCityBlueLake Institute
- Nature Center at Shaker Lakes
- Doan Brook Watershed Partnership
- National Park Service
- Cuyahoga Soil & Water Conservation District
- Cleveland State University
- University Circle Inc.
- Cuyahoga County Board of Health
- Northeast Ohio Regional Sewer District (NEORS)



Public Workshops

Three rounds of public workshops were conducted over the course of the project, during Phase 1, Phase 2, and Phase 3. Each round of workshops included four separate meetings in four different geographic locations in order to reach as broad a spectrum of the population in the project areas as possible. These workshops were vital for hearing directly from the community throughout the process in order to validate the project goals and purpose, review the results of the technical analysis, and to help prioritize routes for eventual implementation.

- Workshop #1: September 23, 24, 29, and 30 (2014)
- Workshop #2: January 28 and 29, February 2 and 3 (2015)
- Workshop #3: May 12, 13, 19, and 20 (2015)

Workshop summaries are included in Appendix E.

Online Survey

In addition to the public workshops, an online survey was developed and active from January 2015 to March 2015. This online survey was completed by over 700 respondents. It asked residents a variety of questions about their mobility patterns and desires, as well as questions pertaining to prioritization and importance of the major Missing Links.

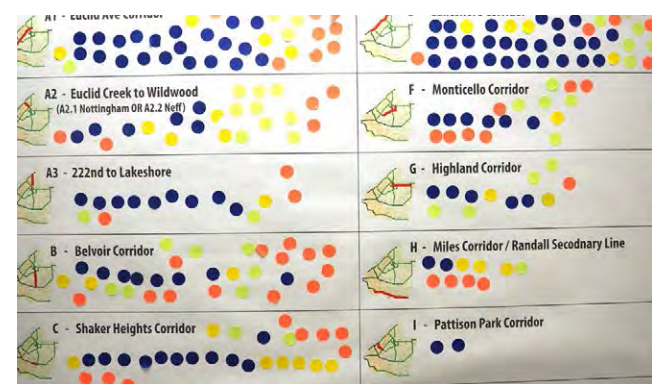
Selected results from this survey are included in Chapter 2 and the full summary is contained in Appendix B.

Health Impact Assessment

Preceding the Greenway Vision Plan effort, the Cuyahoga County Board of Health initiated a Health Impact Assessment (HIA) to better understand neighborhoods within the project area that disproportionately face public health and safety concerns. In addition, the HIA provided guidance for how future greenways could help mitigate these concerns. The HIA considered five main topics:

- **Physical Safety:** primarily through mapping pedestrian and bike crashes with vehicles. Greenways could provide better and more safe facilities.
- **Active Lifestyles:** considering transportation options and whether or not facilities are available for walking and cycling. Greenways can provide facilities to encourage more active lifestyles.
- **Crime and Fear of Crime:** considering actual crime rates for areas as well as a survey asking people where there is a perception of crime. Greenways can increase activity and “eyes on the street” and reduce crime.
- **Social Cohesion:** interest in understanding how greenways can improve social activity and interaction by enhancing the public realm.
- **Social Equity:** life expectancy was used as a basis for identifying areas disproportionately at risk. Greenways, through their cumulative range of benefits, can be a tool for improving social equity.

These topics covered by the HIA were used as a basis for a health related set of route evaluations, described in Chapter 3. Key recommendations and findings from the HIA are included in Chapter 5.



1.4

VISION & GOALS

VISION STATEMENT

The following vision statement was developed with input from the Steering Committee and the public at large.

Create an interconnected system of greenways that serves the community with positive health, recreational, transportation and economic benefits.



GOALS

Goal 1: Identify a non-motorized network to provide more travel options

Alternative modes of transportation improve neighborhood connectivity to job centers, transit, services and open/recreational spaces.

Goal 2: Support economic development and reinvestment in underutilized or vacant/abandoned properties

A connected non-motorized transportation network can serve to stimulate economic development and provides an important element for coordinating land use recommendations.

Goal 3: Integrate community health considerations into preferred non-motorized recommendations

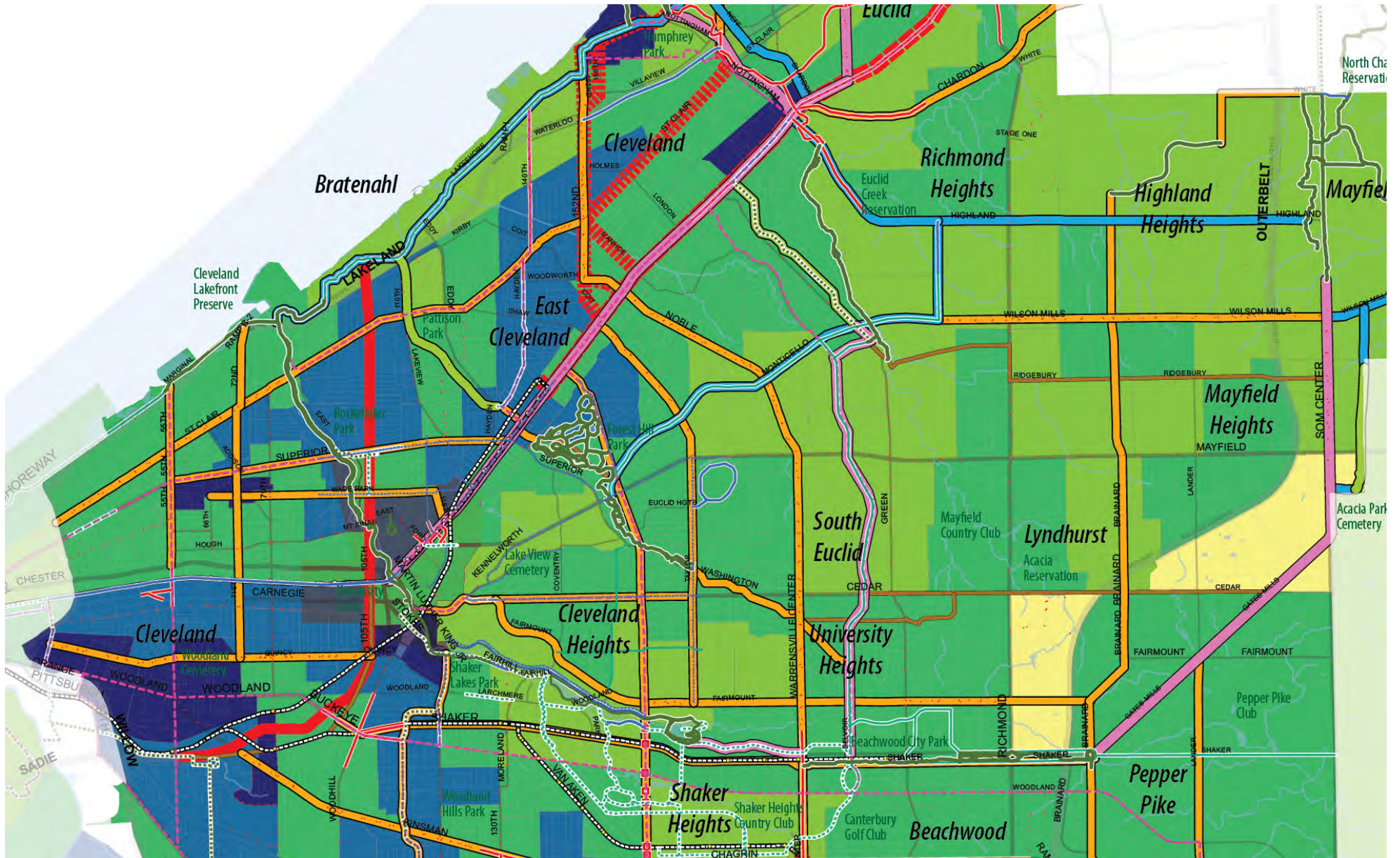
The HIA provides several recommendations organized around equity, crime/fear of crime, social cohesion and transportation that will be incorporated into the planning process.

Goal 4: Complement existing plans and initiatives to encourage collaboration between regional and community partners

The Eastside Greenway planning process can serve as a tool to ensure that existing planning efforts and initiatives are coordinated across the project area.

Goal 5: Incorporate green infrastructure into the greenway recommendations

Green infrastructure improves local and regional water quality, habitat connections and biodiversity.



CHAPTER 2 COMMUNITY ANALYSIS

2.1

SPATIAL INVENTORY & ANALYSIS

ANALYSIS TOPICS

Phase 1 of the Eastside Greenway Plan conducted an extensive spatial inventory and analysis in order to better understand the diverse communities and resources in the project area. Greenways can play a critical role in connecting people to everyday locations and special destinations they seek in their life. Understanding the demographics of the people, significant locations to access, and context along potential routes is critical for successful greenway planning.

Transportation Systems

- Existing and planned non-motorized facilities
- Sidewalks and sidewalk gaps
- Transit infrastructure (bus, rail, bus rapid transit (BRT))
- Street configurations (number of lanes, special designations, state routes, right-of-way width)
- Planned and active transportation improvement projects (Capital Improvement Plan projects, Transportation for Livable Communities Initiative funded transportation projects)
- Average Daily Traffic (ADT) for traffic volumes

Demographics

- Population density and housing unit density
- Car ownership rates
- Median income
- Participation in public/civic activities
- Jogging and running rates

Land Use & Employment

- Commercial, industrial, and institutional land uses
- Public lands (parks, cemeteries, libraries, schools, other public facilities)
- Vacant and undeveloped land

Natural Systems

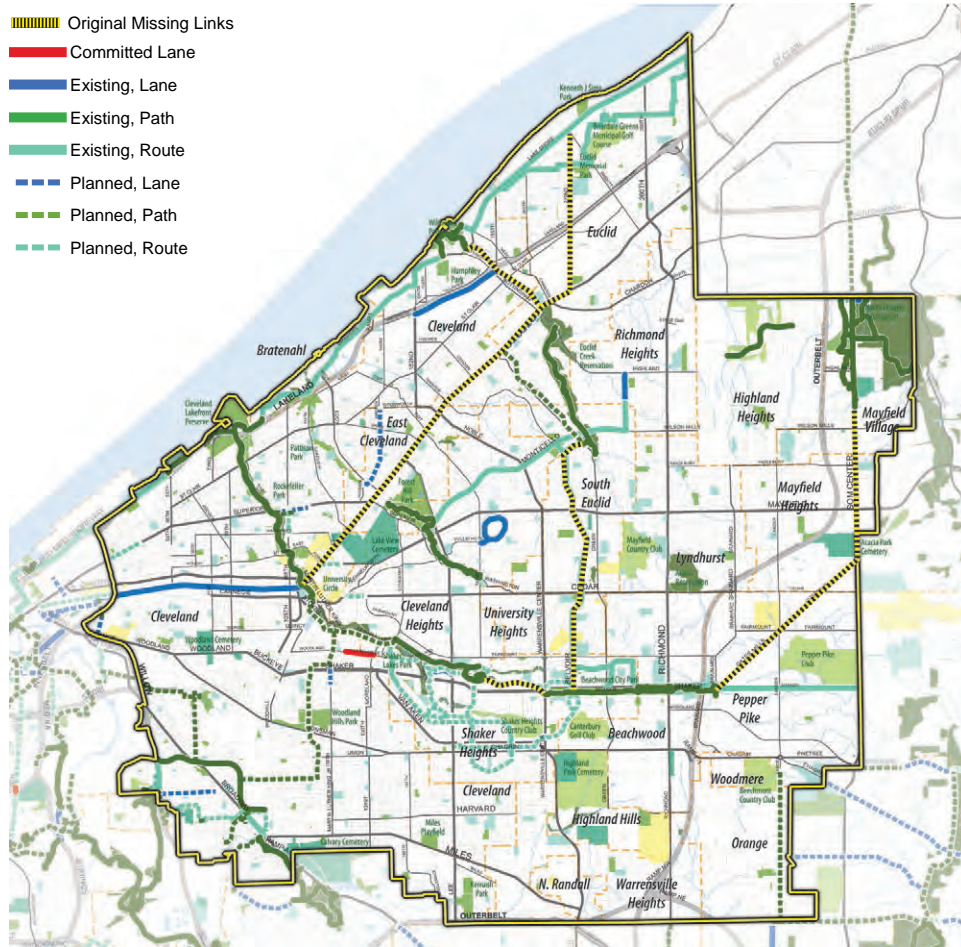
- Natural land cover (forests, wetlands, rivers, bodies of water, grasslands/herbaceous lands)
- Soil hydrology (hydric groups and soil infiltration capacity)
- Topography and landforms
- Habitat patch size and proximity
- Tree canopy cover

Key inventory maps, reflecting some of the above data sets, are presented with notes on the following pages.

Maps generated from the above information were used during the first round of public workshops to provide participants with a comprehensive view of the project area. Participants were also able to help verify the accuracy of the data, in many cases providing additional insights or identifying areas to explore in a greater level of detail.



MAP 2.1A - EXISTING NON-MOTORIZED FACILITIES & MISSING LINKS

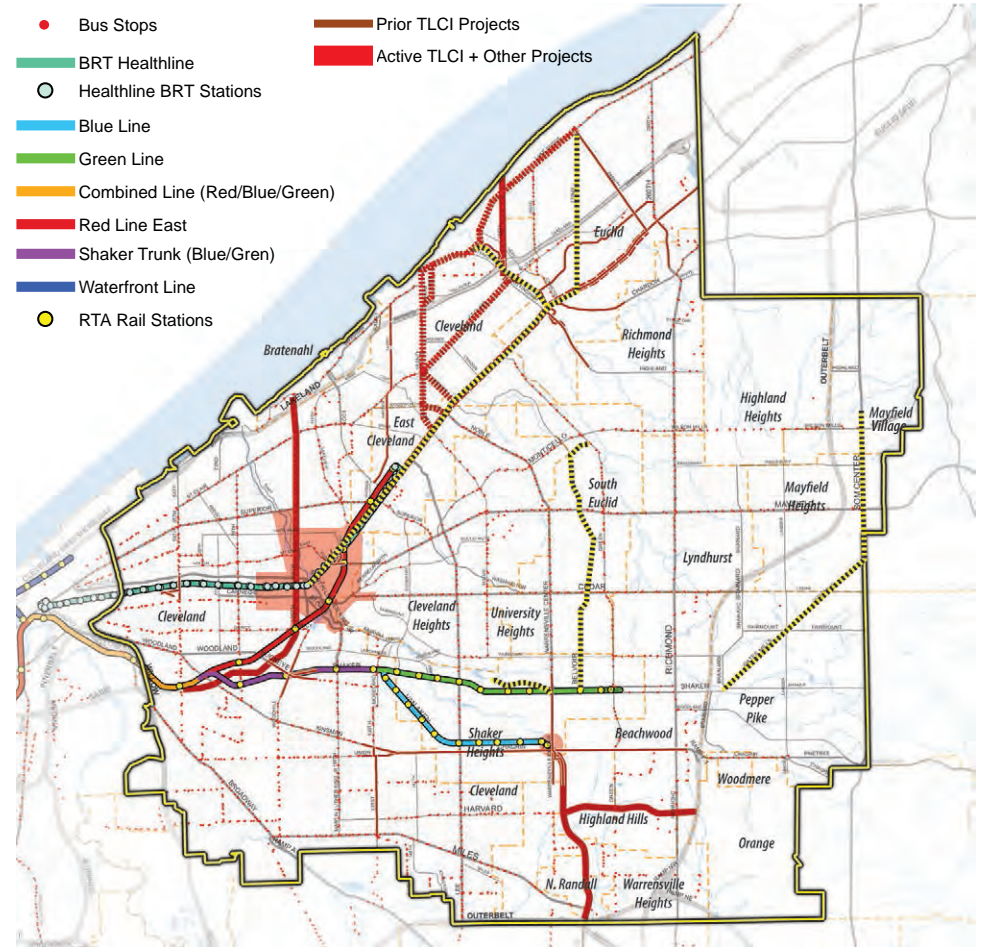


Existing Trails, Non-Motorized Facilities & Missing Links

The above maps identify existing trails and non-motorized facilities across the project area. It is important that proposed greenways connect to existing facilities, particularly off-street trails and multi-use paths, that can serve a broad range of users.

In addition, the map helps identify that large areas within the project boundaries have no close connection to existing facilities. This underscores the need to identify additional greenway routes.

MAP 2.1B - TRANSIT INFRASTRUCTURE

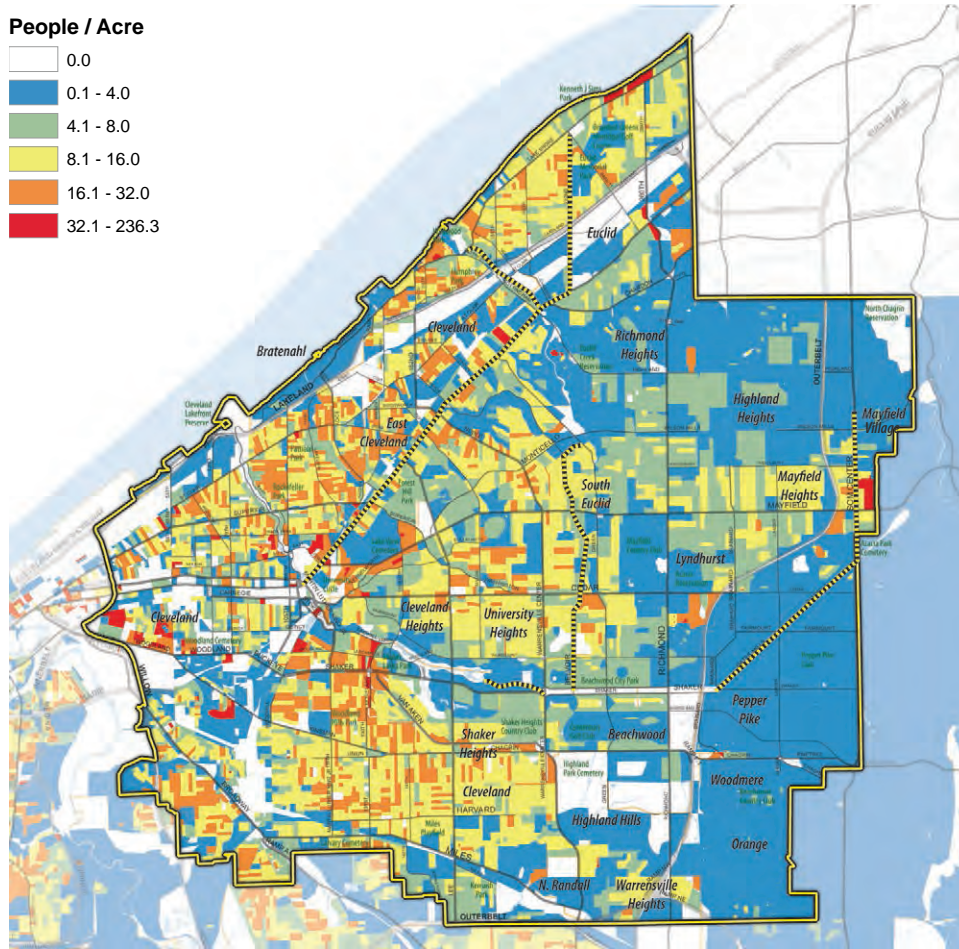
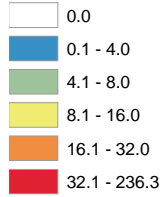


Transit Infrastructure

Bus stops, rail lines and stations, and BRT lines and stations were mapped alongside near-term transportation projects. Ideally, the proposed system of greenways would complement the transit systems. This would increase the viable travel options available to transit riders and greenway users.

MAP 2.1C - POPULATION DENSITY (PEOPLE PER ACRE)

People / Acre

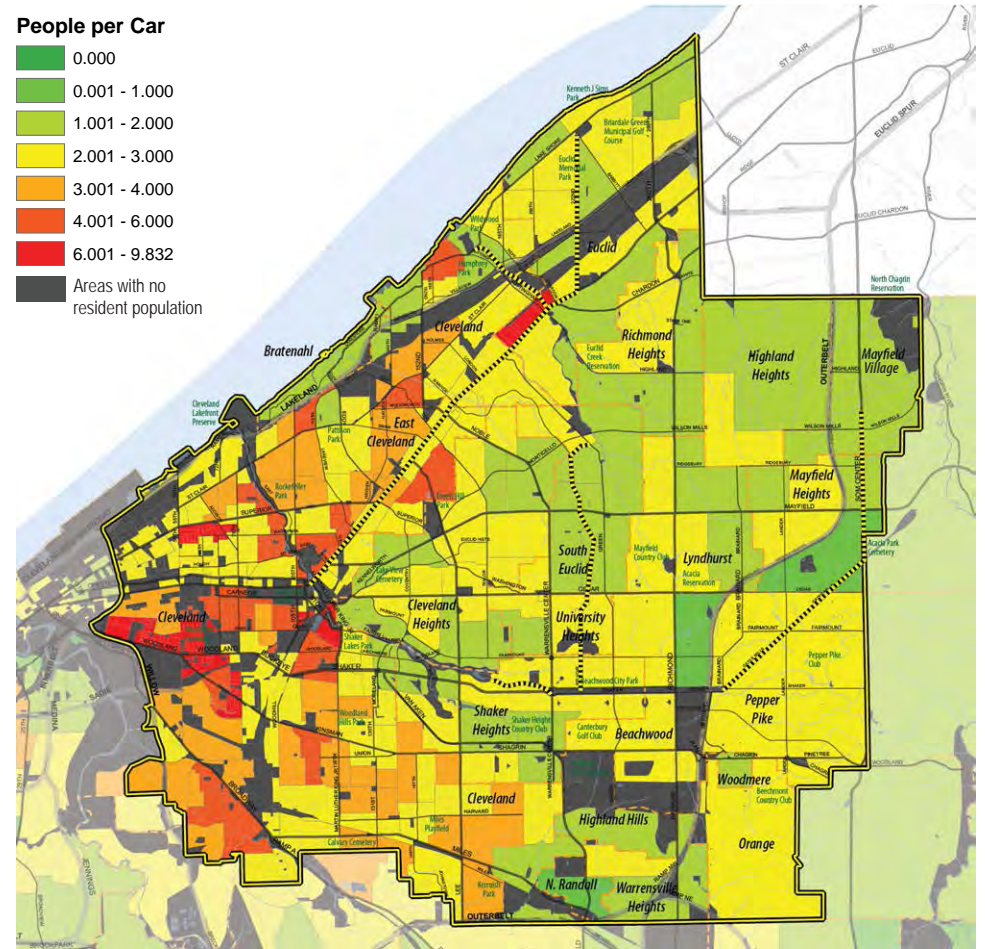
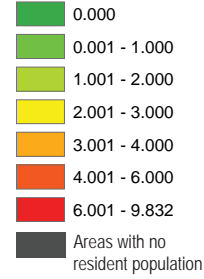


Population Density

Greenways should be located where they can serve as many users as possible across the community. Population density was mapped in terms of people per acre at the census block-level. Population density highlights locations where greater concentrations of people might be served by greenways.

MAP 2.1D - CAR OWNERSHIP

People per Car



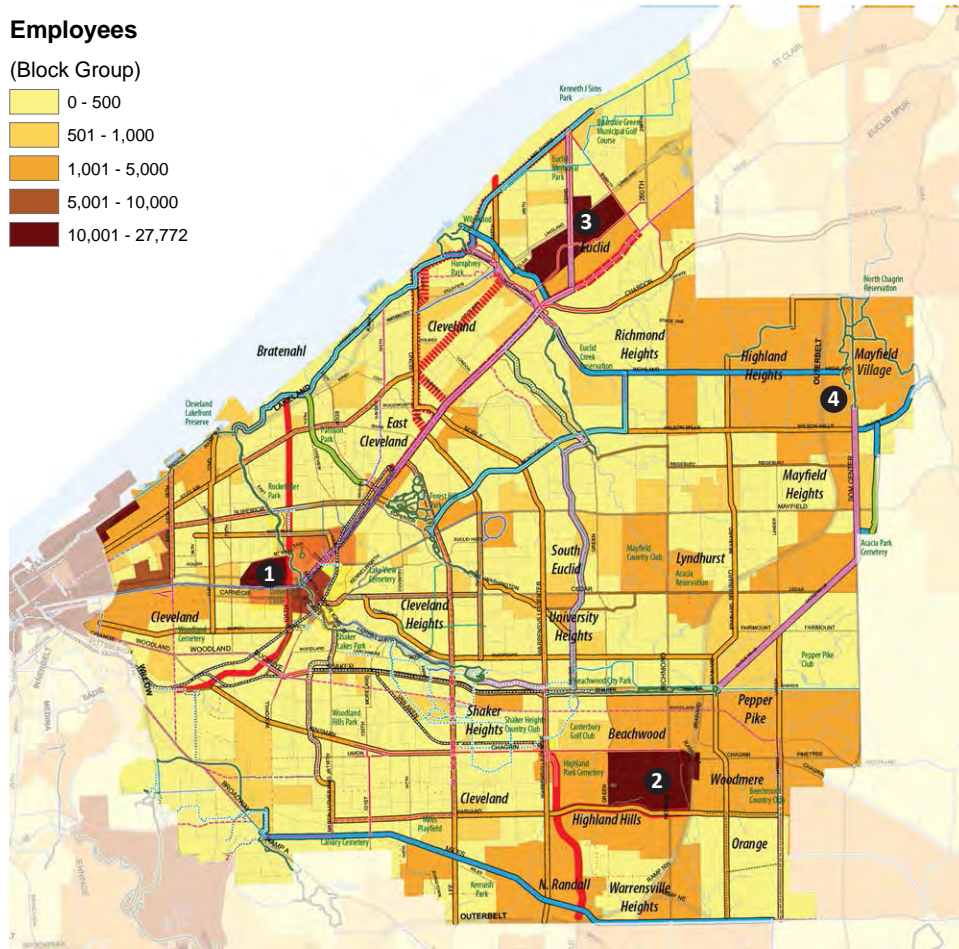
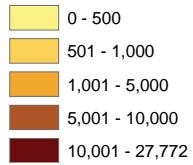
Car Ownership Rates

Car ownership (or lack thereof) can be a good indicator of where populations may face transportation challenges. Many areas of Cleveland and East Cleveland have relatively lower rates of car ownership (higher numbers of people per vehicle). Greenways can provide people without cars expanded access to jobs, commercial centers, and services.

MAP 2.1E - JOB CENTERS

Employees

(Block Group)



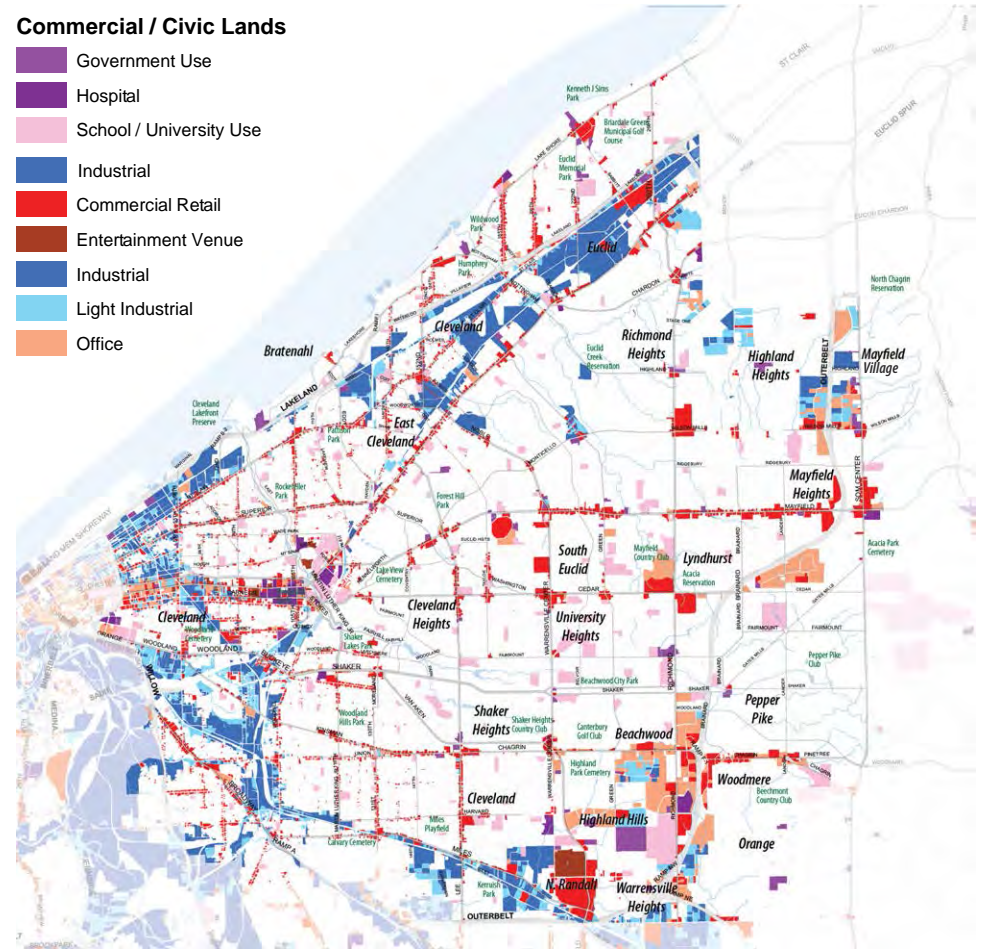
Job Centers

Job centers are areas with a high density of jobs and where providing additional modes of travel to those locations may be particularly beneficial. Four significant job centers exist in the project area: (1) University Circle, (2) Harvard Rd./Richmond Rd. area (Eaton Headquarters), (3) St. Clair Ave./E. 222nd St. Industrial Corridor (Lincoln Electric and others), and (4) Progressive Insurance business park and SOM Center area.

Many other hotspots for employment are not located in close proximity to existing non-motorized facilities or transit, and could benefit from connections to a greenway system.

MAP 2.1F - COMMERCIAL & CIVIC LAND AREAS

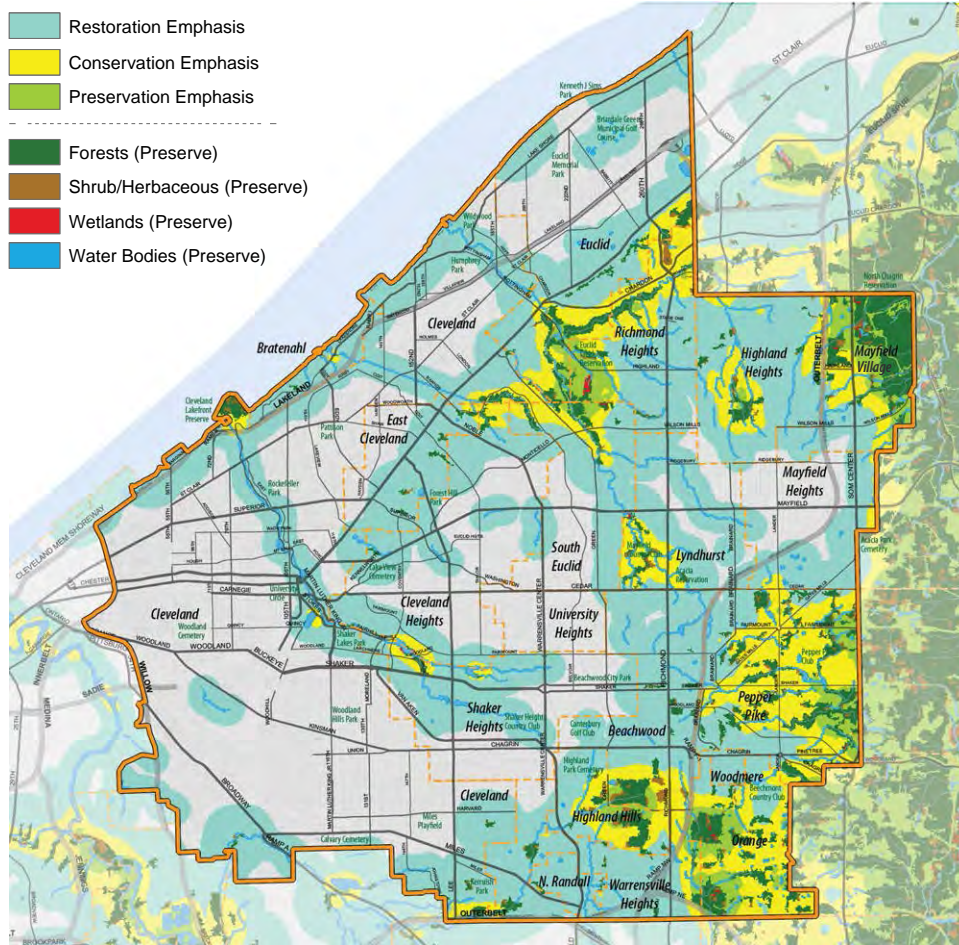
Commercial / Civic Lands



Commercial & Civic Land Areas

This map complements the job center data and shows at a finer scale the land use patterns for “destination” oriented land uses. This includes industrial and office uses (key job centers), public services like hospitals and government buildings, schools and universities, and lastly commercial retail and entertainment locations.

MAP 2.1G - NATURAL SYSTEMS & OPPORTUNITIES

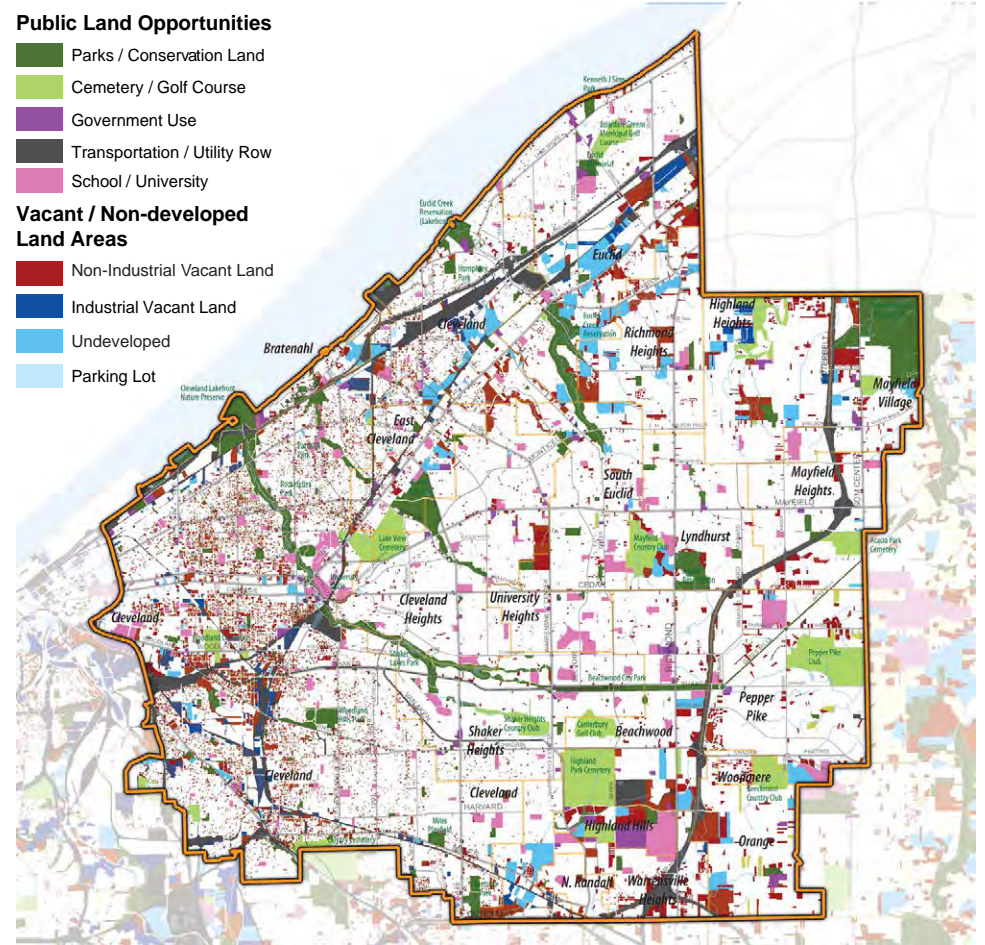


Natural Systems & Opportunities

This map combines an inventory of larger patches of natural land cover that may be important for preservation/conservation with an assessment of habitat proximity and restoration opportunity. Existing water courses and riparian areas are significant natural features that greenways can align with and can expand opportunities for habitat improvements.

The Cleveland Metroparks North Chagrin Reservation and Cleveland Metroparks Euclid Creek Reservation are the most significant natural resources and recreational assets in proximity to the project area, and greenway connections can provide greater access to these amenities.

MAP 2.1H - PUBLIC & VACANT LAND POTENTIAL



Public & Vacant Land Potential

This map inventories properties owned by public entities (government uses, schools, universities, etc.) as well as vacant or undeveloped commercial, industrial, and residential property. Collectively, these locations are places where the design of an off-street greenway may be achieved due to land being in public ownership or vacant. Greenway routes in close proximity to such lands should consider design alternatives for off-street where possible.

2.2 ROUTE IDENTIFICATION

PRELIMINARY GREENWAY ROUTES

After conducting the spatial inventory and analysis and the first round of public workshops, a number of additional routes were identified to explore further as greenway opportunities. These routes were divided into two categories:

- **Major Missing Links** are significant routes that complement the original four missing links and help create a larger greenway network.
- **Secondary Connectors** are smaller routes that interconnect between the major missing links and provide connections deeper into neighborhoods.

Long-term, having non-motorized improvements and greenway features along all of these routes is desirable. However, this represents a substantial investment of resources for project implementation and long-term maintenance. Prioritizing these routes by understanding the benefits each route can provide is critical for advancing a greenway system. Equally important is the cost and difficulty of construction. The second round of public workshops, the online MetroQuest survey, and technical route evaluation (Chapter 3), were used to help prioritize routes. The highest priority routes are presented in Chapters 3 and 4.



MAP 2.2A - PRELIMINARY GREENWAY ROUTES

2.3

COMMUNITY FEEDBACK

Workshop #1

The first round of public feedback focused on validating the project goals, identifying issues and opportunities, and providing feedback on the initial inventory and analysis mapping.

The workshops were conducted on four separate nights (September 23, 24, 29, and 30, 2014) in four different locations across the project area. Attendance was minimal across these workshops, with a total of 42 participants.

A summary of the workshop results can be found in Appendix E.

Workshop #2

Workshop #2 was also conducted in four rounds and in four different locations. This round of workshops focused on the preliminary greenway routes (Section 2.2) and asked participants to help prioritize which major missing links and secondary connectors they felt were most important to advance for implementation.

Across the four rounds of workshops, there were 141 total participants.

The following lists the results for the **Major Missing Links** in order of importance, based on the number of votes each route received during a dot-voting exercise.

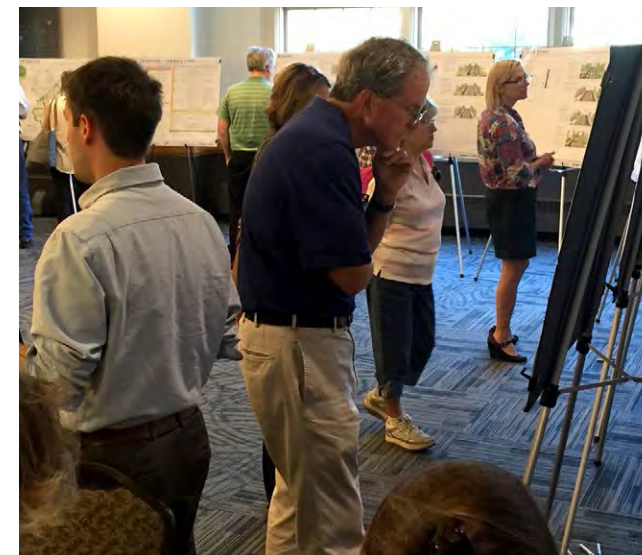
- E: Lakeshore Blvd. Corridor (48 votes)
- A1: Euclid Ave. Corridor (37 votes)
- B: Belvoir Blvd. Corridor (31 votes)
- C: Shaker Heights Corridor (28 votes)
- A2: Euclid Creek to Wildwood (24 votes)
- F: Monticello Blvd. Corridor (19 votes)
- D2: SOM Center Rd. Corridor (18 votes)
- A3: E. 222nd St. to Lakeshore Blvd. (15 votes)
- G: Highland Corridor (12 votes)
- H: Miles Ave. Corridor/Randall Secondary Line (10 votes)
- D1: Gates Mills Corridor (8 votes)
- J: Euclid Loop (3 votes)
- I: Pattison Park Corridor (2 votes)

In addition, Workshop #2 asked for participants to identify **Secondary Connectors** that were important to consider in the near-term for greenway treatments. The top routes included:

- Lee Rd. from Euclid Ave. to I-480
- Shaker Blvd. from the Opportunity Corridor to Brainard Rd.
- E. 185th St. from Lakeshore Blvd. to Nottingham Rd.
- Cedar Rd. from Belvoir Blvd. to Gates Mills Blvd.

- Noble Rd./Warrensville Center Rd. from Euclid Ave. to I-480
- Fairmont Blvd. from Cedar Rd. to Brainard Rd.
- Anderson Rd./Richmond Rd./Ridgebury Blvd. from Euclid Reservation to SOM Center Rd.
- Bishop Rd./Brainard Rd. from Aberdeen Blvd. to Miles Rd.

Lastly, participants reviewed alternative proposed cross-sections for the Major Missing Links, showing how different greenway facilities could be accommodated with the actual right-of-way widths of the associated corridor. These preferences are discussed in Chapter 4.



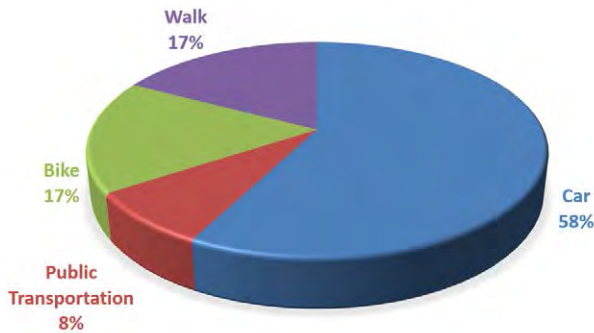
MetroQuest Survey

The MetroQuest survey was an online feedback survey issued concurrently with Workshop #2. Approximately 790 individuals responded to the survey.

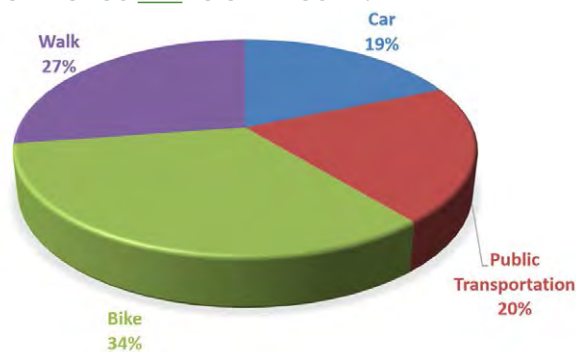
The survey asked participants questions in the following categories:

- Part 1 - Frequency and nature of different modes of travel.** For example, how often do people run, walk, bike, ride transit or drive. It also asked what modes of travel people would like to be able to use more. The two charts below are a sample of the results. The full table of results can be found in Appendix B.

METROQUEST PART 1:
HOW DO YOU **USUALLY** GET AROUND?

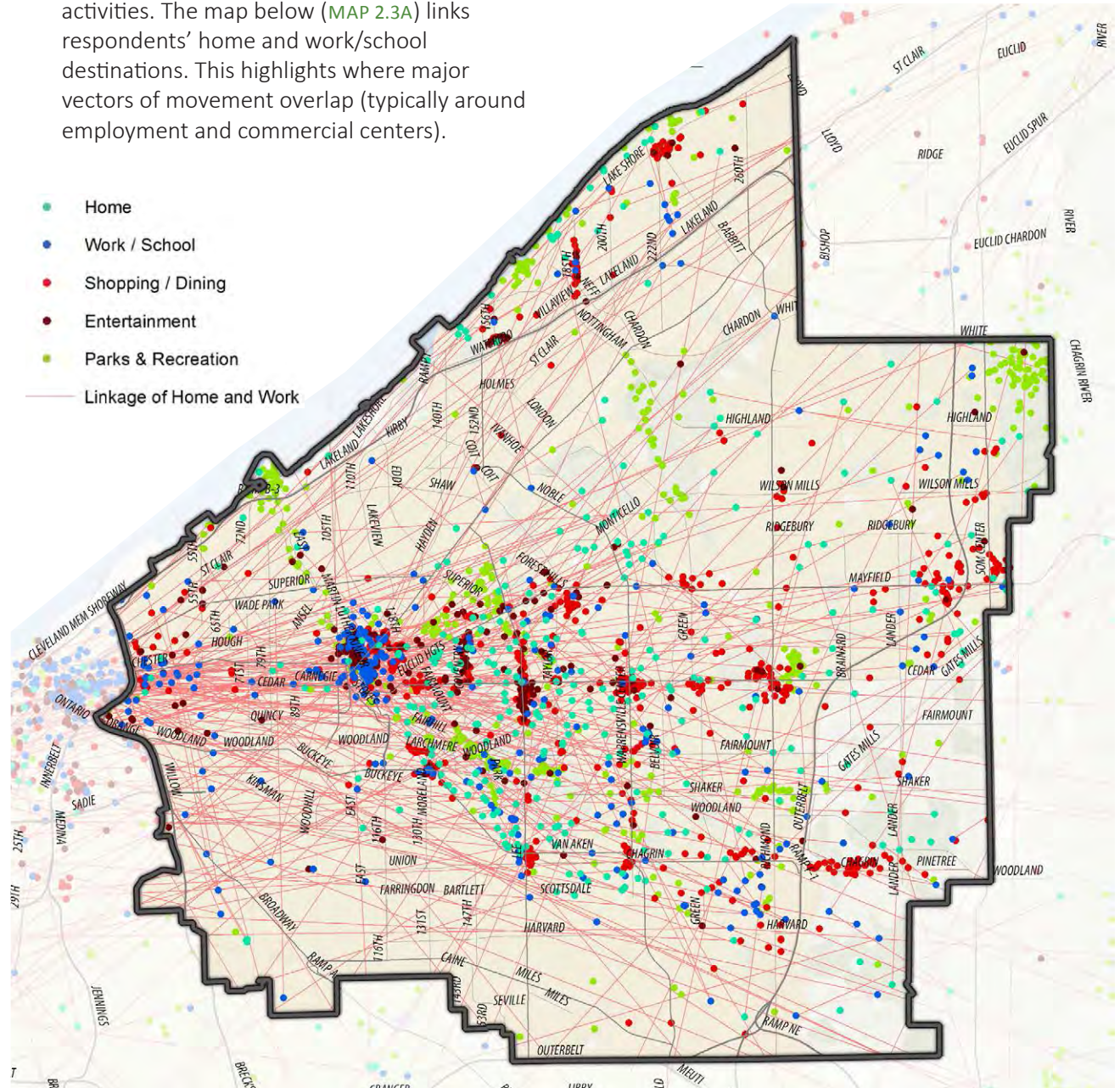


METROQUEST PART 1:
HOW DO YOU **LIKE** TO GET AROUND?



- Part 2 - Frequent Destinations.** This section asked participants to identify approximately where they live, work or go to school, shop, seek entertainment, and pursue recreational activities. The map below (MAP 2.3A) links respondents' home and work/school destinations. This highlights where major vectors of movement overlap (typically around employment and commercial centers).

- Home
- Work / School
- Shopping / Dining
- Entertainment
- Parks & Recreation
- Linkage of Home and Work



MAP 2.3A - METROQUEST ORIGIN-DESTINATION RESULTS

- **Part 3 - Missing Link Prioritization.** This question asked residents to rank the Major Missing Links according to how important they feel the Missing Link is to them. The top four routes included:

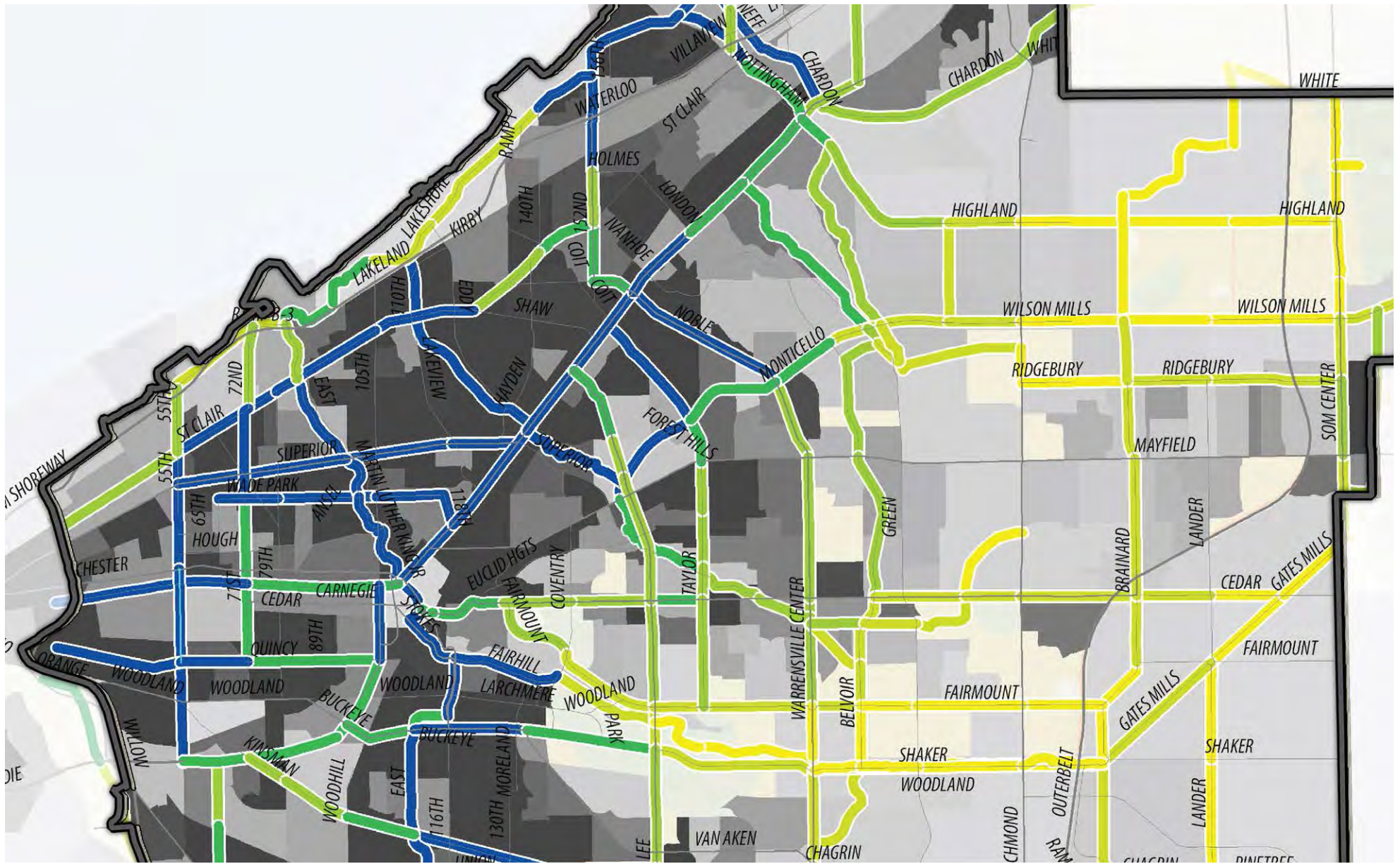
- » Shaker Blvd./South Park Blvd.
- » Lakeshore Blvd.
- » Euclid Ave.
- » Belvoir Blvd.

These four routes are the same four Major Missing Links identified in the Workshop #2 as high priority, highlighting the importance of enhancing pedestrian and bike facilities along these routes.

Workshop #3

The final round of public workshops presented the results of the technical route evaluation (Chapter 3) and asked participants to discuss and validate the findings. Overall, there were 66 participants total across the series of four workshops. These participants generally expressed agreement with the findings of the analysis. The Priority Greenway Network, presented at the end of Chapter 3, shows the Greenway Network as presented to the public during Workshop #3.





CHAPTER 3 ROUTE EVALUATION

3.1

TECHNICAL ROUTE EVALUATION

INTENT

The Technical Route Evaluation was a critical step for making data-informed decisions and prioritizing the many Major Missing Links and Secondary Connectors according to how well each might contribute to achieving the project goals. Technical route evaluation allowed data-informed decision-making and facilitated prioritization of missing links and secondary connectors. This analysis was informed by the project goals of maximizing connectivity, economic development, community health, and green infrastructure opportunities.

GOALS, CRITERIA, & WEIGHT

The Steering Committee played an important role in helping to identify relevant criteria for measuring each of the four main goals. In all cases, multiple criteria were considered as a basis for measuring the range of impacts and values embedded within each goal.

In addition, the Steering Committee helped “weigh” the relative importance of each criteria within a goal. In some cases, a particular criteria was felt to have a primary role to influence the evaluation of that goal, while other criteria should have a more mild effect on the final result.

The goals, criteria, and weights are described below. Additional details and data source references are included in Appendix A.

Goal 1: Identify a non-motorized network to provide more travel options

CRITERIA:

- 1. Parks and Natural Area Need - Weight 25**
 - » Average accessibility to open space for residents in 1/4 mile of the routes. Routes with low access are prioritized.
- 2. Population Density - Weight 20**
 - » Population density within 1/4 mile of each route. Routes with higher densities are prioritized.
- 3. Vehicle Ownership - Weight 20**
 - » People per vehicle within 1/4 mile of routes. Routes with lower rates of vehicle ownership are prioritized.
- 4. Transit Access - Weight 20**
 - » Number of public transit stops and stations within 1/4 mile of routes. Routes with higher number of stops are prioritized to increase multi-modal connections.
- 5. Non-Motorized Facility Access - Weight 15**
 - » Highest level of non-motorized facility (e.g. trail, bike lane, bike route) accessible within 1/4 mile of each census block. Routes with lower level (or no) facilities are prioritized.

Goal 2: Support economic development and reinvestment in underutilized or vacant/abandoned properties

CRITERIA:

- 1. Job centers - Weight 30**
 - » Average number of employees along each route within 1/4 mile. Routes with higher number of employees are prioritized.
- 2. Community Destinations - Weight 25**
 - » Total number of destinations (cultural resources, parks, entertainment, and retail) within 1/4 mile of each route. Routes with more destinations are prioritized.
- 3. Vacant Land - Weight 15**
 - » Density of vacant parcels within 1/4 mile of routes. Routes with higher levels of vacancy are prioritized.
- 4. Community Character - Weight 15**
 - » Total area of commercial, industrial, utility, and transportation land within 150 feet of routes. Routes with more visually impacted land area are prioritized.
- 5. Property Values - Weight 15**
 - » Total tax value of property within 1/4 mile. Routes with lower value are prioritized.

Goal 3: Integrate community health considerations into preferred non-motorized recommendations

CRITERIA:

1. Safety - Weight 25

- » Number of bike and pedestrian crashes within 1/4 mile of each route. Routes with higher frequencies of crashes are prioritized.

2. Physical Activity - Weight 25

- » Average running and jogging frequency within 1/8 mile of each route. Routes with more activity in close proximity to the route are prioritized.

3. Equity - Weight 20

- » Total number of households in poverty within 1/4 mile of each route. Routes with higher poverty rates are prioritized.

4. Crime - Weight 10

- » Crime rate index within 1/4 mile of each route. Routes with higher crime index are prioritized.

5. Social Cohesion - Weight 10

- » Percentage of total population engaging in one or more public activities within 1/4 mile of each route. Routes with more participation are prioritized.

6. Sidewalk Status - Weight 10

- » Routes with incomplete or missing sidewalks are prioritized.

Goal 4: Incorporate green infrastructure into the greenway recommendations

CRITERIA:

1. Stormwater - Weight 25

- » Average wetness and soil infiltration index within 1/4 mile of each route. Routes with higher index are prioritized.

2. Habitat Connectivity - Weight 25

- » Routes closer to existing habitat/open space patches are prioritized.

3. Habitat Restoration - Weight 15

- » Total area of open developed land and other restoration potential lands within 1/4 mile of each route. Routes close to larger open land are prioritized.

4. Air Quality - Weight 15

- » Overall annual average daily traffic (AADT) volumes within 1/4 mile. Routes with higher AADT volumes are prioritized.

5. Interpretive - Weight 10

- » Total number of historic sites and significant natural features (e.g. rivers, lakes) within 1/4 mile of each route. Routes with more potential interpretive locations are prioritized.

6. Urban Forest Cover - Weight 10

- » Density of forest cover within 1/4 mile of each route. Routes with less density are prioritized.

EVALUATION PROCESS

To perform the analysis, this basic process was used:

1. All of the Major Missing Links and Secondary Connectors were considered. Each route was broken down into segments of similar length where they intersected other proposed routes and/or major road intersections.
2. For each individual criteria, individual route segments were scored on a 1-5 basis, determined through a review of the analysis results for that criteria. Statistical methods (e.g. quantile) were used to break the data into the 1-5 ranges in situations where logical manual breaks were not made.
3. A goal-level score was determined for each segment, based on weighting the individual 1-5 criteria scores per the Steering Committee derived criteria weights. The results of this step are presented in Section 3.2- Goal Scores.
4. Total scores for entire routes were calculated based on the length of segment and its weighted goal score.
5. An overall score, across all four goals, was determined for each route. Each goal contributed equally (25%) towards the overall route score.

3.2 GOAL SCORES

GOAL 1 - CONNECTIVITY

CRITERIA

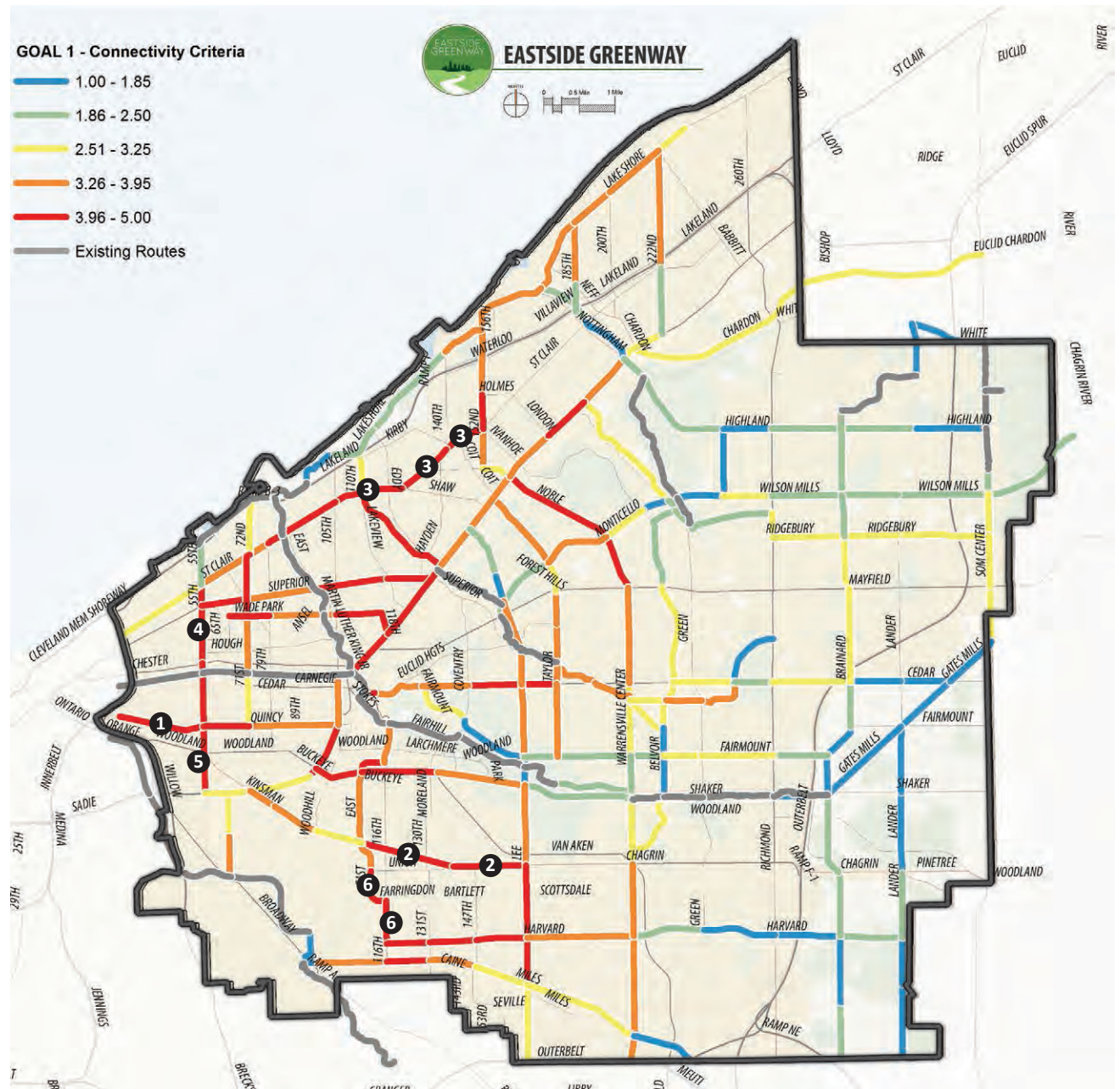
1. Parks and Natural Area Need - Weight 25
2. Population Density - Weight 20
3. Vehicle Ownership - Weight 20
4. Transit Access - Weight 20
5. Non-Motorized Facility Access - Weight 15

Routes with high connectivity scores reflect locations where the need to improve mobility and access to public transportation is high, and/or where there is an opportunity to dovetail improvements with better transit access.

Cleveland, East Cleveland, Cleveland Heights, and South Euclid contain many of the highest scoring routes (listed below).

Top 10 Route Segments **X**

1. Quincy Ave.
2. Kinsman Rd. (2 segments)
3. St. Clair Ave. (3 segments)
4. E. 55th St. (North)
5. E. 55th St. (South)
6. Martin Luther King Jr. Dr. (2 segments)



MAP 3.2A - GOAL 1 EVALUATION MAP FOR ALL ROUTES

Map Data Source:

- ACS 2012 5-Years Estimate, U.S. Census Bureau
- Transit stops, Bikeway Facilities, Parcel Data, Cuyahoga County
- 2010 Demographic Data of Census Blocks, U.S. Census Bureau

GOAL 2 - ECONOMIC IMPACT

CRITERIA

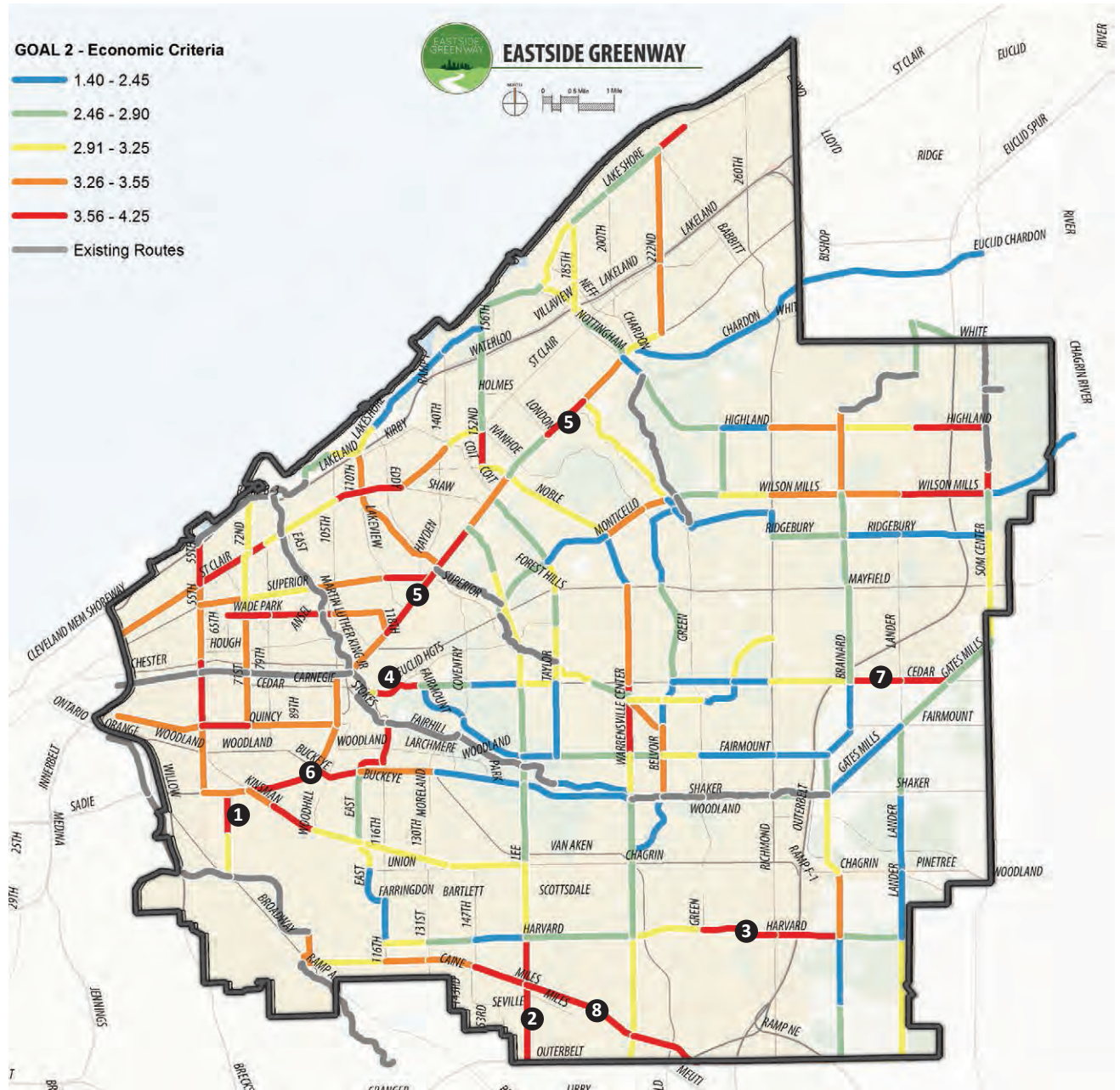
1. **Job Centers - Weight 30**
2. **Community Destination - Weight 25**
3. **Vacant Land - Weight 15**
4. **Community Character - Weight 15**
5. **Property Values - Weight 15**

Routes with high economic impact scores tend to be located in close proximity to major job centers and community destinations as well as near vacant and lower-valued property. Greenways may be an opportunity to support job centers and increase people’s connection to workplaces, while at the same time providing a catalyst for reinvestment and beautification that spurs development and benefits property values.

Cleveland and East Cleveland contained the most high scoring routes. Additional routes in North Randall and Warrensville Heights, in the southern end of the project area, may also benefit heavily.

Top 10 Route Segments **X**

1. **E. 65th St.**
2. **Lee Rd.**
3. **Harvard Ave.**
4. **Cedar Rd. (West)**
5. **Euclid Ave. (2 segments)**
6. **Opportunity Corridor**
7. **Cedar Rd. (East)**
8. **Miles Ave.**



MAP 3.2B - GOAL 2 EVALUATION MAP FOR ALL ROUTES

Map Data Source:

- NACIS Business Point Data, ESRI Community Analyst
- Parcel Data, Cuyahoga County
- 2010 Demographic Data of Census Blocks, U.S. Census Bureau

GOAL 3 - HEALTH & SAFETY

CRITERIA:

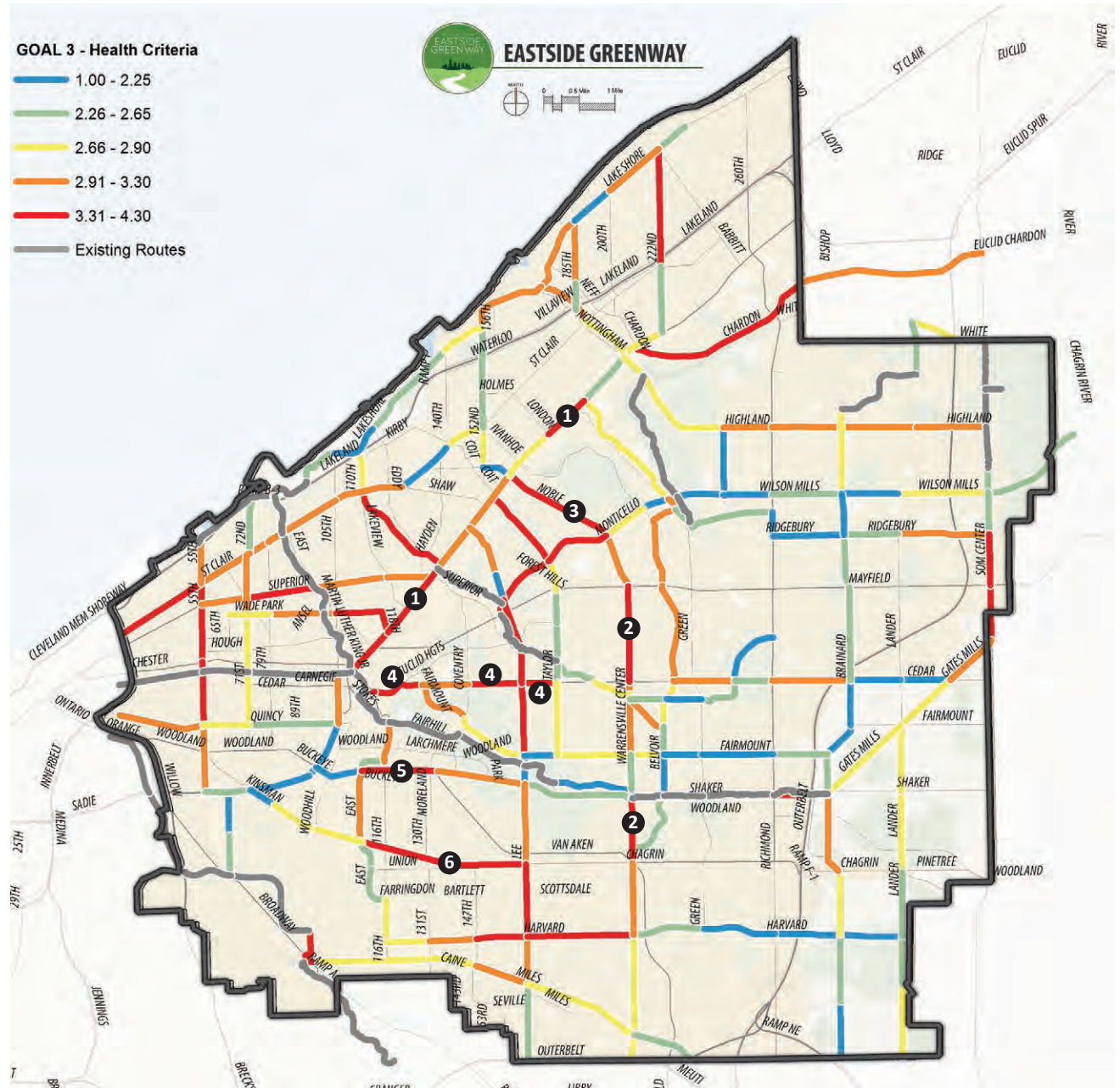
1. **Safety** - Weight 25
2. **Physical Activity** - Weight 25
3. **Equity** - Weight 20
4. **Crime** - Weight 10
5. **Social Cohesion** - Weight 10
6. **Sidewalk Status** - Weight 10

Routes with high scores for health and safety are primarily locations where there are high rates of pedestrian and bike crashes coupled with higher levels of physical activity but also concerns over life expectancy.

Many of the inner ring suburbs contain the highest scoring routes, including East Cleveland, Cleveland Heights, University Heights, South Euclid, and Shaker Heights.

Top 10 Route Segments **X**

1. **Euclid Ave. (2 segments)**
2. **Warrensville Center Rd. (2 segments)**
3. **Noble Rd.**
4. **Cedar Rd. (West) (3 segments)**
5. **Shaker Blvd.**
6. **Kinsman Rd.**



MAP 3.2C - GOAL 3 EVALUATION MAP FOR ALL ROUTES

Map Data Source:

- Crash for Cleveland, NOACA
- Crime Index Data, ESRI Community Analyst
- ACS 2012 5-Years Estimate, U.S. Census Bureau
- 2010 Demographic Data of Census Block Groups, U.S. Census Bureau

GOAL 4 - ENVIRONMENTAL

CRITERIA:

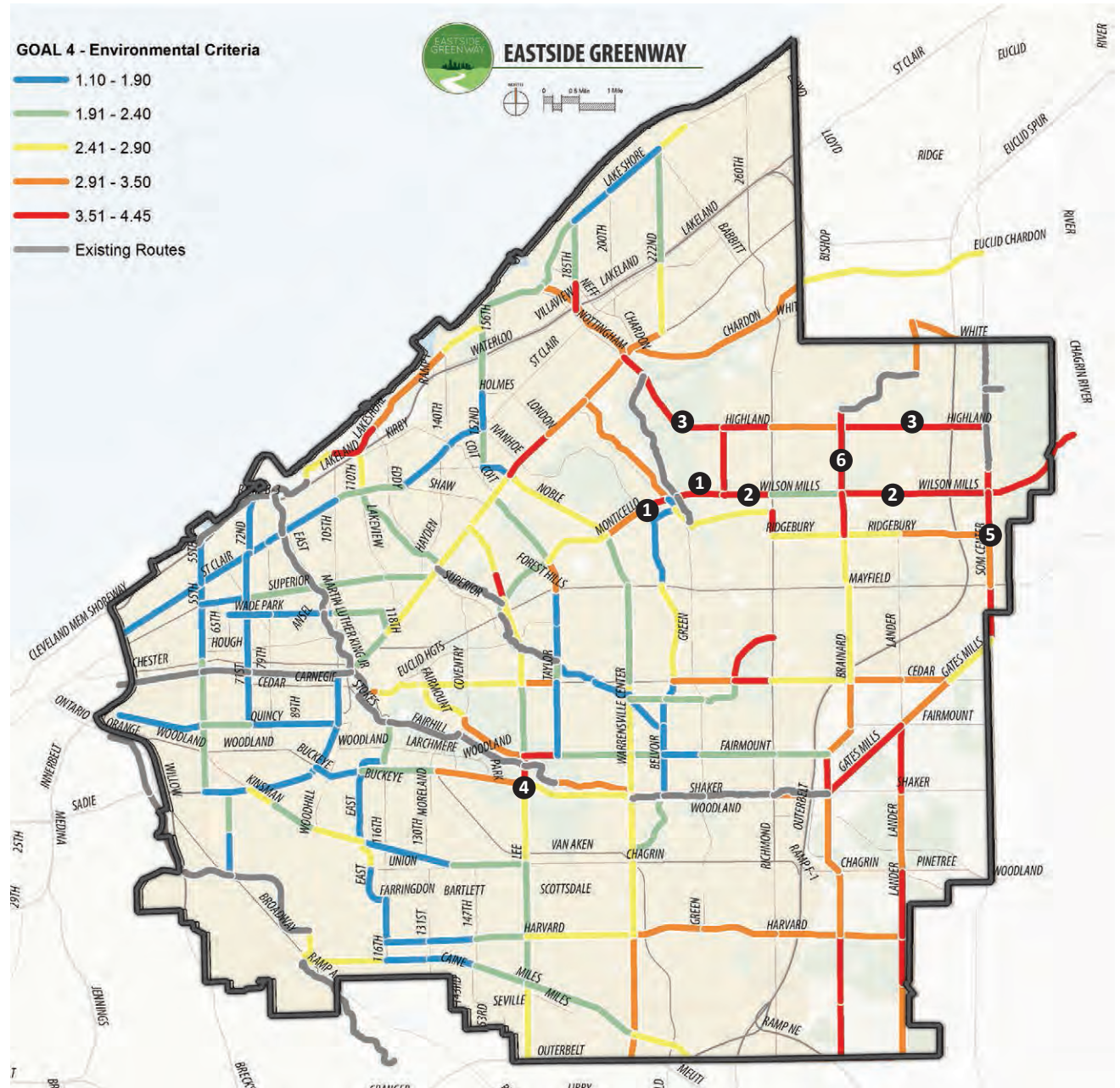
1. **Stormwater - Weight 25**
2. **Habitat Connectivity - Weight 25**
3. **Habitat Restoration - Weight 15**
4. **Air Quality - Weight 15**
5. **Interpretive - Weight 10**
6. **Urban Forest Cover - Weight 10**

High scoring routes under the environmental goal reflect opportunities to create habitat and/or connections to existing natural areas while also managing stormwater through green infrastructure (bioswales, rain gardens, etc.). Many of the high scoring routes follow corridors with significant amounts of open space along roadsides. These routes provide an opportunity to incorporate environmental and ecological enhancements along the greenway.

Richmond Heights, Highland Heights, Mayfield Village, and Mayfield Heights contain the greatest concentration of high scoring routes.

Top 10 Route Segments **X**

1. **Monticello Blvd. (2 segments)**
2. **Wilson Mills Rd. (2 segments)**
3. **Highland Rd. (3 segments)**
4. **Lee Rd.**
5. **SOM Center Rd.**
6. **Brainard Rd./Bishop Rd.**



MAP 3.2D - GOAL 4 EVALUATION MAP FOR ALL ROUTES

Map Data Source:

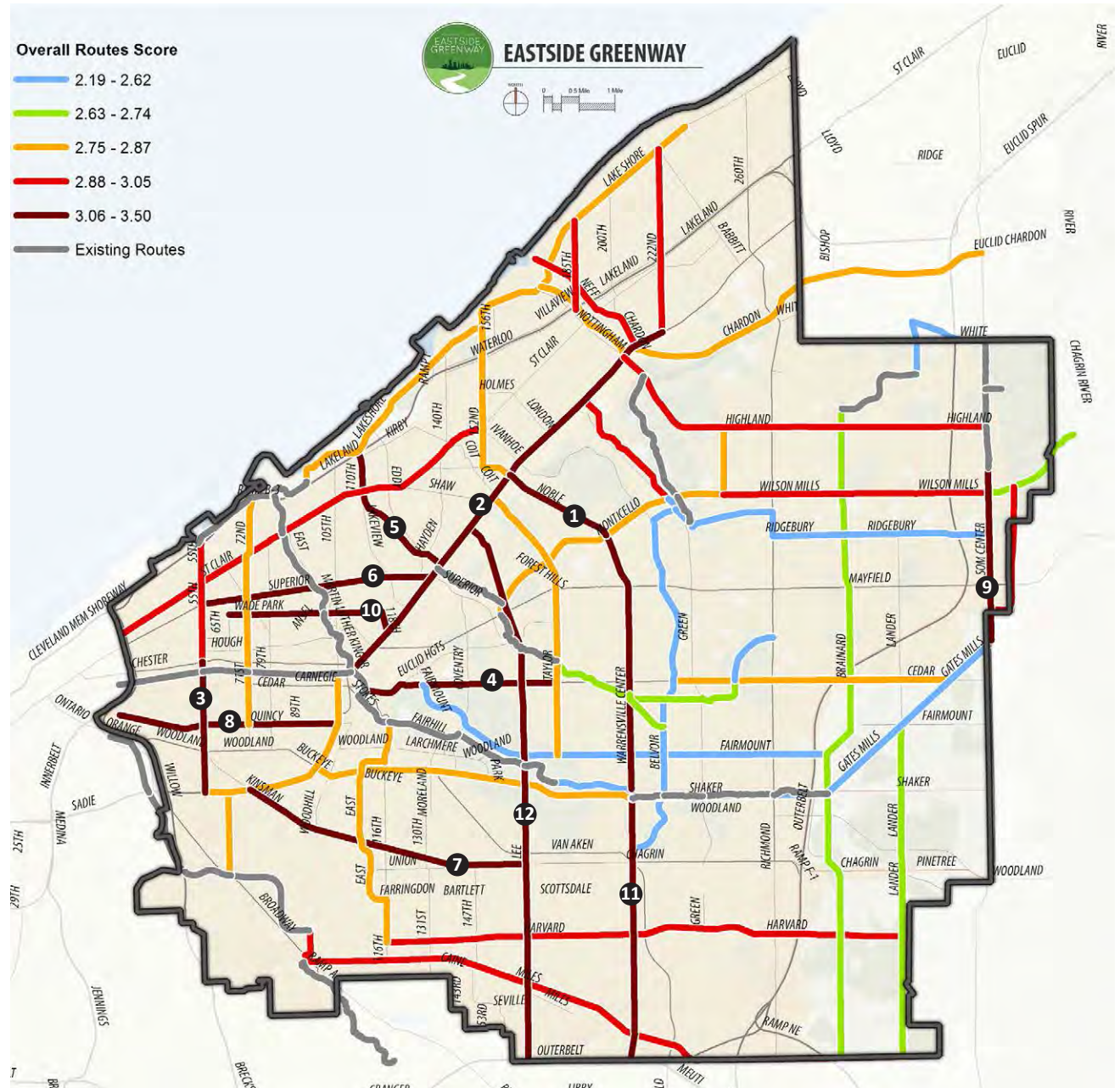
- Soil Survey Geographic Database, USDA
- Hydrology Data, Cuyahoga County
- 2012 Annual Average Daily Traffic volume, NOACA
- National Land Cover Dataset 2011, Digital Elevation Models, USGS.
- National Register of Historic Places, National Park Service

COMBINED GOALS EVALUATION RESULTS

The map at the right shows the overall route score combining all of the four goals equally into a single score. The highest scoring greenway routes are listed below. In parenthesis, routes are noted as either “SC” (Secondary Connector) or “MML” (Major Missing Link) according to the Preliminary Greenway Network map.

1. Noble Rd. (SC)
2. Euclid Ave. (MML)
3. E. 55th St. (SC)
4. Cedar Rd. (SC)
5. Pattison Park Corridor (MML)
6. Superior Ave. (SC)
7. Kinsman Rd. (SC)
8. Quincy Ave. (SC)
9. SOM Center Rd. (MML)
10. Wade Park Ave./E. 118th St. (SC)
11. Warrensville Center Rd. (SC)
12. Lee Rd. (SC)

A key finding of this analysis is that the initially identified Major Missing Links were not consistently the highest scoring routes in the analysis, and many of the Secondary Connector routes scored much higher.



MAP 3.2E - OVERALL ROUTE SCORES

Map Data Source:

- Soil Survey Geographic Database, USDA
- Hydrology Data, Cuyahoga County
- 2012 Annual Average Daily Traffic volume, NOACA
- National Land Cover Dataset 2011, Digital Elevation Models, USGS.
- National Register of Historic Places, National Park Service

3.3 GREENWAY NETWORK

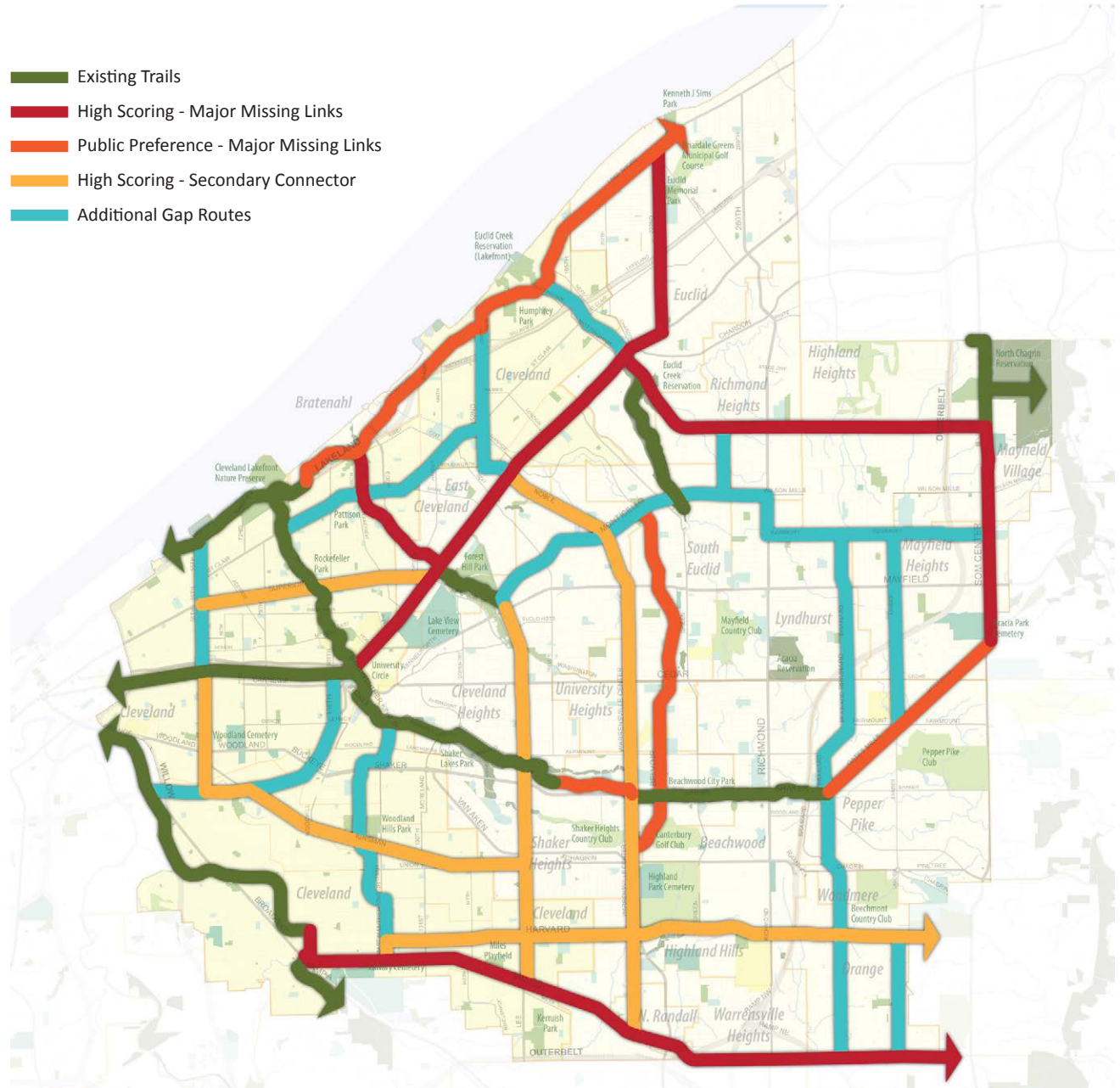
ASSEMBLING A COHERENT NETWORK

The final step in developing the Primary Greenway Network was to rectify the findings and priorities from the public meetings with those of the technical analysis. The technical analysis builds a strong case for the potential benefits and impacts of each greenway route. Local and expert input helped prioritize these routes.

MAP 3.3A combines the high priority routes from the Major Missing Links based on both the technical analysis and public preferences (workshops and MetroQuest) as well as high scoring Secondary Connectors.

This step also considered whether there are critical gaps or linkages in the network that should be included, irrespective of their score or public preferences, because they play a role in providing network connections between existing routes and/or proposed routes.

MAP 3.3A at the right shows the Primary Greenway Network by source of input.



MAP 3.3A - PRIMARY GREENWAY NETWORK BY SOURCE OF INPUT

PRIMARY GREENWAY ROUTES

MAP 3.3B depicts the overall primary greenway routes and network. This plan reflects the culmination of the greenway networking activities and prioritization, and was presented to the public for feedback and validation during the third round of community workshops.

Chapter 4 will break down this network into different priority levels and provide additional alignment and route design guidance for higher priority routes and/or near-term implementation opportunities.



MAP 3.3B - PRIMARY GREENWAY ROUTES



CHAPTER 4

ROUTE IMPLEMENTATION

4.1 ROUTE PRIORITIES

The primary greenway routes identified in Section 3.3 presents a large number of potential greenway routes with an opportunity to greatly enhance mobility in the study area. Ideally, all of these routes and more would become greenways in the near future. However, resource constraints necessitate prioritizing projects for implementation in regards to costs and feasibility of construction, maintenance and management, and the benefits and need for the route itself.

The following page describes the levels of implementation and prioritization for the proposed routes.



MAP 4.1A - ROUTE IMPLEMENTATION PRIORITIES

IMPLEMENTATION LEVELS

The primary greenway routes are categorized into four levels of implementation as follows:

Priority Project: Transformative

- » These are major, regionally important routes that connect to existing facilities but will be challenging long-term projects to implement. In many cases, these routes exist along high volume roadways with dense development and limited right-of-way available for improvements. However, these routes provide an opportunity to significantly transform the character and function of these major corridors and provide greenway access to areas of need.
- » Transformative projects may take ten or more years to implement and most will involve coordination and collaboration between multiple communities and agencies. It is important that planning and coordination for these projects begin as soon as possible.

Priority Project: Near-Term

- » These greenway projects are located along major corridors and are vital to interconnect the greenway system as a network. These routes are relatively easier to implement due to lower traffic volumes, land use intensity, and/or wider rights-of-way.
- » Near-term projects may take two to five years to implement and most will involve coordination and collaboration between multiple communities and agencies. Planning should begin as soon as possible to dovetail with municipal capital improvement projects (e.g. road resurfacing) and/or take advantage of other transportation projects.

Project Under Development

- » These projects reflect transportation projects that are already under development in a planning, design, or construction phase, and may have some level of funding allocated to implementation. There is an opportunity to incorporate or add additional greenway elements to enhance the non-motorized aspects of these projects that support the overall greenway network.

Future Projects

- » These are important but less regionally significant connectors for the greenway system. As with the near-term projects, opportunities to implement greenways along these routes should be considered alongside municipal capital improvement projects or other initiatives.
- » Implementing all of the primary greenway routes may take upwards of 20 years.



IMPLEMENTATION SUMMARY TABLE

	ROUTE & EXTENT	MUNICIPALITIES & POTENTIAL PARTNERS	ROUTING & DESIGN CONSIDERATIONS	IMPLEMENTATION & CURRENT/RECENT STUDIES	TIMING
4.2 PRIORITY PROJECTS: TRANSFORMATIVE					
A1	Euclid Ave. Lake to Lakes Trail to E. 222nd St.	<ul style="list-style-type: none"> • Cleveland • East Cleveland • Euclid • NOACA • Trails Leadership Network 	<p><i>Street reconstruction with high-level bike facilities and streetscape enhancements.</i></p> <ul style="list-style-type: none"> • Large transformative project on a significant corridor • Potential road-diet and lane reduction for enhanced non-motorized facilities • Diverse mix of commercial land uses along the corridor, opportunity to dovetail with economic redevelopment • RTA Priority Transit Corridor- need to account for transit stops and operation 	<ul style="list-style-type: none"> • Citywide Traffic Safety Planning Study, 2008 (Railway to Belvoir Blvd.) • Uptown District Transportation and Neighborhood Redevelopment Plan, 2009 (Mayfield Rd. to E. 117th St.) • University Circle-Cleveland Heights Bicycle Network Study, 2011 (to Lee Rd.) • University Circle-Cleveland Heights Missing Links Study, 2011 (to Lee Rd.) • Euclid Corridor Plan, 2011 (Green Rd. to E. 222nd St.) • Red Line/HealthLine Extension Study, 2015 (BRT corridor identified as priority) 	10+ years
D2	SOM Center Rd. Gates Mills Blvd. to Highland Rd.	<ul style="list-style-type: none"> • Mayfield Heights • Mayfield Village • NOACA • Trails Leadership Network 	<p><i>Side path trail creation and extension.</i></p> <ul style="list-style-type: none"> • Diverse corridor with both commercial zones and residential areas • Right-of-way width is very constrained in the commercial areas, and alternative routes around those areas have been discussed with the community • Opportunity to connect to the existing Mayfield Rd. side path (which connects to North Chagrin Resrv.) • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Mayfield Village Green Corridor Masterplan, 2008 (Highland Rd. to Wilson Mills Rd.) 	5-10 Years
K	Warrensville Center Rd. Noble Rd. south to Harvard Rd. (or to Miles Ave.)	<ul style="list-style-type: none"> • Cleveland Heights • University Heights • Shaker Heights • Highland Hills • North Randall • South Euclid • NOACA • Trails Leadership Network 	<p><i>Street reconstruction and enhancement.</i></p> <ul style="list-style-type: none"> • Large transformative project on a significant commercial route • Accommodating enhanced facilities may require land acquisition and/or easements to locate facilities adjacent to the roadway • A major north-south connection with many commercial and other destinations along the route • A parallel (and alternative) route along Belvoir Blvd. should be explored • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Warrensville/Van Aken Transit-Oriented Development Plan, 2008 (Farnsleigh Rd. to Northfield Rd.) • Warrensville/Van Aken Intermodal Transit Center Program Plan, 2009 and 2015 (Farnsleigh Rd. to Northfield Rd.) • Warrensville Center Rd. and Cedar Rd. Multimodal Transportation Plan-NOACA • Warrensville Center Rd. and Cedar Rd. Multimodal Transportation Plan-NOACA Technical Assistance Plan has recommendations for striping bike facilities on Warrensville Center Rd. in University Heights (and extended north into South Euclid, and south into Shaker Heights) 	10+ years

	ROUTE & EXTENT	MUNICIPALITIES & POTENTIAL PARTNERS	ROUTING & DESIGN CONSIDERATIONS	IMPLEMENTATION & CURRENT/RECENT STUDIES	TIMING
4.3 PRIORITY PROJECTS: NEAR-TERM					
A3	E. 222nd St. Euclid Ave. to Lakeshore Dr.	<ul style="list-style-type: none"> • Euclid • NOACA • Trails Leadership Network 	<p><i>Roadway reconfiguration for greenway facilities.</i></p> <ul style="list-style-type: none"> • Key connection from Euclid north to the Cleveland Lakefront Bikeway • In commercial zones, outside lanes are wide and used for parking, opportunity to incorporate bike lanes, consider potential lane reduction in residential zones • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Downtown Euclid TLCI Transportation and Redevelopment Plan, 2006 (Lakeshore Blvd. to Lakemont Ave.) 	3-5 years
B	South Belvoir Blvd. Monticello Blvd. to Warrensville Center Rd.	<ul style="list-style-type: none"> • South Euclid • Shaker Heights • Beachwood • NOACA • Trails Leadership Network 	<p><i>Buffered bike lanes.</i></p> <ul style="list-style-type: none"> • Connection between Euclid Creek Trail and Shaker Median Trail • Re-striping for buffered bike lanes is easiest and preferred by the community (conduct traffic study at key intersections for determination of approach configuration) • Alternative route that complements Warrensville Center Rd. and serves all riding levels. • Consider connections to Warrensville Center Rd. for access to commercial destinations 	<ul style="list-style-type: none"> • Recent improvements made around John Carroll University and should be incorporated into future design • NOACA Technical Assistance Plan (Warrensville Center Rd. and Cedar Rd. Multimodal Transportation Plan) proposes to include Belvoir Blvd. in network of signed/ marked bike routes. • NOACA 2013 Regional Bicycle Plan includes this road in the Regional Priority Bikeway Network 	1-3 years
C	South Park Blvd. Lake to Lakes Trail terminus to Shaker Median Trail terminus	<ul style="list-style-type: none"> • Shaker Heights • NOACA • Trails Leadership Network 	<p><i>Construct a multi-use trail within the City's park right-of-way.</i></p> <ul style="list-style-type: none"> • Critical "missing link" between the Lake to Lakes Trail and Shaker Median Trail • Ample room for wider on-street bike lanes or (preferably) a multi-use side path along South Park • Co-locate at-grade crossing at Green Line Station with multi-use trail crossing 	<ul style="list-style-type: none"> • Note that Shaker Heights is currently constructing additional segments of the Lake to Lakes Trail and improvements to South Park Blvd. should be aligned 	1-2 years
D1	Gates Mills Blvd. Shaker Median Trail to SOM Center Rd.	<ul style="list-style-type: none"> • Pepper Pike • Mayfield Heights • NOACA • Trails Leadership Network 	<p><i>Median trail and/or buffered bike lanes</i></p> <ul style="list-style-type: none"> • Roundabout intersections need to be modified to facilitate bike movement through the intersections • Possible lane conversion of outside lane to create buffered bike lanes • Need to accommodate both pedestrians and bikes. There are no existing sidewalks so a median trail would significantly improve conditions for pedestrians 	<ul style="list-style-type: none"> • Pepper Pike pursuing crushed stone median trail. Conforming to multi-use trail design standards could allow an upgraded facility and qualify for external funding • Significant habitat and/or stormwater management opportunities may be another source of grant funding 	1-3 years

	ROUTE & EXTENT	MUNICIPALITIES & POTENTIAL PARTNERS	ROUTING & DESIGN CONSIDERATIONS	IMPLEMENTATION & CURRENT/RECENT STUDIES	TIMING
E	Lakeshore Blvd. (Cleveland Lakefront Bikeway)	<ul style="list-style-type: none"> • Cleveland • Bratenahl • Euclid • NOACA • Trails Leadership Network • ODOT 	<p><i>Create dedicated bike facilities and streetscape enhancement. May require road diet and/or lane with reductions in some segments.</i></p> <ul style="list-style-type: none"> • Narrow and slow moving roadway part of established Cleveland Lakefront Bikeway • Identified regional demand for dedicated bike facilities • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • NOACA 2013 Regional Bicycle Plan includes this road in the Regional Priority Bikeway Network • Capital Improvement Plan Project 2014-2015 (Lakeshore Dr. to E. 185th St.) • Red Line HealthLine Extension Study, 2015 (BRT corridor identified as priority) • Included in ODOT's draft state/U.S. bike routes map 	2-5 years
F	Monticello Blvd. Mayfield Rd. to Euclid Creek Trail	<ul style="list-style-type: none"> • Cleveland Heights • South Euclid • NOACA • Trails Leadership Network 	<p><i>Widen sidewalk into a new side path trail along south side of the road.</i></p> <ul style="list-style-type: none"> • Monticello Blvd. provides the Cleveland Heights Recreation Center a critical connection between Forest Hill Park eastward to Euclid Creek Reservation. It would enhance non-motorized access to Monticello Middle School. Prioritize the eastern segment connecting Noble Rd. and Belvoir Blvd. to Euclid Creek Reservation • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Cleveland Metroparks is exploring a new park entrance at Euclid Creek Reservation with a trail connection off Monticello Blvd. just east of Green Rd. 	2-5 years
G	Highland Rd. Euclid Ave. to SOM Center Rd.	<ul style="list-style-type: none"> • Euclid • Richmond Heights • Highland Heights • Mayfield Village • NOACA • Trails Leadership Network 	<p><i>Construct side path trail along south side of road.</i></p> <ul style="list-style-type: none"> • Key connection between Euclid Ave. and Euclid Creek Reservation east to Mayfield Village Greenway and North Chagrin Reservation 	<ul style="list-style-type: none"> • Downtown Euclid TLCI Transportation and Redevelopment Plan, 2006 (Lakeshore Blvd. to Lakemont Ave.) 	2-3 years
J	Noble Rd. Euclid Ave. to Warrensville Center	<ul style="list-style-type: none"> • East Cleveland • Cleveland Heights • NOACA • Trails Leadership Network 	<p><i>Reconfigure roadway to accommodate dedicated bike facilities and streetscape enhancement.</i></p> <ul style="list-style-type: none"> • Critical linkage in a high opportunity/need area to connect Euclid Ave. to Monticello Blvd. and Warrensville Center Rd. • Mix of residential and commercial areas along the corridor. Under-used outside lane allows on-street parking in some areas, and may be suitable for conversion to bike facility • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Citywide Traffic Safety Planning Study, 2008 (Euclid Ave. to Greyton Rd.) • Roadway is planned for road resurfacing in 2015. 	2-3 years

	ROUTE & EXTENT	MUNICIPALITIES & POTENTIAL PARTNERS	ROUTING & DESIGN CONSIDERATIONS	IMPLEMENTATION & CURRENT/RECENT STUDIES	TIMING
P	Lee Rd. Mayfield Rd. to Harvard Rd. (or extended to Miles Ave.)	<ul style="list-style-type: none"> • Cleveland • Cleveland Heights • Shaker Heights • NOACA • Trails Leadership Network 	<p><i>Reconfigure roadway (Lane narrowing/road diet) to accommodate dedicated bike facilities and create additional room for pedestrian-oriented streetscape enhancements, particularly in the commercial zones.</i></p> <ul style="list-style-type: none"> • Critical north-south connector serving active commercial districts and residential neighborhoods • Road diet methods can slow vehicle traffic and create a safer environment for pedestrians and cyclists • Need to create adequately wide (5 feet or more) dedicated bike facilities • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Lee/Van Aken Transit Oriented Development Plan, 2007 (Fernway Rd. to Lomond Blvd.) • Cedar Lee District Streetscape Plan, 2007 (Superior Rd. to Ormond Rd.) • University Circle-Cleveland Heights Bicycle Network Study, 2011 (Euclid Ave. to Shaker Blvd.) • University Circle-Cleveland Heights Missing Links Study, 2011 (Euclid Ave. to Shaker Blvd.) • Lee Rd. Traffic Study and Corridor Plan, 2011 (Shaker Heights, from Fairmount Blvd. to Scottsdale Blvd.) • NOACA 2013 Regional Bicycle Plan includes this road in the Regional Priority Bikeway Network 	2-5 years
R	Harvard Rd. Martin Luther King Jr. Blvd. to Lander Rd. (or extended beyond)	<ul style="list-style-type: none"> • Cleveland • Highland Hills • Warrensville Heights • Orange • NOACA • Trails Leadership Network 	<p><i>Extend dedicated and buffered bike lanes in the western segments. Reconfigure roadway for bike lanes and create sidewalks in the eastern segments.</i></p> <ul style="list-style-type: none"> • Significant east-west corridor connecting Cleveland neighborhoods east to regional employment and commercial centers • Generally wide right-of-ways throughout the corridor provide ample opportunity for additional greenway facilities, including multi-use side path trails • RTA transit operations need to be considered 	<ul style="list-style-type: none"> • Capital Improvement Plan Project 2014-2015 (E. 116th St. to E. 155th St.) 	1-4 years
4.4 PROJECTS UNDER DEVELOPMENT					
A2	Euclid Creek Trail Extension Existing Euclid Creek Trail to Cleveland Lakefront Bikeway	<ul style="list-style-type: none"> • Cleveland • Euclid • Cleveland Metroparks • NOACA • Trails Leadership Network 	<ul style="list-style-type: none"> • Preferred Route: Off-street trail and side path along Chardon Rd. and Nottingham Rd. 	<ul style="list-style-type: none"> • Cleveland Metroparks has studied multiple alignments and developed a preferred alignment for the extension of the Euclid Creek Trail. Cleveland Metroparks has applied for funding for a small segment of this route. 	2-5 years

	ROUTE & EXTENT	MUNICIPALITIES & POTENTIAL PARTNERS	ROUTING & DESIGN CONSIDERATIONS	IMPLEMENTATION & CURRENT/RECENT STUDIES	TIMING
O	Martin Luther King Jr. Dr. (Lake to Lakes Trail to Miles Ave.)	<ul style="list-style-type: none"> • Cleveland • Cleveland Heights • NOACA • Trails Leadership Network 	<ul style="list-style-type: none"> • Recent and on-going bike facility improvements along Martin Luther King Jr. Blvd., including bike lanes. Continue to support and reinforce these efforts 	<ul style="list-style-type: none"> • Part of Cleveland’s Capital Improvement Plan • NOACA 2013 Regional Bicycle Plan includes this road in the Regional Priority Bikeway Network 	1-3 Years
T	Lander Rd. Side Path (Harvard Rd. to Miles Ave.)	<ul style="list-style-type: none"> • Orange • NOACA • Trails Leadership Network 	<ul style="list-style-type: none"> • Orange has resources allocated to creating a series of side path trails along Lander and other roads in Orange. These overlap with the proposed greenway routes and provide a key connection to South the Chagrin Reservation 	<ul style="list-style-type: none"> • Orange municipal project 	2-3 years
W	Opportunity Corridor (E. 55th St. to Euclid Ave.)	<ul style="list-style-type: none"> • Cleveland • ODOT • NOACA • Trails Leadership Network 	<ul style="list-style-type: none"> • On-going and large scale road extension project, connecting the terminus of I-490 to University Circle 	<ul style="list-style-type: none"> • Follow-up on the progress of incorporating non-motorized facilities into the roadway design 	?
FUTURE PROJECTS					
Selected Future Projects are discussed further in Appendix A.					

Partners

The following partners may play a key role in implementing many of the Eastside Greenway projects.

- Bike Cleveland
- ODOT
- Cuyahoga County Planning Commission
- NOACA

Greenway Route Considerations

Section 4.2 and 4.3 provide descriptions for each of the Transformative and Near-Term Priority Projects. The existing conditions, constraints, and opportunities along each route are described.

Cross-sections of each route portray recommended greenway design improvements. More detailed design studies and surveys are necessary to fully understand existing roadway dimensions, right-of-way widths, and utility constraints at a more accurate and site specific level.

In addition, public, vacant, or under-developed property may provide the necessary space for separated greenway facilities outside of the road right-of-way.

4.2 PRIORITY PROJECTS: TRANSFORMATIVE

EUCLID AVE. (A1)

ROUTE DESCRIPTION

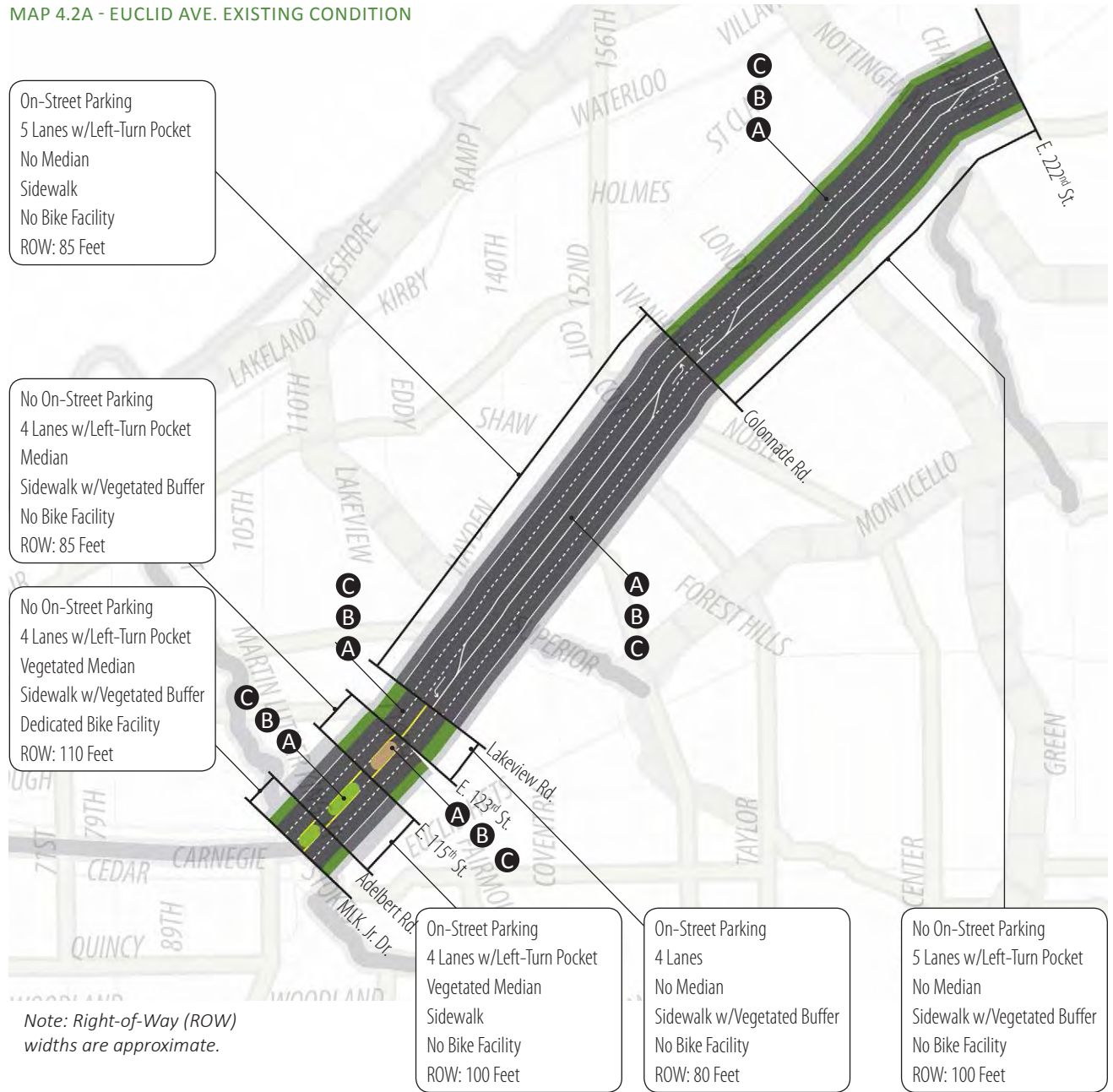
Euclid Ave. is a high visibility corridor that connects many inner ring suburbs to University Circle and on to downtown Cleveland. Euclid Ave. passes through highly challenged portions of Cleveland and East Cleveland where infrastructure investments are needed to enhance the aesthetics, safety, and mobility options for travelers. Transit service is vital along Euclid Ave. and greenway improvements should support public transit activities.

Improvements to Euclid Ave. are also an opportunity to support economic development and reinvestment in adjacent commercial and residential lands which have seen decades of disinvestment.

Fortunately, Euclid Ave. may be a candidate for a “road diet” that would reduce the roadway width and free up space in the right-of-way for enhanced greenway elements for pedestrians and cyclists.

Euclid Ave. is a complex and diverse corridor. The following pages provide a number of applicable cross-sections that may apply to segments of Euclid Ave. A more detailed design study is needed to determine specific cross-section design for a given road segment.

MAP 4.2A - EUCLID AVE. EXISTING CONDITION



Location Map

EUCLID AVE. - DESIGN

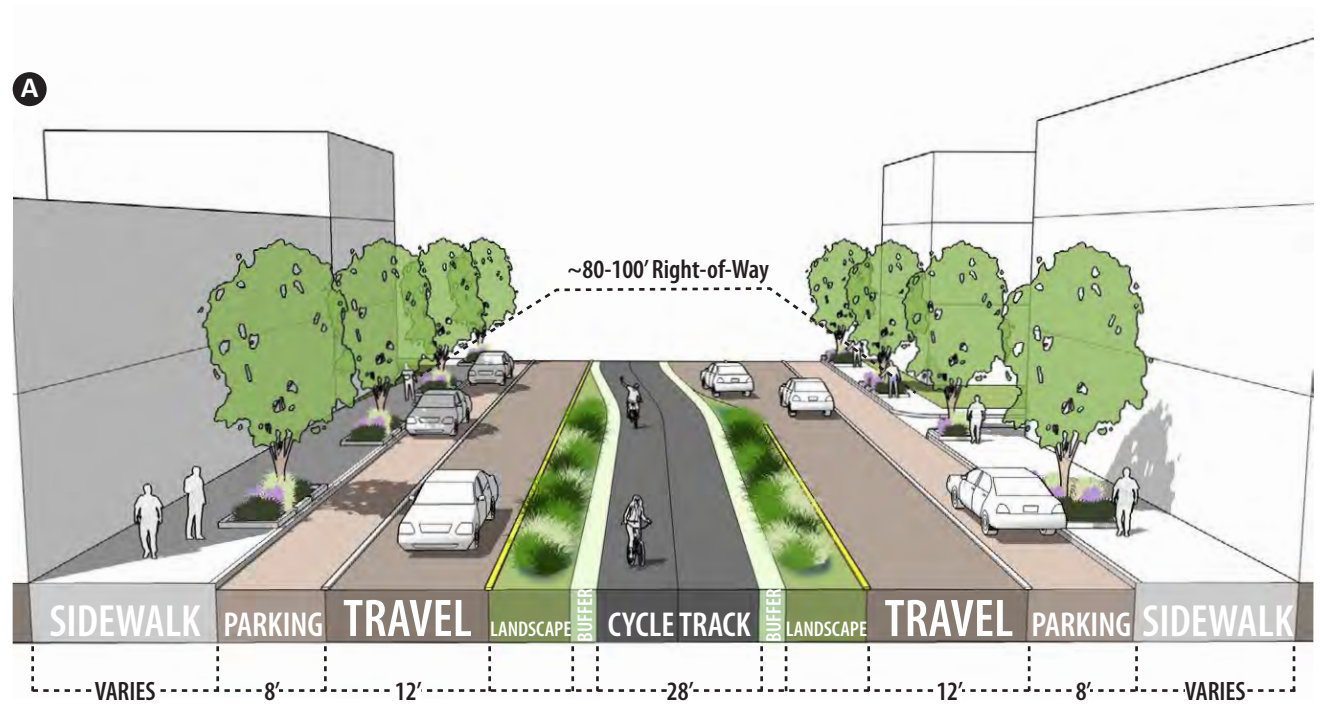
Section A - Median Protected Two-Way Bike Lanes (Midway Cycle Track)

EXTENT: MARTIN LUTHER KING JR. DR. TO E. 222ND ST.

Section A illustrate was the most preferred option based on community feedback. Key aspects of the cross-section include:

- Adds median cycle track with vegetated buffer
- Maintains two traffic lanes with center-turn lane where needed (reducing buffer for cycle track)
- Includes on-street parking lane
- Approximately 68 feet to 70 feet curb-to-curb

This cross-section is most applicable in locations where cyclists would not need frequent access to facilities along Euclid Ave.

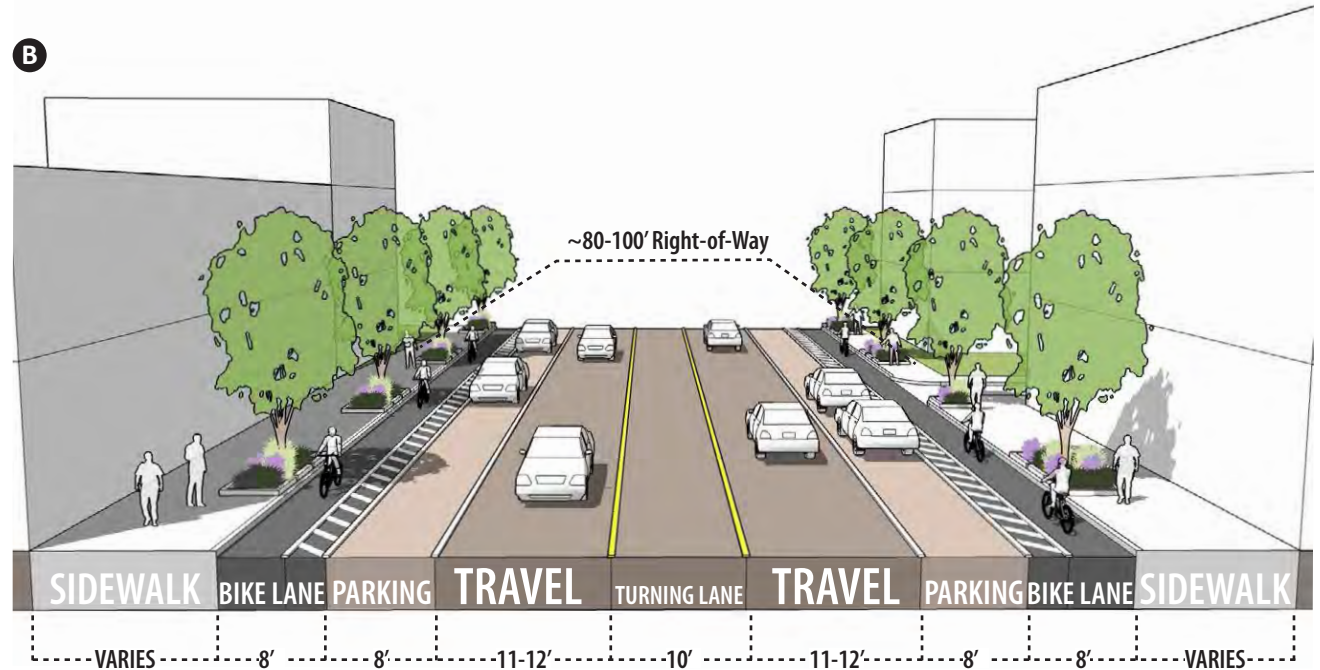


Section B - Buffered Bike Lanes Option

EXTENT: MARTIN LUTHER KING JR. DR. TO E. 222ND ST.

Section B was favored by residents. This configuration is beneficial where cyclists may want frequent access to adjacent buildings and development.

- Preserves existing center-turn lane or median
- Provides two traffic lanes (one in each direction)
- Adds on-street parking
- Adds dedicated bike lanes outside of parking lane with buffer
- Approximately 68 feet to 70 feet curb-to-curb



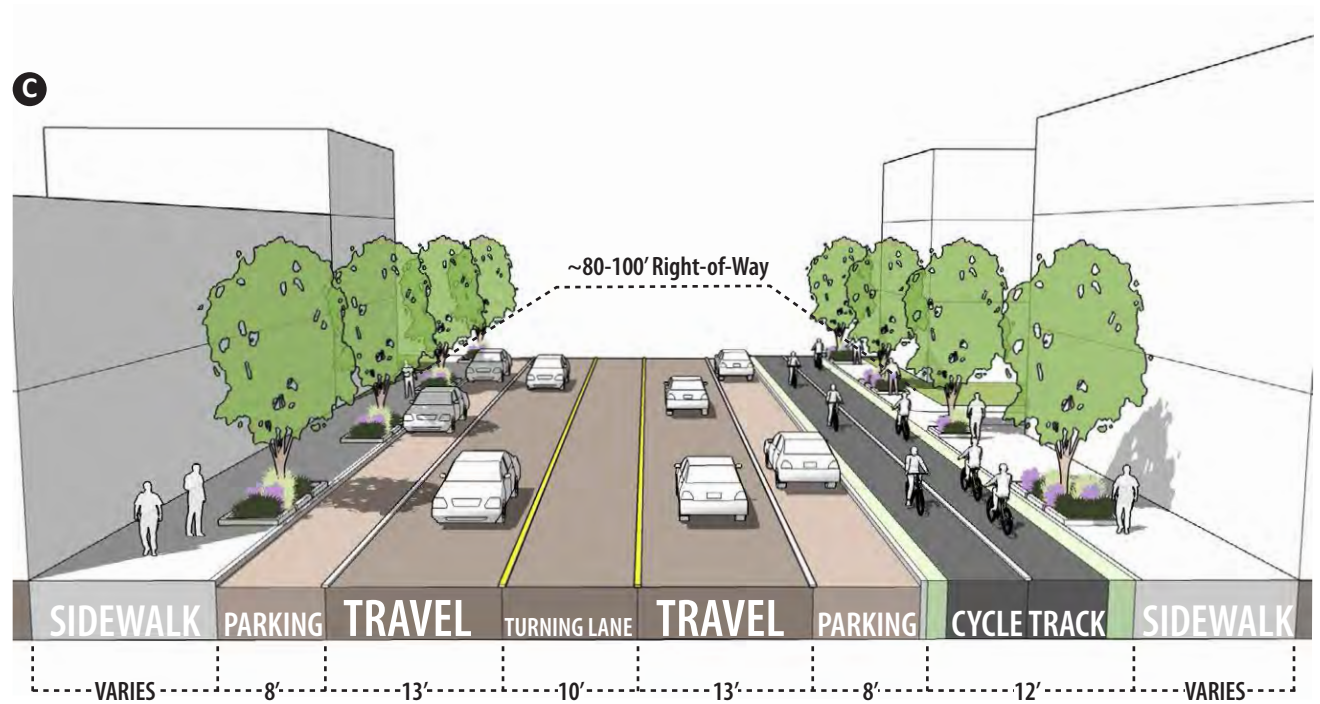
EUCLID AVE. - DESIGN (CONTINUED)

Section C - Separated Bike Facility

EXTENT: MARTIN LUTHER KING JR. DR. TO E. 222ND ST.

This cross-section provides a two-way protected bike lane (cycle track) on one side of the road. In areas where additional travel lanes are necessary, parking on one or both sides could be removed.

- Provides two or four travel lanes with a center-turn lane
- Provides parking on one or both sides of the street, as needed
- Provides two-way cycle track with a landscape buffer and/or physical barriers
- Enhances the pedestrian realm through streetscape improvements, street trees, and landscape planters



Other Design Considerations

- The pedestrian experience is critically important, particularly in commercial areas. Landscaping, street trees, pedestrian-scaled lighting, and well-designed sidewalks are essential
- Manages stormwater through infiltration planters and/or underground infiltration
- On high traffic streets and/or where bike facilities may require crossing travel lanes, use of bike boxes or other treatments to facilitate cyclists entering/exiting the bike facility and/or making turning movements should be explored
- Euclid Ave. is an RTA Priority Transit Corridor

4.2 PRIORITY PROJECTS: TRANSFORMATIVE

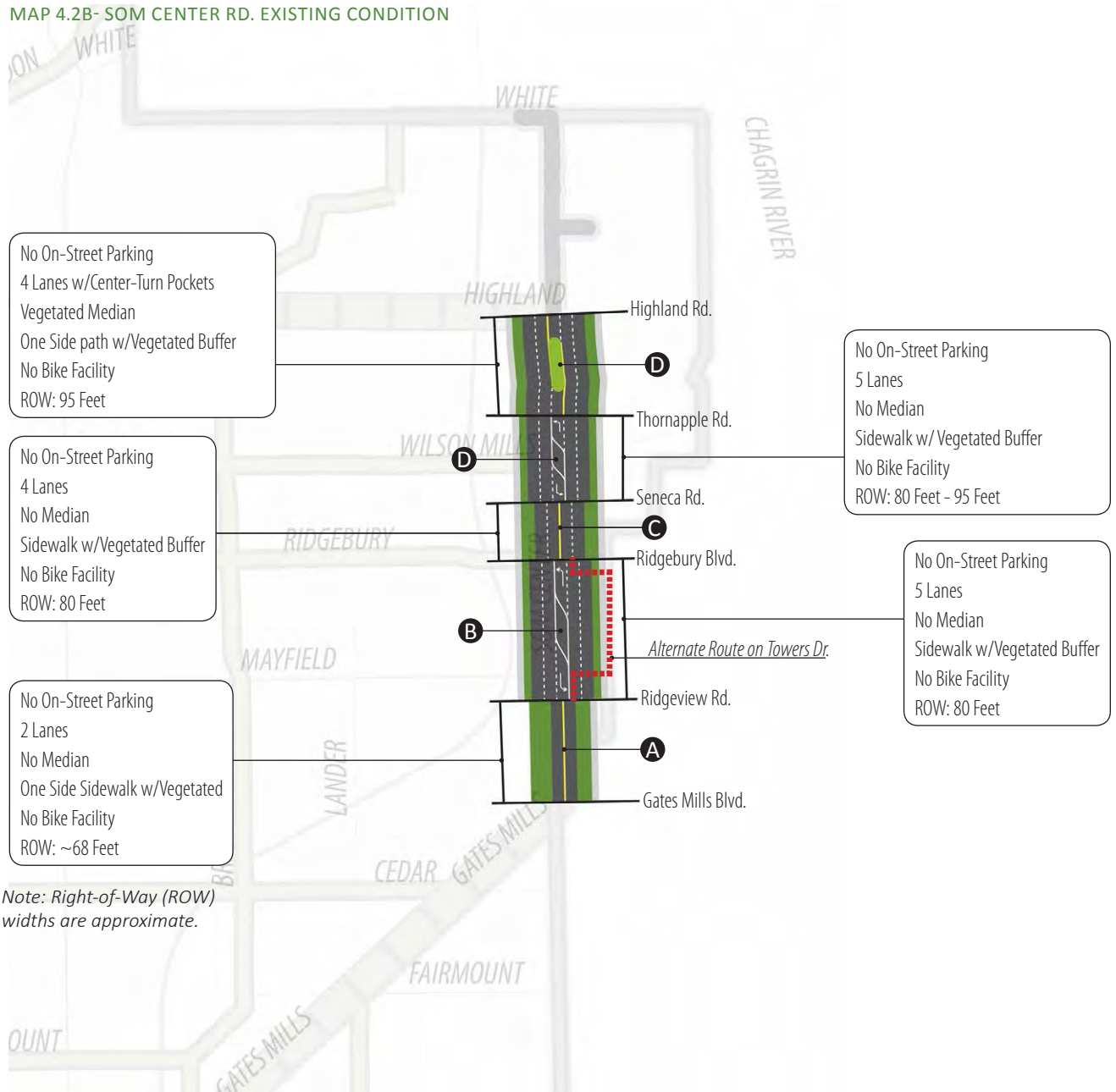
SOM CENTER RD. (D2)

SOM Center Rd. is a critical missing link between future greenways on Gates Mills Blvd. (that will connect to the Shaker Median Trail) and the Mayfield Village side path, which provides access into North Chagrin Reservation. Improvements along SOM Center Rd. could connect recreational and natural resource assets as well as transit services. Such improvements would also beautify a large commercial corridor and provide safer non-motorized facilities.

Alternative Routes

- Alternative routes along the intense commercial district have been discussed with Mayfield Village as a near- or long-term alternative is to provide a multi-use side path on the south side of Mayfield Rd. and connect at Towers Drive. Towers Drive connects the commercial zone and can reconnect SOM Center on Drury Lane (or another parallel street). Route shown in red in Map 4.2B.

MAP 4.2B- SOM CENTER RD. EXISTING CONDITION



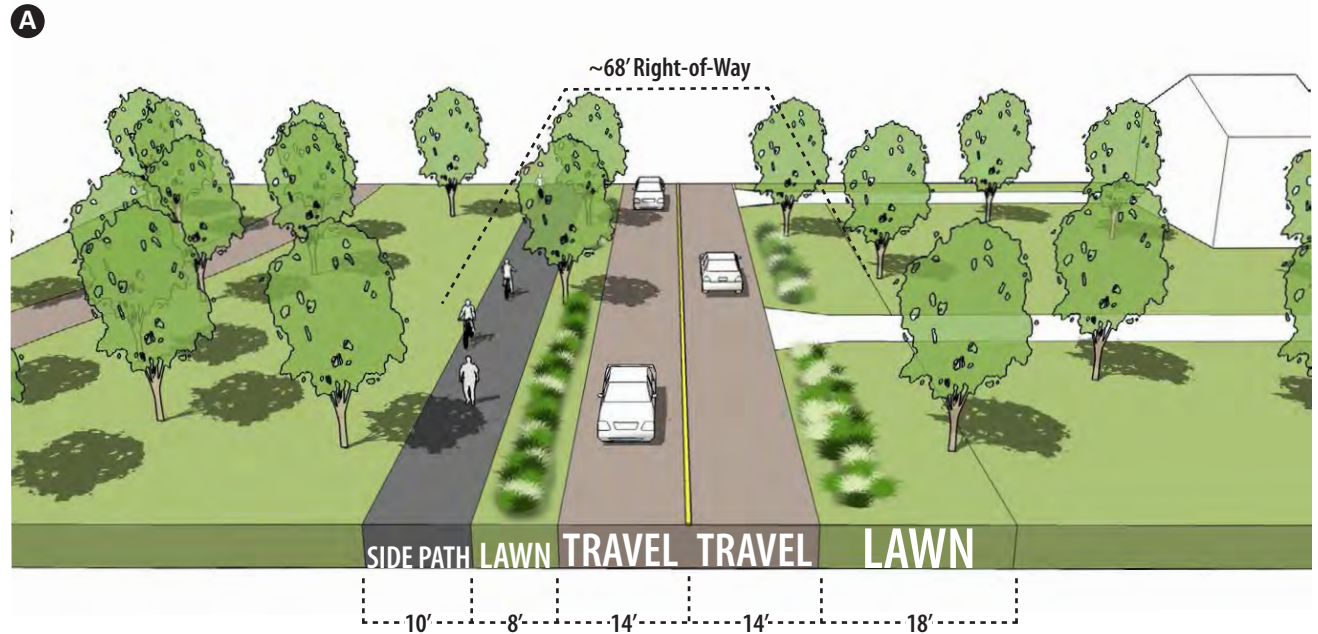
Location Map

SOM CENTER RD. - DESIGN

Section A - Multi-Use Side Path Trail

EXTENT: GATES MILLS BLVD. TO RIDGEVIEW RD.

- Widens the existing sidewalk on the west side of SOM Center Rd. into a multi-use trail adjacent to the cemetery
- Approaching Mayfield Rd., a transition to Section B (side path on east side of the road) is needed to provide safe street crossing for non-motorists. Shift the multi-use side path to the east side of SOM Center Rd. at Marsol Rd./Stafford Dr. to align with Section B.

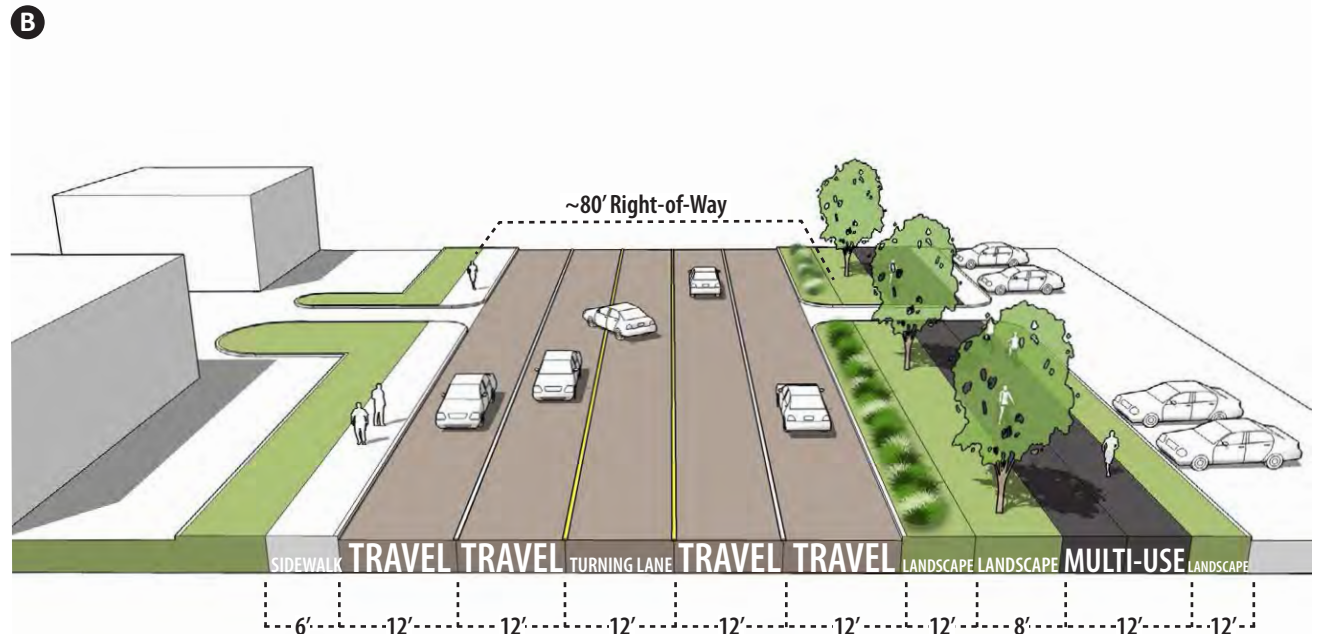


Section B - Multi-Use Side Path Trail

EXTENT: RIDGEVIEW RD. TO RIDGEBURY BLVD.

Section B applies to the intense commercial areas around the Eastgate Shopping Center.

- Preserves center-turn lane and four traffic lanes
- Adds multi-use trail to provide pedestrian and bike facilities (likely best accommodated on the east side of Mayfield Rd. This may require access easements and/or reconfiguring parking lots where there is not sufficient room for a side path trail
- Adds landscape buffer between traffic lane and non-motorized track. This zone could also be used for stormwater management to treat roadway and parking lot runoff



SOM CENTER RD. - DESIGN

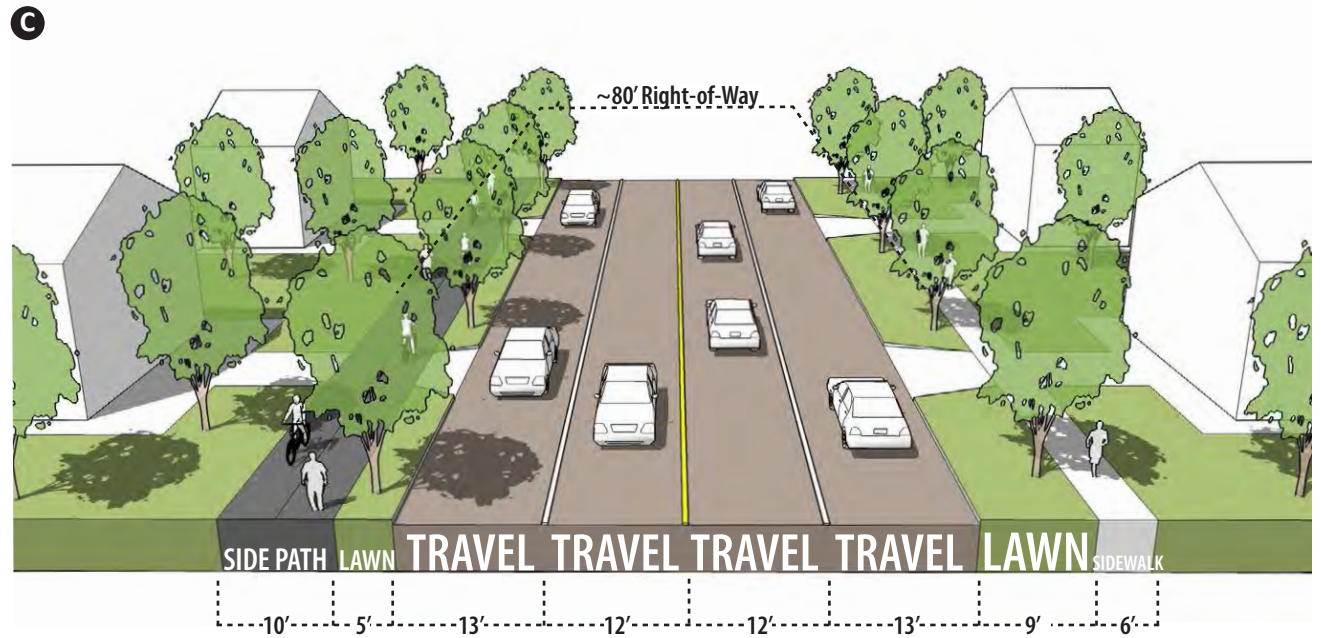
(CONTINUED)

Section C - Multi-Use Side Path Trail

EXTENT: RIDGEBURY BLVD. TO SENECA RD.

Primarily a residential section.

- Preserves existing 4-lane roadway configuration
- Existing sidewalk on one side converted into an 8 foot shared-use path. Utility poles are located to the outside of the existing sidewalk allowing expansion of the sidewalk toward street edge. There are few trees on the west side of the street
- Provide pedestrian and bicycle treatments at Ridgebury signalized intersection the trail shifts from one side of the street to the other.

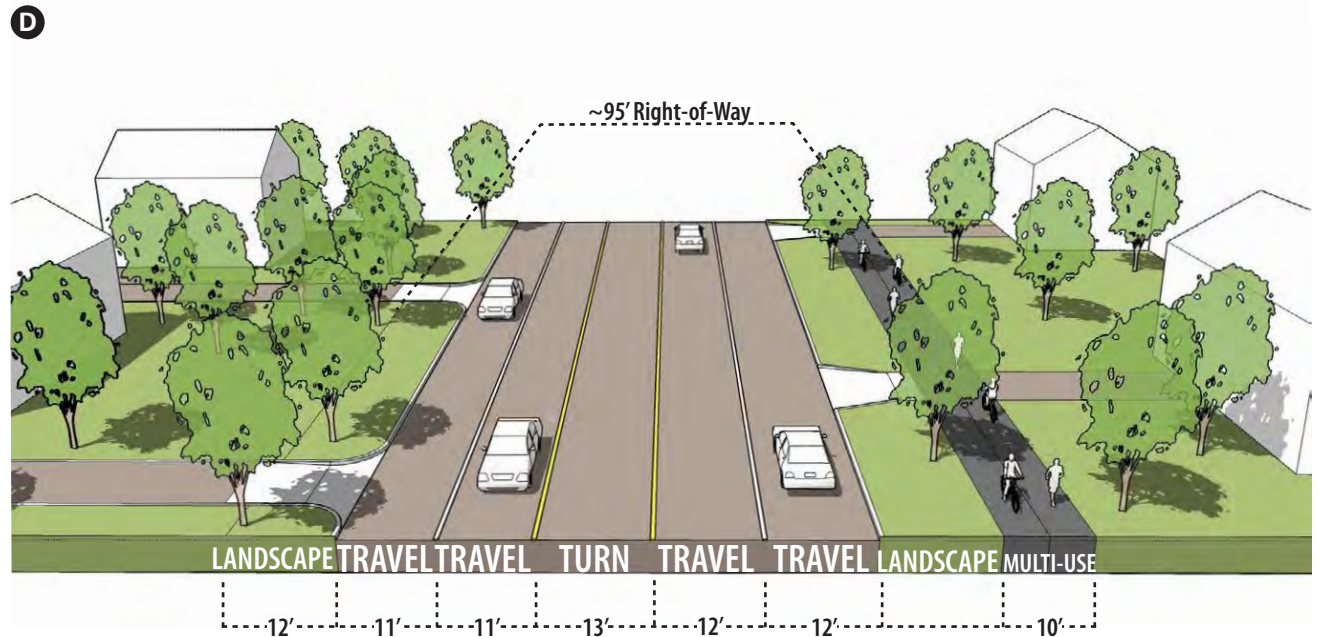


Section D - Multi-Use Side Path Trail

EXTENT: SENECA BLVD. TO THORNAPPLE RD./HIGHLAND RD.

This section extends north, connecting to Strawberry Pond Trail at Thornapple Rd.

- Preserves existing lane configuration and center medians (where present)
- Widens existing sidewalk on the east side of SOM Center Rd. into a multi-use trail 8 feet wide
- May require access easements relocation along the right-of-way to accommodate the trail



4.2 PRIORITY PROJECTS: TRANSFORMATIVE

WARRENSVILLE CENTER RD. (K)

Warrensville Center Rd. is a major transportation and commercial corridor that is significant to the entire project area and the region. At the south end of the project area, Warrensville Center Rd. provides access to major job destinations at Chagrin Highlands (Eaton, University Hospital, and others) and Cuyahoga Community College and to I-480 to the south.

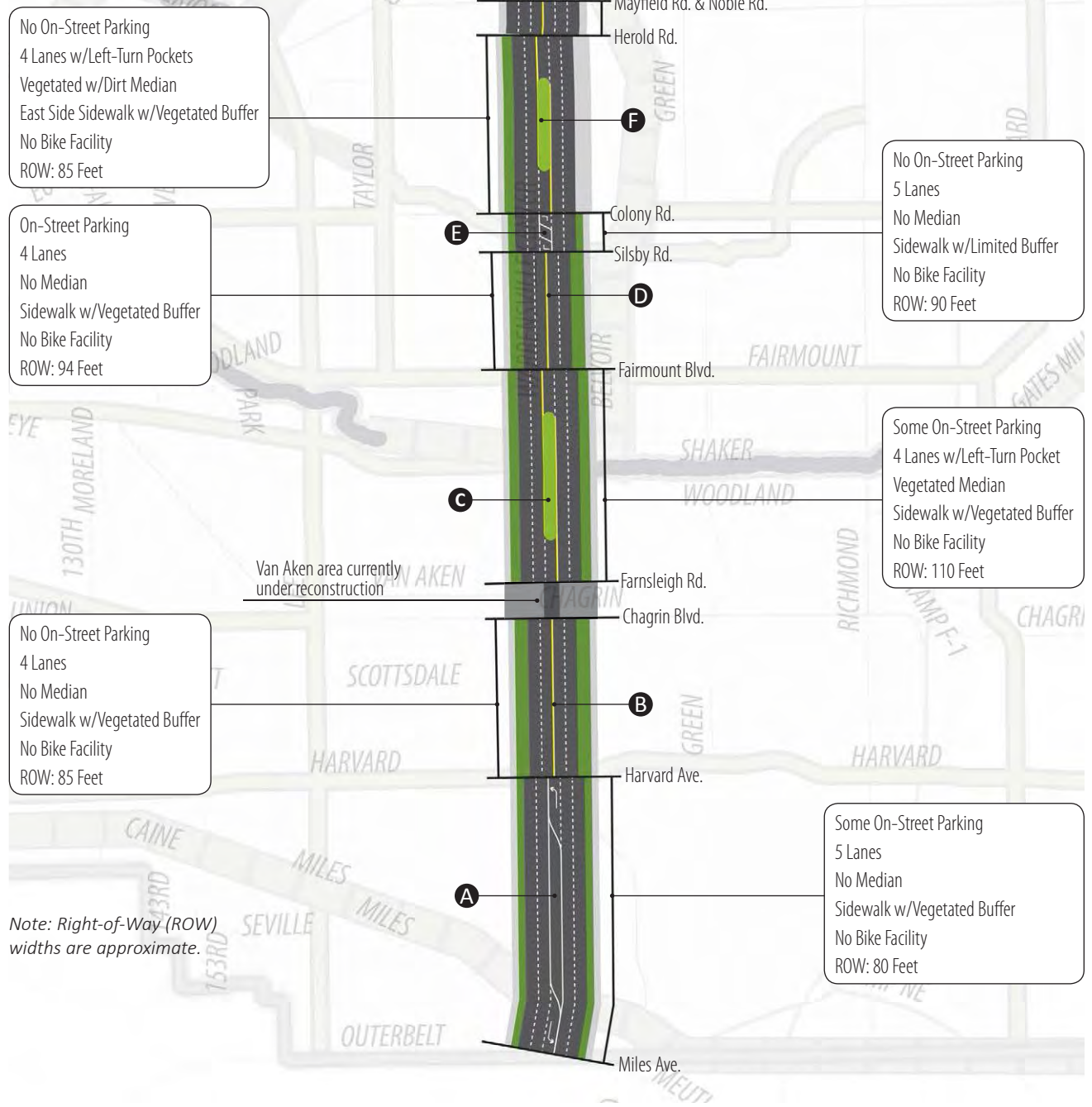
Land use, roadway configuration and traffic conditions vary significantly over the extent of Warrensville Center Rd., so a number of different cross-sections will be needed as greenway elements are built into Warrensville Center Rd. There may be additional opportunities to reimagine the entire right-of-way in concert with significant redevelopment projects on adjacent properties.

There is significant transit service along Warrensville Center Rd., which greenway improvements have an opportunity to connect to and support.



Location Map

MAP 4.2C - WARRENSVILLE CENTER RD. EXISTING CONDITION



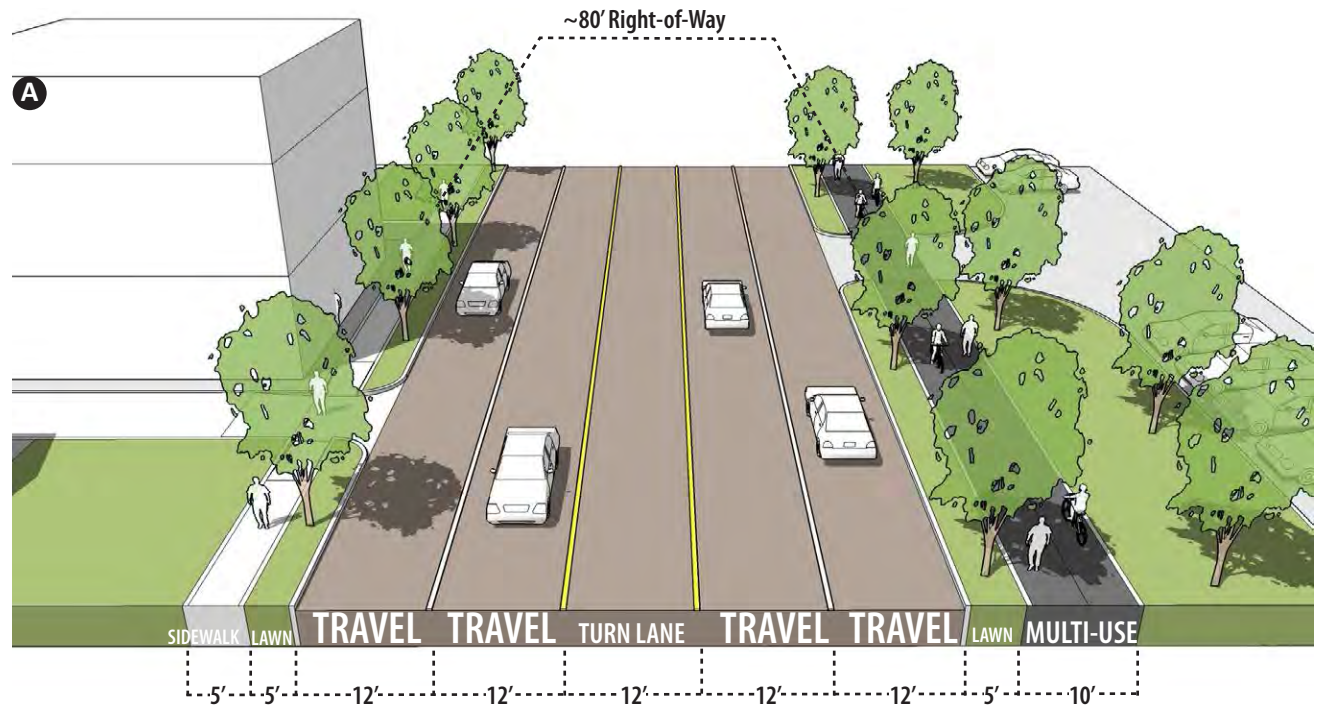
WARRENSVILLE CENTER RD. - DESIGN

Section A - Multi-Use Side Path Trail

EXTENT: MILES AVE. TO HARVARD AVE.

Primarily a commercial district with large parcel sizes and large properties (e.g. ThistleDown Racino, Warrensville Heights Schools, and South Pointe Hospital).

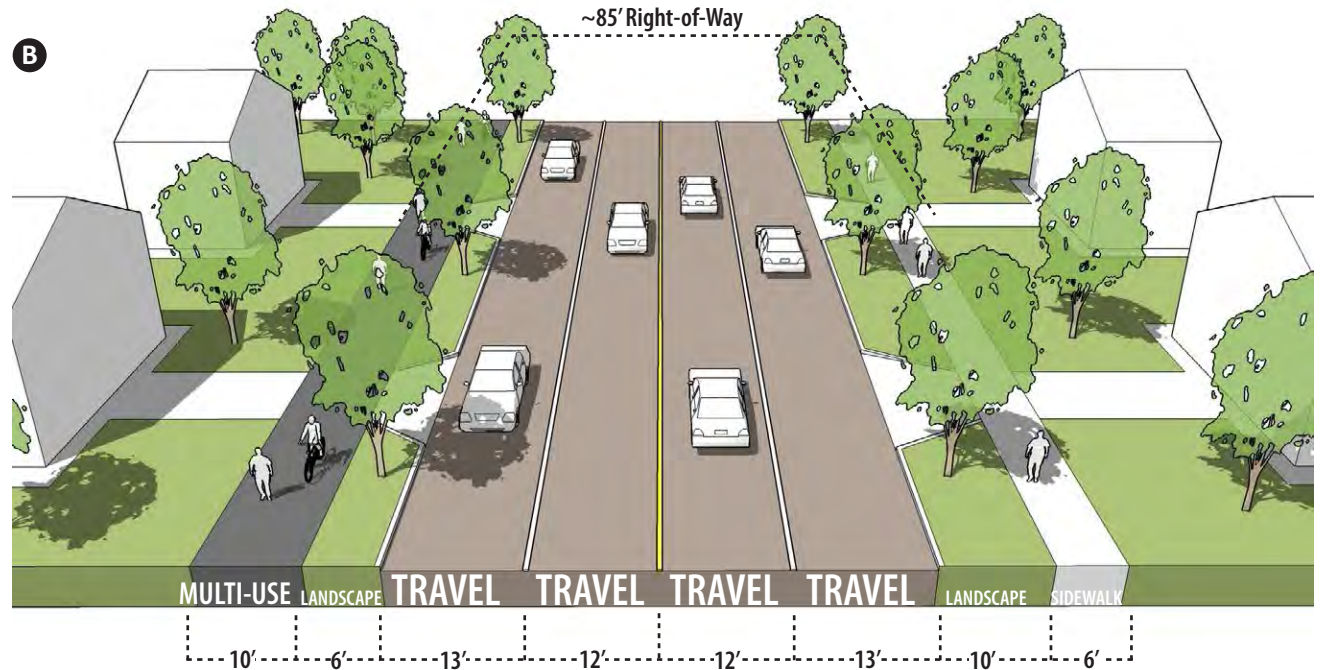
- Preserves existing roadway configuration
- Widens existing sidewalk on one side into multi-use side path for pedestrian and cyclists
- Side path may require access to 5 to 10 feet of right-of-way, ideally located on the east side of the road where larger parcels and fewer owners exist along the corridor
- Provides an off-road connection to schools
- Alternatively, reducing all lane widths to 10 feet would allow creation of typical 5 foot wide bike lanes.



Section B - Multi-Use Side Path Trail

EXTENT: HARVARD AVE. TO CHAGRIN BLVD.

- Preserves existing roadway configuration
- Widens existing sidewalk into multi-use side path trails
- Plant street trees in landscape zones
- Provides safe pedestrian crossing (likely a signalized intersection) where trail crosses from one side of Warrensville Center Rd. to the other



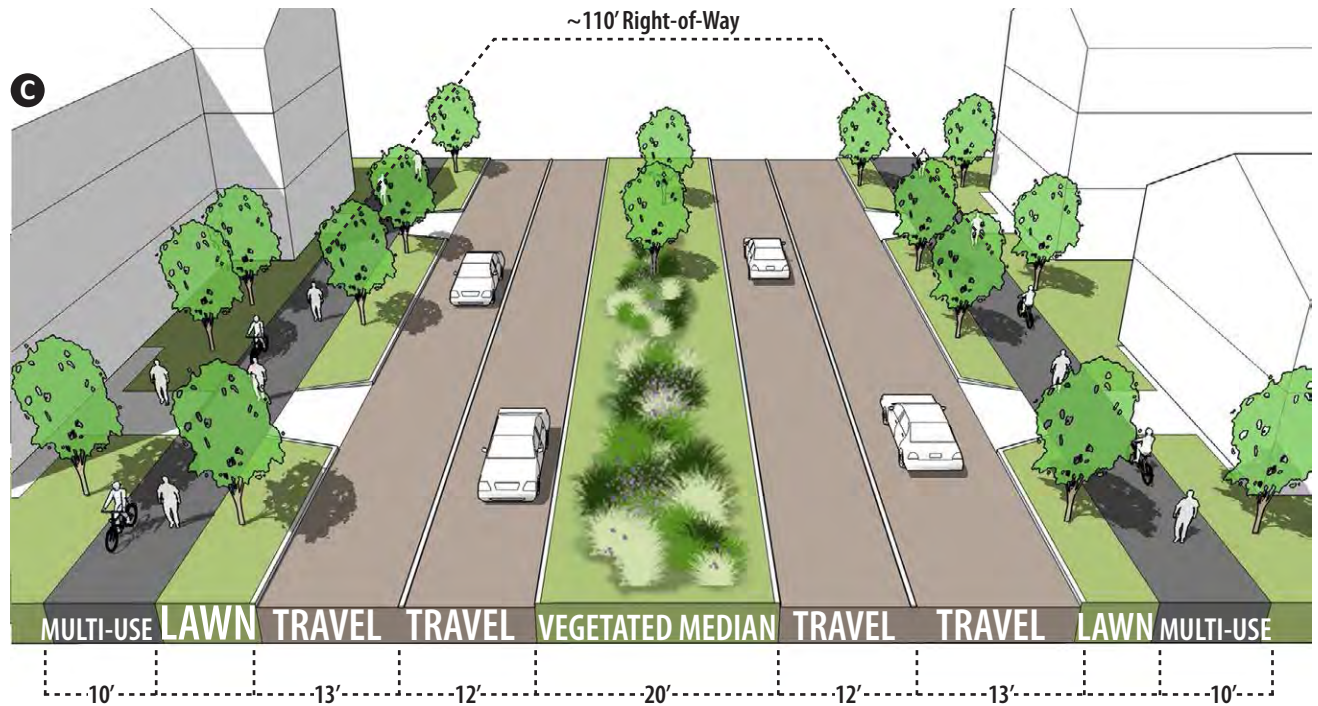
WARRENSVILLE CENTER RD. - DESIGN (CONTINUED)

Section C - Widened Sidewalks

EXTENT: FARNSLEIGH RD. TO FAIRMOUNT BLVD.

This section travels through residential, multi-family residential, and institutional land areas. This section has a 110 feet right-of-way.

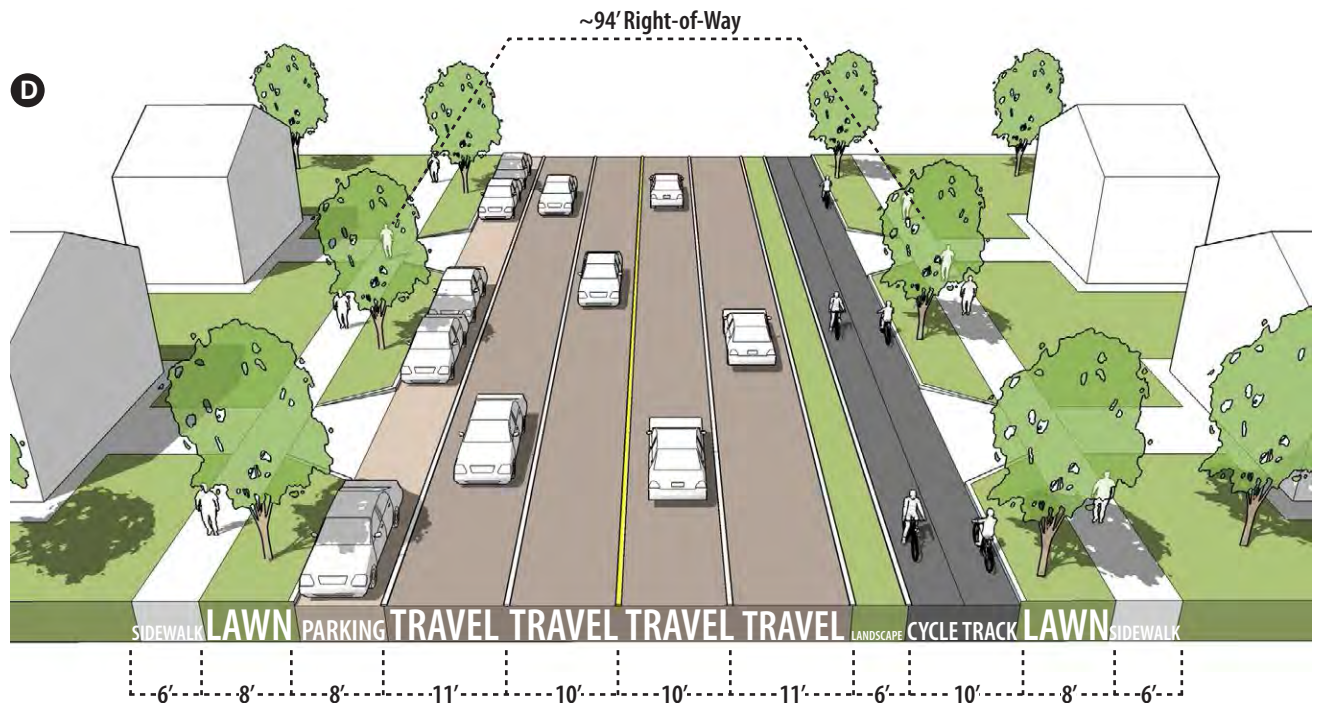
- Preserves existing roadway configuration with central vegetated median
- Enhances median through stormwater management systems and landscaping
- Widens existing sidewalks on one or both sides into multi-use side paths for pedestrians and cyclists



Section D - Separated Bike Facility

EXTENT: FAIRMOUNT BLVD. TO SILSBY RD.

- Preserves four traffic lanes (two northbound and two southbound)
- Removes on-street parking on one side of the street (east side) and converts it into a cycle track



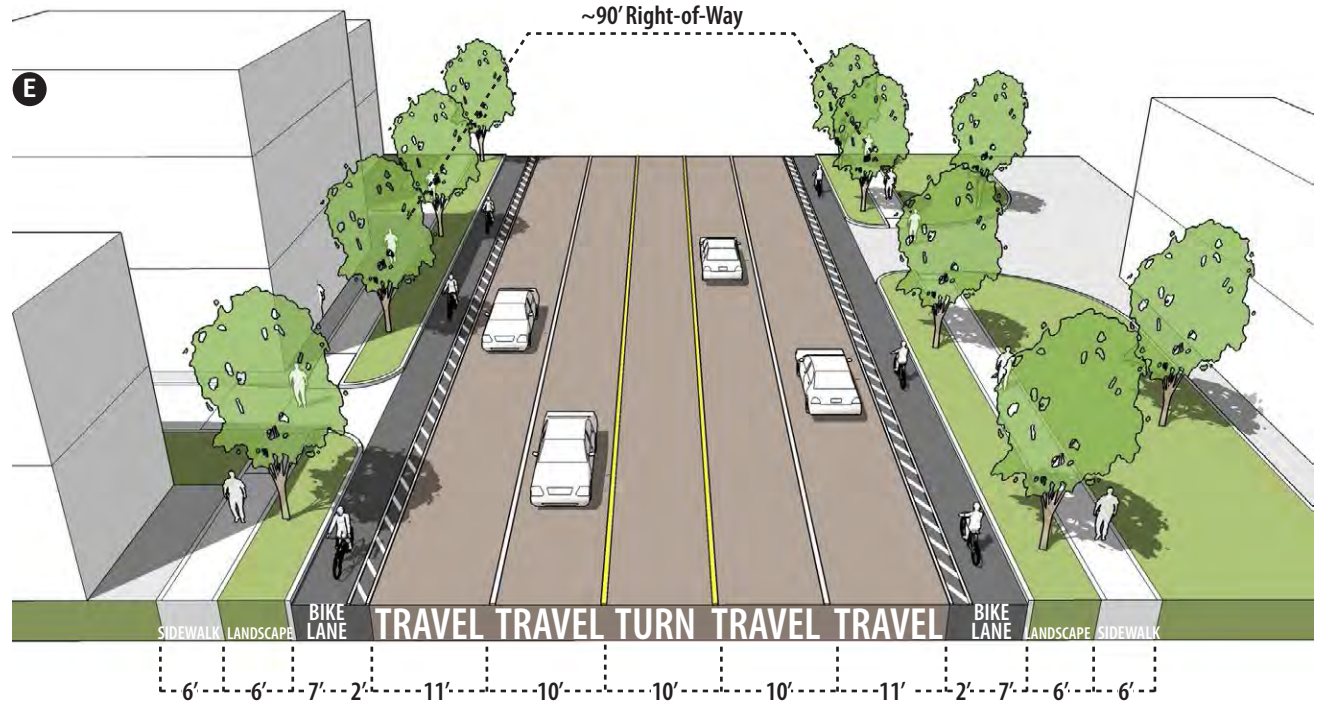
WARRENSVILLE CENTER RD. - DESIGN (CONTINUED)

Section E - Buffered Bike Lanes

EXTENT: SILSBY RD. TO COLONY RD.

This section includes the densely developed commercial zone centered around Warrensville Center Rd and Cedar Rd. Bike and pedestrian enhancements in this area may require significant road reconstruction.

- Narrows travel lanes and/or adjusts location to install buffered bike lanes
- Enhances the pedestrian zone by incorporating landscape planters, street trees, pedestrian lighting, and other streetscape amenities



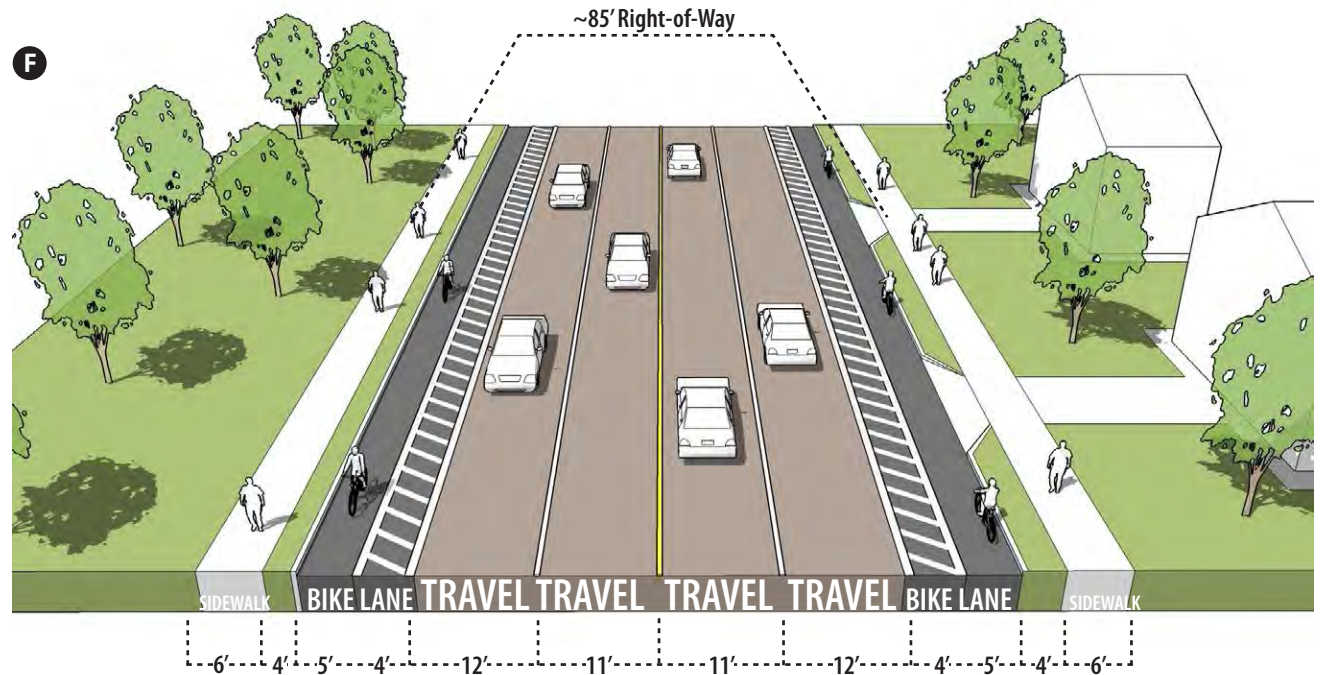
Section F - Buffered Bike Lanes

EXTENT: COLONY RD. TO HEROLD RD.

- Removes central vegetated median and reconfigures the travel lanes to create room for buffered bike lanes on both sides of the road

Alternative Route

- As an alternative south of Chagrin Blv, a potential future greenway could be routed along Northfield Rd., which is a wider road with less intense commercial uses. There may be opportunities on the east side of the road to locate a multi-use side path trail, as the east side of the road is not heavily developed (near Park Golf Course).

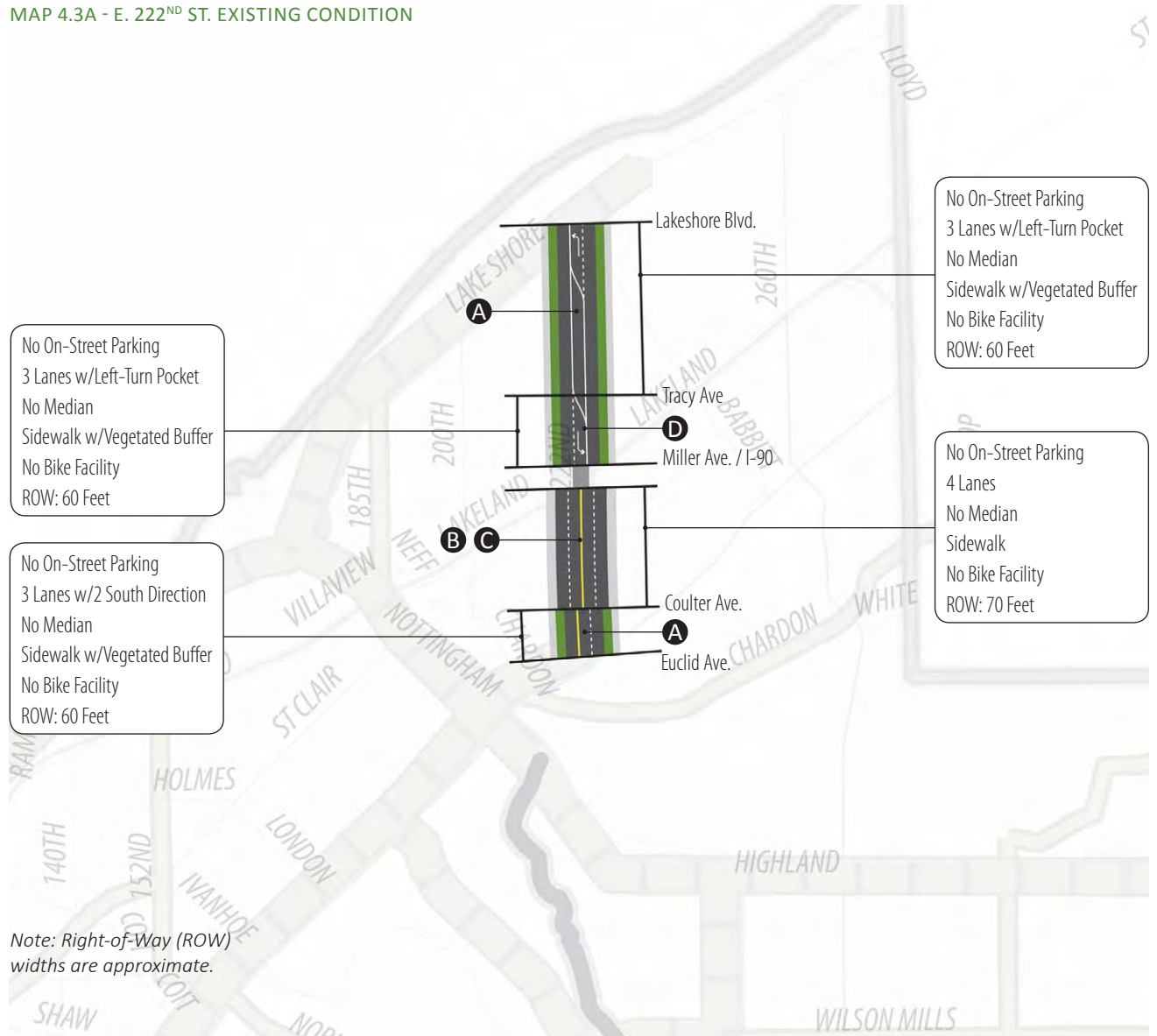


4.3 PRIORITY PROJECTS: NEAR-TERM

E. 222ND ST. (A3)

E. 222nd St. provides a connection between Euclid Ave. and Lakeshore Blvd., Lake Shore Shopping Center, and Kenneth J. Sims Park. At its south end (south of I-90) E. 22nd St. passes through an industrial and business district (Heritage Business Park and Lincoln Electric). North of I-90 is a mixture of neighborhood commercial, retail, and residential land uses. Improvements should coordinate with the needs and opportunities afforded by transit service along E. 222nd St..

MAP 4.3A - E. 222ND ST. EXISTING CONDITION



Location Map

E. 222ND ST. - DESIGN

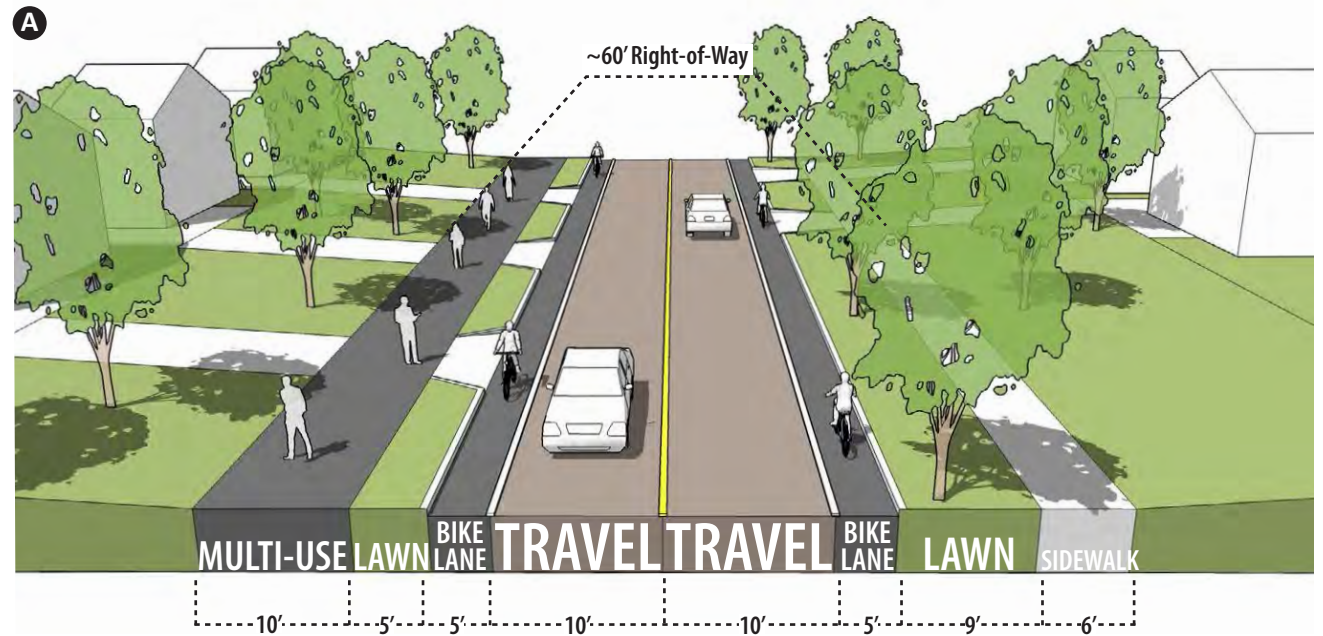
Section A - Bike Lanes with Optional Multi-Use Side Path Trail

EXTENT: EUCLID AVE. TO COULTER AVE.

TRACY AVE. TO LAKESHORE BLVD.

Section A is primarily used in residential and public/institutional areas. Explore feasibility of a road diet.

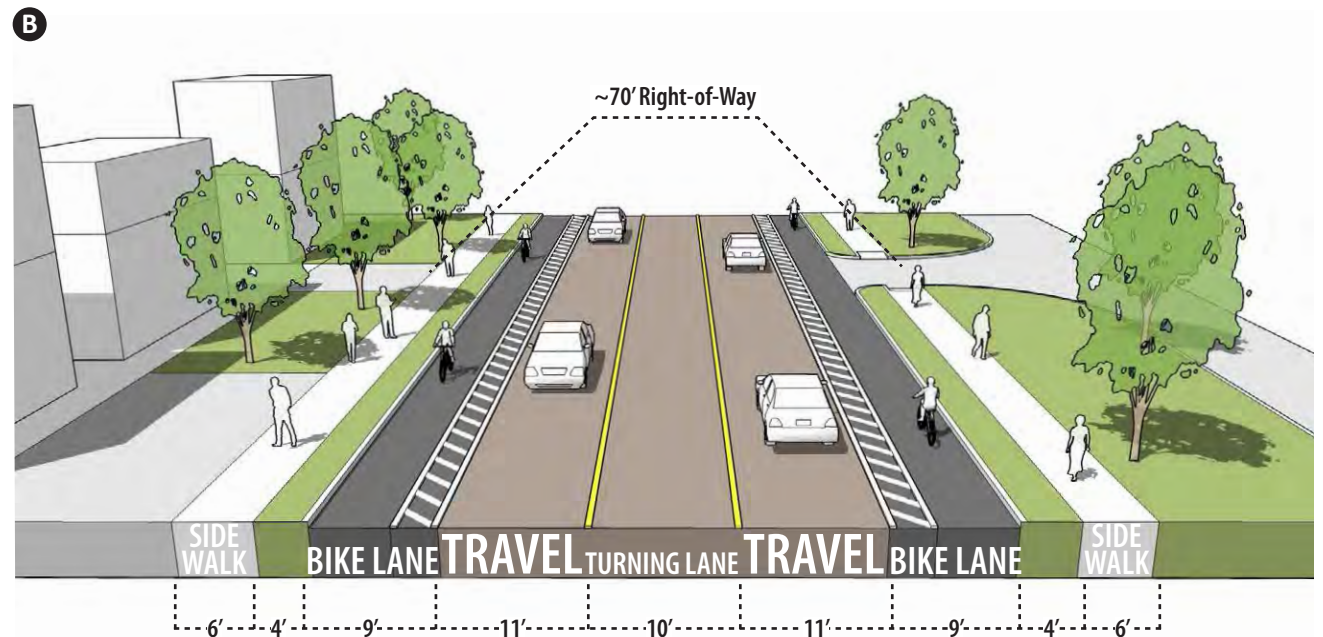
- Converts three lanes to two lanes for vehicle traffic (traffic study will likely be needed)
- Adds bike lanes on both sides of the road
- Optional: Widens sidewalk into a multi-use side path on one side of the street. This would be beneficial around Euclid High School, City Hall, and the Public Library and other public facilities as it would accommodate cyclists of all skill level



Section B - Industrial Zone Buffered Bike Lanes Option

EXTENT: COULTER AVE. TO MILLER AVE.

- Implements road diet to convert four travel lanes to two travel lanes and center-turn lane
- Adds buffered bike lanes



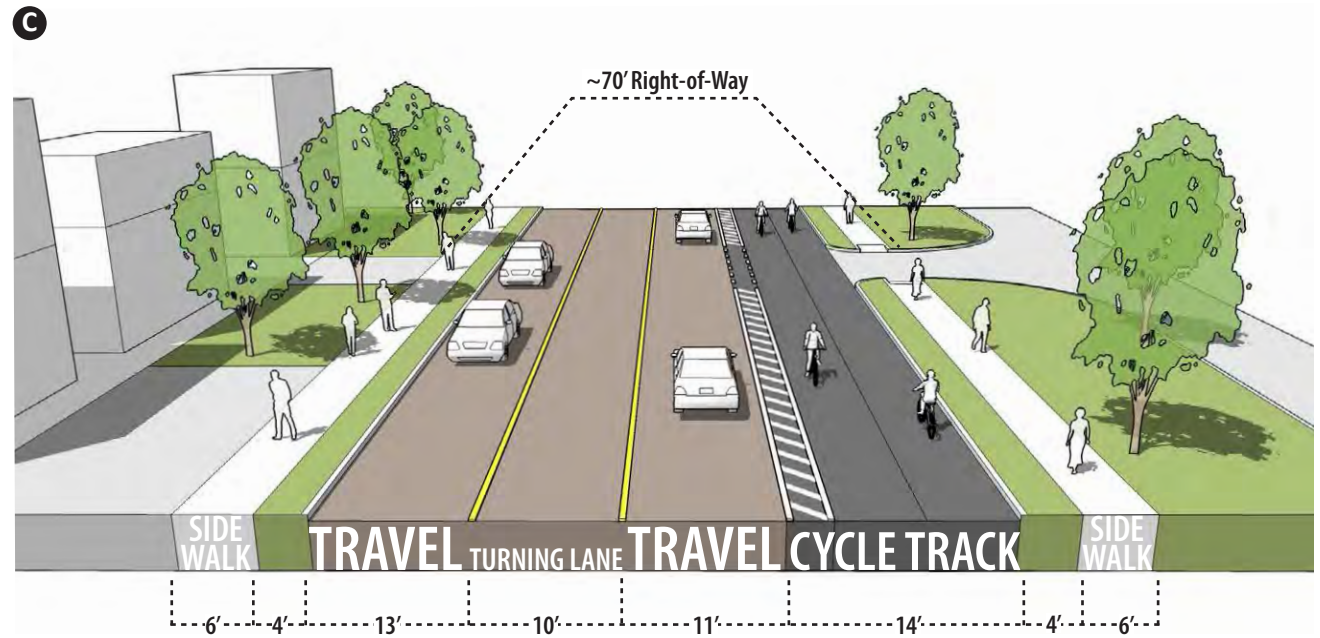
E. 222ND ST. - DESIGN (CONTINUED)

Section C - Cycle Track

EXTENT: COULTER AVE. TO MILLER AVE.

Section C is an alternative to Section B

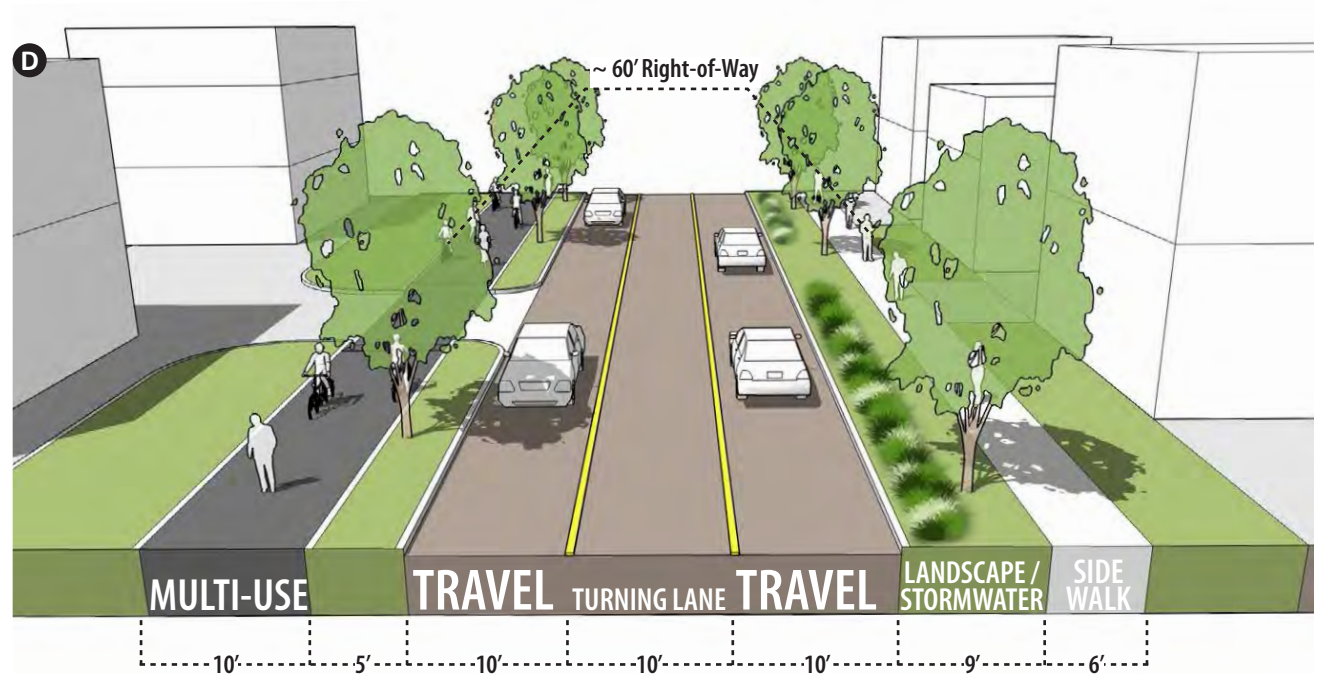
- Implements road diet to convert four travel lanes to two travel lanes and center-turn lane
- Adds cycle track, likely located on the east side of the road due to fewer properties and curb cuts



Section D - Multi-Use Side Path Trail

EXTENT: MILLER AVE. TO TRACY AVE.

- Maintains existing roadway configuration
- Widens the sidewalk on one side of the street to create a multi-use trail. Incorporates landscaping (street trees) and pedestrian amenities
- Utilizes wider amenity zone on the opposite side of the road for stormwater management (e.g. bioswales or infiltration planters) and landscaping
- Implements access management strategies to reduce the number of curb cuts
- Investigate the feasibility of a road diet (removal of center-turn lane) for potential implementation of bike lanes



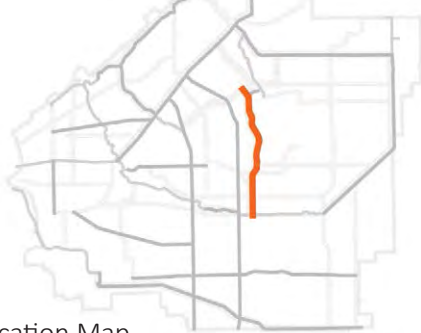
4.3 PRIORITY PROJECTS: NEAR-TERM

SOUTH BELVOIR BLVD. (B)

The south Belvoir Blvd. corridor connects Shaker Heights' Thornton Park at the south to Monticello Blvd. and Cleveland Heights' Denison Park and Quarry Park at the north, with interim connections with the Shaker Median Trail that provides regional links to the Lake to Lakes Trail and to Euclid Creek Reservation via the link on Bluestone Rd.

Belvoir Blvd. has relatively low traffic volumes so the existing roadway can be reconfigured to provide bike facilities that serve a broader range of users. These changes are relatively easy to implement and will provide a more recreational focused alternative route to Warrensville Center Rd.. These changes are relatively easy to implement and will provide a more recreational focused alternative route to Warrensville Center Rd. This may be easier to implement in the near-term.

A section of south Belvoir Blvd. was recently reconstructed around John Carroll University. The vehicular capacity reduction aligns with the overall recommendation for this section, with improved pedestrian access and safety.



Location Map



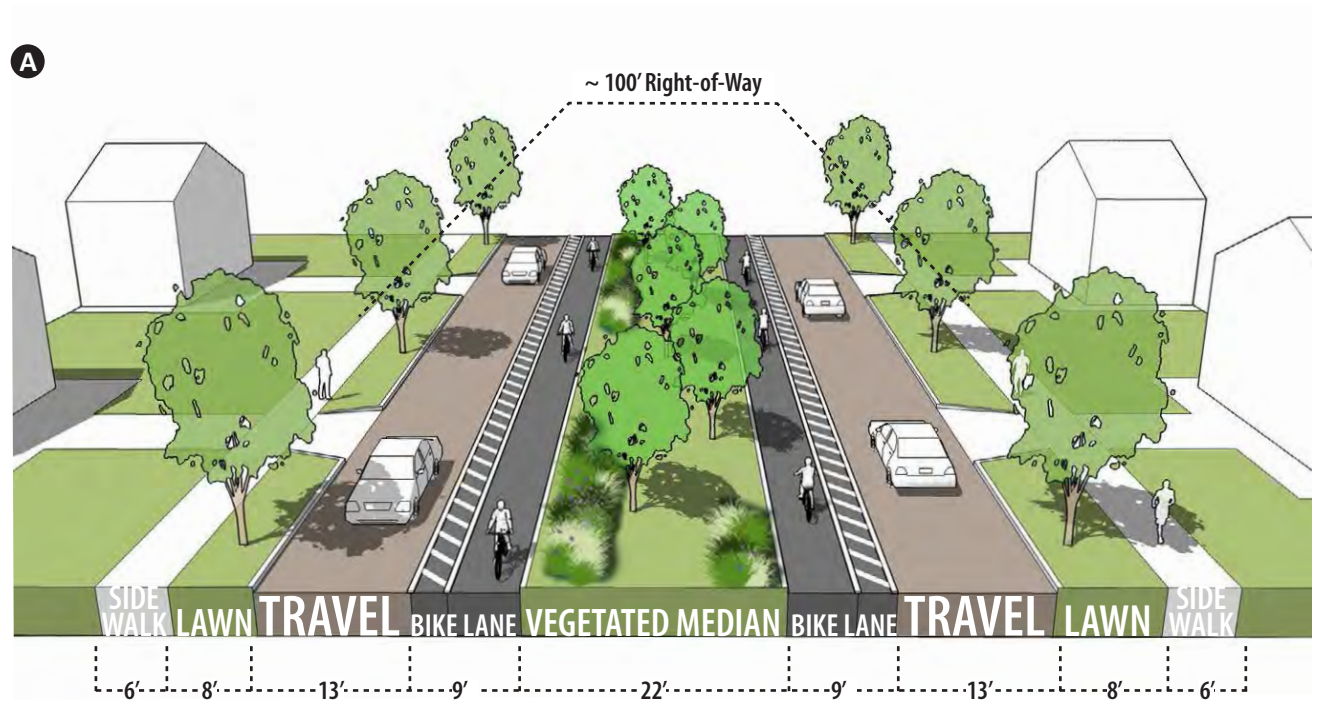
BELVOIR BLVD. - DESIGN

Section A - Buffered Bike Lane Option

EXTENT: MONTICELLO BLVD. TO SHAKER BLVD.

South Belvoir Blvd. traverses residential neighborhoods in Shaker Heights, University Heights, south Euclid Ave. and Cleveland Heights and bisects the John Carroll University campus. This option recommends conversion of the outside travel lanes to buffered bike lanes. The relatively low traffic volumes should support this, but a traffic study should be conducted to verify the feasibility of this option. Turn lanes may be necessary at some intersections.

- Modifies roadway configuration from two travel lanes in each direction to one travel lane in each direction
- Adds buffered bike lanes adjacent to central vegetated median to minimize driveway conflict (Note: As an alternative, the bike lanes could be provided to the right of the travel lane)
- Preserves central vegetated median and adds stormwater management facilities (e.g. rain gardens and bioswales) to improve the street's environmental performance and aesthetic



4.3 PRIORITY PROJECTS: NEAR-TERM

SOUTH PARK BLVD. (C)

South Park Blvd. provides a connection between the Shaker Median Trail and the proposed greenway along Warrensville Center Rd. to the North Park Greenway and Lake to Lakes Trail. It also provides access to Horseshoe Lake Park. Although relatively short, this is a key “Missing Link” in the project area.

South Park Blvd. travels through a low density residential area. A multi-use trail should be constructed in the City of Shaker Heights’ park right-of-way (the opposite side of the street from the existing sidewalk). The trail would be located on the north side of South Park Blvd. from North Park Blvd. between Eaton Rd. and Courtland Blvd. The trail would cross Shaker Blvd. east at the RTA’s Green Line Station at Warrensville Center Rd., with shared use of the at-grade pedestrian crossing of the RTA light rail tracks. A marked pedestrian crossing with activated Rectangular Rapid Flash Beacons (RRFB) should be provided at the crossing locations on South Park Blvd. and Shaker Blvd.



Location Map

MAP 4.3C - SOUTH PARK BLVD. EXISTING CONDITION



SOUTH PARK BLVD. - DESIGN

Section A - Multi-Use Side Path Trail

EXTENT: WARRENSVILLE CENTER RD. TO ATTLEBORO RD.

- Preserves existing travel lanes
- Constructs new multi-use trail.
 - » Municipal plans identify the use of park property for the trail, not the existing sidewalk.
- Should incorporate available opportunities to manage roadway runoff in bioswales or other stormwater management facilities adjacent to the road

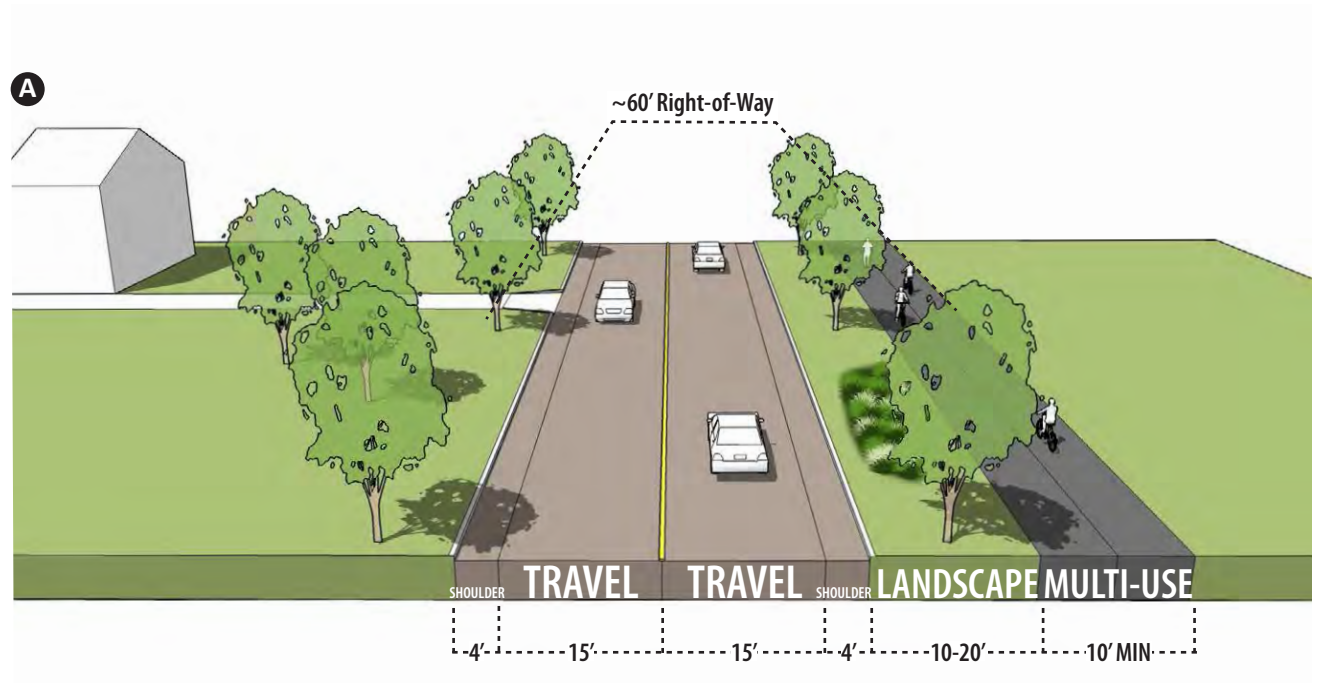
Additional Design Considerations

The connection between South Park Blvd. and North Park Blvd. could occur at any or all of these three locations:

- Brook Rd. just east of Coventry Rd
- At the intersection of North Park Blvd. and South Park Blvd and north Woodland
- At the existing pedestrian way that crosses over the dam at the west end of Horseshoe Lake

The connection to the Shaker Median Trail could occur at two locations both of which would require a mid-block crossing of west-bound Shaker Blvd. to the RTA parking lot:

- Use the existing RTA at-grade crossing at the Warrensville Center Station and cross Warrensville Center at the signalized, eastbound Shaker Blvd. intersection.



- Extend the trail east through the RTA parking lot, underneath Warrensville Center and behind the Shaker Heights Fire Station to RTA's Belvoir Blvd. Station.

Neither of the existing RTA at-grade crossings are ADA accessible and would require coordination with RTA for upgrades to meet ADA standards.

4.3 PRIORITY PROJECTS: NEAR-TERM

GATES MILLS BLVD. (D1)

Gates Mills Blvd connects the Shaker Median Trail eastern terminus with SOM Center Rd. This is a wide corridor with a center median this is more than 100 feet wide. In the short-term, this median would allow for construction of a multi-use trail. Long-term, a network of trails, habitat, landscaping, and stormwater management features could be located throughout this median to enhance the aesthetics, natural resource value, and recreational opportunities of the corridor. Provision of a median trail would accommodate pedestrians and joggers, as there are no sidewalks on Gates Mills Blvd. Pedestrians and joggers currently walk and run in the travel lanes.



Location Map

MAP 4.3D - GATES MILLS BLVD. EXISTING CONDITION



GATES MILLS BLVD. - DESIGN

Section A - Buffered Bike Lanes & Multi-Use Trail in Median

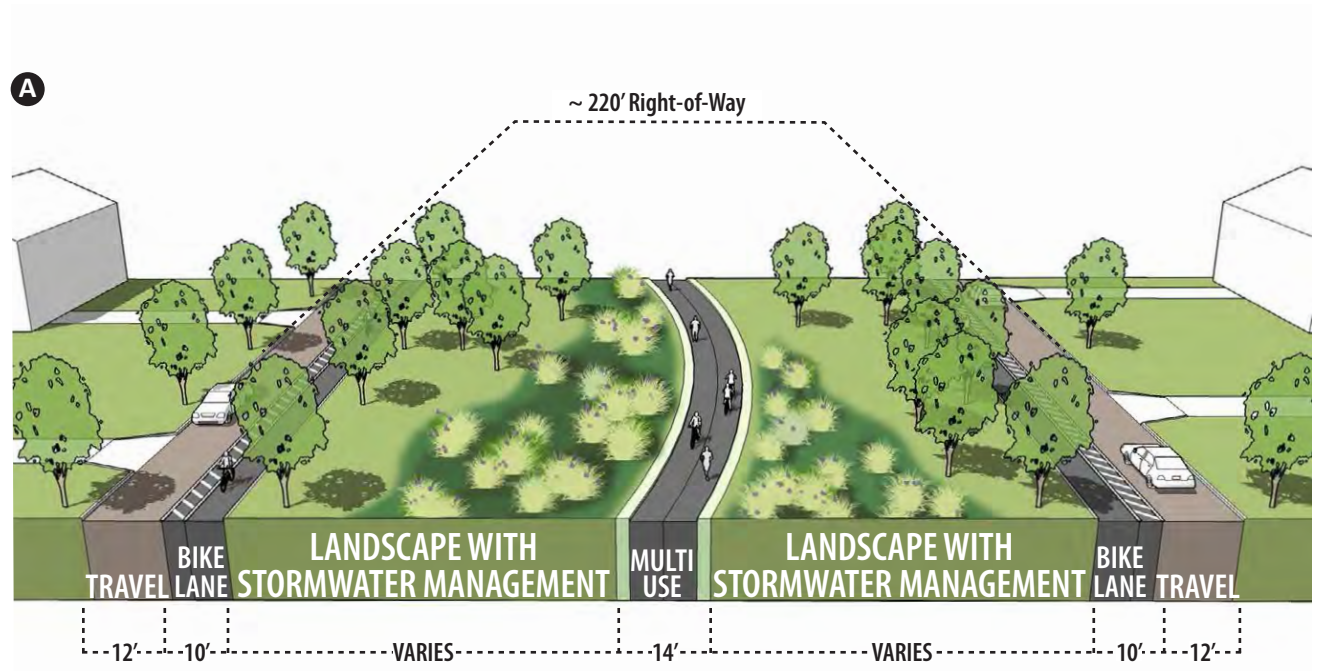
EXTENT: SOM CENTER RD. TO SHAKER BLVD.

Gates Mills Blvd. passes predominately through residential land areas.

- Converts one travel lane in each direction to a buffered bike lane (Note: The image shows bike lanes along the median to minimize driveway conflicts. However, the bike lanes could be provided along the right side of the road.)
- Constructs a multi-use trail in the center of median.
 - » Prior conversations suggested creating a gravel trail, however a hard paved multi-use trail is recommended and would better accommodate a broader range of users.
- Redesigns central median with landscaping, natural features, and stormwater management facilities

Additional Design Considerations

- Gates Mills Blvd. includes large roundabouts at Shaker Blvd./Brainard Rd., Fairmount Blvd./Lander Rd. and SOM Center Rd. Each of these locations will require an engineering study to safely separate flows of vehicle, pedestrian, and bike traffic.
- Preliminary recommendations are to reduce the width of the roundabout travel way (narrow the roadway by enlarging the center island) and facilitate the trail crossing with the use of a marked and RRFB signed crossing. A modified



type of ramp metering may be beneficial at the approaches to the SOM Center Rd. roundabout to ensure adequate gaps are provided for downstream entering vehicles.

4.3 PRIORITY PROJECTS: NEAR-TERM

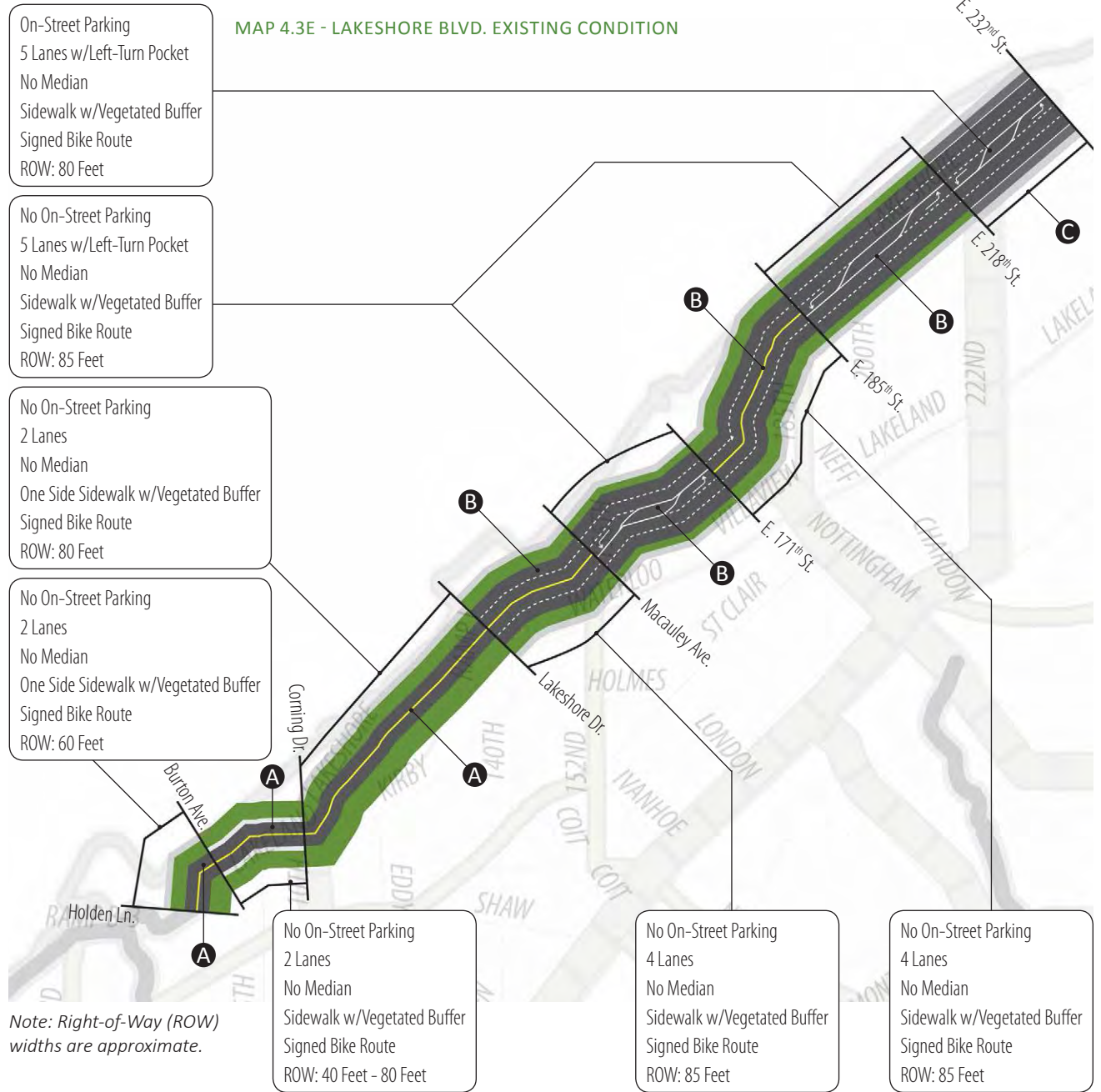
LAKESHORE BLVD. (E)

Lakeshore Blvd. connects the Cleveland Lakefront State Park and downtown Cleveland's Lake Erie Lakefront with the communities of Bratenahl, Cleveland's Collinwood neighborhood and Euclid. This corridor is designated as the Cleveland Lakeshore Bikeway. However, it does not have a dedicated bike facility. This corridor is of regional significance as a bikeway and a transit corridor so bike facilities should be provided. Fortunately, there is ample right-of-way and curb-to-curb width along the corridor to accommodate higher level greenway facilities. This will make the corridor more attractive and functional as a recreational asset and better serve the needs of local residents and businesses. Road diet options should be explored where feasible. Improvements should reinforce and support transit service along the corridor.



Location Map

MAP 4.3E - LAKESHORE BLVD. EXISTING CONDITION



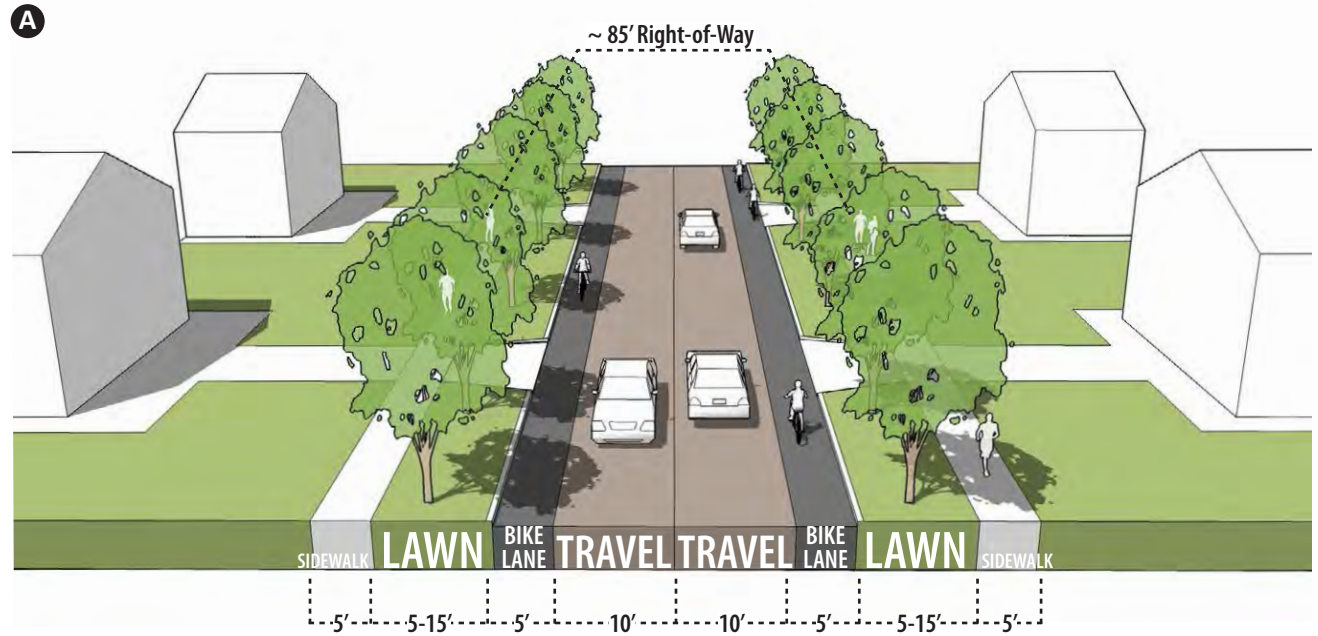
LAKESHORE BLVD. - DESIGN

Section A - Bike Lanes

EXTENT: CLEVELAND LAKEFRONT STATE PARK TO I-90 RAMPS WEST OF E. 140TH ST.

Section passes primarily through Bratenahl Rd., a predominately residential zone.

- Narrows the existing two travel lanes to provide bike lanes on both sides of road
- Preserves vegetated buffer between curb and sidewalk, enhance with additional tree plantings, landscaping, and stormwater management where feasible

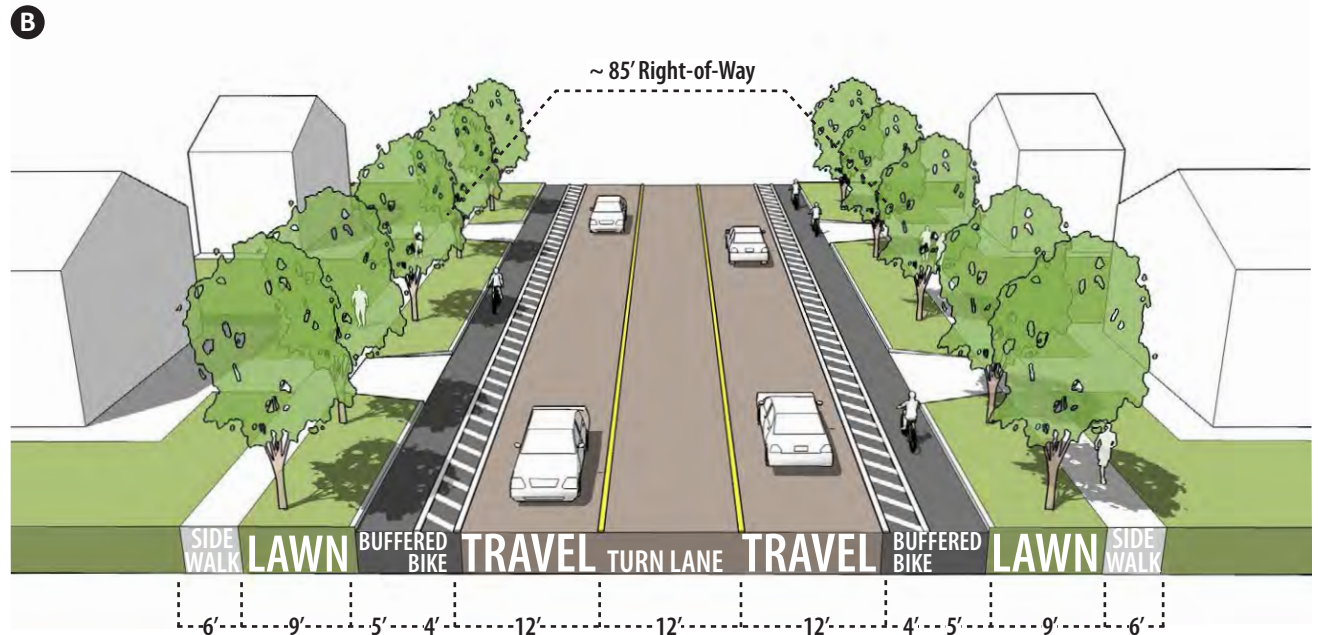


Section B - Buffered Bike Lanes

EXTENT: I-90 RAMPS WEST OF E. 140TH ST. TO E. 218TH ST.

A road diet and access management should be considered for this section which traverses a mix of commercial, residential and industrial land uses. Capacity reductions would allow for the provision of bike lanes or buffered bike lanes.

- Reconfigures roadway to reduce the travel lanes and/or lane width to provide space to add buffered bike lanes to both sides of road
- Preserves vegetated buffer between curb and sidewalk, enhance with additional tree plantings, landscaping, and stormwater management where feasible



LAKESHORE BLVD. - DESIGN

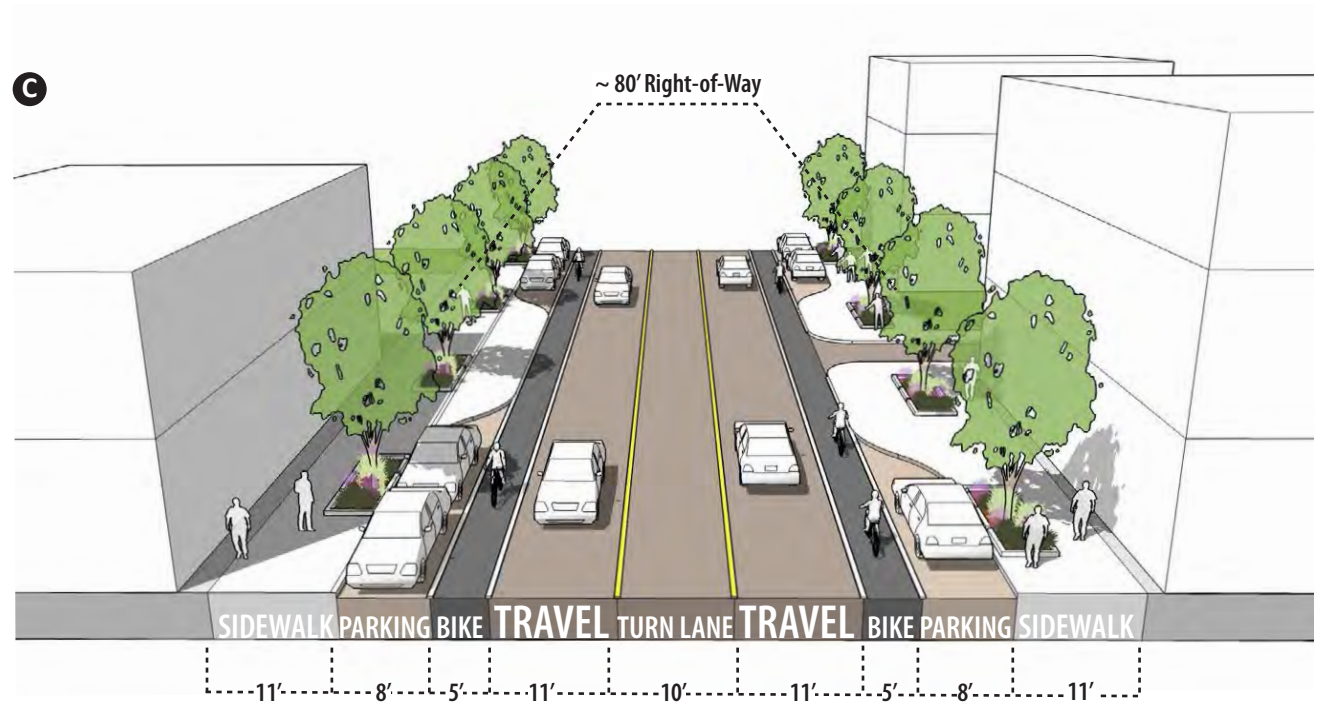
(CONTINUED)

Section C - Bike Lanes

EXTENT: E. 218TH ST. TO E. 232ND ST.

This section includes Euclid's key commercial area at E. 222nd St. that is currently configured with five lanes of traffic with bump-outs for parking. Street reconstruction provides an opportunity to make this node more attractive for pedestrians and cyclists by slowing traffic and providing more amenities for non-vehicle users.

- Reduces lanes from five to three lanes (if supported by traffic study)
- Adds dedicated bike lanes on both sides of road
- Adds dedicated parking lanes. Uses "bump-outs" at the ends of the parking lane to extend the pedestrian space and function as gateways into the commercial blocks
- Maintains a wider sidewalk and pedestrian zone with landscape planters, street trees, and stormwater infiltration planters



4.3 PRIORITY PROJECTS: NEAR-TERM

MONTICELLO BLVD. (F)

Monticello Blvd. plays a vital role in the overall greenway network by providing an east-west route that connects existing and proposed greenway facilities. While it is in close proximity to Euclid Ave., a long-term transformative greenway project, Monticello Blvd. provides a critical connection in the near-term, enabling the entire greenway network to work better.

At the west end, the corridor connects to Mayfield Rd., with the Cleveland Heights Recreation Center and Forest Hill Park. At the east end, the corridor connects to Warrensville Center Rd., S. Belvoir Blvd., and the proposed new entrance into Euclid Creek Reservation. Monticello is a transit corridor, and improvements should reinforce and support transit service along the corridor.

MAP 4.3F - MONTICELLO BLVD. EXISTING CONDITION



Location Map

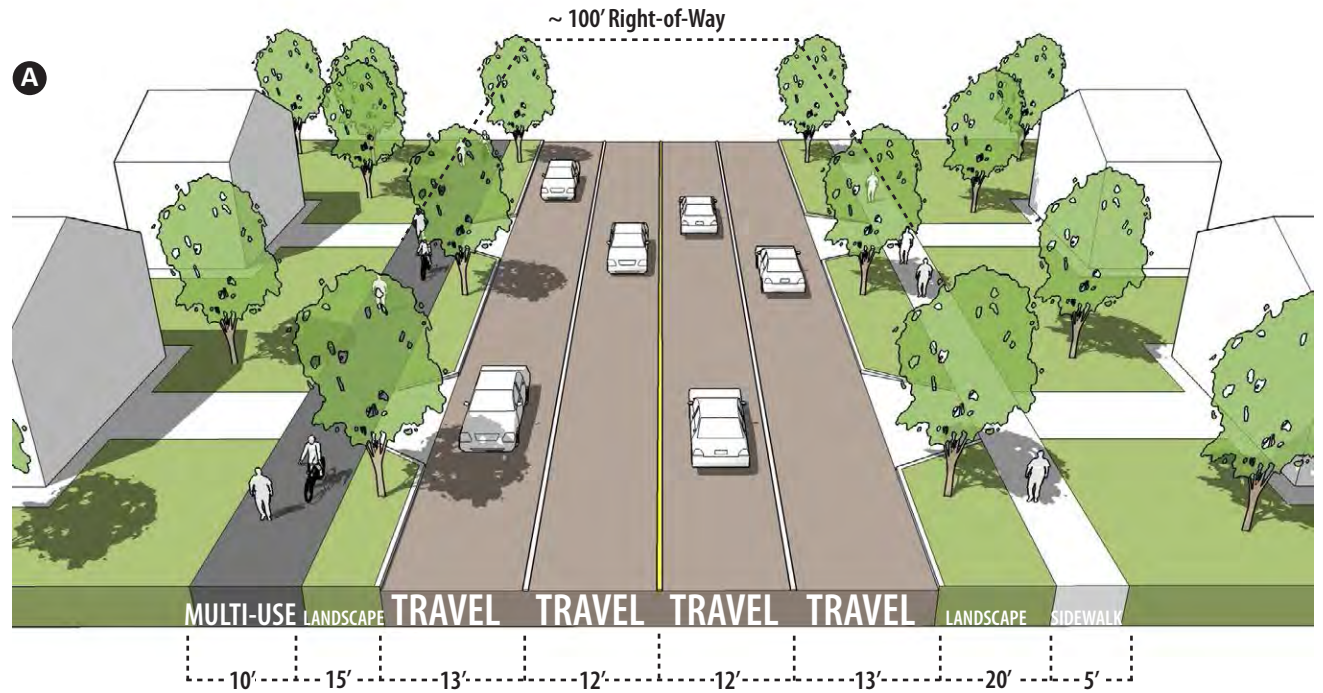
MONTICELLO BLVD. - DESIGN

Section A - Multi-Use Side Path Trail

EXTENT: MAYFIELD RD. TO TAYLOR BLVD.

This section passes through a residential area. Without removing a travel lane, there is little room for on-street bike facilities. The landscape strip along the roadway edge is very wide and can easily accommodate a multi-use side path trail.

- Preserves existing roadway
- Converts sidewalk into a multi-use trail on one or both sides of the street
- Incorporates stormwater management facilities into the re-landscaping of the lawn strip

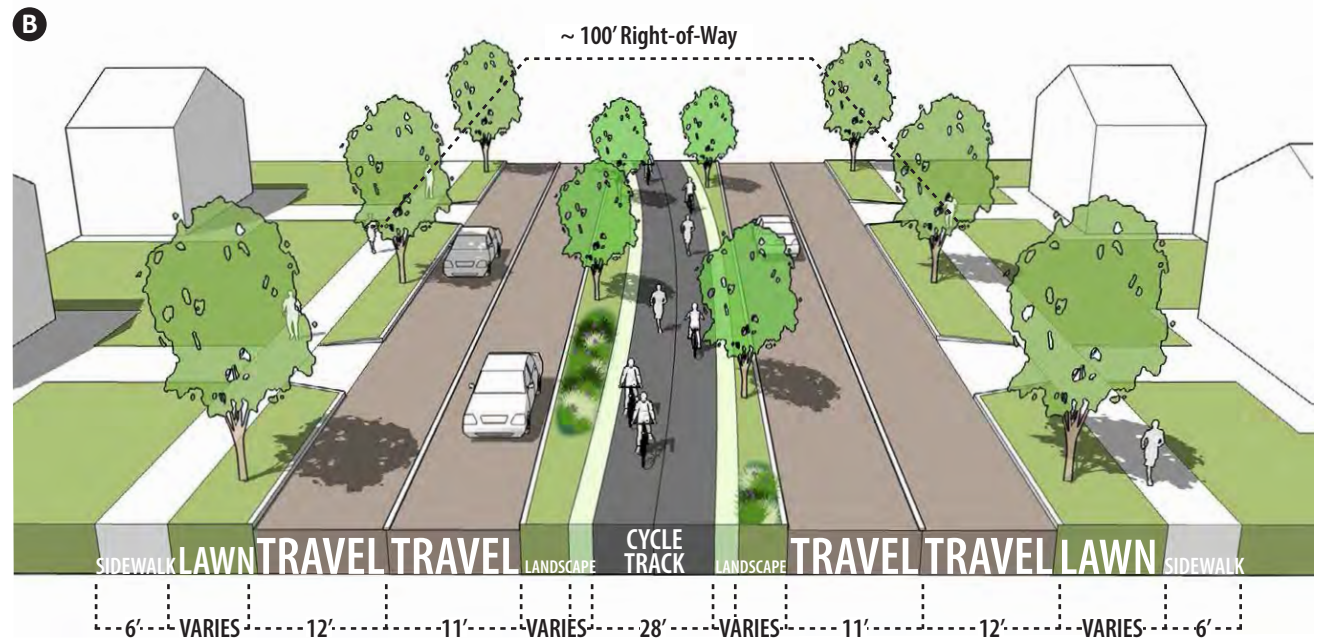


Section B - Median Trail

EXTENT: TAYLOR RD. TO S. BELVOIR BLVD.

This section travels through a residential area and it includes a landscape median.

- Converts center median into a multi-use trail. This will require removal, relocation, and replanting of trees and landscaping
- Incorporates stormwater management into the median and/or the lawn extensions on either side of the road
- Alternatively, narrowing the median to provide on-street buffered bike lanes or other dedicated bike facility can provide smoother transitions to Section A and Section C.



MONTICELLO BLVD. - DESIGN

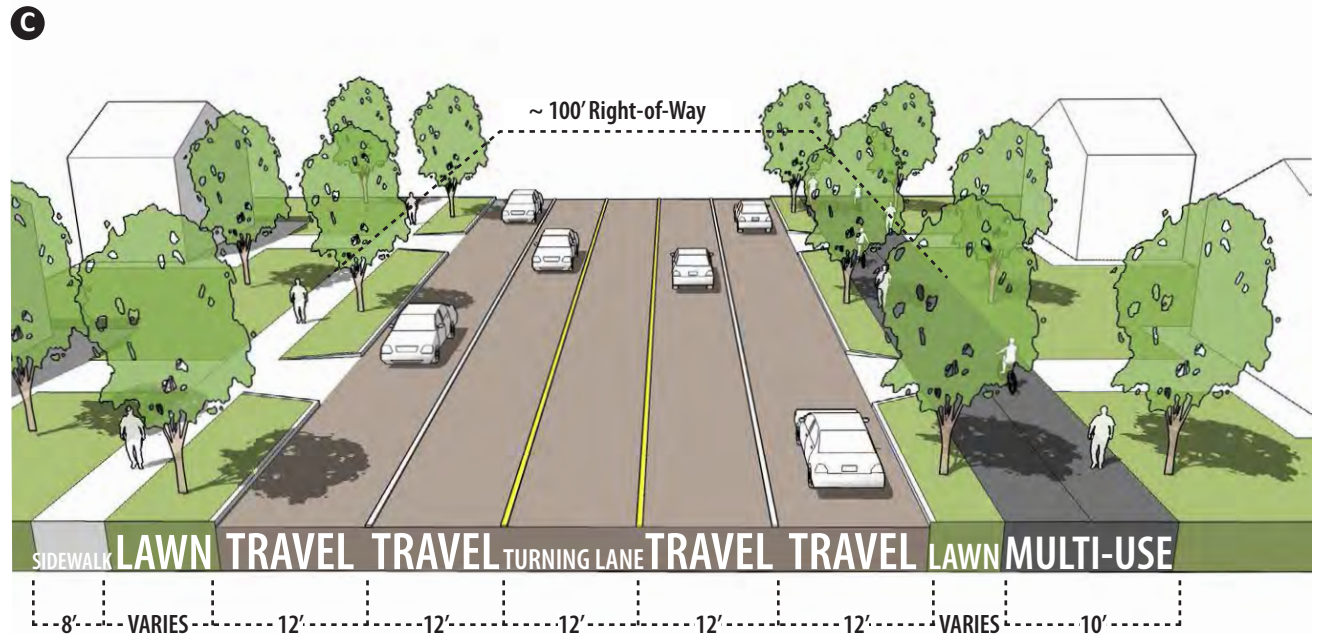
(CONTINUED)

Section C - Multi-Use Side Path Trail

EXTENT: S. BELVOIR BLVD. TO GREEN RD.

Ample room exists on the south side of Monticello Blvd. to provide a side path trail along Denison Park and Quarry Park South.

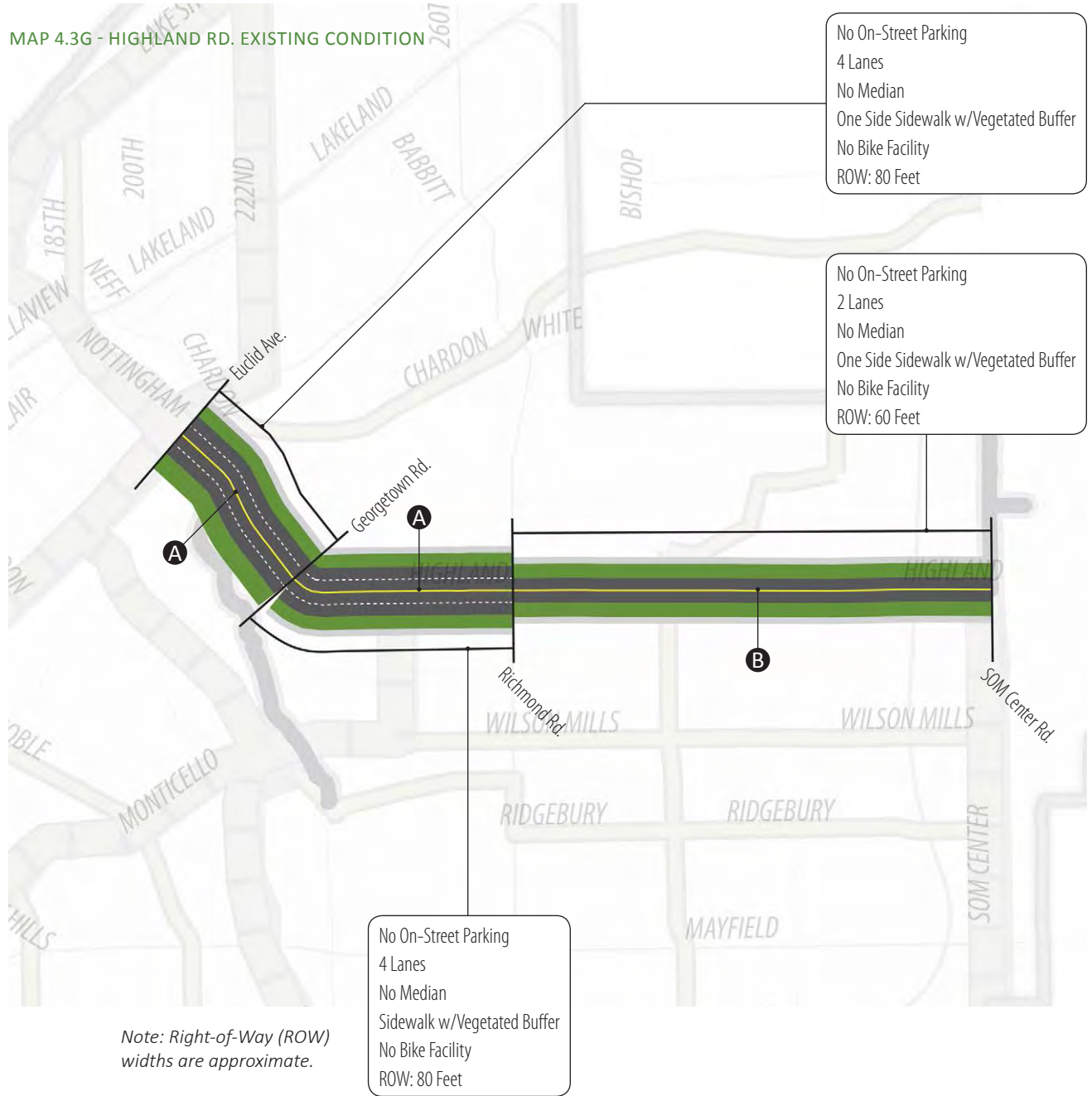
- Preserves existing roadway configuration
- Adds multi-use trail on the south side of the road. This trail would connect to a new proposed gateway/entrance into Euclid Creek Reservation on the south side of Monticello Blvd. to the east of Green Rd.



4.3 PRIORITY PROJECTS: NEAR-TERM

HIGHLAND RD. (G)

The Highland Rd. corridor provides an east-west connection between Euclid Creek Reservation, SOM Center Rd., the SOM Center Rd. side path, and other Mayfield Village trails. These trails connect to North Chagrin Reservation. As such, Highland Rd. provides an important link that will be accessible to a wide range of users.



Location Map

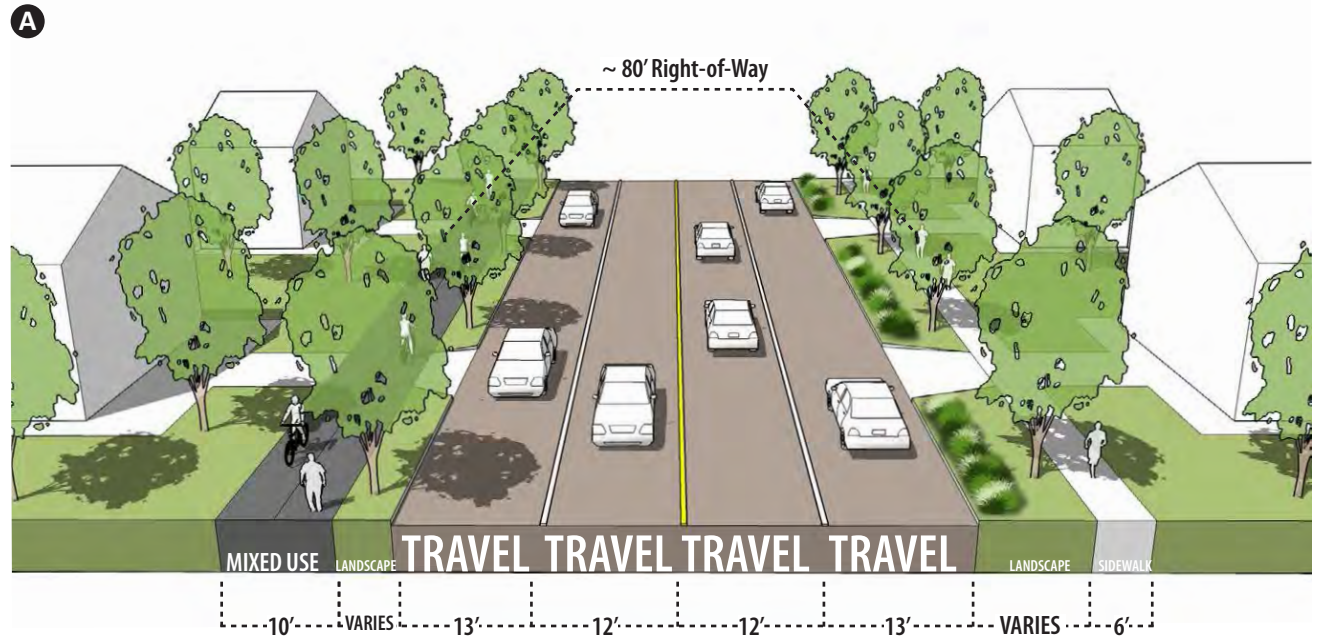
HIGHLAND RD. - DESIGN

Section A - Multi-Use Side Path Trail

EXTENT: EUCLID AVE. TO RICHMOND RD.

This section passes through a predominately undeveloped area adjacent to woods and natural areas to the west and a residential area to the east.

- Maintains existing roadway (recently resurfaced)
- Widens existing sidewalk on the south and west side of the road into a multi-use trail. In the residential area, this may require minimal right-of-way acquisition

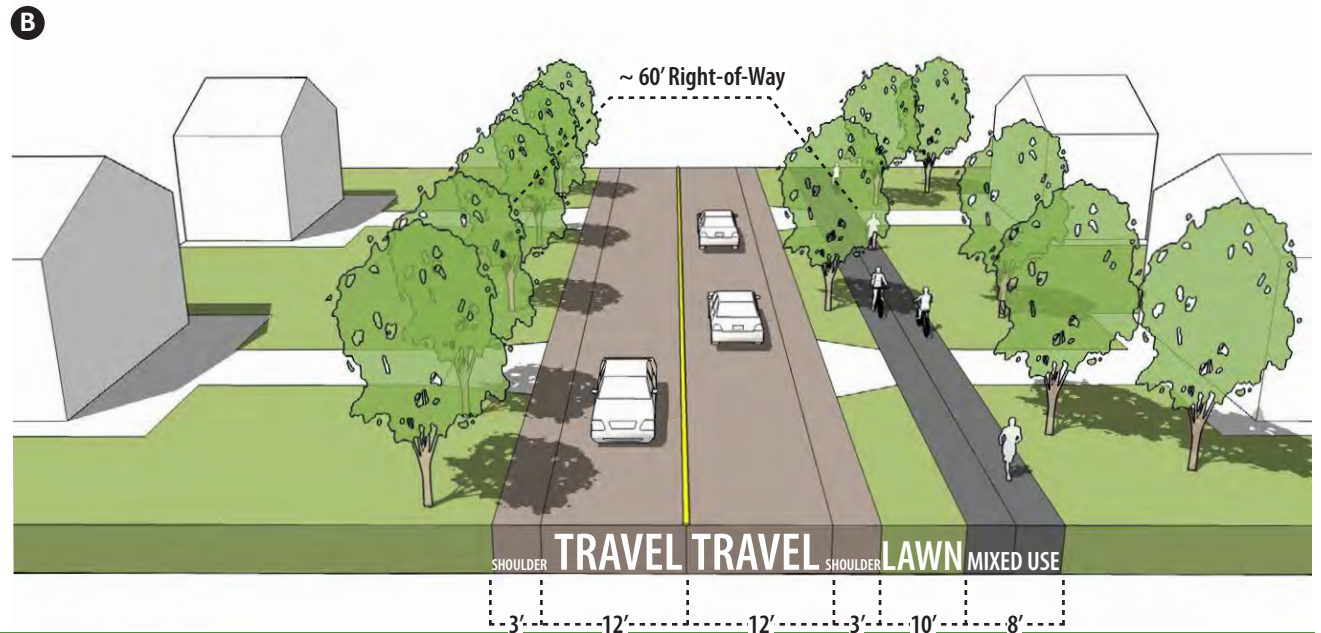


Section B - Multi-Use Side Path Trail

EXTENT: SOM CENTER RD. TO RICHMOND RD.

This section passes through a predominately residential area with an existing sidewalk on the north side.

- Adds multi-use trail by either expanding the existing sidewalk on the north or adding a new shared-use path on the south side of the road. The trail alignment should coincide with the alignment in Section A to minimize crossings on Highland Rd.
- Preserves existing roadway configuration
- As an alternative, the un-curbed shoulder may be widened an additional 2 feet to 3 feet on each side to accommodate bike lanes. This would require modification to the drainage ditches



4.3 PRIORITY PROJECTS: NEAR-TERM

NOBLE RD. (J)

Noble Rd. is a high priority linkage that connects Euclid Ave. with Warrensville Center. Greenway enhancements along Noble Rd. provide a significant opportunity to benefit a challenging portion of the project area. This corridor contains a mixture of commercial and residential land uses.

Noble Rd. is marked as a 4-lane road functioning largely as a 2-lane road due to some commercial sections that allow some on-street parking in the outside travel lane.

Noble Rd. is a transit corridor, and improvements should reinforce and support transit service along the corridor.

MAP 4.3H - NOBLE RD. EXISTING CONDITION



Location Map

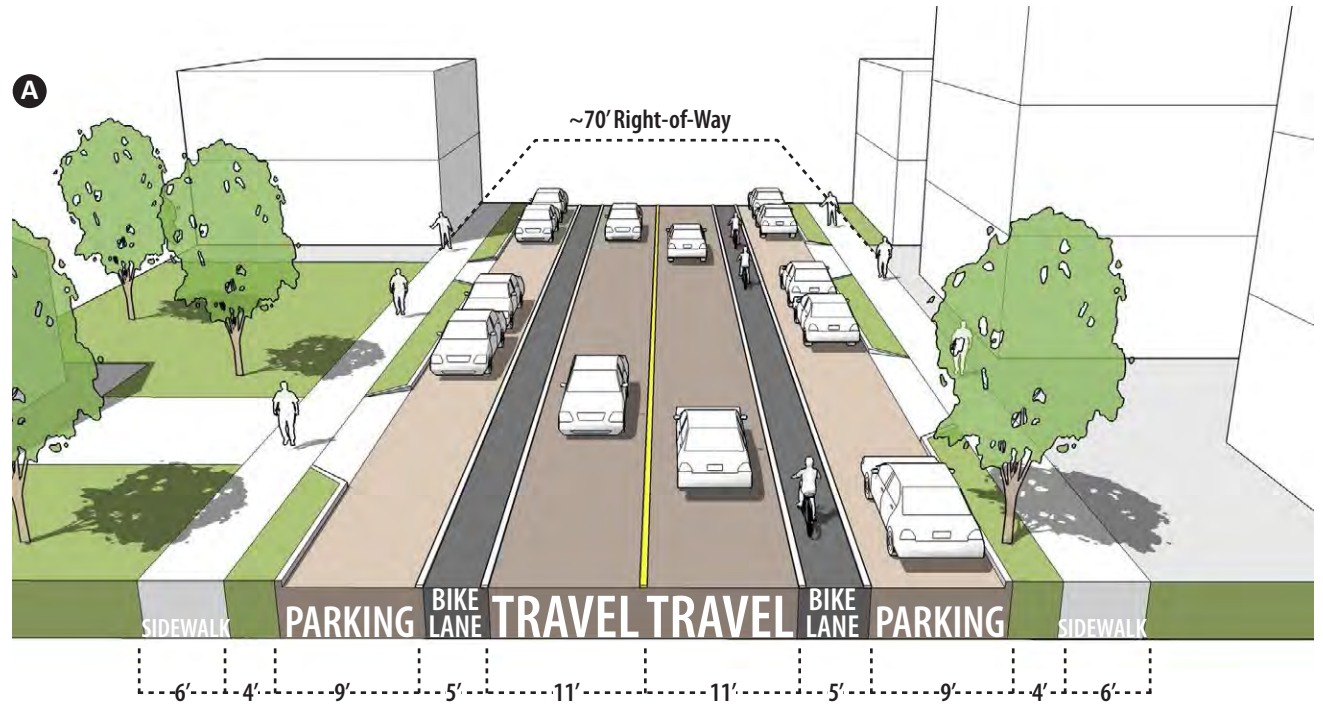
NOBLE RD. - DESIGN

Section A - Bike Lanes

EXTENT: EUCLID AVE. TO MAYFIELD RD.

Section A is most applicable in commercial areas where on-street parking is desired. Currently, the roadway is configured as a 4-lane road with the wide outside lanes allowing on-street parking. These lanes could be converted into a narrower parking lane with a designated bike facility. This would reduce roadway capacity to two travel lanes.

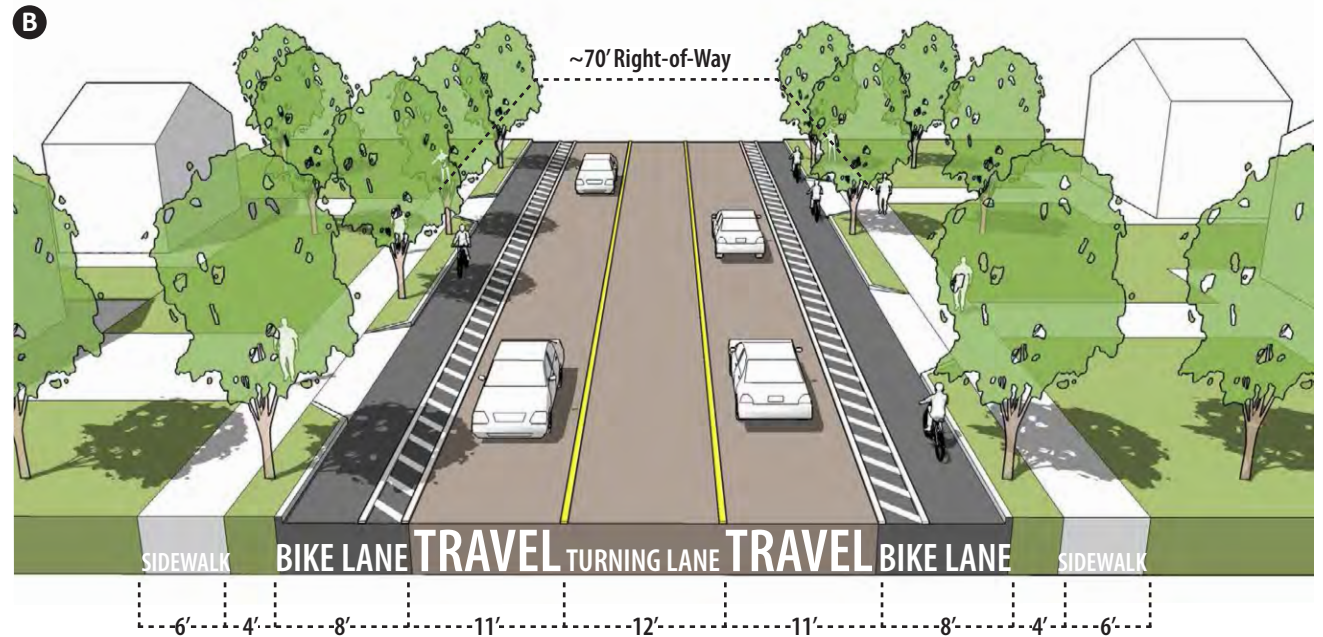
- Maintains two travel lanes
- Converts wide outside lane to parking lane and designated bike lane
- Provides streetscape enhancements throughout
- Removes parking at major intersections to accommodate turn lanes



Section B - Buffered Bike Lanes

EXTENT: EUCLID AVE. TO MAYFIELD RD.

- Explores lane reduction opportunities (4-lane to 3-lane) in residential areas to allow creation of buffered bike lanes
- Provides street trees for pedestrian shade throughout the corridor
- Explores opportunities for stormwater management in front lawn areas, particularly on publicly owned properties

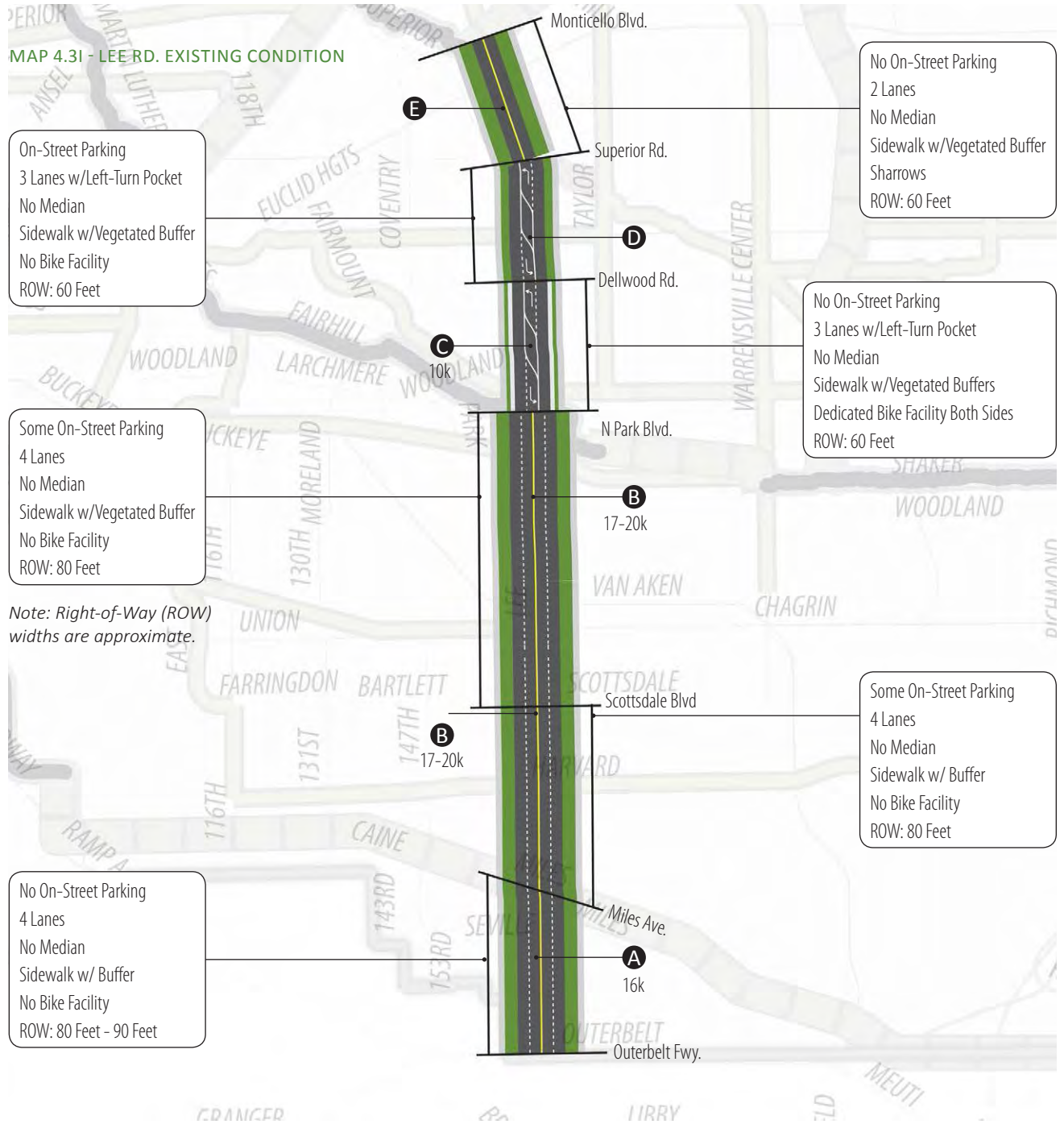


4.3 PRIORITY PROJECTS: NEAR-TERM

LEE RD. (P)

The Lee Rd. corridor is an important north-south linkage that serves a number of communities and land uses, from compact and active commercial nodes to residential areas. Cleveland Heights has converted a portion of Lee Rd. to a 2-lane road with a center-turn lane with wide shoulders to accommodate bikes. Shaker Heights completed a study for a similar road diet and they plan to implement the recommendations in the near future. Similar conversions should be studied by Cleveland for the north and south sections of Lee Rd.

Lee Rd. is also a vital transit corridor, and future greenway improvements should reinforce and support transit service along the corridor.



Location Map

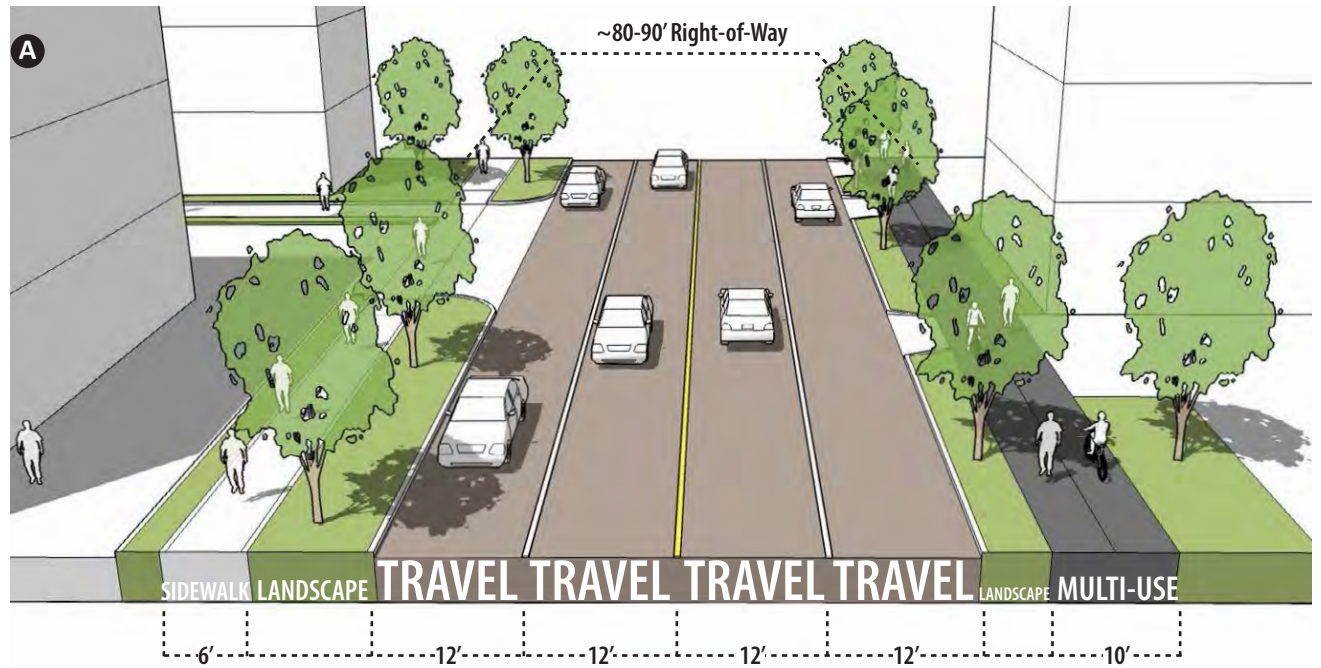
LEE RD. - DESIGN

Section A - Multi-Use Side Path Trail

EXTENT: I-480 TO MILES AVE.

This section is a commercial area with access to residential neighborhoods.

- Maintains four travel lanes
- Adds a multi-use trail on the east side of the road. A number of large parcels with significant setbacks may facilitate trail construction

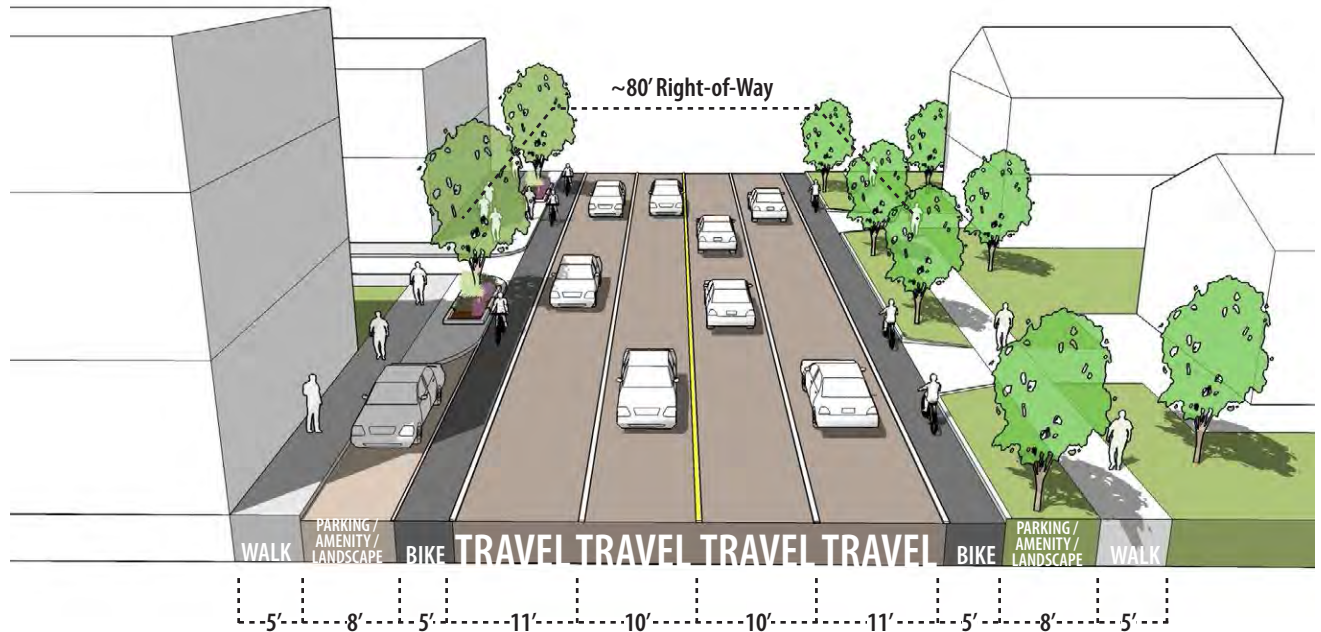


Section B1 - Urban Corridor Enhancement

EXTENT: MILES AVE. TO SCOTTSDALE BLVD.

This section serves a predominantly commercial area.

- Maintains existing four travel lanes
- Adjusts curb location (which is in poor condition in many places) outward to allow for creation of 5 foot wide bike lanes
- Depending on the land use context, the zone between the sidewalk and curb edge can be used for on-street parking, amenity uses (e.g. expanded pedestrian areas for activity), or landscaping



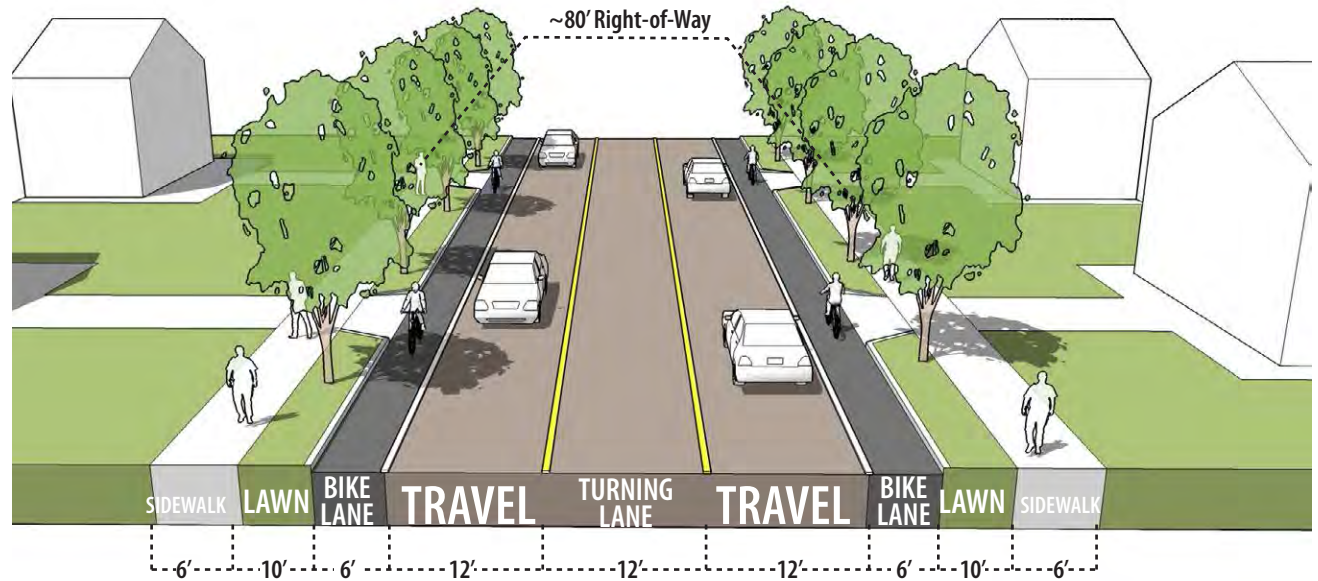
LEE RD. - DESIGN (CONTINUED)

Section B2 - Urban Corridor Enhancement

EXTENT: SCOTTSDALE BLVD. TO N PARK BLVD.

This proposed cross-section aligns with the recommendations of the Lee Road Traffic Study and Corridor Plan for Shaker Heights (2012).

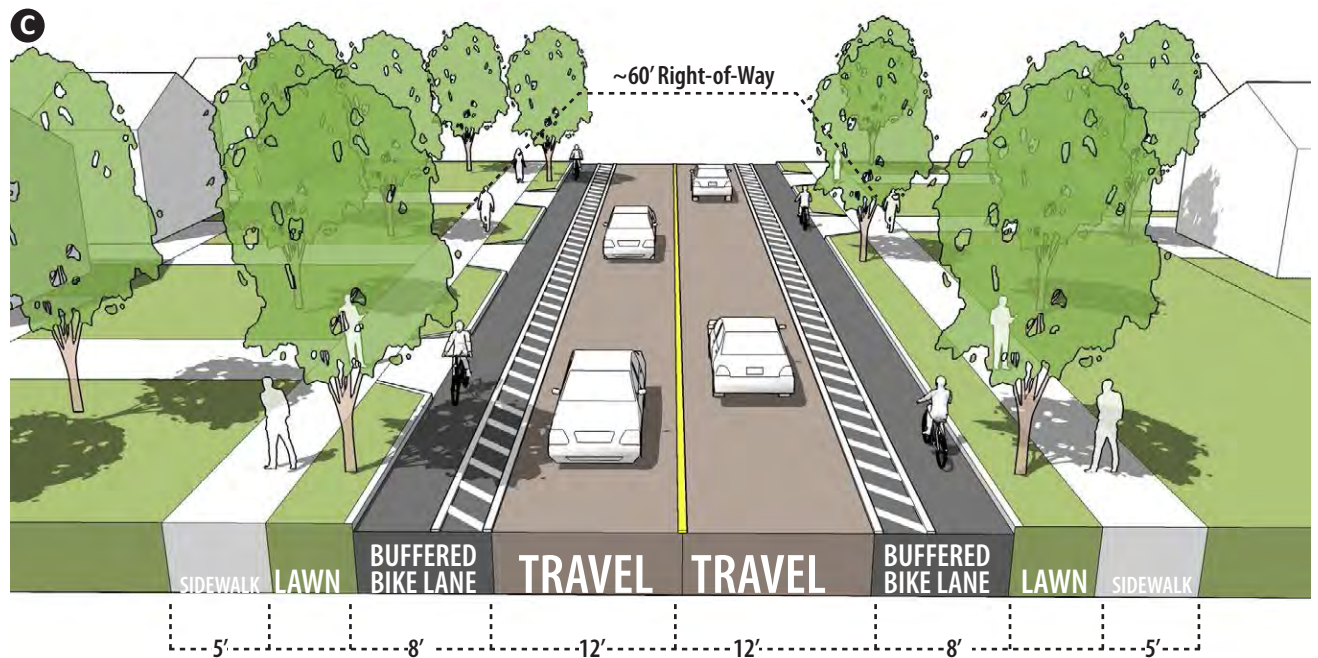
- Removes one lane and reduces roadway to a three lane configuration (from four lanes)
- Adds dedicated bike lanes
- Enhances the streetscape and sidewalk environment



Section C - Road Diet & Buffered Bike Lanes

EXTENT: N PARK BLVD. TO DELLWOOD RD.

- Removes center-turn lane, preserves two traffic lanes
- Adds dedicated buffered bike lanes on both side of road (existing pavement area is 40 feet). The existing "bike lanes" are too narrow to be signed as such. Study the feasibility of removing the center-turn lane



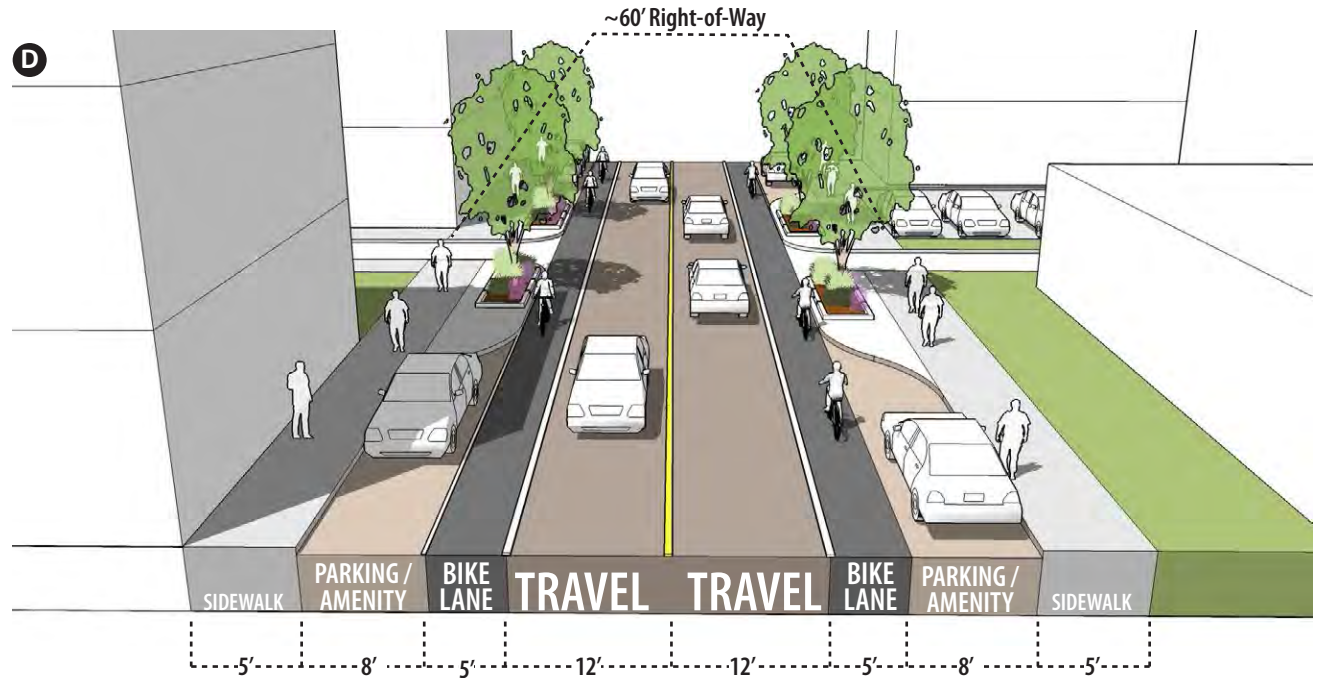
LEE RD. - DESIGN (CONTINUED)

Section D - Commercial Hotspot

EXTENT: MAYFIELD RD. TO N PARK BLVD.

This commercial hotspot, focused at Lee Rd. and Meadowbrook Blvd., is a small-scale pedestrian centric area.

- Removes center-turn lane outside of signaliz intersections and preserves two traffic lanes
- Adds dedicated bik road
- The zone between the sidewalk and curb edge can be used for on-stree uses (e.g. expanded pedestrian areas f as needed

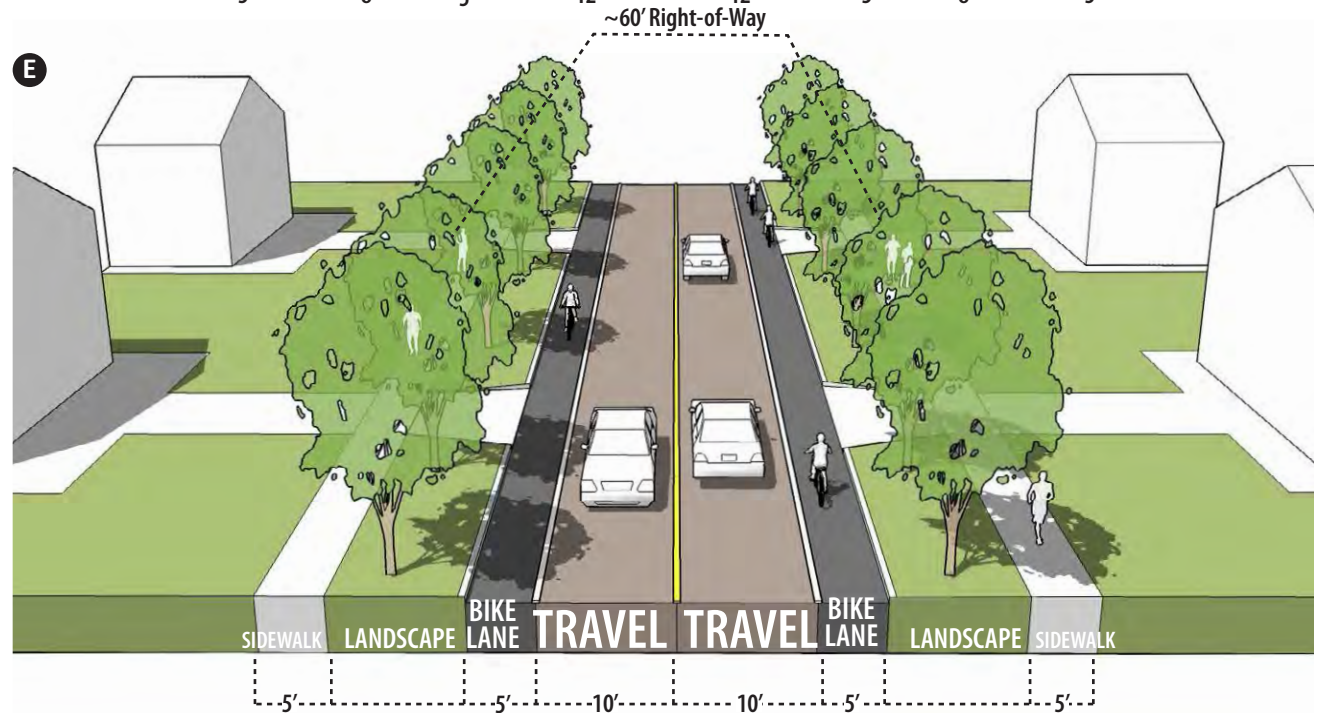


Section E - Bike Lanes

EXTENT: MAYFIELD RD. TO N PARK BLVD.

Primarily a residential district.

- Restripes the existing 2-lane road t narrower vehicle travel lanes and mark dedicated bike lanes



4.3 PRIORITY PROJECTS: NEAR-TERM

HARVARD AVE. (R)

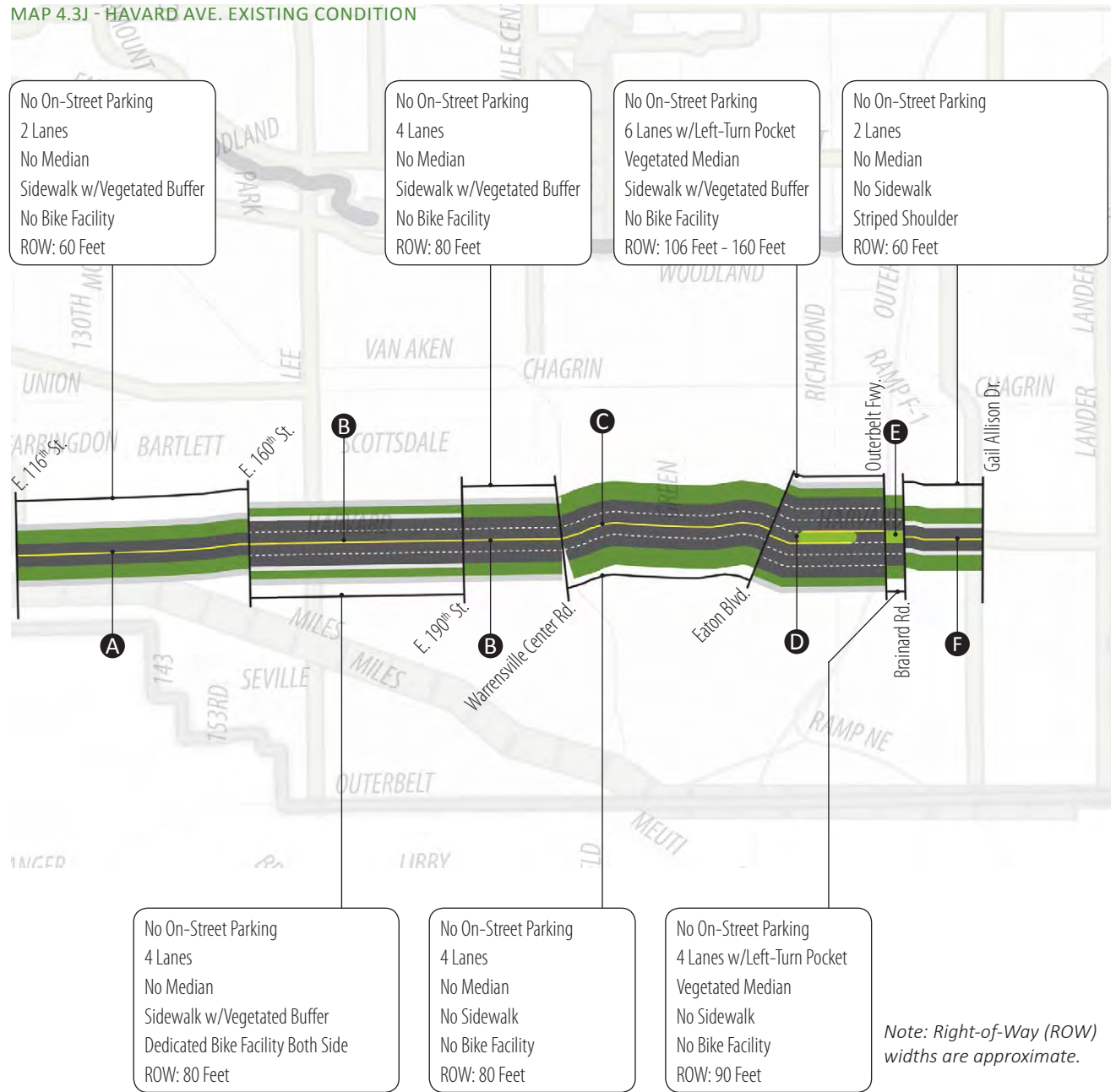
Harvard Ave. provides an important east-west connection in the southern portion of the project area. It passes through a number of municipalities including Cleveland, Warrensville Heights, Highland Hills, Beachwood, Orange, and Moreland Hills. Harvard Rd. has ample opportunity for incorporating greenway elements into the public right-of-way. In many areas pavement widths are excessively wide and re-striping can allow creation of bike facilities. In other areas, there is ample room outside of the roadway to locate multi-use trails.

Harvard Rd. provides access to regionally significant job centers, such as University Hospital facilities, Eaton Corporation, Cuyahoga Community College, and Chagrin Highlands. Additional proposed development throughout the corridor underscores the need for greenway facilities. Existing and future transit operations should be considered carefully to provide effective multi-modal connection points between transit and walking or biking.



Location Map

MAP 4.3J - HARVARD AVE. EXISTING CONDITION



Note: Right-of-Way (ROW) widths are approximate.

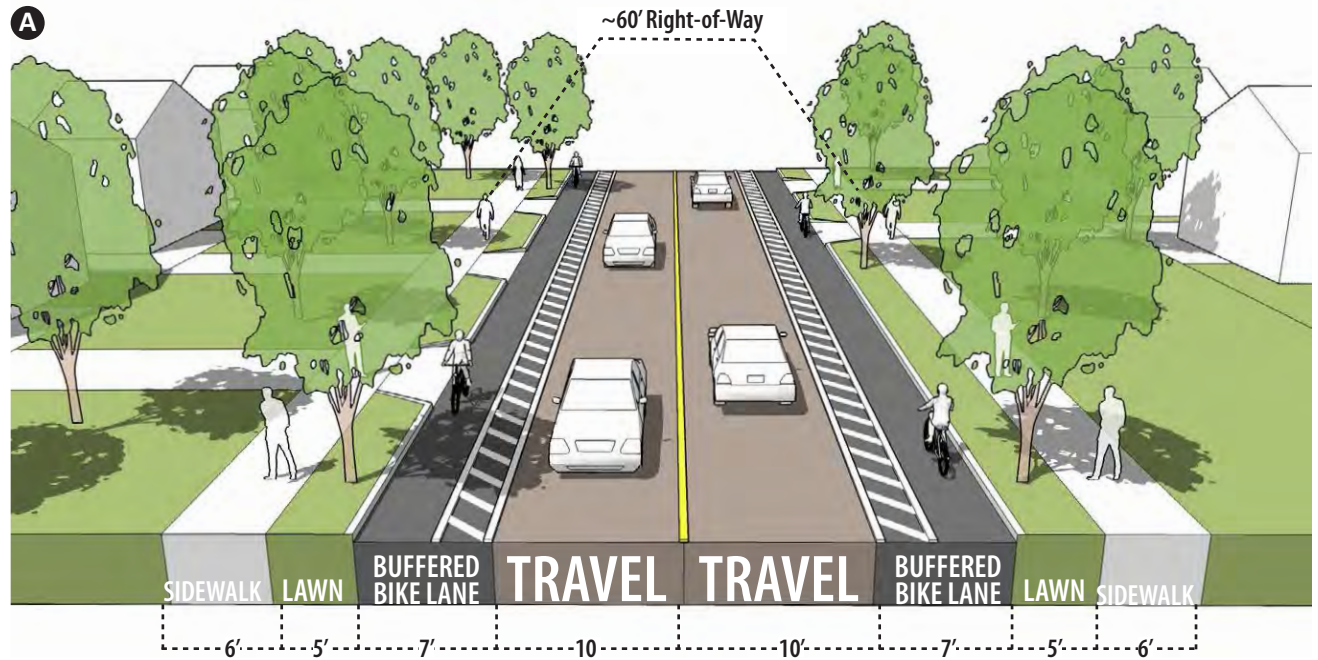
HARVARD AVE. - DESIGN

Section A - Bike Lanes

EXTENT: E. 116TH ST. TO E. 160TH ST.

This section traverses a predominantly residential neighborhood in Cleveland. Slowing down traffic with narrower lanes can make the street safer for all users. The road is configured with two wide travel lanes.

- Maintains two travel lanes
- Adds dedicated buffered bike lanes on both sides of the road (existing pavement width is 34 feet wide)
- Adds landscaping and street tree planting
- Where on-street parking may still be needed, provide a 7 foot parking lane on one side of the street with narrower bikes lanes on both sides (may require curb modification)

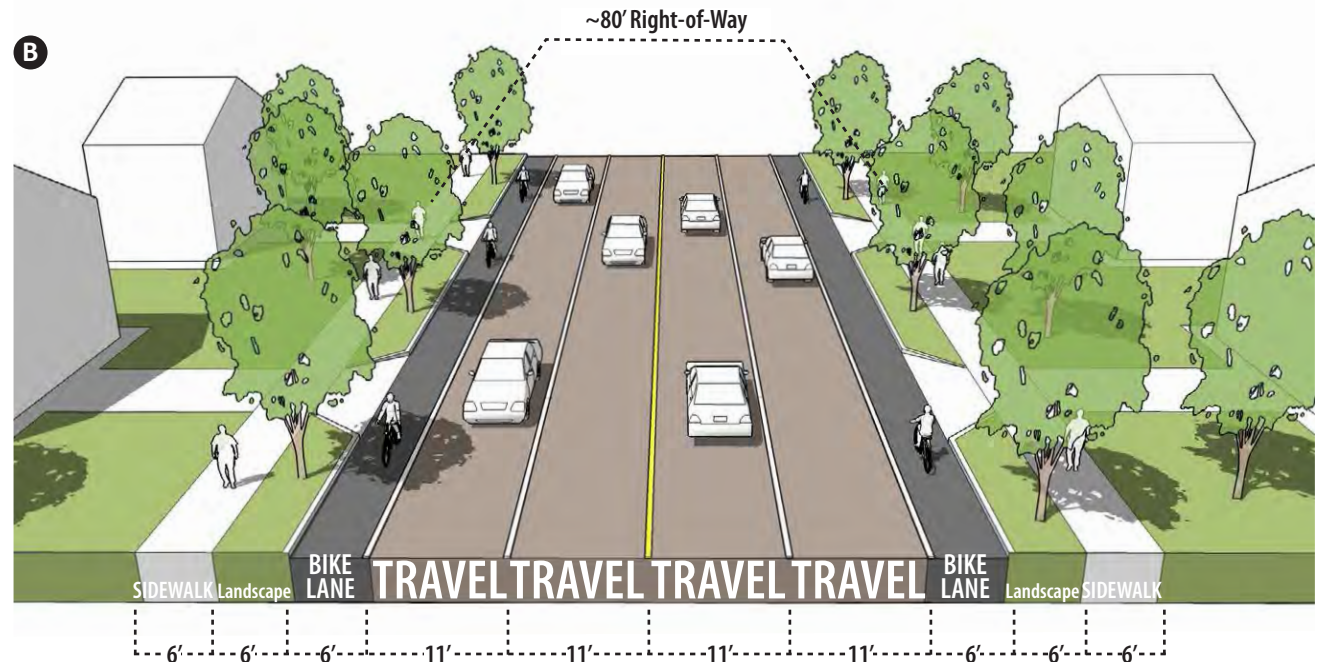


Section B - Bike Lanes

EXTENT: E. 160TH ST. TO WARRENSVILLE CENTER RD.

This section of road passes through primarily residential areas in Cleveland and Warrensville Heights. It is configured with four wide travel lanes.

- Maintains four travel lanes
- Adds dedicated bike lanes
- This recommendation corresponds to the fairly recent reconfiguration of Harvard Ave. between E. 160th St. and E. 190th St.



HARVARD AVE. - DESIGN

(CONTINUED)

Section C - Multi-Use Side Path Trail

EXTENT: WARRENSVILLE CENTER RD. TO EATON BLVD.

This section passes through a relatively undeveloped area with large natural areas adjacent to the roadway. However, multiple parcels are currently being developed in previously green areas. There is ample room to provide wide multi-use trails on one or both sides of the roadway.

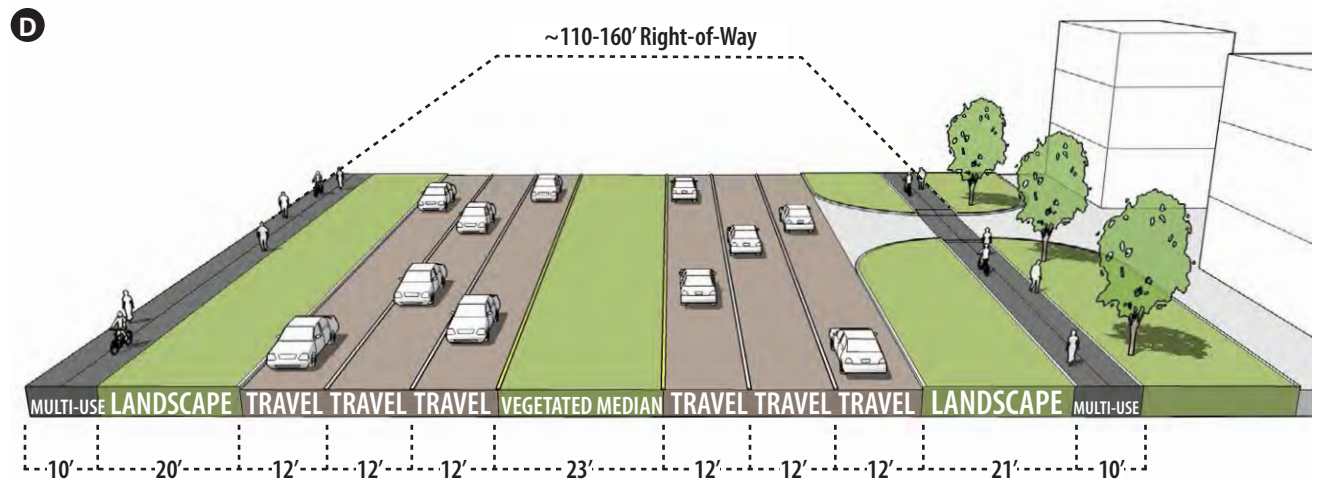
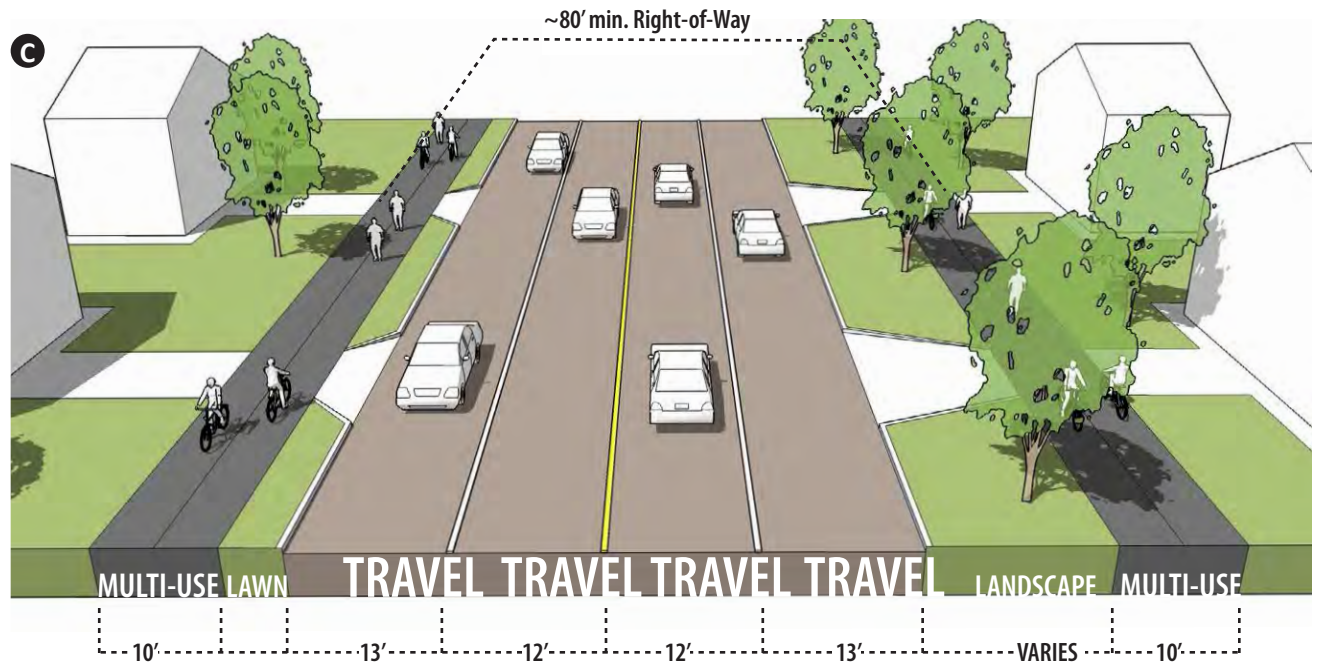
- Preserves four traffic lanes
- Adds multi-use trails on one or both sides of the road. Acquiring additional right-of-way along undeveloped areas would allow expansive tree planting and aesthetic enhancement along the corridor
- It is important to coordinate with Warrensville Heights and Beachwood now, to ensure the multiple properties that are being developed will preserve space for the proposed greenway facilities

Section D - Multi-Use Side Path Trails

EXTENT: EATON BLVD. TO ORANGE PLACE.

Harvard Ave. includes a very wide right-of-way near the Eaton office campus to the east side of the 271 (outerbelt) freeway.

- Preserves existing roadway configuration
- Adds multi-use side paths trails on both sides of the roadway



HARVARD AVE. - DESIGN

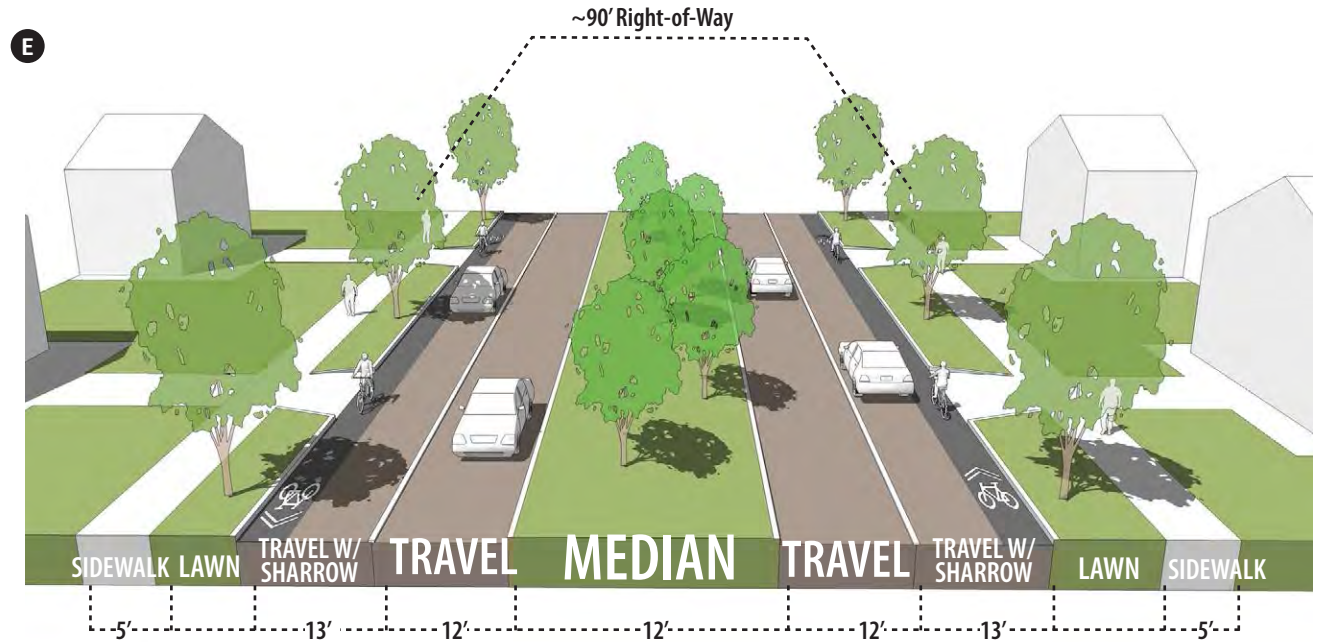
(CONTINUED)

Section E - Sharrows & Sidewalk

EXTENT: ORANGE PLACE TO BRAINARD RD.

This short segment has a median.

- Preserves four existing travel vegetated median
- Marks outside travel lanes with sharrows
- Adds sidewalks on both sides of the r
Alternatively, a multi-use trail c
one side of the r

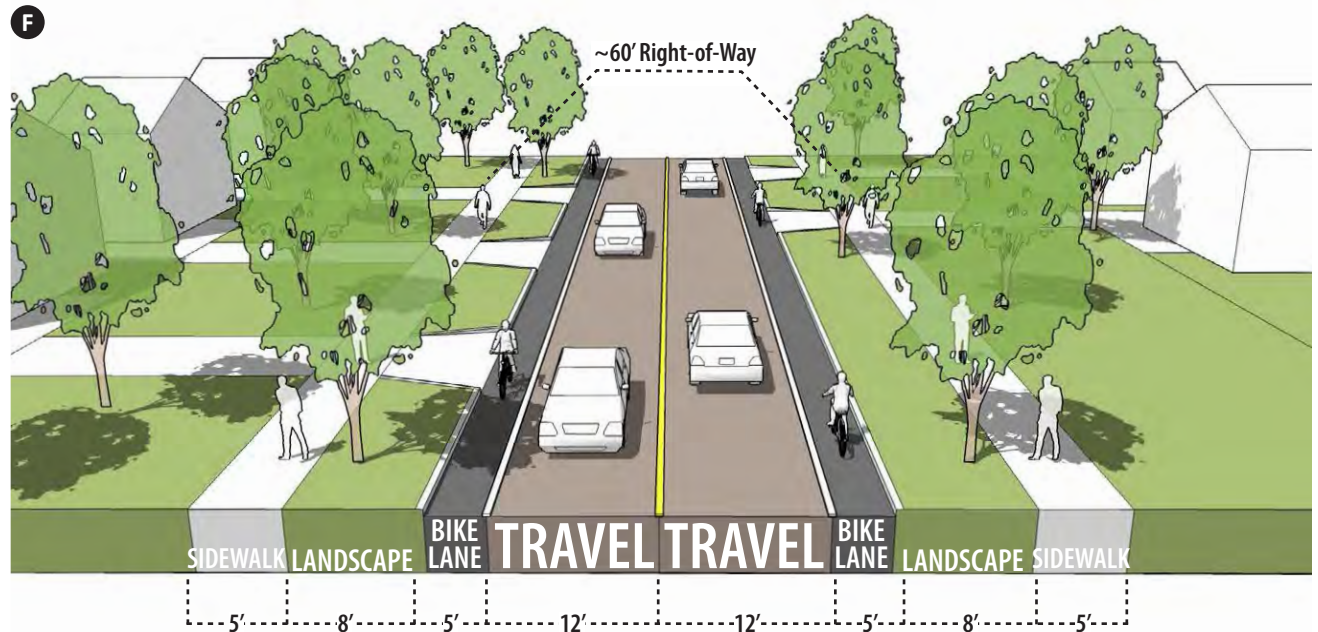


Section F - Bike Lanes & Sidewalk

EXTENT: BRAINARD RD. TO SOM CENTER RD.

This section transitions to a more suburban/rural land use context.

- Maintains two travel lanes
- Expands shoulder on both sides of the road to accommodate bike lanes
- Adds sidewalk on both sides of the road (long-term)
- Note: Harvard Ave. becomes Hiram Trail eas Lander Rd.





CHAPTER 5 RECOMMENDATIONS

5.1

IMPLEMENTATION RECOMMENDATIONS

Implementation is where “the rubber meets the road.” It is this implementation stage that turns a planning document into an on-the-ground reality. The implementation of a greenway system as large and complex as the Eastside Greenway cannot be accomplished at one time. It will take many years to build the system, giving full consideration to the way each part of the system is designed, surveying the miles and developing adequate funding. This strategic vision will serve as an organizing framework to ensure that collaboration and connectivity is maintained between the many jurisdictions.

GREENWAY GOVERNANCE STRUCTURE

Implementing the Eastside Greenway Plan should take place at the local government level and should be respectful of local government realities while responding to regional needs. A general management and oversight organization should guide the overall process and assist with the burden of facility development. This regional body would be a partnership with local governments, state and federal agencies and non-governmental organizations. Local jurisdictions would continue to be responsible for all site specific decisions related to the development of their specific components of the regional network but this should all be done within the context of the collective benefit.

The Kansas City Mid-America Regional Council (www.marc.org) coordinates their successful MetroGreen regional greenway, a metropolitan trail system that connects urban and rural green corridors throughout seven counties in the Kansas City region. As part of their planning efforts, they identified several types of organizational structures that are currently operating throughout the United States governing various greenway initiatives.

Listed below are examples of some of the most successful models by type. It is important to recognize that most of the routes proposed for the Eastside Greenway fall within the public street right-of-way, as opposed to being located in parks or other non-street properties. This underscores the importance local municipalities and transportation focused agencies may have in implementing greenways.

The Single-Agency Model

The single-agency greenway model is developed around the leadership of a local, regional or state government agency. Often this will be a parks and recreation or planning department whose interests and operating mission are naturally aligned with the goals for greenways. The Raleigh, North Carolina, Capital Area Greenway Trail System (primarily off-road trails) is an example of a single-agency greenway model with the Parks and Recreation Department as lead agency.

The Multi-Agency Model

The multi-agency model offers the same organizational foundation as the single-agency model, however, in this example, two or more agencies have decided to pool their talent and divide the

responsibilities in order to resolve the complex issues for greenway implementation. The Charlotte-Mecklenburg County, North Carolina Greenway Program is an example of a dual agency program with Parks and Recreation as lead and County Stormwater Services, Charlotte-Mecklenburg Utilities and other agencies in supporting roles.

The Public-Private Model: Option 1

There are two public-private partnership models for greenways. The first is a strong-side public sector, which in essence means that local government partners support the bulk of its efforts. The private sector may support this partnership through fundraising, promotion and programming.

The Roanoke Valley Greenway Commission is a good example of a regional public-private greenway organization.

The Private-Public Model: Option 2

Under this scenario, the private sector is the strong side, which means that private organizations shoulder more of the burden for planning, design, implementation and management of greenways.

Under this model, public sector partners typically support greenway efforts in the areas of management, promotion, and programming. For example, The Saint Paul Riverfront Corporation was developed with the support of public sector leadership. Chicago Openlands is a very good example of a private-public greenway organization, as well as the Southeast Michigan Greenways Initiative led by the Community Foundation for Southeastern Michigan with public sector partners.

The Private Sector Model

The private sector model places the establishment and operations of the greenway program totally within the realm of private organizations, without any direct influence from local, regional or state governments. The private sector completes all work on greenways through its own means. The South Suburban Park Foundation of Denver, Colorado is a good example of a private sector organization that is exerting leadership in greenway development. Additionally, the Peninsula Open Space Trust in San Francisco is a private sector organization that is protecting land and implementing a variety of greenway objectives in the Bay Area region.

Short-Term Recommendations for Eastside Greenway Governance

The Cuyahoga County Board of Health suggested formation of an Eastside Greenway Coalition as part of their recently completed HIA for the Eastside Greenway. This could be developed in the form of the multi-agency model described in the previous section. In the short-term, it is recommended that LAND studio continue to coordinate with the Steering Committee, which includes project area municipalities as well as local, state and federal agencies and organizations, to advance this plan at the regional level. However, LAND studio should not, by itself, be responsible for accomplishing the recommendations. It will be essential to build upon the existing partnerships with local governments and join with private sector groups, organizations, landowners and businesses to establish an oversight organization with the goal of coordinating the Eastside Greenway vision. The recently formed Greater Cleveland Trails Leadership Network is another organization, at the county-level, that may be able to provide higher level guidance and support for greenway implementation.

PROJECT DEVELOPMENT PROCESS

Once a general management and oversight organization has been established, the partnership should work through its set of near-term protection and construction priorities, agreeing as a body to collectively support and pursue them. The exercise of prioritizing projects can alarm businesses and residents if they believe their property is being targeted or, in the converse, if their needs are being ignored. The value of a regionally-based oversight organization is that, collectively, the needs of the region can be considered, evaluated and prioritized.

The local governments must look for new ways to adapt their local planning documents and procedures so that resource protection and the provision of recreation opportunities are acknowledged as critical components of land development and growth management decisions. Local governments should use the Eastside Greenway Plan as a resource when updating their zoning and subdivision regulations. They should also reference this plan as one of the guiding documents to be used in local development review decisions and in local green infrastructure planning.

Municipal and county jurisdictions prepare multi-year capital improvement plans as well as comprehensive guide plans. Since greenways may incorporate financial and land use partnerships between local communities and the county, plan coordination will be critical. This speaks to the importance of communication, agreeing on greenway corridors, determining priority projects and determining capital funding responsibilities. At a more refined scale, the general management and oversight organization will prioritize projects and work with municipalities in a transparent manner to ensure that the needs of the region are being addressed in an adequate fashion.



Implementation involves both deliberate action and continued planning. Along the way, the preliminary decisions are re-examined to assure that they continue to take the community in the desired direction. New data is also collected, and action steps are adjusted and amended to respond to new realities. Checking back with the original plans and decisions, while in the process of continuing to move towards the next step, the oversight organization will be able to keep the momentum moving forward while keeping an eye out for changing conditions that should be responded to.

The importance of maintaining good communication throughout this process cannot be overstated. This should include regular newsletters or articles in the local paper about the process and should include many meetings with communities who might be affected by proposed regional greenways.

GREENWAY MAINTENANCE/ MANAGEMENT

Maintenance of roadways and bikeways is important for user safety and to make wise use of public funds invested in these facilities. Well-maintained facilities minimize road hazards and promote increased usage. Maintenance of the on-street bikeway system should be included directly as part of standard roadway maintenance.

Roadways and bikeways should be maintained to accommodate all users to a reasonable level of safety. Maintenance should be based in part on an understanding of cyclists' needs, particularly concerning the roadway edge where the majority of cycling takes place. Ridges and cracks, such as often develop between the roadway pavement and gutter pan, can be hazardous to cyclists. Existing drainage grates which have longitudinal slots or which are not flush with pavement can trap a bicycle wheel and contribute to accidents.

Common maintenance concerns such as potholes, cracks and debris in the roadway cause problems not only for cyclists but for motorists as well. Wet leaves, rocks, gravel, sand, snow, ice, branches, and

glass present difficulties, often causing cyclists to use more of the travel lane or even swerve unpredictably in order to avoid these hazards. Responsive and appropriate levels of maintenance will facilitate safe and responsible bicycle travel on roadways and bikeways.

Maintenance to be performed on a continuous, scheduled basis:

- **Inspection:** Routine inspections are integral to all maintenance operations and should occur on a regular basis. The frequency of inspections should be based on the amount of trail use, location and age. It is important to maintain documentation of inspections, the condition of railings, bridges, and trail surfaces, provide adequate signage, and coordinate with other agencies associated with trail maintenance.
- **Sweeping/Snow and Ice Removal (Seasonal)** Accumulated debris at the roadway edge in the bicycle lane is one of the most common obstacles to safe use of facilities by cyclists. The type of sweeping to be performed should be based on facility design and location. Bicycle lanes that require sweeping of the whole system can be swept by machine. Trails that require sweeping of bad areas can be swept by hand with blowers. Some trails require a combination of methods. Ice control and removal of snow build-up is a continual factor because of the freeze-thaw cycle. Ice control is most important on grade changes and curves. Ice can be removed or gravel/ice melt applied. After the ice is gone, leftover gravel should be swept.



- **Trash Removal:** Trash removal from trail corridors is important from both a safety and an aesthetic viewpoint and includes removing ground debris and emptying trash containers. Trash removal should take place on a regular scheduled basis, the frequency depends on use and location.
- **Vegetation Management:** Plan the side of the road or bikeway may encroach and cause sight distance problems for motorists and cyclists. Encroachment causes cyclists to ride further into the travel lane to avoid being hit or to swerve unexpectedly. Plan the side of the road so that motorists' views may cause them to extend vehicles further into the travel lane or to see. This may cause motorists to make unsafe crossings in front of oncoming vehicle, bicycle and pedestrian traffic.
- **Signs, Stripes and Legends:** Signs, stripes and legends fade over time as they are exposed to the elements and, for stripes and legends, to traffic traveling over their surface. Regular inspection and maintenance is important to support regulatory and advisory signs, to increase the visibility of bicycle and pedestrian signs and to reduce liability of responsible agencies.
- **Drainage Facilities:** Drainage facilities should be designed and maintained with consideration for bicycle traffic. Over time, drainage grates may shift or separate, longitudinal slots may develop and grates may not have been brought to grade as part of periodic overlay projects. Also, curbs to divert surface drainage into catch basins may have been constructed in the bicycle or roadway shoulder area, thereby presenting hazards to bicycle traffic.

Maintenance to be performed on an as needed basis:

- **Surface Repairs:** Maintaining roadway and bicycle lane pavement surface to acceptable standards is important to attract potential cyclists to use facilities as well as to safely provide for existing users. Enhanced maintenance levels and preventative maintenance practices is desirable to provide a rideable surface pavement minimizing bumps, cracks, edges or drop-offs, ridges, and potholes.
- **Trail Signage:** Signs fall into two categories: safety and information. User information signs (where they are, where they are going, and how to use facilities safely) related to safety are most important and should be considered first. Information signage can enhance the user's overall experience (more under Wayfinding & Branding). Safety information signage should be maintained on an as needed basis.
- **Re-vegetation:** Areas adjacent to trails that have been disturbed for any reason should be re-vegetated to repair ruts, minimize erosion and potentially mitigate an unsafe condition.

SAFETY & SECURITY

Providing safe and secure facilities is essential to ensure success and increase usage. Safety and security are considered at both the design and the management phases of the project. With respect to design, providing adequate lighting and sight lines will improve physical conditions along the proposed trails. This allows users to better view their surroundings as well as supports the concept of “eyes on the trail” where local residents self-monitor safety. Security cameras and call boxes are sometimes used to further enhance this safety.

Like maintenance, management through policing will be a critical coordination item between Cuyahoga County, the City of Cleveland and local jurisdictions. Coordination among the local law enforcement agencies to determine appropriate policing of greenways is critical. Of equal importance is the level of policing required to keep greenways secure. Like many issues in greenway operations, policing should be strategized in the planning phase of a particular greenway segment and monitored.



WAYFINDING & BRANDING

Wayfinding can be defined as spatial problem solving. It is knowing where you are in an environment, knowing where your desired location is, and knowing how to get there from your present location. A good wayfinding system gives strong indicators of where the user is and how to get to their destination from their present location. The Universal Principles of Design (Lidwell, Holden and Butler, 2010) outlines the basic process of wayfinding in four stages:

1. Orientation is the attempt to determine one's location, in relation to objects that may be nearby and the desired destination.
2. Route decision is the selection of a course of direction to the destination.
3. Route monitoring is checking to make sure that the selected route is heading towards to the destination.
4. Destination recognition is when the destination is recognized.

While much of the regulatory signage is standardized, there is an opportunity to develop wayfinding signage and related content that meets these four criteria. Many users of the Eastside Greenway will be local and will certainly understand their location and destination. Thought must be given to the level of detail and messaging to be provided for those who may not be familiar with the area or are exploring outside of their limit of local knowledge. A hierarchy of signage based on the type of information being conveyed along with a consistent graphic theme can guide users in their travels and create a sense of continuity throughout the region. This theme should be carried over to web-based content so that users can easily plan routes with the knowledge that appropriate facilities are in place.

Branding of the Eastside Greenway is one element of the wayfinding strategy that is critical to reinforce the vision of the collaborative community. It is recommended that a single graphic image be developed to serve as the symbol for the Eastside Greenway on all signage. This allows users to know they are within the collective network. At the same time, there are several established trails within the Eastside Greenway project area, such as the Lake to Lakes Trail, the Lakefront Bikeway and the Morgana Run Trail, that currently have individualized signage that identifies their routes. It is important to recognize the hard work that has taken place to develop these trails and the image and context they have developed. For trails of this nature, it is recommended a smaller version of the Eastside Greenway trail logo be added to the signage in an effort to acknowledge inclusion in the overall vision.



FUNDING RESOURCES & OPPORTUNITIES

Communities around the country are using a variety of ways to pay for bicycle and pedestrian facilities, just like they do for other important civic infrastructure. Unfortunately, there is no go-to-funding source for this type of work. Within a given project, several sources will often be used. The choice depends on the availability of particular funds, the nature of the projects and timing. Innovative communities are nimble and flexible in regards to the range of funding sources they use to build protected bikeways. Examples of funding sources for greenway facilities include:

- **Federal**
 - » Congestion Mitigation and Air Quality Improvement (CMAQ) Program
 - » Highway Safety Improvement Program (HSIP)
 - » Surface Transportation Program (STP)
 - » Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant Program
 - » Transportation Alternatives

- **State**
 - » State Bicycle and Pedestrian Grants
 - » State Multi-modal Funds
 - » State Safe Routes to Schools Funds
- **Local/Regional**
 - » Business Improvement District funds
 - » General Obligation Bonds
 - » Local Capital Improvement Programs
 - » Tax Increment Financing (TIF)
- **Private**
 - » Developers
 - » Hospitals
 - » Philanthropy
 - » Universities

Appendix C includes a list of potential funding sources potentially applicable to the Eastside Greenway Plan.



SUSTAINABLE DESIGN OPPORTUNITIES

Sustainability is generally considered within the realm of social, economic and ecological assets. This is the broadly accepted definition of sustainability as it can be applied to a range of topics. With respect to the Eastside Greenway Plan, it is relevant to also consider sustainability experiential elements as part of the overall viability and success of the network.

Ecological sustainability is understood by most people as facilities that take advantage of opportunities to embrace natural resources and enhance habitat corridor. The Eastside Greenway has been developed with a strong emphasis on green infrastructure. This includes exploring opportunities to integrate stormwater management with the development of proposed facilities as well as embracing the ecological services that existing natural resources provide.

Economic sustainability focuses on both a wise use of funds in the design and maintenance of proposed facilities as well as developing a long-term strategy to maintain a continued source of funding for future work. While details related to these items were beyond the scope of this report, they will be an important task for the oversight organization as described in the Greenway Governance section. Economic sustainability is also related to the potential for the Eastside Greenway to generate opportunities for economic redevelopment throughout the project area. Economic redevelopment was considered as one of the evaluation criteria in prioritizing specific greenway corridors (see Chapter 3).

Social sustainability relates to how a greenway network influences community interaction and strengthens neighborhoods. One of the benefits that has resulted from this yearlong study has been the continued engagement of representatives from all of

the project area communities, as well as numerous state, county, and local organizations. The Eastside Greenway Plan has provided a forum for these groups to collaborate on individual and collective efforts toward advancing connectivity across municipal borders. The HIA also identified the strong potential for greenways to enhance social engagement among various demographic populations within the project area.

Sustainability around experience begins with planning facilities for purpose and type of user. A greenway where people can go slow and enjoy the trip needs to be designed and maintained differently than a route intended for users more comfortable with on-street conditions. Another important element of experience is associated with wayfinding and signage. It is important that users know where they are, where they are going and that they are within a recognized network (see Wayfinding & Signage). The facilities identified in the Eastside Greenway Plan have been developed within the context of multiple types of users to the extent possible.

HIA RECOMMENDATIONS

The Cuyahoga County Board of Health, in partnership with Kent State University, conducted a HIA to inform and influence planning and design decisions related to the establishment of the Eastside Greenway. The Eastside Greenway HIA examined the potential health and equity impacts of the Eastside Greenway Plan. The HIA focused on equity in an effort to understand how new trail alignments, connections and trailheads in the diverse project area could impact usage by vulnerable populations living in those areas.

The HIA prioritized the following key recommendations:

- Establish an Eastside Greenway c stakeholders and community members fr each area of the project to ensure that f educational campaigns, policies and syst developed are appropriate for the diver communities within the project area and the commitments to vulnerable neighborhoods ar followed through upon.
- Develop a Neighborhood Watch that pro visible presence within and proximate t project area; publicize the Eastside Greenwa among current Neighborhood Watch group different municipalities.
- Establish a comprehensive greenwa management plan for paths and f and proximate to the project area roles for residents, community group owners and responds to different resour capacities in diverse communities.
- Consider geographic distribution of tr connections and trail heads to assure equit access for diverse populations thr project area.

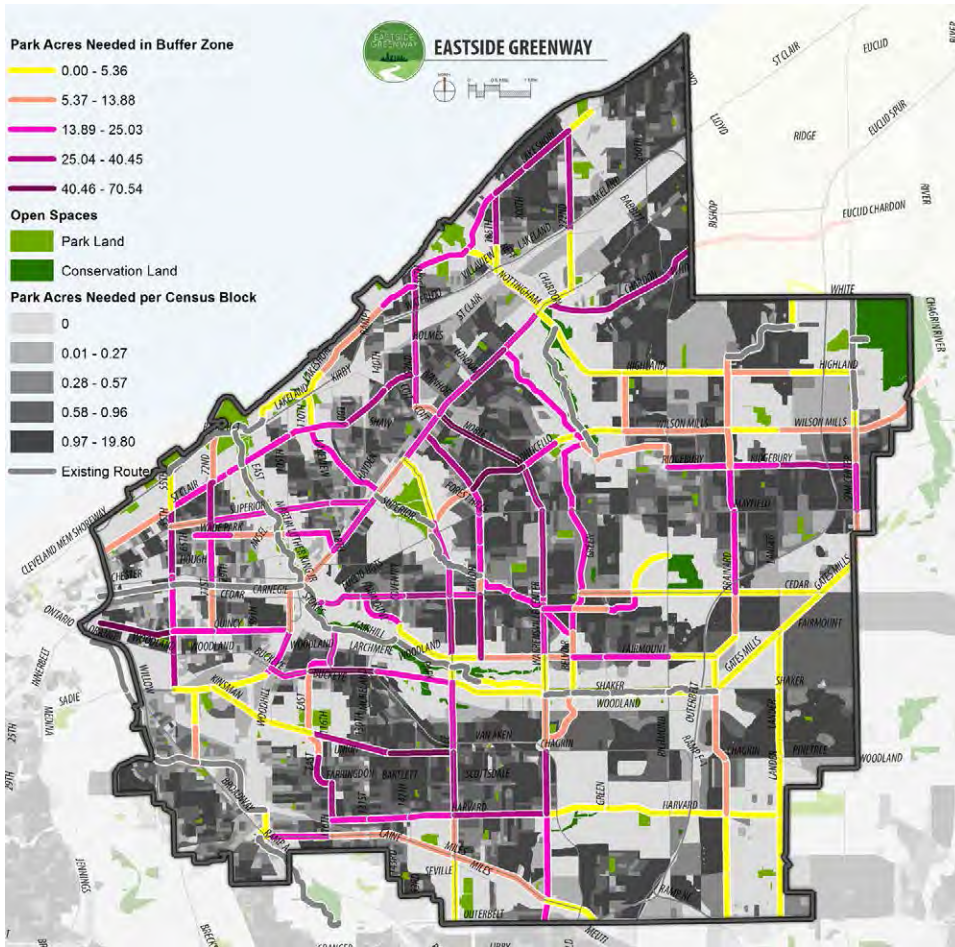
- Paths should be well-lit and pro visibility for users.
- Plan to incorporate play fields and picnic ar regions with higher African American and/ Latino populations.
- Create an education campaign to promot cycling and walking among diverse populations.
- Identify access points for the project areas t understand where alignments and c should be created across the diverse pr area communities.
- Survey Eastside Greenway community ar residents to identify activities of interest, usag patterns, with consideration of the diver populations within the project area.

The Executive Summary of the HIA report can be found in Appendix D. The full HIA report will be available on the Cuyahoga County Board of Health website (www.neohiap.org).



APPENDIX A

ANALYSIS DETAILS & ADDITIONAL ROUTES

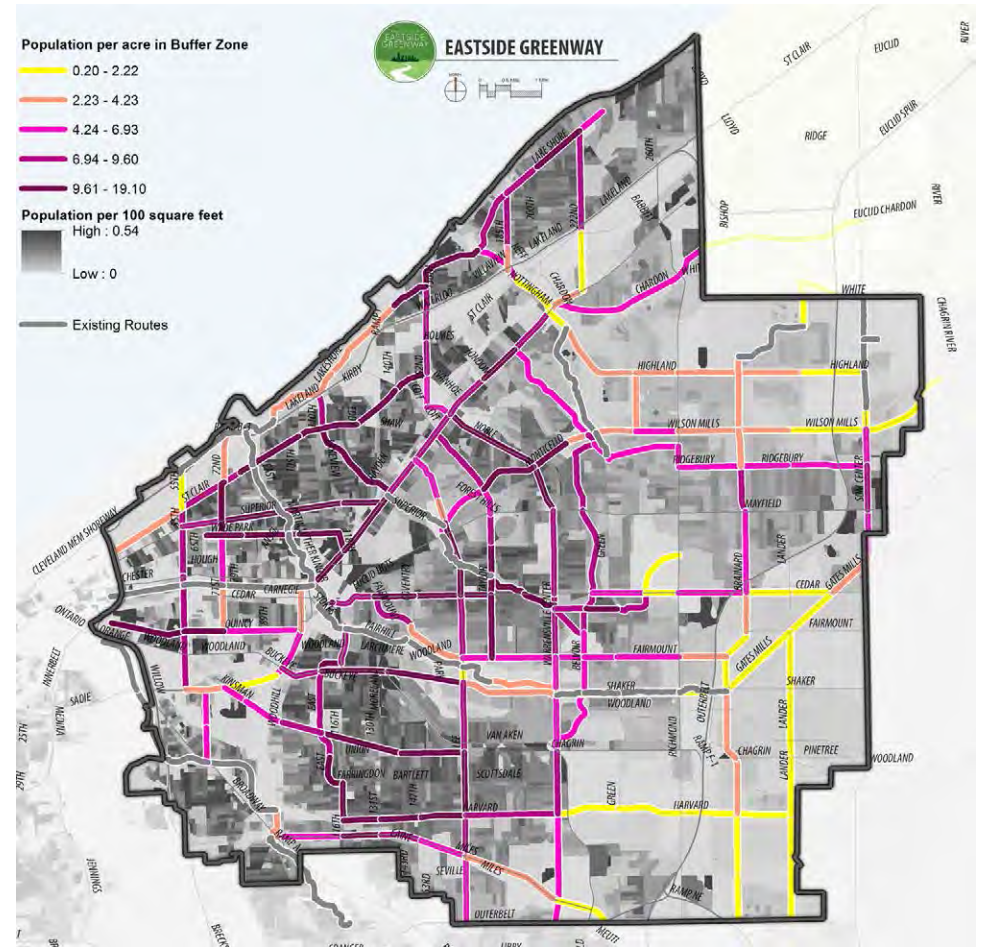


GOAL 1 - CONNECTIVITY CRITERIA

Parks and Natural Area Needs

Goal Weight: 25%

- » Average accessibility to open space for residents within 1/4 mile of the routes.
- » Routes with low access are prioritized.

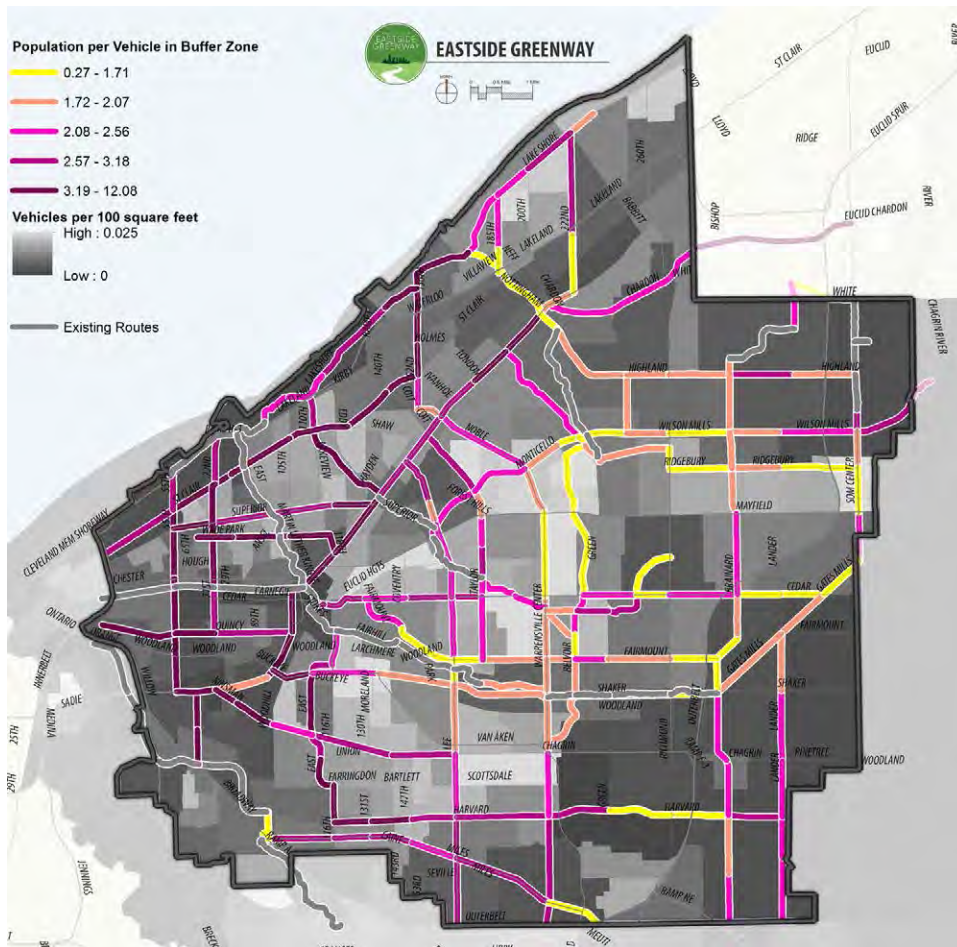


GOAL 1 - CONNECTIVITY CRITERIA

Population Density

Goal Weight: 20%

- » Population density within 1/4 mile of each route.
- » Routes with higher densities are prioritized.

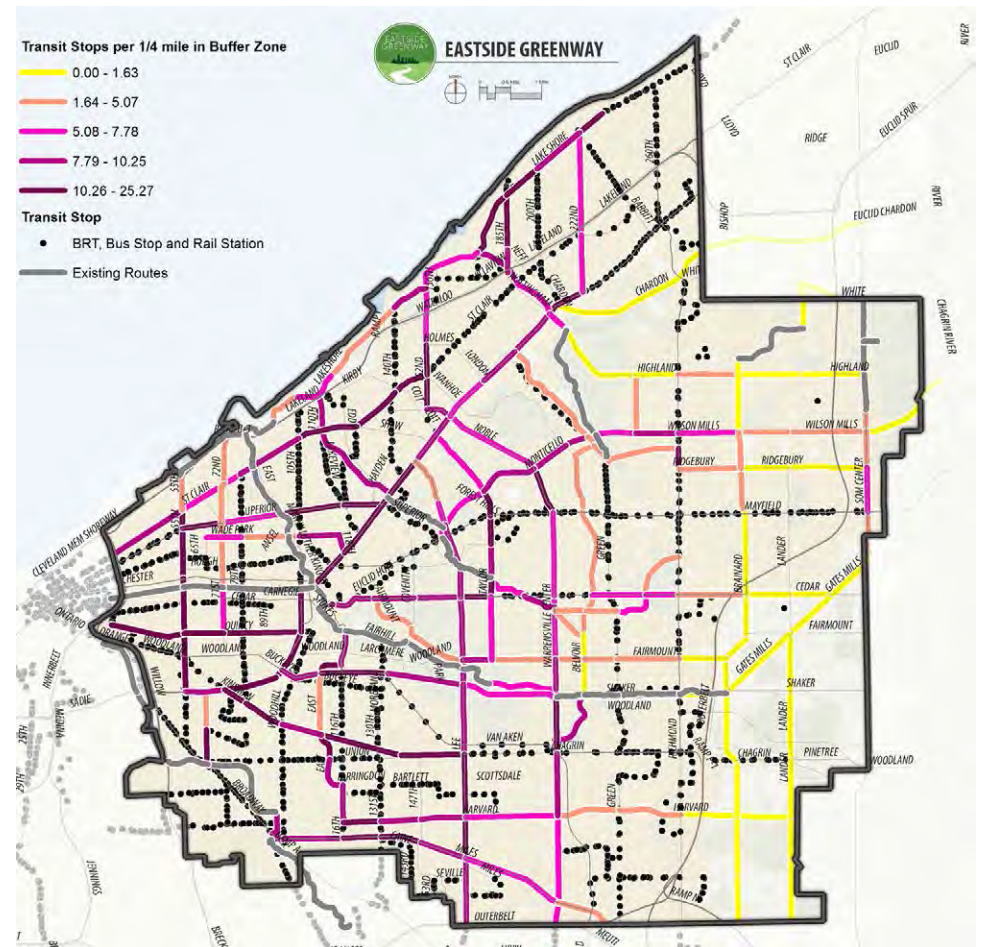


GOAL 1 - CONNECTIVITY CRITERIA

Vehicle Ownership (Population Per Vehicle)

Goal Weight: 20%

- » People per vehicle within 1/4 mile of routes.
- » Routes with lower rates of vehicle ownership are prioritized.

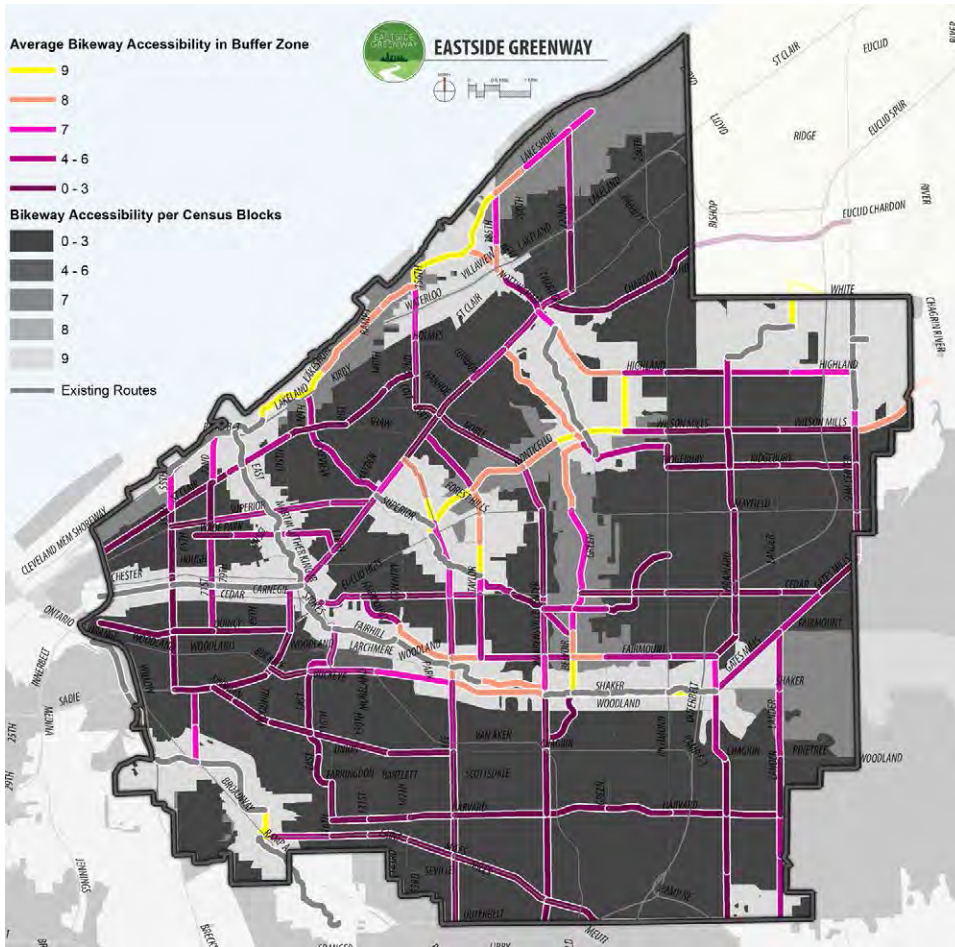


GOAL 1 - CONNECTIVITY CRITERIA

Transit Access

Goal Weight: 20%

- » Number of public transit stops and stations within 1/4 mile of routes.
- » Routes with higher number of stops are prioritized to increase multi-modal connections.

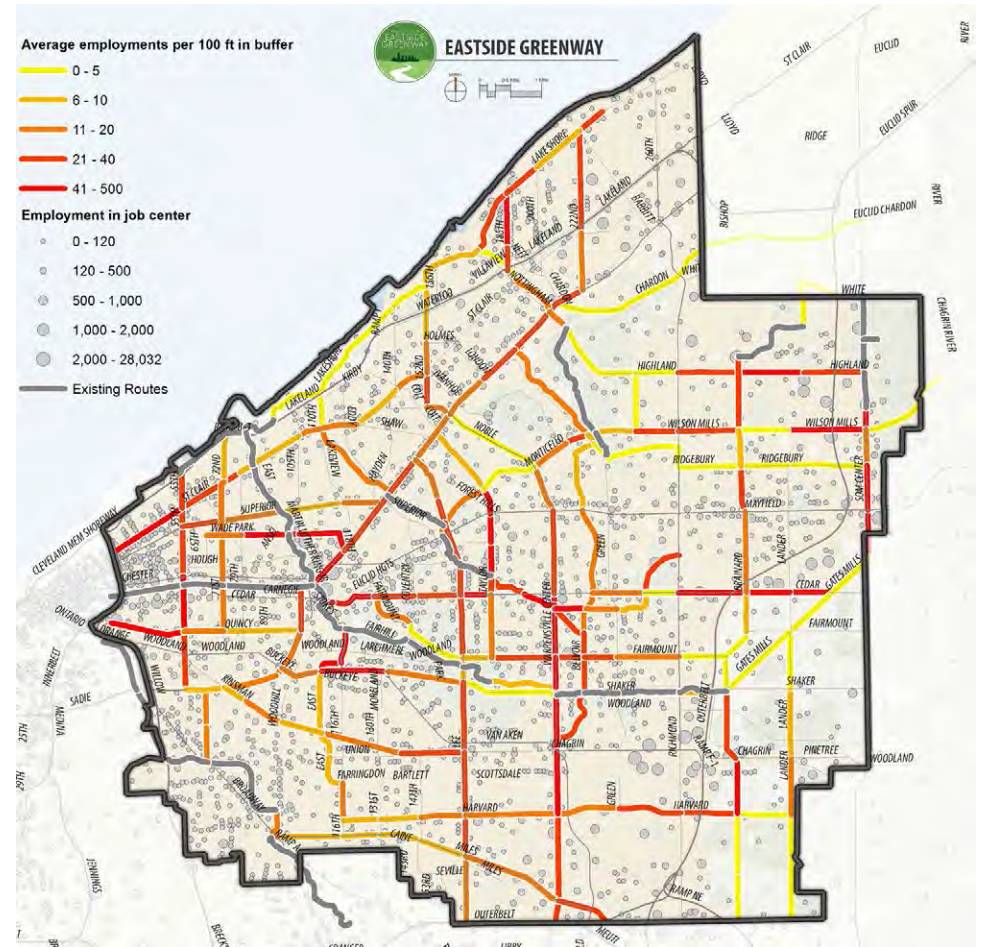


GOAL 1 - CONNECTIVITY CRITERIA

Non-Motorized (Bicycle) Facility Access

Goal Weight: 15%

- » Highest level of non-motorized facility (e.g. trail, bike lane, bike route) accessible within 1/4 mile of each census block.
- » Routes with lower level (or no) facilities are prioritized.

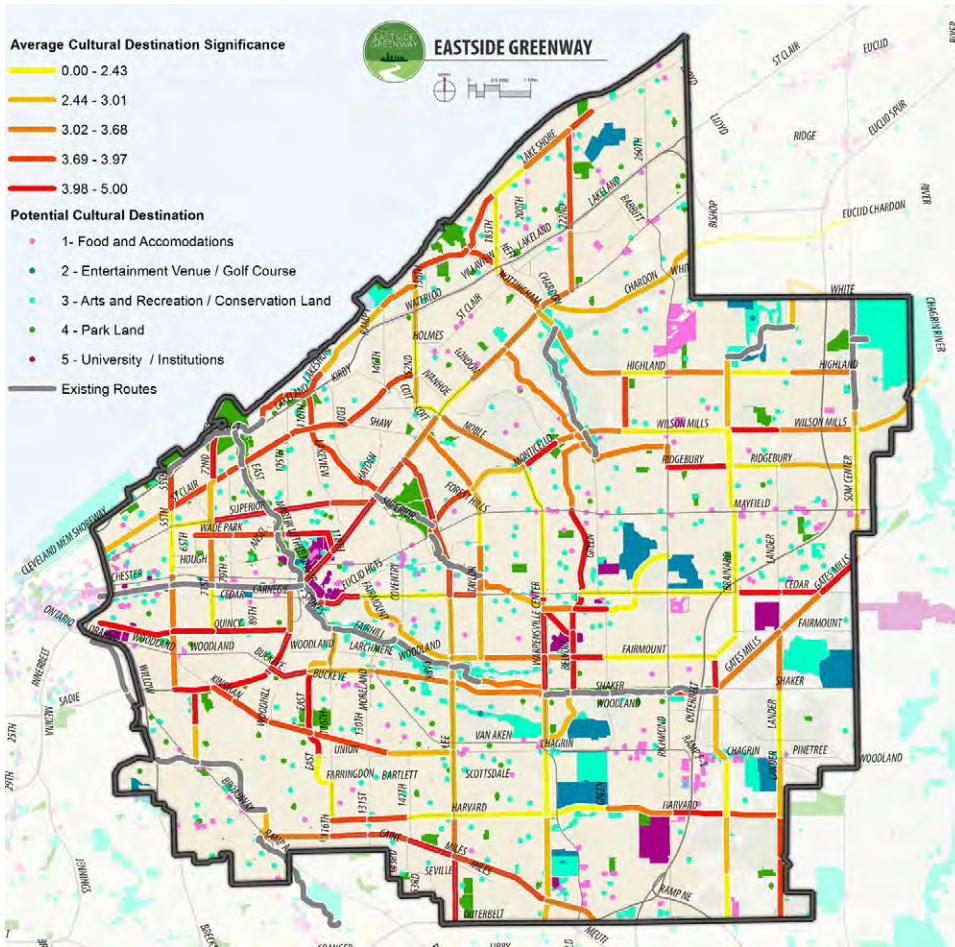


GOAL 2 - ECONOMIC IMPACT CRITERIA

Job Centers

Goal Weight: 30%

- » Average number of employees along each route within 1/4 mile.
- » Routes with higher number of employees are prioritized.

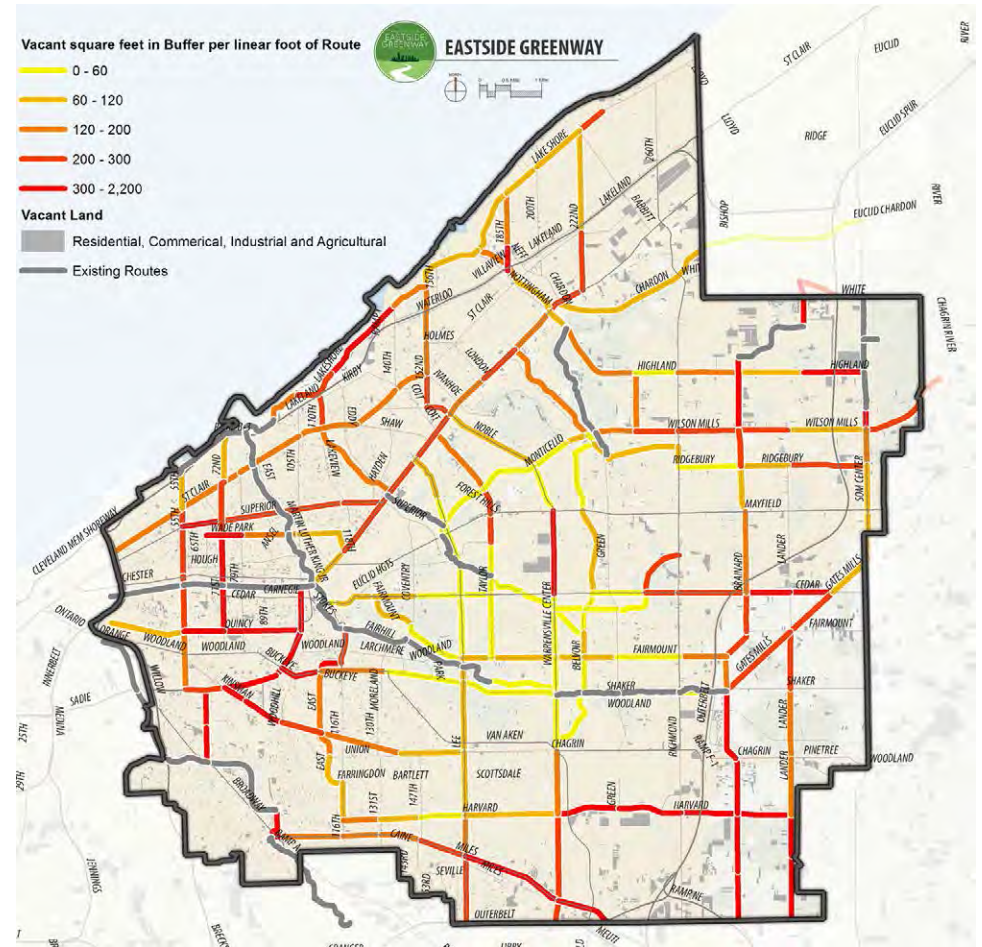


GOAL 2 - ECONOMIC IMPACT CRITERIA

Community Destinations

Goal Weight: 25%

- » Total number of destinations (cultural resources, parks, entertainment, and retail) within 1/4 mile of each route.
- » Routes with more destinations are prioritized.

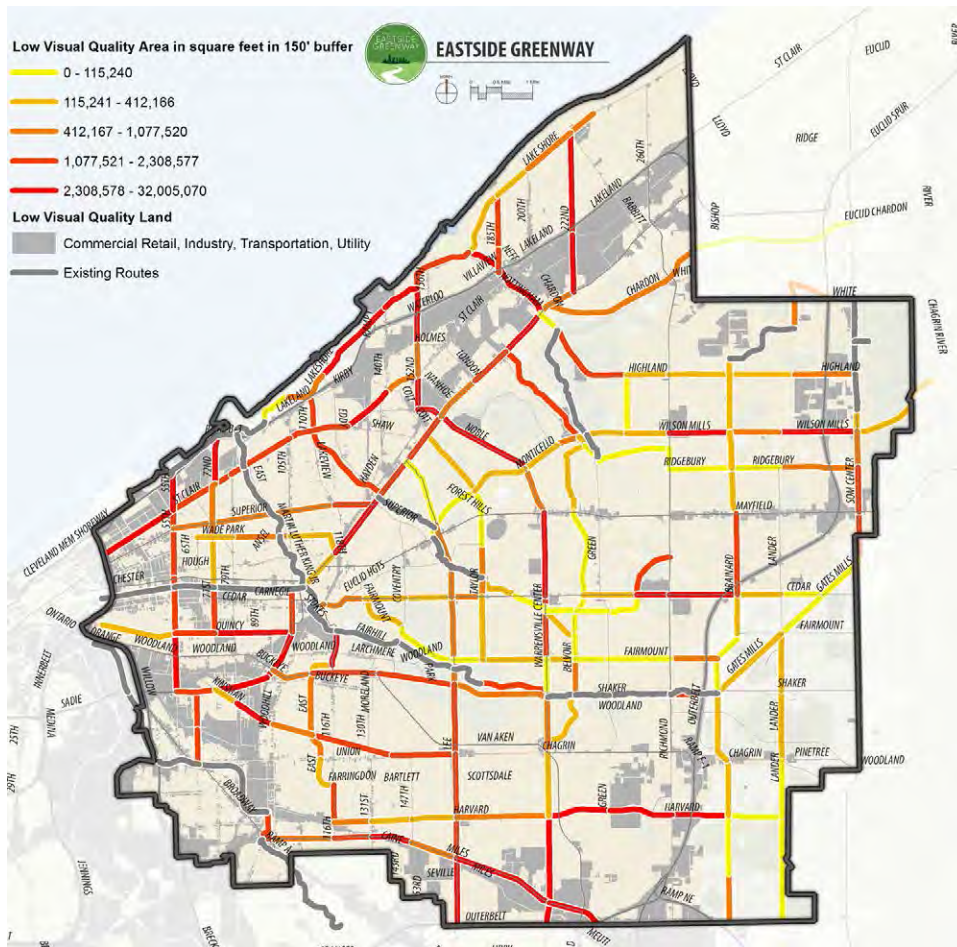


GOAL 2 - ECONOMIC IMPACT CRITERIA

Vacant Land

Goal Weight: 15%

- » Density of vacant parcels within 1/4 mile of routes.
- » Routes with higher levels of vacancy are prioritized.

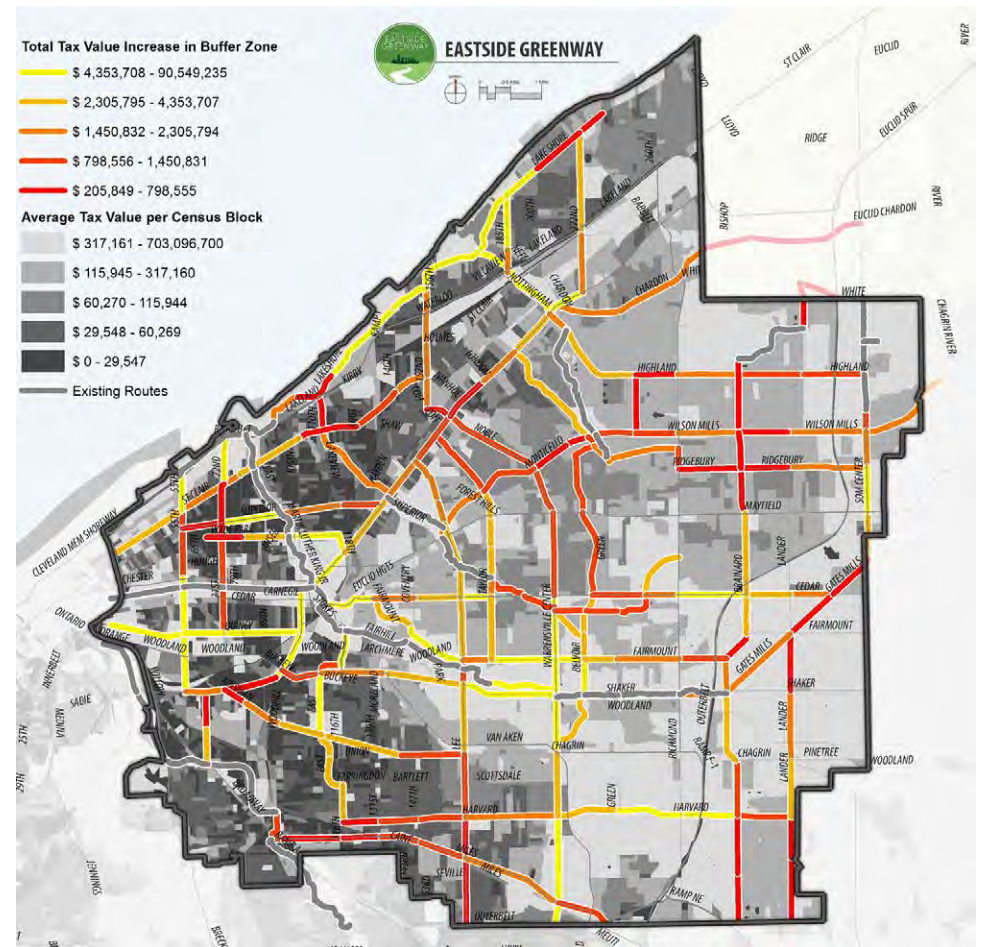


GOAL 2 - ECONOMIC IMPACT CRITERIA

Community Character (Land Use Appearance)

Goal Weight: 15%

- » Total area of commercial, industrial, utility, and transportation land within 150 feet of routes.
- » Routes with more visually impacted land area are prioritized.

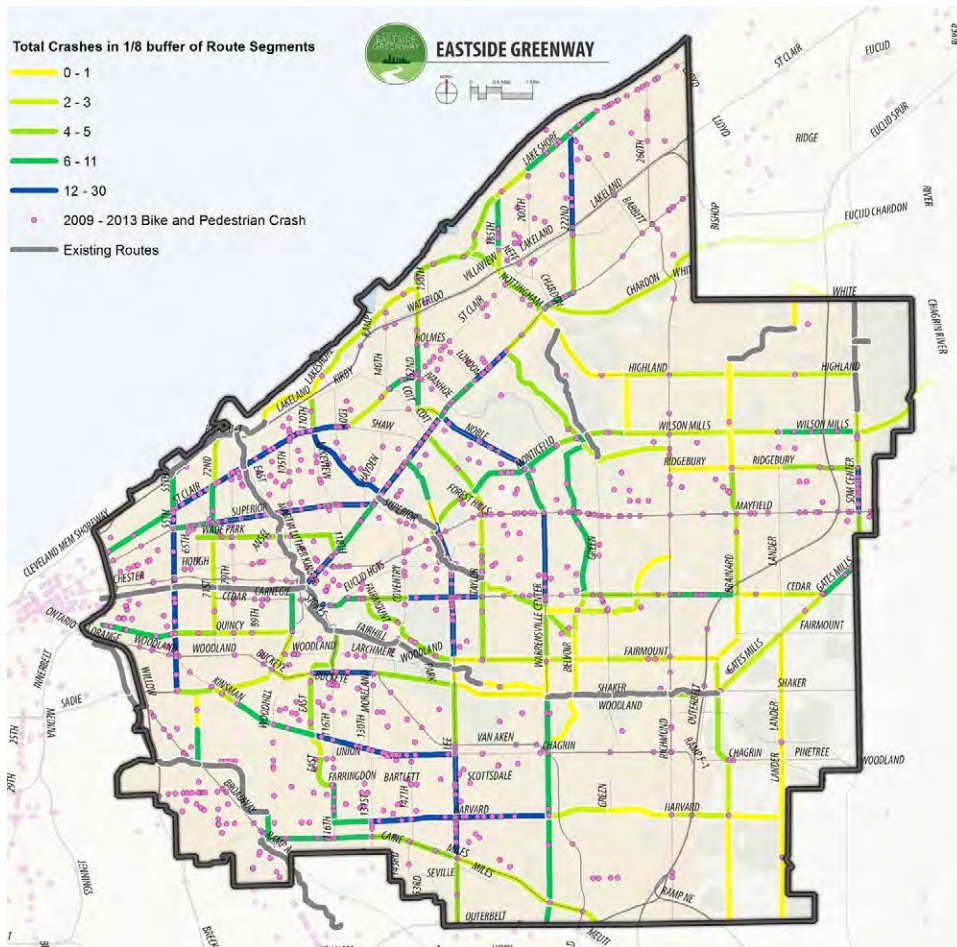


GOAL 2 - ECONOMIC IMPACT CRITERIA

Property Value

Goal Weight: 15%

- » Total tax value of property within 1/4 mile.
- » Routes with lower value are prioritized.

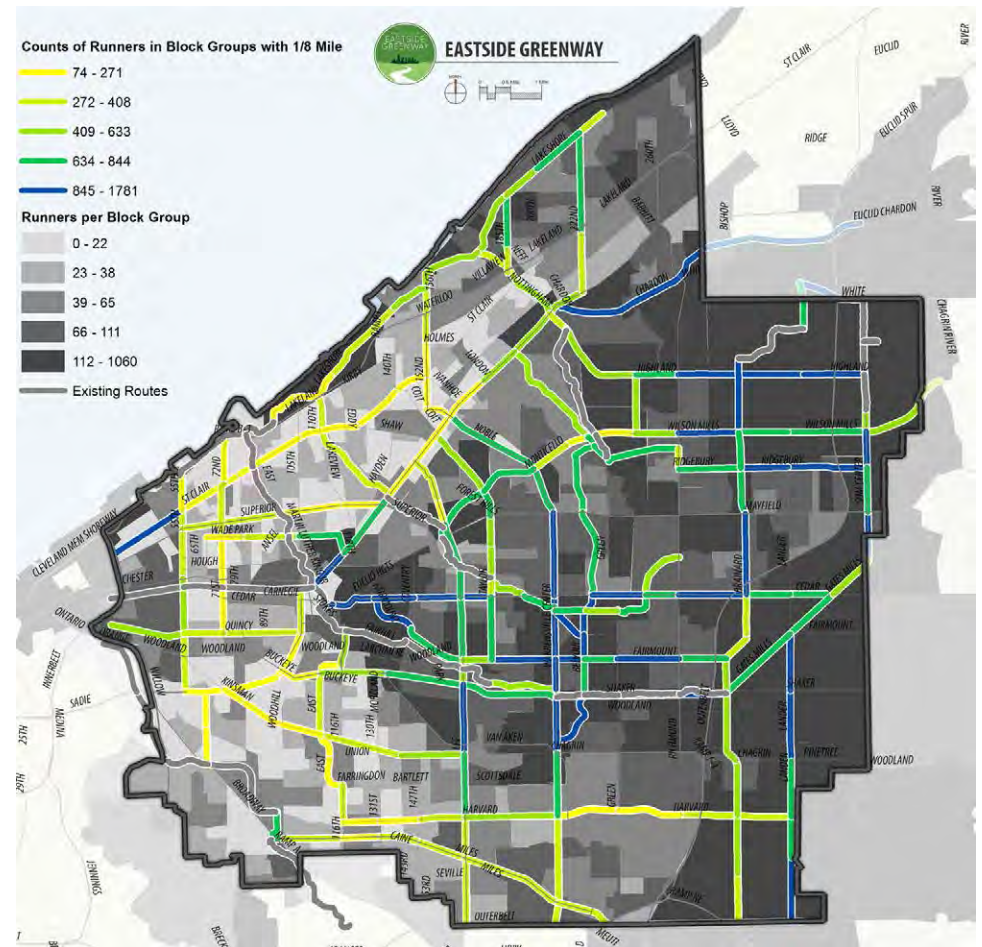


GOAL 3 - HEALTH & SAFETY CRITERIA

Bicycle & Pedestrian Safety (Crashes)

Goal Weight: 25%

- » Number of bike and pedestrian crashes within 1/4 mile of each route.
- » Routes with higher frequencies of crashes are prioritized.

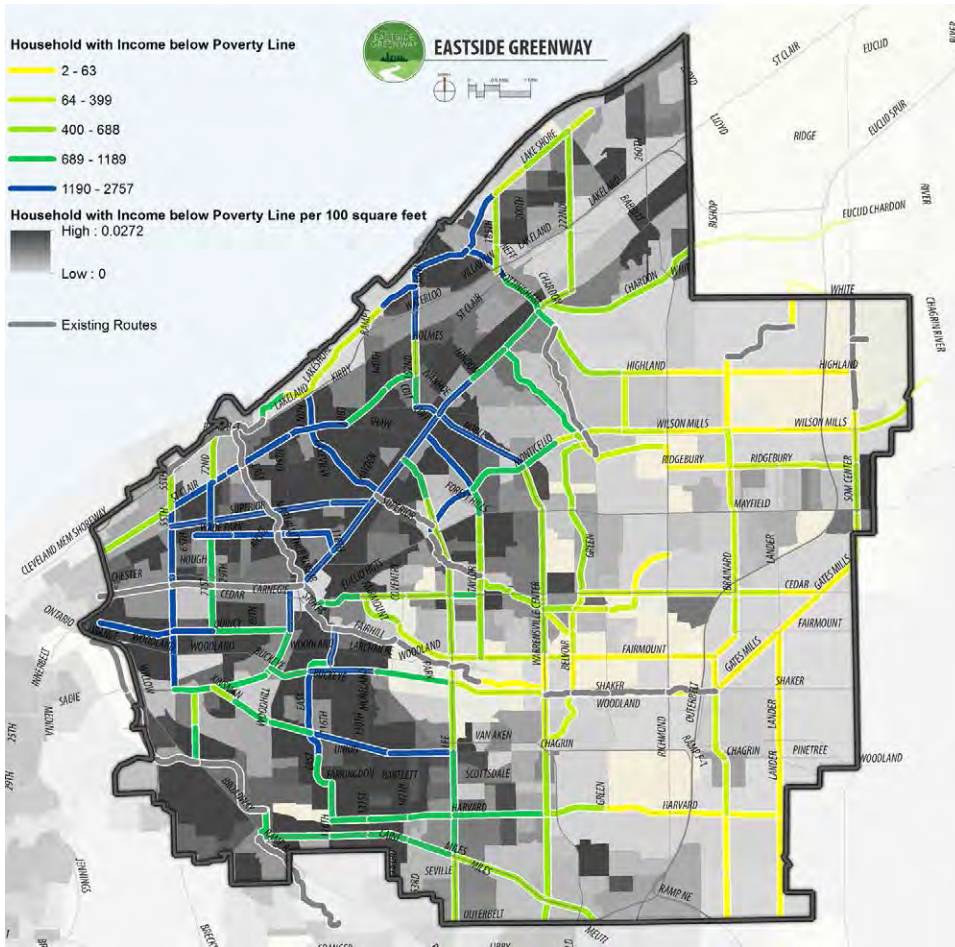


GOAL 3 - HEALTH & SAFETY CRITERIA

Physical Activity (Running & Jogging Frequency)

Goal Weight: 25%

- » Average running and jogging frequency within 1/8 mile of each route.
- » Routes with more activity in close proximity to the route are prioritized.

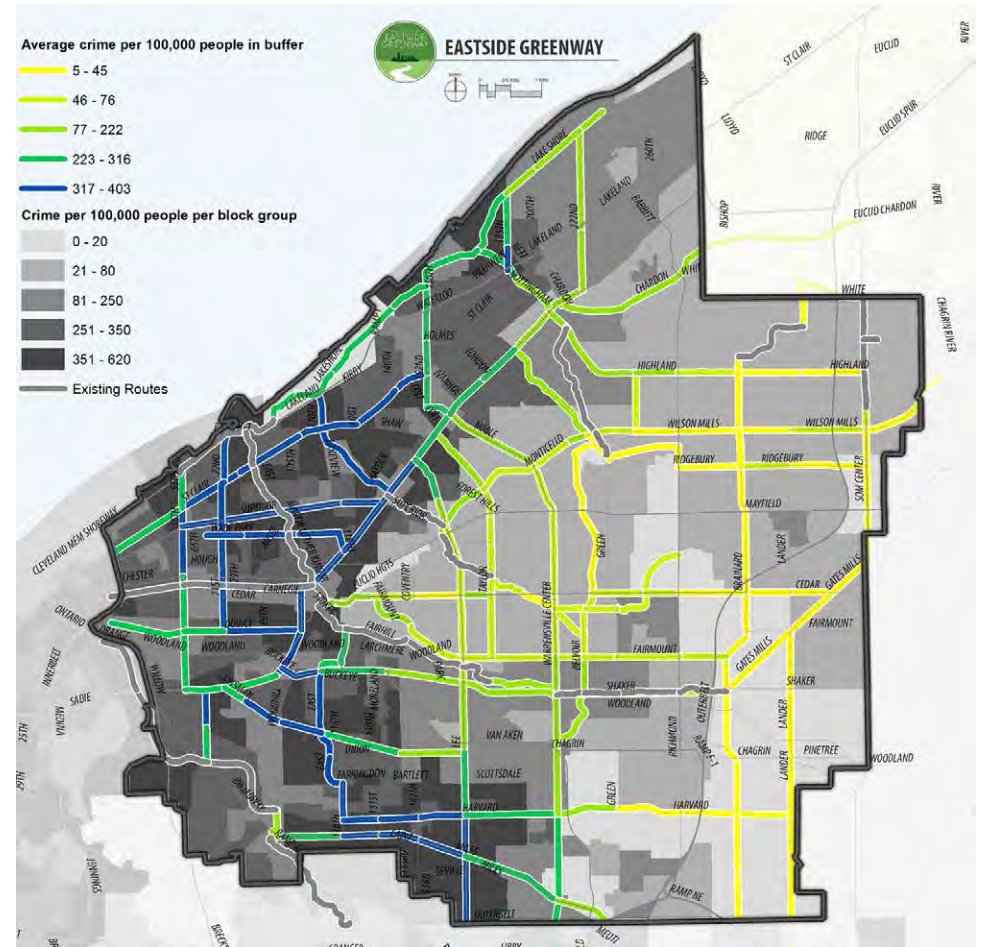


GOAL 3 - HEALTH & SAFETY CRITERIA

Equity (Poverty Rates)

Goal Weight: 20%

- » Total number of households in poverty within 1/4 mile of each route.
- » Routes with higher poverty rates are prioritized.

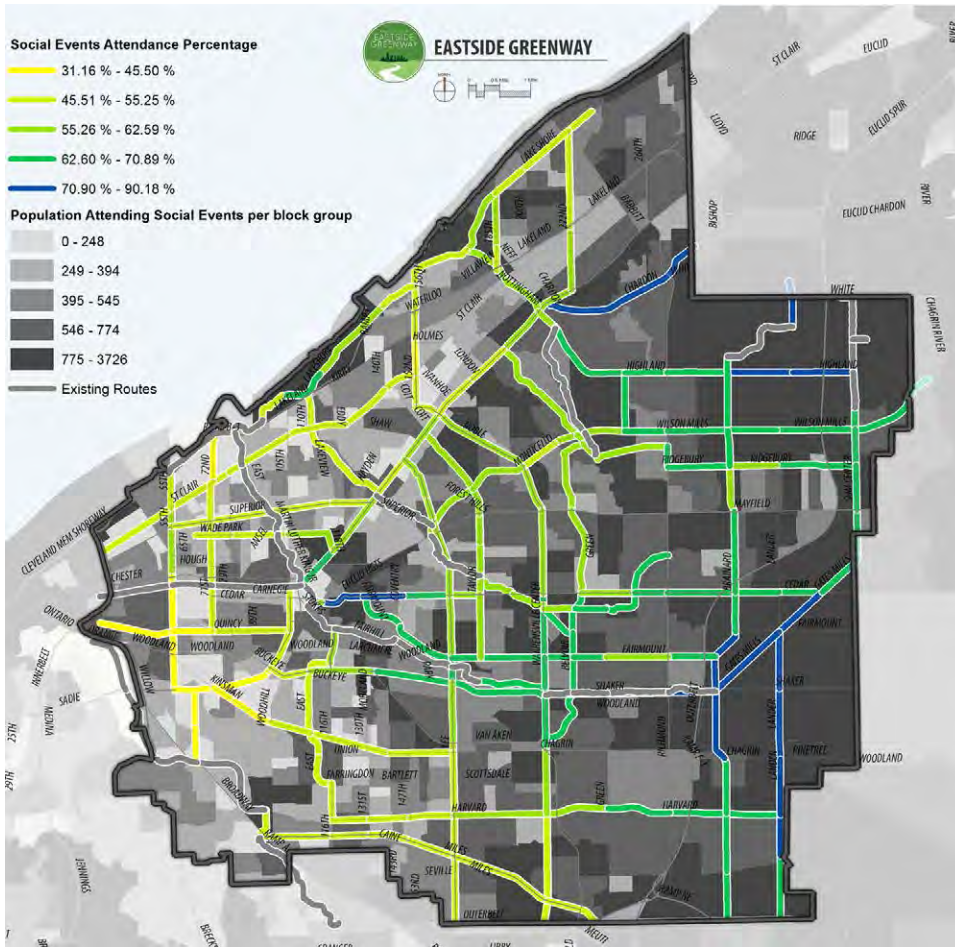


GOAL 3 - HEALTH & SAFETY CRITERIA

Crime

Goal Weight: 10%

- » Crime rate index within 1/4 mile of each route.
- » Routes with higher crime index are prioritized.

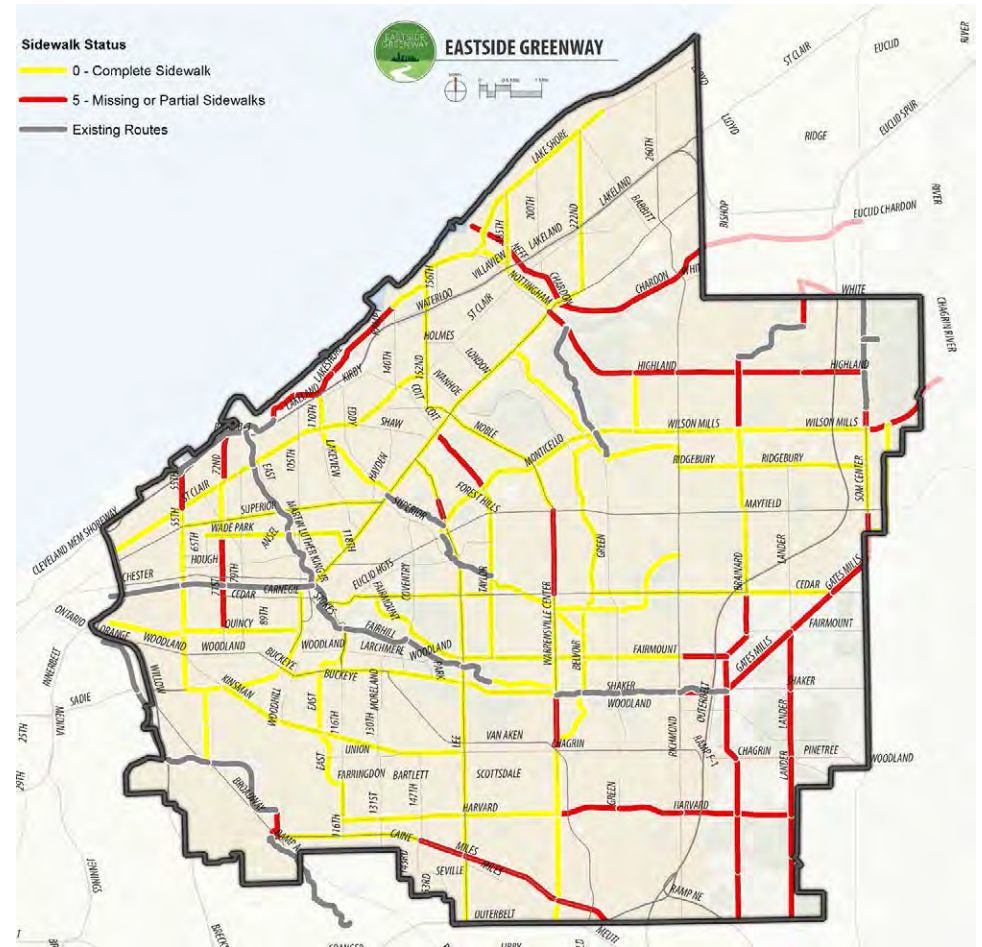


GOAL 3 - HEALTH & SAFETY CRITERIA

Social Cohesion (Public Activity Participation)

Goal Weight: 10%

- » Percentage of total population engaging in one or more public activities within 1/4 mile of each route.
- » Routes with more participation are prioritized.

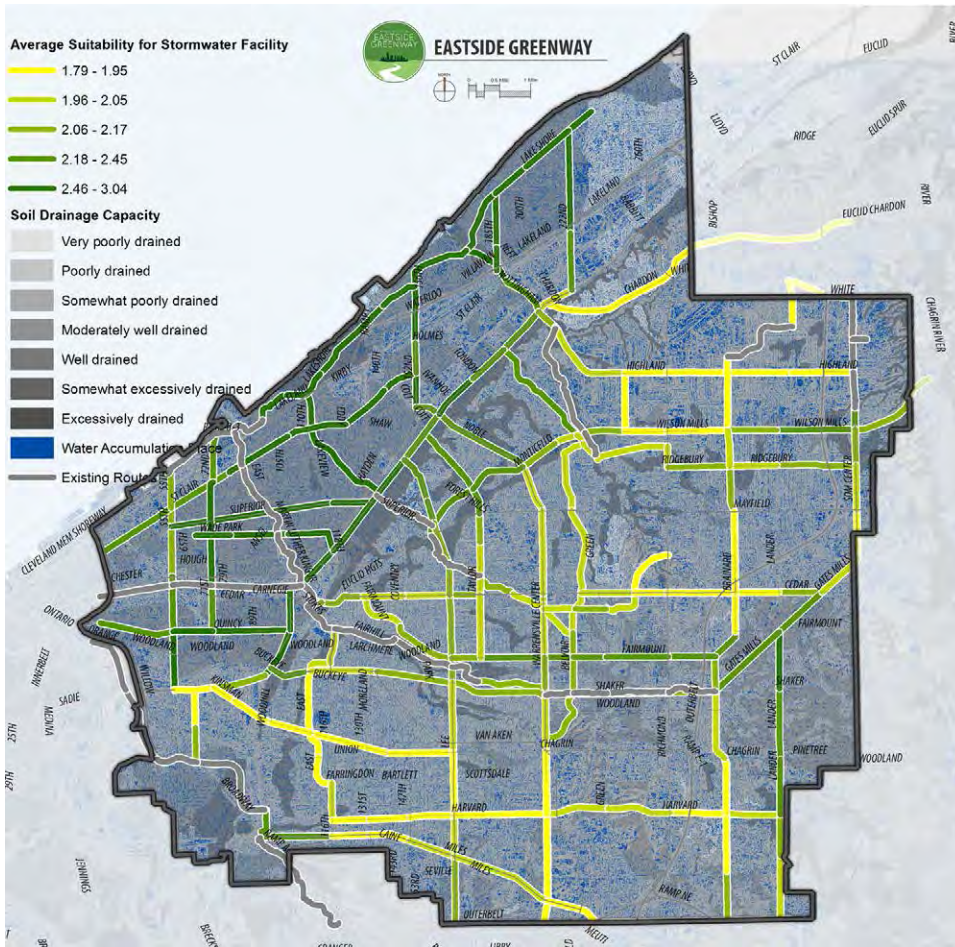


GOAL 3 - HEALTH & SAFETY CRITERIA

Sidewalk Status

Goal Weight: 10%

- » Routes with incomplete or missing sidewalk are prioritized.

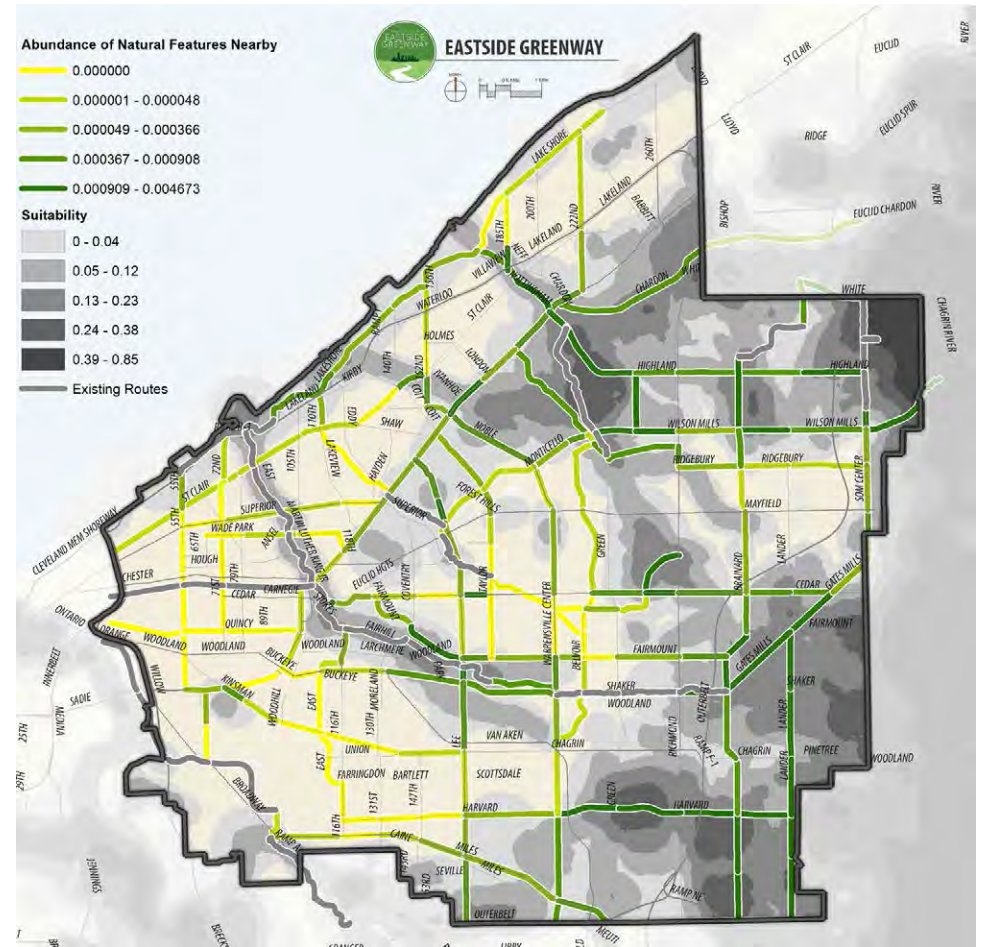


GOAL 4 - ENVIRONMENTAL CRITERIA

Stormwater

Goal Weight: 25%

- » Average wetness and soil infiltration index within 1/4 mile of each route.
- » Routes with higher index are prioritized.

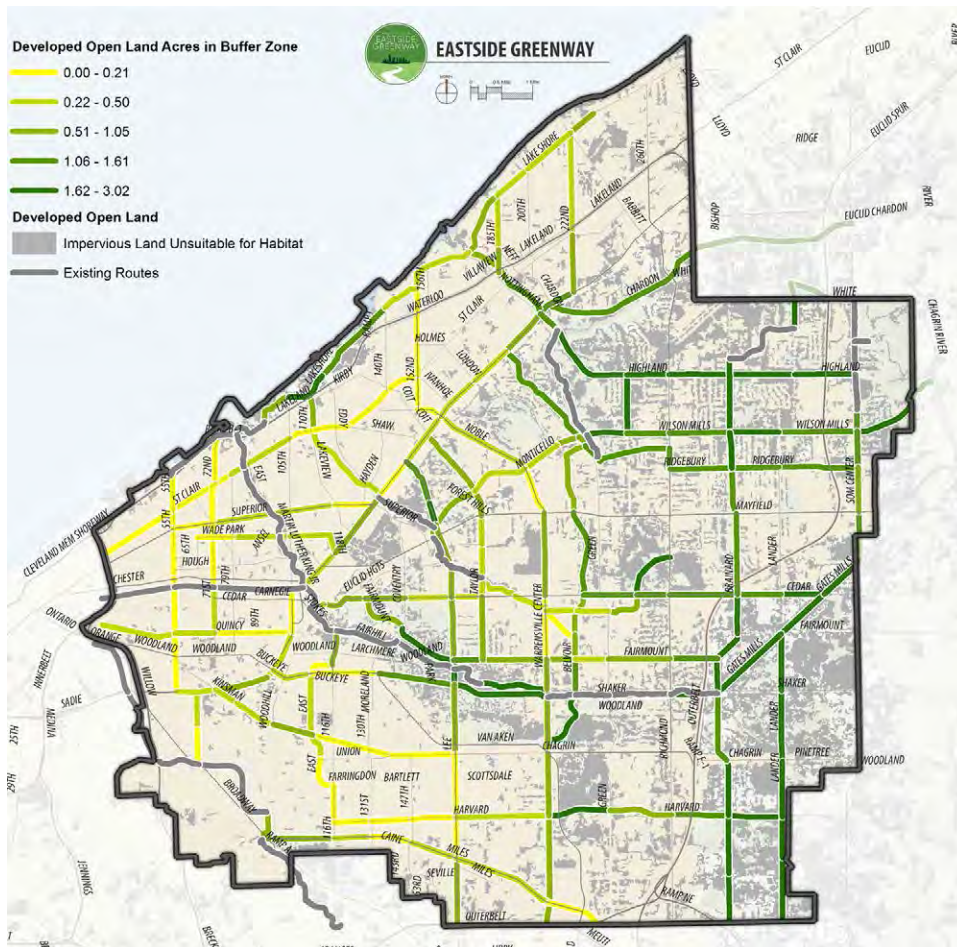


GOAL 4 - ENVIRONMENTAL CRITERIA

Habitat Connectivity

Goal Weight: 25%

- » Routes closer to existing habitat/open space patches are prioritized.

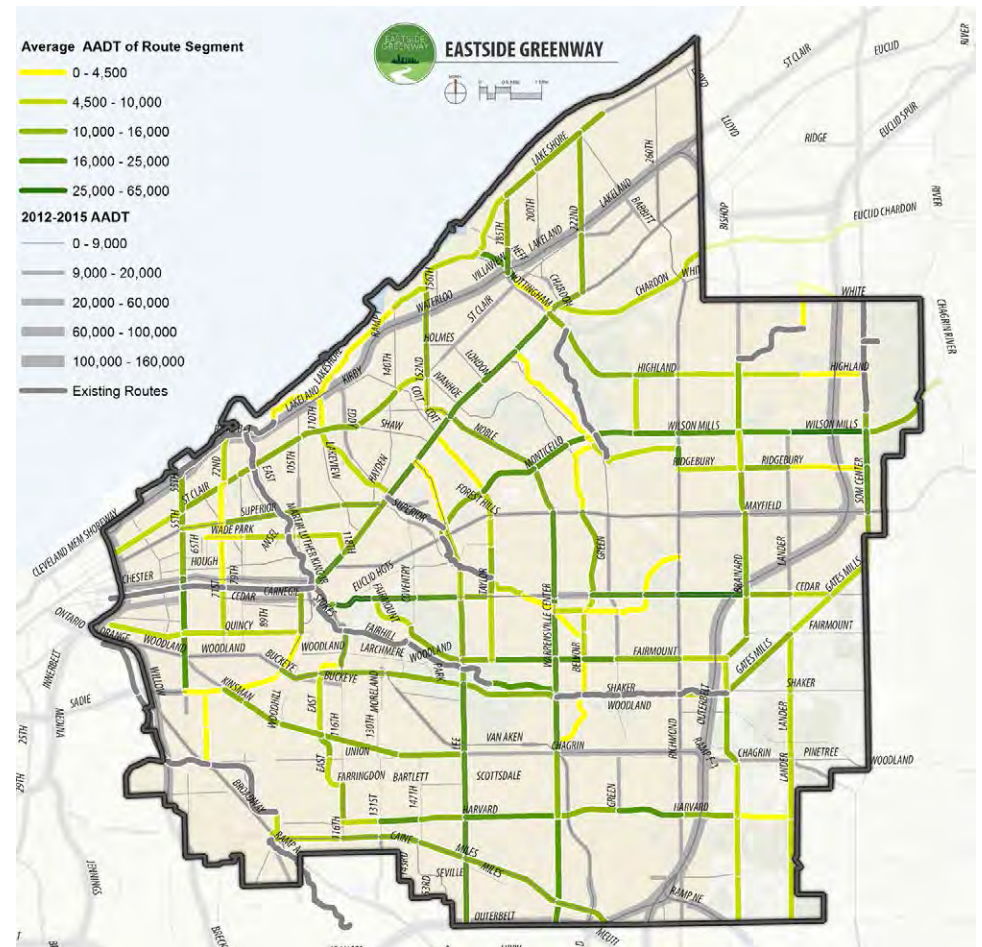


GOAL 4 - ENVIRONMENTAL CRITERIA

Habitat Restoration Opportunity

Goal Weight: 15%

- » Total area of open developed land and other restoration potential lands within 1/4 mile of each route.
- » Routes close to larger open land are prioritized.

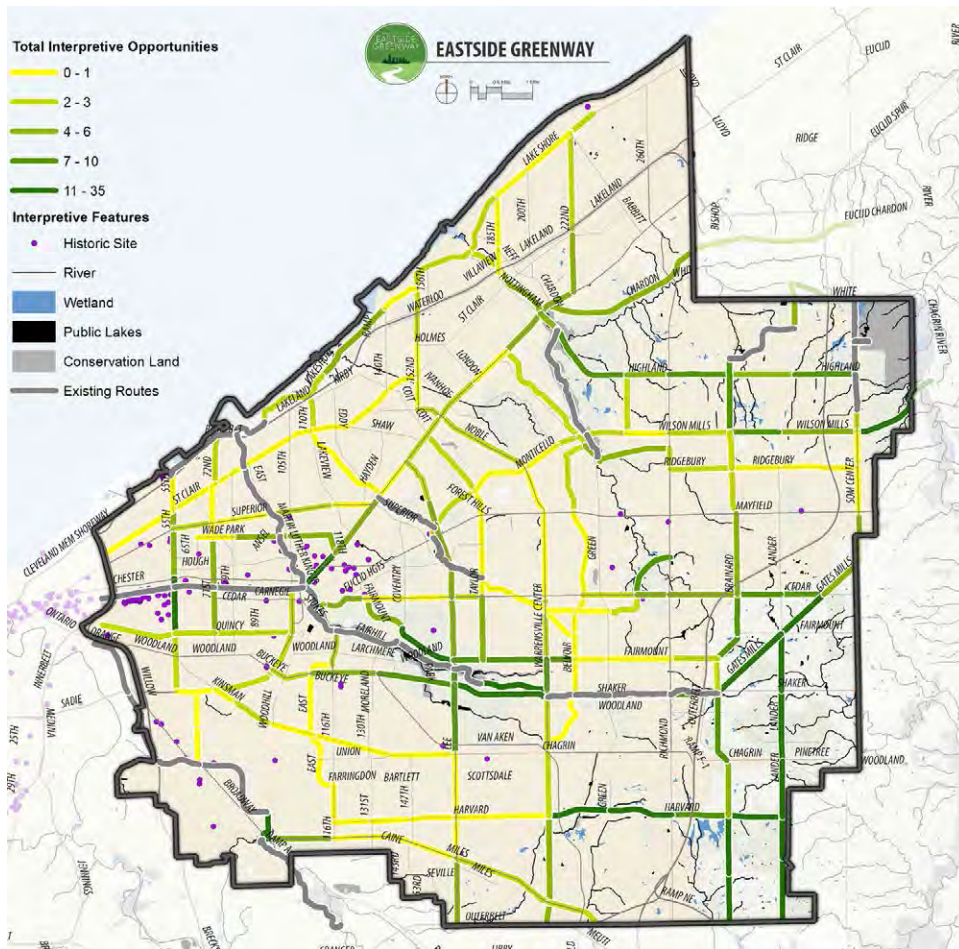


GOAL 4 - ENVIRONMENTAL CRITERIA

Air Quality

Goal Weight: 15%

- » Overall annual average daily traffic (AADT) volumes within 1/4 mile.
- » Routes with higher AADT volumes are prioritized.

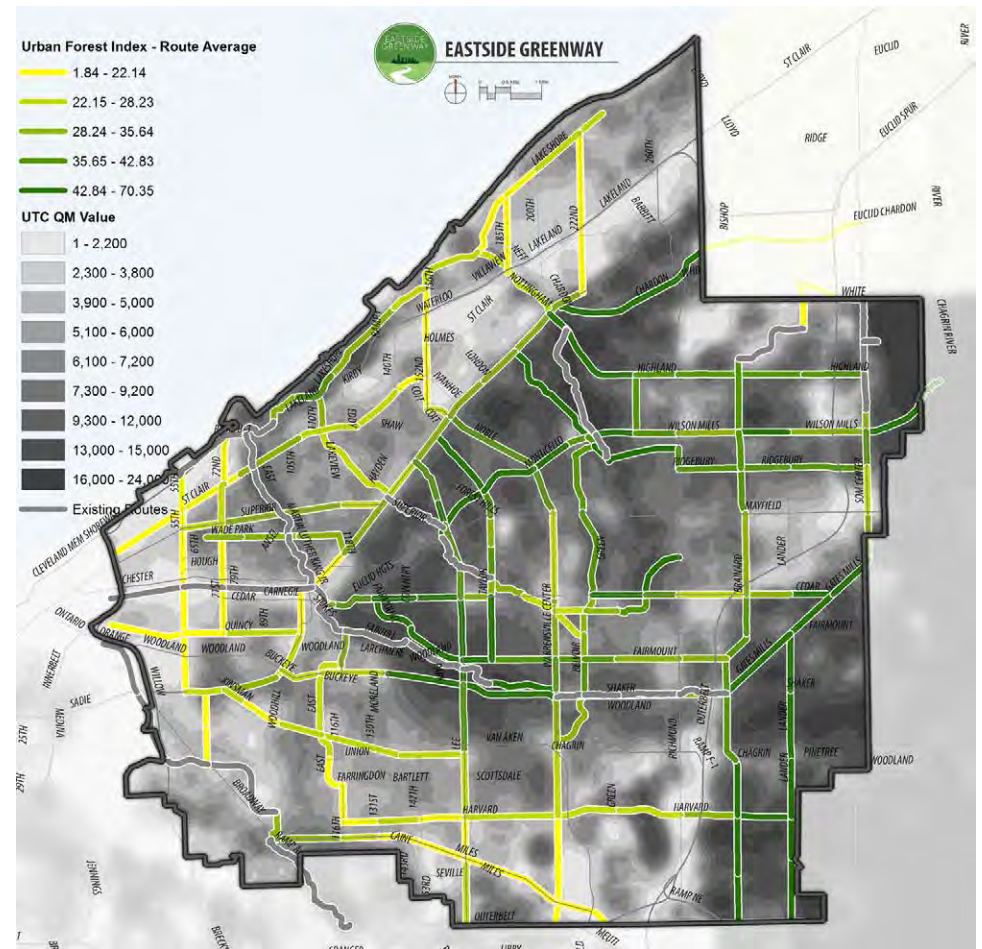


GOAL 4 - ENVIRONMENTAL CRITERIA

Interpretive Opportunities

Goal Weight: 10%

- » Total number of historic sites and significant natural features (e.g. rivers, lakes) within 1/4 mile of each route.
- » Routes with more potential interpretive locations are prioritized.



GOAL 4 - ENVIRONMENTAL CRITERIA

Urban Tree Cover

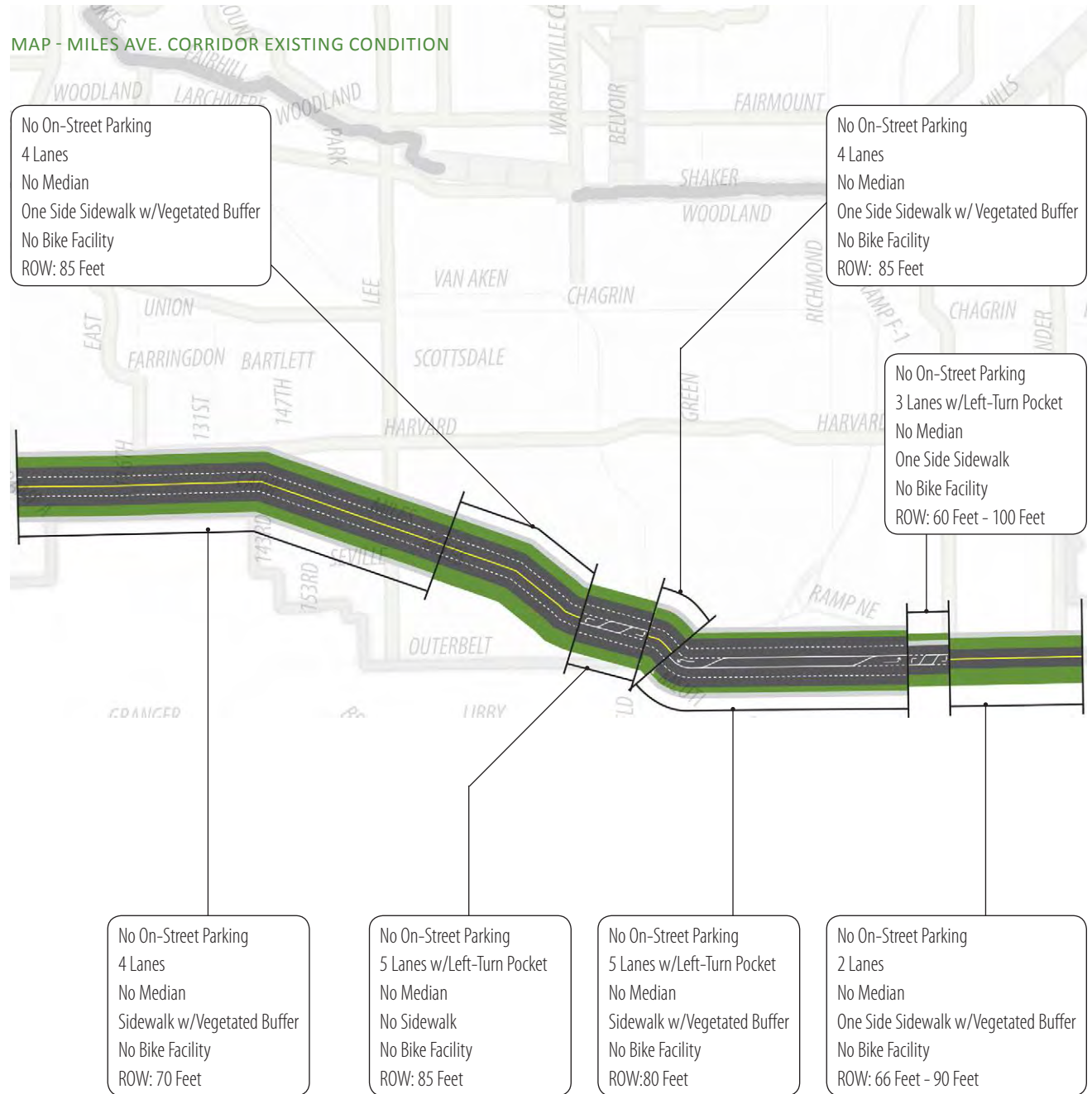
Goal Weight: 10%

- » Density of forest cover within 1/4 mile of each route.
- » Routes with less density are prioritized.

4.4 FUTURE PHASE PROJECTS (SELECTED)

MILES AVE. CORRIDOR (H)

MAP - MILES AVE. CORRIDOR EXISTING CONDITION



CIP Project 2016-2017 (E 93rd Rd. to Lee Rd.)

TLCI Awarded Projects:

- Miles Avenue Streetscape Plan, 2010 (E 112th St. to E 136th St.)



Location

4.4 FUTURE PHASE PROJECTS (SELECTED)

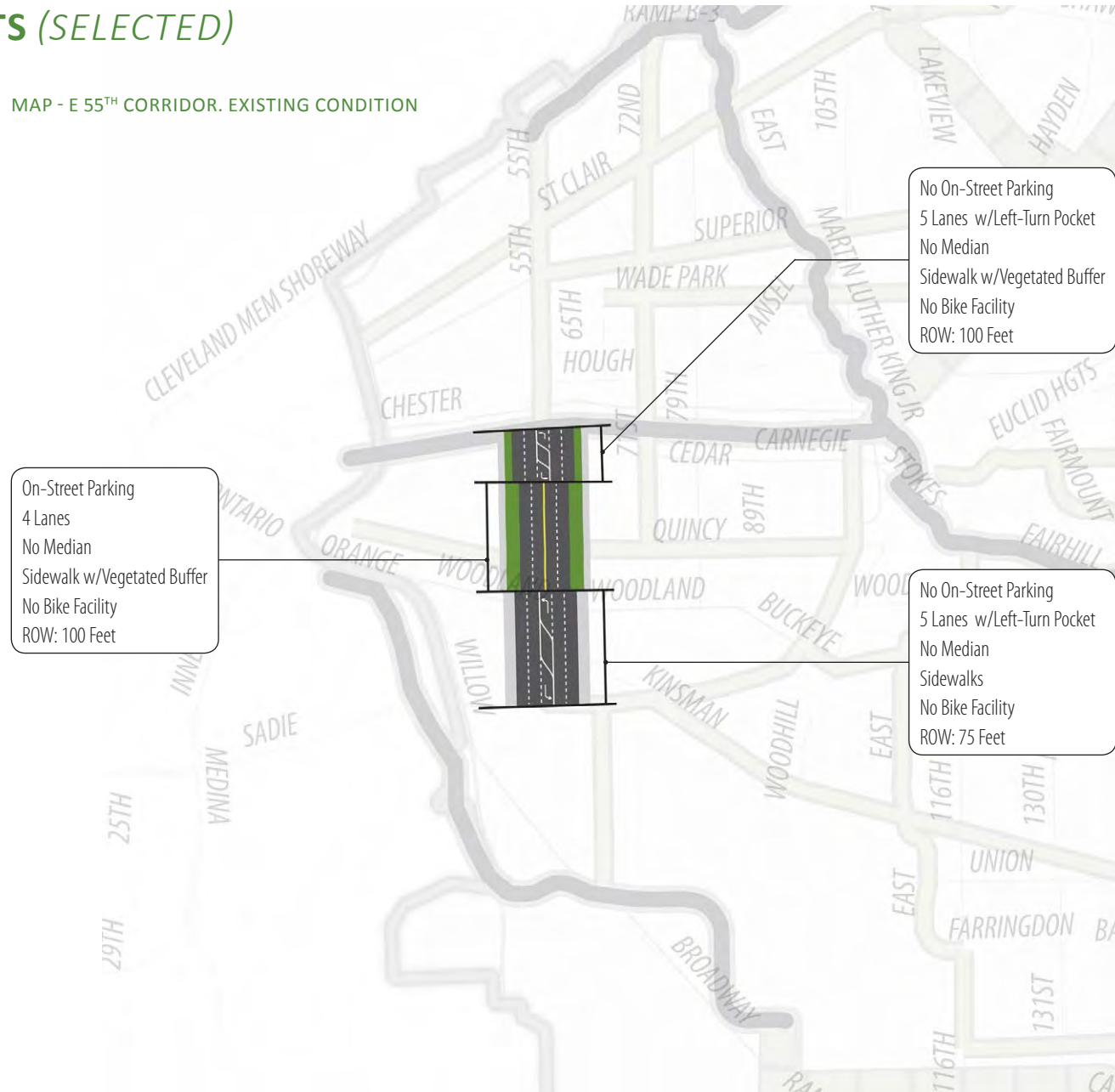
E 55TH ST. CORRIDOR (L)

MAP - E 55TH CORRIDOR. EXISTING CONDITION

On-Street Parking
4 Lanes
No Median
Sidewalk w/Vegetated Buffer
No Bike Facility
ROW: 100 Feet

No On-Street Parking
5 Lanes w/Left-Turn Pocket
No Median
Sidewalk w/Vegetated Buffer
No Bike Facility
ROW: 100 Feet

No On-Street Parking
5 Lanes w/Left-Turn Pocket
No Median
Sidewalks
No Bike Facility
ROW: 75 Feet



TLCI Awarded Projects:

- East 55th Street and Euclid Ave. Neighborhood Center Plan, 2011 (Chester Ave. to Cedar Rd.)
- Lakefront TLCI and connection at the north end



Location

4.4 FUTURE PHASE PROJECTS (SELECTED)

SUPERIOR AVE. CORRIDOR

MAP - SUPERIOR AVE. CORRIDOR EXISTING CONDITION

No On-Street Parking
 5 Lanes w/Left-Turn Pocket
 No Median
 Sidewalk w/Vegetated Buffer
 No Bike Facility
 ROW: 80 Feet



No On-Street Parking
 4 Lanes
 No Median
 Sidewalk
 No Bike Facility
 ROW: 60 Feet

TLCI Awarded Projects:

- University Circle-Cleveland Heights Bicycle Network Study, 2011 (E 90th St. to Euclid Ave.)
- University Circle-Cleveland Heights Missing Links Study, 2011 (E 90th St. to Euclid Ave.)
- Superior 5 District Plan, 2008 (East Blvd. to E 110th St.)
- Citywide Traffic Safety Planning Study, 2008 (E 125th St. to Euclid Ave.)

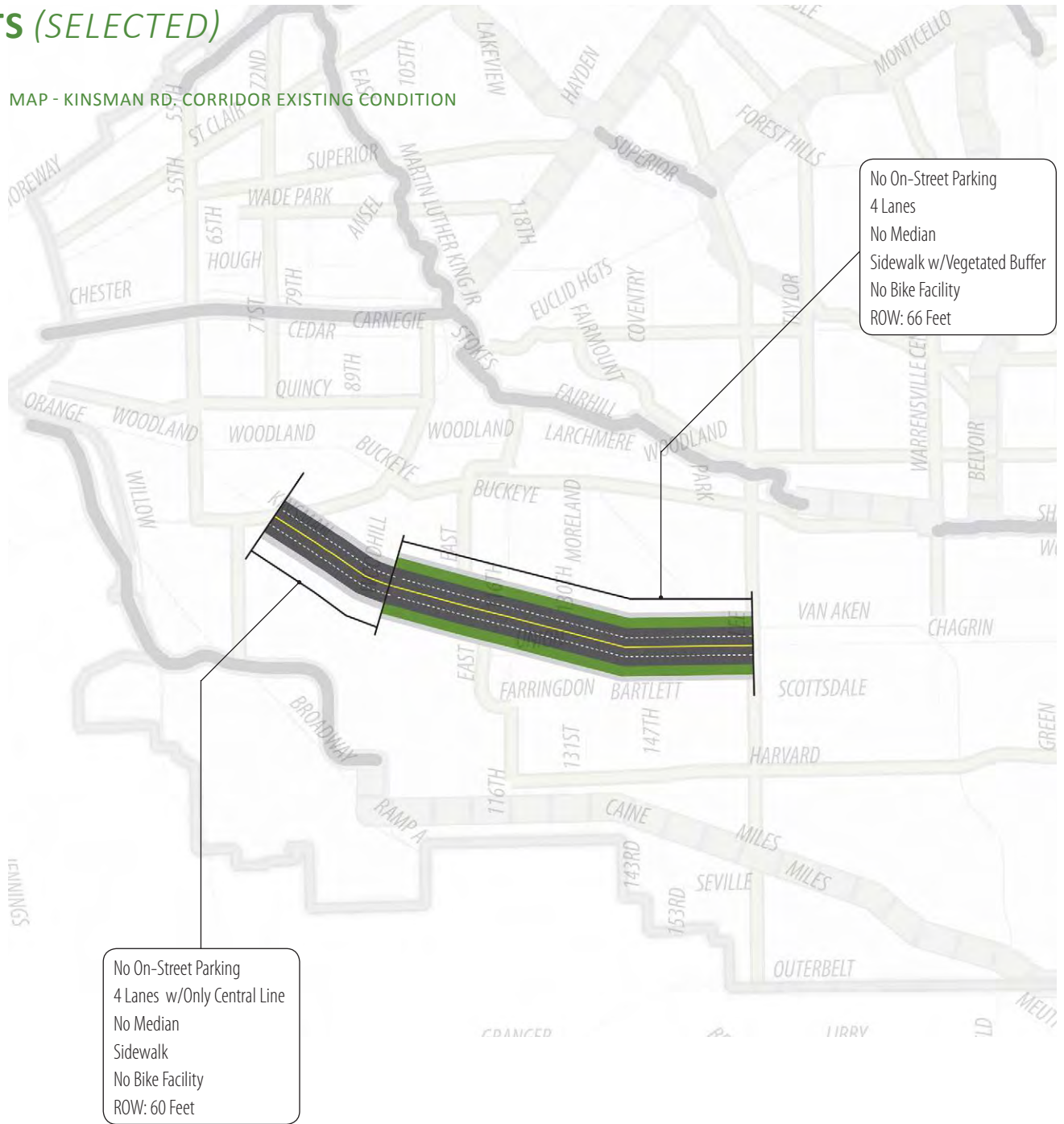


Location

4.4 FUTURE PHASE PROJECTS (SELECTED)

KINSMAN RD. CORRIDOR (Q)

MAP - KINSMAN RD. CORRIDOR EXISTING CONDITION



Notes

- Connection at the west end to the Opportunity Corridor.

TLCI Awarded Projects:

- Kinsman Road Arts, Culture, & Entertainment District Access & Enhancement Plan, 2011 (E 130th St. to E 140th St.)
- Lee/Van Aken Transit Oriented Development Plan, 2007 (Ludgate Rd. to Avalon Rd.)
- BBC Kinsman Rd. Multimodal Study <http://www.bbcdevelopment.org/development/master-planning/kinsman-road-multi-modal-study/>



Location