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County Planning

“To inform and provide services in support of the short- and long-term comprehensive planning, quality of life, environment, and economic development of Cuyahoga County and its cities, villages and townships.”
The intent of the ‘Solon Connects’ Plan is simple: **build safer and stronger pedestrian and bicycle connections** between existing civic, commercial, and open space assets **to create safe and beneficial active transportation options for everyone.**
Section 01 - Introduction

The City of Solon was awarded funding for professional planning services through a competitive grant process from the Cuyahoga County Planning Commission in 2019. As part of the City’s application, there were a number of key issues identified that were subsequently addressed as part of the Solon Connects Plan: 1) provide a detailed analysis of current infrastructure; 2) develop recommendations that meet the evolving needs of residents while remaining competitive in business retention and attraction; 3) create a plan that can help guide decision makers and better plan for infrastructure improvements; 4) outline safe connections, especially for children to walk or bike to school; and 5) discuss collaborative partnerships with regional groups and neighboring communities for larger implementation initiatives and trail connections. The ‘Solon Connects’ Plan is a visioning exercise that considers new methods, opportunities, and technologies while addressing all of these issues and more. The ‘Solon Connects’ Plan is intended to not only guide leaders, but also inspire residents, business owners, and other stakeholders to rethink pedestrian, bicycle, and vehicular mobility in Solon now and into the future.

Process

The ‘Solon Connects’ planning process began in January of 2020. The entire process took about one and a half years to complete due to the Coronavirus pandemic and subsequent response. County Planning, with help from the Project Team – a committee of City Staff – guided the master planning process. Input from this group was supported by a variety of focus groups and other interested regional leaders and stakeholders. These groups studied the existing conditions analysis and recommendations and helped generate key ideas to be pursued in this plan. Solon residents and the greater public also played a key role in the plan’s development. The residents of Solon were engaged throughout the planning process at virtual town halls and other events to provide as many opportunities as possible to give comments and feedback. Final recommendations located in this document incorporate Public input, Project Team guidance, and Focus Group suggestions which have been supplemented the by the technical knowledge and analysis performed by the County Planning staff.

Public Engagement

The COVID-19 pandemic drastically and abruptly disrupted nearly every aspect of our daily lives. The Solon Connects Plan was still in its infancy when the world went into lock down, which ultimately required the project to be flexible and remain open minded to the ever-changing environment of conducting community outreach in an era when in person meetings were not permitted. This meant being innovative and creative with public formats and embracing non-traditional methods for community outreach. All of the various groups and stakeholders involved met numerous times virtually with Cuyahoga County Planning Commission staff and participated in several online surveys and activities. The Solon Connects Plan conducted Live Virtual Town Halls that included:

- Call-in numbers to ask questions during the Town Hall
- Yard signs distributed throughout the community to announce Town Hall dates, times, and information
- Printed and mailed postcards to every resident explaining how to view and participate in the Town Hall
- Live polling software to make each Town Hall more interactive while generating real time feedback
- Post Town Hall online surveys and GIS web mapping exercises

Each of these actions allowed participants to be physically involved in identifying opportunities and recommendations while maintain social distancing requirements. All combined these tools allowed the team to reach as many residents, businesses, and stakeholders as possible during the process, ensuring that each recommendation had the buy-in necessary to be presented and implemented as part of the Solon Connects Plan.
Section 02 - Discovery & Analysis

The ‘Solon Connects’ Plan examines current conditions in Solon through a variety of perspectives. These perspectives include an analysis of existing zoning, land use, transportation, demographics, and other important features such as community health and the environment. Developing this strategic profile of existing conditions is essential to determining what trends are shaping connectivity and active transportation today, as well as what elements need to be updated to meet the changing needs or demands of the future. Analysis of these trends combined with stakeholder and public input help outline a vision for the future. This vision is uniquely tailored to the City of Solon and its goals of improving active transportation for residents of all ages and abilities.

Study Area

Located in the southeast corner of Cuyahoga County and 18 miles from the City of Cleveland, Solon is adjacent to three other counties and surrounded by Moreland Hills, Chagrin Falls, Bainbridge, Reminderville, Twinsburg, Glenwillow, Bedford Heights, and Orange. At approximately 20.49 square miles, it is one of the largest municipalities in Cuyahoga County. Solon’s economic and community success has garnered it many accolades and appearances on ‘Best Places to Live’ or ‘Best Suburbs’ at the national, statewide, and regional levels. One factor in this ranking has been Solon’s strong public-school system, which continually ranks as one of the best in the region and the State. Excellence at all levels of community and services provided is what makes Solon a diverse and unique neighborhood and one of Cuyahoga Counties most thriving and popular places to live and raise a family.

Previous Plans, Demographics, Land Use, Transportation, & Connectivity Analysis

The Solon Connects Plan provides a comprehensive current conditions analysis that thoroughly examines the City’s previous plans to better understand both local and regional efforts and how these studies might influence, support, or enhance the ‘Solon Connects’ Plan. This analysis also included a comprehensive look at existing demographics in Solon and how things such as car ownership would affect efforts to improve active transportation. Land Use and Transportation are linked so it was importation to include analysis on existing zoning codes and other key pieces of how Solon has been developed over the years and to see how to recommended updates might support active transportation and more walkable places. As expected, Solon is facing similar land use challenges as other suburban community’s that saw growth and development trends built strictly around the automobile. The plan also analyzes the areas of transportation and connectivity through a detailed study of existing streets, traffic counts, trails, sidewalks, transit routes, and other features. Transportation trends are reshaping communities and the Solon Connects Plan is one tool to help the community meet these changing demands and addresses common connectivity issues that many communities are facing, such as how and where to accommodate new bicycle and pedestrian facilities that support users of all ages abilities and how to address job access and first mile, last mile connections. While most understand that ‘connectivity’ mainly refers to how streets are connected, the final analysis located in this section expands on this definition to underscore key aspects of the existing network that might increase or decrease connectivity. Measurements of existing connectivity in Solon looked at the following four factors; Connectivity Index, Intersections Per Square Mile, ‘Travelshed’ Analysis, and Walkability. While the first two measures are good for giving residents and leaders a general understanding Solon’s network at a larger scale. The two-remaining measures help determine the more on-the-ground aspects of connectivity that a resident or employee might experience when walking in Solon. The later and more detailed evaluations illustrate how sidewalks and corridors for pedestrian and cyclist travel are more than just lines on a map, and how a truly connected system that achieves more equitable community-wide mobility will have strong metrics in each one of these four categories.
SAMPLE CONNECTIVITY ANALYSIS - TRANSIT ACCESS: 5 MINUTE WALK FROM STOPS

- No Sidewalk
- Sidewalk - One Side
- Sidewalk Both Sides
- RTA Stop

Larger circles indicate more jobs.
The Solon Connects plan is a coordinated planning effort that aims to provide a comprehensive set of recommendations for improving connectivity in Solon. In an effort to achieve this vision the plan has identified four key objectives or approaches to the recommendations outlined herein, **Enhance, Expand, Educate, & Evaluate**. These objectives are intended to reference some of the traditional E’s included in Bike and Pedestrian literature and programs: Engineering, Education, Enforcement, Encouragement, and Equity. Re-imagining what a different set of E’s might look like for Solon and the Solon Connects Plan. Each E contains a different approach to improving connectivity. Enhance focuses on recommendations that improve the quality and safety of the existing active transportation network for current users. Expand creates recommendations that increase mobility options and users thanks to a well-connected network. Educate identifies groups and/or programs that engage and inform residents about events, safety, and benefits surrounding active transportation. While lastly, Evaluate looks at progressive policies, procedures, and opportunities that will help advance active transportation in Solon now and into the future. Taken together each of these objectives represent an integrated and all-inclusive methodology for improving connectivity in Solon

**Recommendations**

The Recommendations section is where the Solon Connects plan describes in significant detail the projects, programs, and best courses of action necessary to achieve each objective and fulfill the community's vision. In this section each one of the plan’s objectives are broken down into a series of physical improvements or policies and programs the City can achieve through partnerships and collaboration. One of the final and most important stages of the planning process, the recommendations included in the Solon Connects plan respond to input gathered from city leaders, focus groups, and public engagement opportunities. They combine that personal and on the ground knowledge with the significant expertise and analysis of County Planning Staff to generate a series of tangible and comprehensive methods to improve connectivity in Solon. Some of these recommendations can immediately move towards execution, while others may require additional study, funding, or long-term phasing efforts, laying the foundation and need for a series of action steps and implementation strategies. Some highlights of recommendations in plan include:

- Adding Bus Shelters at Critical Stops and Locations
- Filling Gaps in the Sidewalk Network
- Expanding Protected and Separated Bike Facilities
- Building New Trails using Vacated Rail Corridors and Other Available Land
- Establishing a Safe Routes to School Program
- Establishing a Bike Solon Chapter of Bike Cleveland
- Developing a Downtown Master Plan
- Updating Zoning Codes & Ordinances to Support Active Transportation
- Developing a City Sponsored Bike Parking Program
- Using Traffic Calming Measures and Bike Boulevards in Key Locations
- Developing a Complete and Green Streets Policy
- Utilizing Temporary Infrastructure Improvements to Test Recommendations
- Developing Web and Mobile Apps for Residents to Report Issues
Section 04 - Implementation Strategies

The Implementation Strategies section aims to inform city leaders and the public about the how they can successfully transition from plan to implementation using public input, partners, and a variety of funding resources available. Moving from vision to implementation requires commitments of time and resources and is much more of a marathon than a sprint. The Solon Connects plan crafts recommendations to meet Solon’s challenges and opportunities, but it is up to the City, its partners, and the larger community to move from idea to action during the implementation phase. Results are the goal of any planning process and the steps to get there can vary across communities. However, there are a few key steps and critical features that should be part of any implementation strategy. This section includes a summary of those components: partnerships, priority, cost, timing, funding, and monitoring, describing how each has been applied to the Solon Connects Plan. The Solon Connects plan is intended to be a valuable tool, resource, and reference for the City of Solon — as well as property owners and developers — when deciding where, when, and how to make investments and act upon recommendations.

Project Prioritization

The first step towards implementation is to prioritize recommendations. Prioritizing projects helps to establish a potential order for the construction of projects, which can be based on variety of inputs either determined through the planning process or established by the agency responsible for implementation. The Solon Connects Plan used the qualitative approach to determine following maps and lists of priority projects. Project Team members, Focus Group members, and the Public through online surveys, online GIS mapping tools, and online interactive MURAL exercises voted on what recommendations were the highest priority or most important. These projects not only represent those that have significant community support but also provide significant benefits in terms of safety and accessibility, including increased access to jobs, schools, parks, and transit. Cities and organizations have limited funding streams that may be subject to specific project types or competitive applications processes. Prioritization can help the city determine which projects they should immediately allocate capital improvement dollars towards or match with existing funding sources to efficiently execute active transportation infrastructure investments. In addition, what could be considered a low priority now might become a higher priority in coming years as circumstances and opinions change, projects get built, or technology and funding expand. Changes in community support, project priorities, and available resources should be constantly reevaluated against recommendations as they arise. This flexibility will allow the community to take advantage of opportunities, increasing prospects for coordination, collaboration, and cost savings when constructing projects or evaluating new policies and programs.

‘Early Wins’

In addition to identifying community priorities it is also important to suggest some ‘early wins’. These initial investments can be described as recommendations that can be accomplished in a reasonable amount of time that deliver active transportation and connectivity improvements in Solon. Over 80% of residents felt implementation of recommendations included in the Solon Connects Plan should begin immediately upon completion. To help jump start this effort and help the City know where to begin when transitioning from plan to implementation, the Solon Connects Plan has identified some key ‘Early Wins’. These projects represent those that are; Higher Priorities, Near-Term Opportunities, Relatively low-cost (or have some dedicated funding in place). Getting early wins helps build momentum quickly and shows residents that leadership is working to build connectivity in Solon. These projects can help energize the community by taking advantage of existing opportunities or working to solve current issues.
RECOMMENDED ‘EARLY WIN’ IMPLEMENTATION STRATEGY

10 Access Easements
1. Sidewalks
   - Aurora, Braunard, Bainbridge, Cannon

9 Coordinate Projects

8 Harper Road Sidewalk

7 Solon to Chagrin Trail

6 Downtown Master Plan

5 Safe Routes to School

4 Bike Solon Chapter

3 Bike Parking
   - Downtown Solon

2 Bus Shelters
   - Cochran & Carter
   - Cochran & Aurora

0 Access Easements
0 Sidewalks
0 Coordinate Projects
0 Harper Road Sidewalk
0 Solon to Chagrin Trail
0 Downtown Master Plan
0 Safe Routes to School
0 Bike Solon Chapter
0 Bike Parking

RECOMMENDED ‘EARLY WIN’ IMPLEMENTATION STRATEGY
“According to the U.S. Department of Transportation’s 2009 National Household Travel Survey, half of all trips taken by people in the United States are under three miles (equivalent to a 20-minute bike ride)”

- Urban Land Institute (ULI), Active Transportation and Real Estate, 2016
Welcome!

The intent of the ‘Solon Connects’ Plan is simple: build safer and stronger pedestrian and bicycle connections between existing civic, commercial, and open space assets to create safe and beneficial active transportation options for everyone.

What is Connectivity?

‘Connectivity’ refers to the density of connections and the directness of links. A well-connected network has many links, numerous intersections, and minimal dead-ends. As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations through a variety of modes, creating a more unified and accessible system. (Healthy Spaces & Places)

What is a Connectivity Plan?

The City of Solon was awarded funding for professional planning services through a competitive grant process from the Cuyahoga County Planning Commission. County Planning, with help from the City, has developed a Solon Connectivity Master Plan. The ‘Solon Connects’ Plan is a visioning exercise that considers new methods, opportunities, and technologies to achieve a well-connected city for all residents regardless of age or ability. The ‘Solon Connects’ Plan is intended to not only guide leaders, but also inspire residents, business owners, and other stakeholders to rethink pedestrian, bicycle, and vehicular mobility in Solon now and into the future.

The plan intends to build upon Solon’s sense of community, pride, and amenities that make it an ideal place to visit, conduct business, and call home. The plan examines existing facilities and multi-modal infrastructure both regionally and locally. The goal of the plan is to listen, understand, and balance evolving active transportation trends with the needs and demands of residents. Obtaining input from a diverse cross section of the community during the coronavirus pandemic was critical for the success of this plan. This Master Plan marks only the beginning of this transformation and is intended to serve as a guide for changes over many years. Only with the help of dedicated residents, business owners, and city staff can the Master Plan’s goals be achieved. Together, they can work to realize a better Solon.
What is Active Transportation?

‘Active transportation’ is a means of getting around that is powered by human energy, such as walking or bicycling. The consensus within the field of transportation is that having more people use non-motorized transportation more often is critical to sustainability, economic development, and good public health. Recognizing the importance of walking and biking is one matter, actually getting more people to walk and bike is another. (Center for Disease Control CDC)

Why do we need a plan for it?

The goal of the ‘Solon Connects’ Plan is to provide a framework for improving walking and bicycling facilities throughout the City of Solon. It furthers the City’s mission to “enrich the quality of life for all our citizens by delivering superior services which promote a safe, active, healthy, and connected learning community.” It is the City’s hope that the goals, actions, and investments identified in the Plan will enhance safety for all roadway users and encourage more people to choose walking and biking as a preferred transportation choice throughout Solon. There are many reasons to undertake this effort, but one of simplest reasons is that the Solon Connects Plan allows the community to undertake the follow actions as part of the planning process:

**Inventory**
Catalog, record, and inventory what facilities exist today, and outline a vision for the future.

**Input**
Gather local input and ideas and empower residents by designating them as partners in the community’s future.

**Identify**
Outline, guide, and shape future decisions to match the community’s vision, helping the city identify specific projects, actions, and opportunities that are desired, feasible, and a high priority.

**Implement**
Distinguishes long and short-term projects so that project partners can coordinate and leverage additional public and private funding opportunities for implementation, while also providing a competitive advantage when applying for grants and funding.
Planning Process

The ‘Solon Connects’ planning process began in January of 2020, when the City of Solon was awarded funding for professional planning services through a competitive grant process from the Cuyahoga County Planning Commission. The entire process took about one and a half years to complete due to the 2020 Coronavirus pandemic and subsequent response. County Planning, with help from the Project Team – a committee of City Staff – guided the master planning process. County Planning staff, with help from the Project Team, developed an existing conditions analysis to help better understand existing conditions in Solon for active transportation (walking & biking). This group also studied best practices around the country, state, and region to create both aspirational and achievable goals. This analysis and review of transportation trends established a baseline for the City of Solon and for the recommendations contained in this plan.

Input from this group was supported by a variety of focus groups and other interested community leaders and stakeholders. These groups studied the existing conditions analysis and recommendations and helped generate key ideas to be pursued in this plan. Solon residents and the greater public also played a key role in the plans development. A project website and initial online public opinion survey helped to engage and introduce residents to the connectivity plan. In addition to input from this survey, the residents of Solon were engaged throughout the planning process at virtual town halls and other events to generate a vision and provide as many opportunities as possible to give comments and feedback. Final recommendations located in this document incorporate Public input, Project Team guidance, and Focus Group suggestions which have been supplemented the by additional technical and feasibility analysis performed by the County Planning staff.

The result of this process is the ‘Solon Connects’ plan a comprehensive document that addresses polices, programs, and projects that can seek to improve walking and bicycling infrastructure within Solon. Residents are encouraged to use this Connectivity Plan to see what changes may occur in their neighborhoods and assist implementation by developing community groups or volunteer organizations to support it. Business owners are encouraged to use the Connectivity Plan to find where the City is focusing efforts, and to see what opportunities may be available. The City is encouraged to use the Connectivity Plan when deciding what infrastructure investments to make, or what grants to apply for. These are all substantive ways that members of the community can use the Connectivity Plan to guide their decisions and focus on various implementation strategies to achieve the community’s vision.

Planning & Zoning: The Difference

Planning Proposals
- A general plan for future growth
- Describes recommendations for what should happen in the future
- Includes recommendations that can be undertaken by the City, residents, or partners
- A flexible plan that is intended to be interpreted as conditions change

Zoning Ordinance
- Specific rules for development
- Describes what is and what is not allowed today
- Includes mandatory regulations on development that are enforced by the City unless specifically waived
- Relatively rigid set of regulations that can only be changed by a legal process
01.1

**Project Phases**

**Discovery & Analysis**
Collection of demographic data and other detailed analysis of the City's existing conditions including land use, zoning, infrastructure, and connectivity patterns.

**Vision & Objectives**
Broad based concepts and ideas based upon Analysis and Community Input that set the stage for the plan and recommendations.

**Project Timeline**

<table>
<thead>
<tr>
<th>Winter 2020</th>
<th>Spring 2020</th>
<th>Summer 2020</th>
<th>Fall 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-Off Meeting</td>
<td></td>
<td>Focus Group Meetings (#1)</td>
<td>Virtual Town Hall</td>
</tr>
<tr>
<td>Online Survey #1 Launched</td>
<td>Survey #1</td>
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<td>Survey #2 Web Map #1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discovery &amp; Analysis</td>
<td></td>
</tr>
</tbody>
</table>
### Vision

Vision statements that define the community's future goals and aspirations.

### Recommendations

Specific recommendations that the city and various groups can consider in order to accomplish the community vision.

### Implementation Strategies

Priorities, Partners, Costs, Funding Resources, and Timelines to put the plan into action.

<table>
<thead>
<tr>
<th>Winter 2020</th>
<th>Winter 2021</th>
<th>Spring 2021</th>
<th>Summer 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group Meetings (#2)</td>
<td>Focus Group Meetings (#3)</td>
<td>City Council Presentation</td>
<td>City Council Presentation</td>
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<td></td>
<td></td>
<td></td>
<td>Virtual Town Hall</td>
</tr>
<tr>
<td>Vision</td>
<td>Recommendations</td>
<td></td>
<td>Implementation</td>
</tr>
</tbody>
</table>

Survey #3
Web Map #2
01.2 Why is This Plan Important?

“The construction of sidewalks, bicycle lanes, shared use paths, and trails; reducing single occupancy vehicle travel; and teaching children to ride and walk safely all contribute to our national transportation goals of safety, mobility, livability, economic growth and trade, improved health, enhancement of communities and the natural environment.”


**DEMAND**

63% of millennials would like to live in a place where they do not need to use a car very often

63% of millennials would like to live in a place where they do not need to use a car very often

Source: ULI - America in 2015 report

In a 2012 Survey **72% of Solon residents** agreed that more trails are needed in Solon

Source: City of Solon

57% of Americans agreed that business and homes should be built closer together, so that shops are within walking distance and don’t require the use of an automobile

Source: CEOs for Cities

**Bicycling** has become the country’s fastest-growing form of transportation for commuters

Source: ULI - Active Transportation and Real Estate 2016

50% of US Residents say that walkability is a high priority when considering where to live

Source: ULI - America in 2015 report
PROPERTY VALUES

Houses located in **highly walkable neighborhoods** command between **$4,000 and $34,000 more** than similar houses in areas with average walkability levels


**1 point increase in walk score** can be associated with a **$500 to $3,000 increase in value**

Source: CEOs for Cities

Homes a **¼ mile from the Radnor Trail** were valued on average **$69,000 higher** than other properties further away

Source: GreenSpace Alliance and the DVRPC

HEALTH

People who live in neighborhoods with **shops and retail within walking distance** have a **35% lower risk of obesity**

Source: American Journal of Preventative Medicine

**Use of Pennsylvania’s parks and trails**, helps residents **avoid $199 and $596 million per year in direct and indirect medical costs.**

Source: GreenSpace Alliance and the DVRPC

If Americans **drove 1 mile less per day**, it would **reduce the adult obesity rate** by 2.16% over 6 years

Source: Transport Policy

Approximately **114,000 adults** receive **measurable health benefits through their physical activity in the Cleveland Metroparks system**, yielding an **annual medical cost savings of $160 million**

Source: Trust for Public Land “The economic benefits of Cleveland Metroparks”
01.3 Community Engagement

**Project Website**

Developing a plan provides the community an opportunity to give input, an integral component of the planning process. Multiple outlets were used in attempt to gather input from a diverse group of residents, stakeholders, and employees within the community since this planning process will affect not only those who live in Solon, but also those who own a business, work, or play in the city. One of the first and simplest methods to inform and reach residents was the launch of a project specific website. [www.countyplanning.us/SolonConnects](http://www.countyplanning.us/SolonConnects)

This website was updated frequently, featuring information about the plan, documents, links to online surveys, presentation materials, and meeting updates. It was designed to provide the tools necessary for residents to stay informed and provide feedback virtually. A critical component since a majority of Solon Connects Plan was developed during the Coronavirus Pandemic and required as much socially distant engagement as possible.

**FIGURE 1: SOLON CONNECTS PROJECT WEBPAGE**

![SOLON CONNECTS PROJECT WEBPAGE](image-url)
Virtual Engagement

Due to COVID-19-related directives regarding social distancing and safety, County Planning and the City of Solon used a variety of virtual engagement methods to reach with city leaders, project stakeholders, & residents safely and creatively.

Project Team & Focus Groups

Gathering feedback from local, regional, and community leaders who have an on the ground knowledge of connectivity challenges and opportunities was a critical part of the planning process. The Coronavirus pandemic did not stop County Planning’s efforts to reach these groups effectively and repeatedly throughout the process. The structure of the planning process included a 10-person project team - a committee of City Staff – and seven different focus groups – Community Life Group, Business Group, Senior Group, Rotary Club Group, PTA Group, & Student Focus Group – with a total of 132 members. One important objective was to give each team and group significant opportunities to participate at a time and place that was not only safe but also one that could fit their changing schedule. Getting a group of 20+ focus groups members to agree on one virtual meeting date and time with work schedules and childcare requirements in flux was not going to work. So, the County Planning team used a variety of tools, in addition to regular scheduled Zoom meetings, including recorded presentations that were privately and publicly posted on YouTube allowing participants to view at anytime. These presentations were combined with online MURAL activities and surveys to solicit feedback and comments. In addition to this outreach the planning team would also hold several ‘Virtual Office Hours’ at significant phases and outreach points during the process. The virtual office hours would be a series of anywhere from 4-6 meetings a various dates and times over a two-week period, allowing focus group members and stakeholders to sign up and get more involved or ask questions at a time and day that work best for their schedule. These adaptive and creative engagement methods allowed the plan to develop recommendations and implementation strategies that were created and supported by city leaders and community stakeholders.

FIGURE 2: VIRTUAL ENGAGEMENT ACTIVITY USING MURAL
Public Engagement Opportunities

**Online Survey-1**
February to April
General opinion survey on existing active transportation in Solon

**Virtual Town Hall - 1**
August 20th, 2020

**Online Survey-2 & Map-1**
August to September
Visioning and mapping exercises to identify location and types of improvements

**Virtual Town Hall - 2**
April 15th, 2021

**Online Survey-3 & Map-2**
April to May
Survey and Mapping Exercise on proposed recommendations to determine priorities
Media Coverage

To keep Solon residents engaged and informed on the plans progress, updates, and upcoming virtual public meetings during the Coronavirus pandemic, the Planning team and the City of Solon used various media coverage and outreach opportunities via articles on Cleveland.com and features in Northeast Ohio magazines. Leveraging the wider reach of these outlets allowed the team to get more information out to residents quickly and easily. This information included not only the projects status but information on how residents could participate while maintaining safe social distancing requirements. This outreach was a valuable tool to maintain momentum and interest from residents during the critical visioning and recommendation phases of the project.

Community

Solon Connects plan would make walking, biking easier and safer

Town hall meeting maps out plan for Solon Connects

Solon Holding Townhall On Connects Plan

The Solon Connects Plan will strengthen pedestrian and bicycle connections between civic spaces.
Due to the COVID-19 pandemic traditional in-person public meetings and community engagement was not an option. Therefore, the Solon Connects plan took an innovative and timely approach to reaching all facets of the community to ensure everyone had a voice during the process. County Planning worked closely with City staff to host virtual town halls, which used several platforms to disseminate information. This included a combination of physical advertisements, such as yard signs and community mailers, in conjunction with online and social media tools. Additionally, these virtual meetings were broadcast live on YouTube and Television where residents could call-in questions to be answered on air or use live polling to gauge viewers responses in real time.

The first Virtual Town Hall took place on August 20th, 2020. It was broadcast live on Solon’s YouTube Channel and was also featured on their local TV access channel. Numerous signs with the meeting information were created and placed throughout the community at key destinations to inform residents and encourage them to participate. The meeting including a live question and answer session where residents could call in and ask questions at anytime, and wait for their question to be answered at the end of the meeting.

Community Signage
The second Virtual Town Hall took place on April 15th, 2021. It was also broadcast live on Solon’s YouTube Channel and also featured on their local TV access channel. For this event a mailer with all meeting information was sent to every resident in the City of Solon encouraging them to tune in and participate. In addition to another live question and answer session at the end of the event, this meeting included a live poll for Solon residents to answer questions during the presentation on the web or using their mobile phones via text. Giving residents multiple opportunities to participate while also keeping the meeting engaging and active.

**Resident Mailer**

**Live Polling**
Online Surveys

Online surveys provided a good opportunity to allow residents to share their feedback on the Solon Connects Plan. Due to Coronavirus concerns and social distancing requirements, several different surveys styles and programs were used to gather feedback throughout the process and reach as wide an audience as possible. Summary's of the survey results are provided on the next few pages, the full results of each survey and question are available in the [appendix] at end of the document.

**SURVEY - 1 SUMMARY**

The first survey was launched in February shortly after the project began. The survey remained open until the end of April and was intended to be a general opinion survey about how people view active transportation in Solon.

- **756** total number of survey respondents

<table>
<thead>
<tr>
<th>Reasons for Not Walking &amp; Biking</th>
<th>Reasons for Feeling Unsafe</th>
<th>Use One Word to Describe Walking/Biking in Solon?</th>
</tr>
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<tbody>
<tr>
<td>Safety concerns 65%</td>
<td>Poor infrastructure 65%</td>
<td>Difficult</td>
</tr>
<tr>
<td>Weather conditions 36%</td>
<td>Cars too fast or roads too busy 48%</td>
<td></td>
</tr>
<tr>
<td>Unpleasant experience 31%</td>
<td>Safety at intersections 40%</td>
<td></td>
</tr>
</tbody>
</table>

**What Types of Changes or Facilities You Want to See in Solon**

- Multi-use paths and trails 75%
- Add bike lanes or paths 57%
- Pedestrian friendly developments 57%
- Add more amenities 50%
- Add or improve Frost Tract 40%
SURVEY - 2 SUMMARY

The second survey and online mapping tool was launched in August after the First Virtual Town Hall. The survey remained open until the end of September and was intended to indicate where people want to see improvements.

225 total number of survey respondents

HAPPY WITH THE EXISTING FACILITIES AVAILABLE THROUGHOUT SOLON?

60% Unhappy

17% Happy

COMFORTABLE USING THE EXISTING FACILITIES AVAILABLE TO REACH DESTINATIONS?

57% Uncomfortable

18% Comfortable

HOW QUICKLY SHOULD SOLON BEGIN WORK ON RECOMMENDED CONNECTIVITY IMPROVEMENTS?

74% Connectivity is Very Important

SURVEY - 3 SUMMARY

The third survey and online mapping tool was launched in April shortly after the Second Virtual Town Hall. The survey remained open until the end of May and was intended to identify what recommendations were considered the highest priority.

220 total number of survey respondents

HOW IMPORTANT IS ADDITION OF TRAIL CONNECTIONS AND LINKAGES?

Trail Links are Very Important

HOW HAS COVID IMPACTED YOUR WALKING & BIKING HABITS?

IF YOU HAD TO PICK ONE PROJECT TO BE IMPLEMENTED WHAT WOULD IT BE?

- Addition of Bike Paths
- Addition of Trails/Paths
- Add or improve sidewalks
- 25% said start the Rails to Trails program
- 43% of people want that
Online Mapping Tools

In addition to creating online surveys to engage residents, County Planning also built two online mapping tools to supplement some of the typical engagement activities that would be completed in person. The first online mapping tool allowed users an opportunity to place pins on specific locations and projects they felt were either a great place, a connection opportunity, or a connection challenge. Users could also “like” other pins and add comments to explain their thoughts. The second online mapping tool allowed users to vote on specific recommendations as a follow to the initial community engagement opportunities. Combining these two maps together gave the planning team significant information, which would ultimately help prioritize the various recommendations included in the Solon Connects plan.

**FIGURE 3: INTERACTIVE CITIZEN COMMENT MAPPING TOOLS USING ARCGIS ONLINE SOFTWARE**
Engagement Tracker

+650 Live Broadcast Views on YouTube
+1,250 Survey Responses
+250 Mapped Points
Hundreds of Individual Comments

“I don’t walk or bike because of safety concerns”

“There is no need for trails or paths in Solon whatsoever”

“Sidewalks, at least on the major roads, are a necessity”

“Downtown Solon needs to be more clearly defined”
“I support longer car trips if roads were safer and more pedestrian friendly.”

“Solon is such a car-centric place”

“Not a fan of bike riders using street”

“Start implementation of rails to trails!”

“Glad My city is planning this way and is encouraging to be part of a more vibrant community.”

“Solon has nothing to walk or bike to.”
“Bicycling and walking are important elements to integrated, inter-modal transportation systems that improve quality of life by providing access to jobs, education, health care, and other essential services.”

Existing Conditions

The ‘Solon Connects’ Plan examines the current conditions in Solon through a variety of perspectives. These include an analysis of existing zoning, land use, transportation, demographics, and other important features such as community health and the environment. Developing this strategic profile of existing site conditions is essential to determining what trends are shaping connectivity and active transportation today, as well as what elements need to be updated or changed to meet the changing needs or demands of the future. Analysis of these trends combined with stakeholder and public input help outline a vision for the future. This vision is uniquely tailored to the City of Solon and its goals of improving active transportation for residents of all ages and abilities.

What Makes a Place Walkable?

One critical first step to improve “Walkability” is focusing on the conditions by which walking (or biking) is enabled, including those areas that are traversable, compact, physically-enticing, or safe. The second is identifying or perhaps measuring the outcomes of walkable environments, such as making places lively and sociable, enhancing transportation options, or inducing opportunities for exercise.
Study Area

Located in the southeast corner of Cuyahoga County and 18 miles from the City of Cleveland, Solon is adjacent to three other counties (Geauga, Portage and Summit) and surrounded by Moreland Hills, Chagrin Falls, Bainbridge, Reminderville, Twinsburg, Glenwillow, Bedford Heights, and Orange. At approximately 20.49 square miles, it is one of the largest municipalities in Cuyahoga County.

Solon was an earlier adopter of a comprehensive zoning plan and has been able to achieve a strong industrial base that has been further enhanced by the extension of US 422 in 1991, enabling easy access to Cleveland and other parts north and south along the I-271 corridor. In addition to its industrial and planned development areas, the city maintains quality parks, recreation areas, golf courses, and access to the Cleveland Metroparks within its borders.

Solon’s economic and community success has garnered it many accolades and appearances on ‘Best Places to Live’ or ‘Best Suburbs’ at the national, statewide, and regional levels. One factor in this ranking has been Solon’s strong and public-school system, which continually ranks as one of the best in the region and in the State of Ohio.

Excellence at all levels of the community is what makes Solon a diverse and unique neighborhood and one of Cuyahoga Counties most thriving and popular places to live and raise a family. Embracing a connectivity plan and achieving better mobility through active-transportation will help push Solon into the future and main its success and status as a community with high levels of service and amenities.
Solon Today

What is now the City of Solon was once part of the Connecticut Western Reserve. The original group of settlers made their home near the current Grantwood Golf Course and established Solon in 1820. A prominent railroad junction and several cheese factories were the first industries in Solon. In the 1850s, SOM (an acronym for Solon, Orange, Mayfield) Center Road became Solon’s main thoroughfare. As the name suggests, this road goes through the center of these three cities. Solon was later incorporated into a village in 1927.

Population continued to slowly increase as Solon grew into a small town. In 1951, Solon established a zoning code making it one of the first suburbs in America to do so. This code created an industrial district out of 2,200 acres of farmland. Zoning ultimately led to exponential growth which led the Village to become a City in 1961. US 422 was expanded eastward into Solon and added interchanges at Harper Road and SOM Center Road. Soon after, businesses like Swagelok and Nestle moved their operations into the city and are now Solon’s largest employers. This zoning decision not only led to Solon’s strong tax base but also regulated residential growth. Though it was projected that with less restricted, or no zoning, the land area in Solon could accommodate a population of 40,000, City leaders decided to maintain zoning that could sensibly manage growth to support a population of up to 25,000.

Today, Solon has become one of the most desirable communities in Northeast Ohio. Its Average Household Income is $104,000—double the national average. Further, its school district is named “Best School District in America” by niche.
**Previous Plans**

It is important to closely examine both local and regional planning efforts to fully understand how these studies and plans might influence, support, or enhance the ‘Solon Connects’ Plan. Additionally, it is important that these previous studies do not go to waste, and to ensure that this plan highlights and reinforces efforts and findings already undertaken by the City and other partner organizations, even if those results don’t align with the findings presented herein. Several existing planning documents and studies relevant to the City of Solon were examined to help in the project’s initial Discovery and Analysis Phase.

**Master Transportation Plan – 2009**

In 2008, the City of Solon hired Wells + Associates, Inc. to create a report that identified current traffic patterns as well as predicted traffic patterns for the next ten and twenty years. This study was an update to the City’s 1995 Master Transportation Plan, which was used to help in the selection of the 37 study intersections of the 2008 update. The updated plan presented an assessment of future conditions for both the years 2018 and 2028, evaluated accident data, and identified road improvements needed to adequately accommodate future traffic in both 2018 and 2028.

Ultimately, the updated plan provided a series of recommendations based on a number of factors. These included: forecasted traffic volumes and capacity; traffic mitigation for immediate, near (2018), and long-term (2028) time frames; roundabout designs and operations; and crash reports. As a result, there were 14 recommendations made to the City, which included such improvements as roadway widenings and interchange improvements, to bicycle and pedestrian all-purpose trails and parking strategies.

**Community Survey – 2012**

In 2012, the City of Solon conducted a community survey in order to gather how residents felt about specific topics important to the community. The paper survey was mailed to 813 randomly selected Solon households and 332 were completed for a 42.3% response rate. The survey utilized many of the same questions from a similar survey conducted in 2001, which allowed the City to compare the 2012 responses with the responses from 2001. This would help determine where opinions have changed or remained the same over the last decade. Overall, Solon residents confirmed that the City continues to be desirable place to live, and that the local government has continued to provide high quality services despite the lingering effects of the economic crisis that began in 2007. Solon continues to receive high marks for city services, recreation facilities and other public services.

When respondents were asked whether more multi-purpose bike and hike trails were needed, 72% of respondents agreed that this was an important amenity to have within the community. An additional 53% of respondents agreed that more sidewalks were also needed throughout the City of Solon, which continues to show a desire for safer pedestrian and bicycle connectivity and infrastructure.
Master Plan – Adopted 2016

In the mid-2000s, the City of Solon prepared its first new Master Plan in more than a quarter of a century. This new plan was officially adopted by the City in 2010 and was updated in-house by Solon’s Department of Planning and Community Development, working in association with a Master Plan Citizen’s Committee. These updates were completed in 2015 and were officially adopted in 2016 by City Council. The Master Plan included 17 broad objectives that encapsulate the priorities of Solon residents. These objectives focused on a number of key community factors, such as Commercial Design Guidelines, School District Cooperation, Regionalism, and Alternative Transportation Networks.

Much has changed over that time and Solon continues to be at the forefront of planning initiatives, including multi-modal transportation alternatives. As a primary Goal of the Master Plan, the City and its residents acknowledges that “connectivity is a crucial factor in the overall effectiveness of the street, sidewalk, and bicycle system.” In order to support this goal, Solon encourages that “when presented with a new development, decision makers should make it a design priority to include some form of public transportation, sidewalks, and/or bicycle routes as project amenities. The benefits of effective transportation planning are not just limited to lessening traffic congestion or reducing parking demand, but also to promote healthy neighborhoods, allowing residents to safely walk, bike, and otherwise socialize with each other.”

Solon to Chagrin Falls Trail - 2018

The Solon to Chagrin Falls Trail was initially proposed to residents during a public open house in April of 2018. At that time, the project was estimated to cost just under $1 Million; the City was awarded $500,000 from the Ohio Department of Natural Resources (ODNR) and another $300,000 was awarded through the Ohio Capitol Budget Program earlier that same year. The 2.1 mile stretch of trail would be ten feet wide, fully paved, and ADA accessible for all users. The path would be a suitable for a number of activities, such as hiking, biking, or strolling. Amenities like benches, rest areas, bike racks, and pet stations would be provided along the pathway.

The trail would start at SOM Center Road, in downtown Solon, and continue east along the former Chagrin Falls and Southern Railroad right of way, to a point just south of the Village of Bentleyville border. Currently, the City of Solon owns the right-of-way in this location, which changes ownership to the Cleveland Metroparks at the Bentleyville/Solon border. This relatively short (2.1 miles), section of trail would open residents to a much large regional network of trails into downtown Chagrin Falls and the Cleveland Metroparks, with the goal to eventually connect into the Cuyahoga Valley National Park and Cleveland with a linkage to the Towpath Trail system.

Zoning Code Updates

In 2019, the City of Solon introduced the potential rezoning of the 21.76-acre former Liberty Ford site and properties immediately adjacent along Aurora Road, Station Street, Melbury Avenue and Solon Road. The proposed change would be from Commercial (C-4) to a newly formed Mixed-Use Planning District (MPD-A). The newly proposed MPD-A zoning district would create the flexibility necessary to address the unique needs of the area and require high-quality, walkable development. Additionally, the City’s 2010 Master Plan reflected the opinions of residents to redevelop the downtown area and to provide new housing options for under served markets. The new mixed-use district would address all of these issues. The proposed rezoning would require that at least 67% of the total area be commercial, with a maximum of 33% residential coverage and 200 units, and a minimum residential coverage of 10%, with 90% commercial. Ultimately, Issue 65 passed with 63.43% residential approval for the Mixed-Use Planning District in the November 2019 election.
Cuyahoga Greenways

Cuyahoga Greenways is a county-wide initiative to envision, plan, and implement over 800-miles of greenways and urban trails throughout the region. Unlike conventional approaches to building non-motorized facilities, like bike lanes, that may only serve a segment of the population, Cuyahoga Greenways seeks to build an interconnected, non-motorized transportation network that is safe and welcoming for people of all ages and all abilities. This initiative, which featured input from 29 regional agencies and 43 participating communities, developed a vision, framework plan, and implementation tools for making the new greenway framework a reality.

The planning process was community-driven and data-enriched, and empowered local leaders and stakeholders with the knowledge necessary to make informed decisions and craft a plan that benefits the community both economically and socially. A cornerstone of the process was a robust public engagement program with over 20 community-wide events. Leveraging both traditional and digital tools, a rigorous spatial analysis of over 300 corridor opportunities was completed. The resulting analysis, coupled with the community’s involvement, allowed stakeholders to identify and prioritize actionable greenway proposals that provide the biggest return to the community while dispensing more equitable outcomes.

With the greenway framework plan in place, community leadership has shown a willingness to more effectively collaborate across jurisdictions to leverage resources to implement projects. The Cuyahoga Greenways initiative exemplifies a regionally coordinated and evidence-based process to improve equity, mobility, and expand the benefits of greenways to all neighborhoods in Northeast Ohio.

Solon Transit & Mobility Taskforce

The City of Solon is a vibrant suburban job hub located 20 minutes southeast of Cleveland. The purpose of the Solon Transportation Taskforce is to improve workforce mobility in Solon to better connect great talent with great jobs and careers. Taskforce objectives include:

1. Assessing public transit via employer and employee questionnaires.
2. Developing public/private micro-transit solutions for first mile, last mile service.
3. Collaborating with our partners to determine if bus service should be realigned or expanded to reduce travel time.
4. Overlaying our data with the Solon Connects initiative to improve safety and accessibility.
5. Researching and recommending funding options.
After growth in the 80’s & 90’s the City of Solon’s population REMAINS STABLE at > ~22,000 residents since 2000.

NEARLY 75% of residents identify as white compared to 59% in the County.

NEARLY 11% of Solon’s residents are naturalized citizens.

The City of Solon has seen a 20% INCREASE from 13’ to 18’ in residents aged 65 & OVER.

The City of Solon has 10% FEWER young adults (ages 20-39) than Cuyahoga County.

MORE THAN 67% of Solon’s residents have at least BACHELORS DEGREES.
MORE THAN 76% of Solon households own AT LEAST 2 VEHICLES

From 13’ to 18’ Solon saw an almost 23% INCREASE in single-person households

Solon’s Median Household income of $104,625 is MORE THAN 2X than the Countywide average

MORE THAN 2X

$45% OF RESIDENTS say they commute <10 MILES TO WORK

<85% OF RESIDENTS say they commute to work DRIVING ALONE

<2% OF RESIDENTS commute to work WALKING, BIKING, OR USING TRANSIT

Since 1970, households HAVE SHRUNK FROM 3.51 to 2.78 persons per household

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - ACS, 2018

Source: US Census Bureau - On the Map, 2017

Source: US Census Bureau - On the Map, 2017
Solon today is facing similar land use challenges and opportunities as other community’s that saw growth and development trends built around the automobile.
1. Solon has lots of high quality existing assets and amenities.
Solon contains a diverse array of commercial, social, entertainment, and community services. The intersections of SOM Center Road with Bainbridge and Aurora Roads, function as the community’s entertainment hub. In addition to having numerous entertainment and community services, Solon maintains a strong business and manufacturing base. The ‘Solon Connects’ plan provides an opportunity to enhance links between these and other key features like schools and parks, connecting Solon residents to its history, assets, and neighborhoods in a safe and healthy manner.

2. Solon is big and spread out.
At 20.4 square miles and approximately 23,038 residents Solon ranks #4 in land area and #12 in population in Cuyahoga County. However, it is only #42 of 59 total communities in population density, which has the potential to make enhanced connectivity though walking and biking difficult. For reference Solon is the equivalent of taking the population of a city like Shaker Heights and spreading out across a community the size (in square miles) of Parma. Which has enough space for residents to make it Cuyahoga County’s 2nd and Ohio’s 7th most populated city.

3. Detached single-family homes are the norm in Solon.
Solon is primarily comprised of single-family detached residential dwellings which account for 52% of existing land uses and 72% of the City’s zoning districts. However, Solon is also a community with a large percentage of open space and industrial uses. Overall, these make up 23% and 11% of existing land within the community respectively. Large amounts of single-family uses and zoning - with lots sizes up to 5 acres – make connectivity a challenge since more densely pack neighborhoods create enhanced opportunities for mobility without the use of a car.

4. Solon is a job hub.
The City of Solon is a major job hub, with approximately ~26,739 Jobs, Solon is second only to the City of Cleveland in employment within Cuyahoga County. Many of the City’s top employers, such as Swagelok and Nestle, the city’s 2 largest - accounting for 50% of all jobs from the top 20 companies - have facilities in industrialized areas just west of downtown Solon. These companies and surrounding industrialized areas are an important component of the City’s economic base demanding increased mobility options for employers and employees commuting to work or downtown Solon for lunch and entertainment.
Transportation trends are reshaping communities and the Solon Connects Plan is one tool to help the community meet these changing demands.
1. Road designs have created places for cars but not people.

Roadways are shared public space between buildings that should be available to use for any mode of transportation. However, over time streets have become channels for cars through a sophisticated hierarchy of street types – from highways to local streets – whose primary mission is the efficient movement of as many vehicles as fast as possible. This design typology removes the necessary space for people from the equation, resulting in detrimental effects on pedestrian travel, which can be stress-free and accessible on local roads in Solon’s Single Family detached subdivisions but virtually impractical anywhere else.

2. Pedestrian and Bicycle Crashes are Low Compared to Overall Total.

Crashes are a key component of connectivity for cars and pedestrians, and efforts to reduce crashes can make streets feel safer for everyone. Between 2017 and 2019 there were only 11 recorded crashes involving a bicycle or pedestrian out of the 1,597 crashes reported or 0.7%, with no fatalities or serious injuries occurring. Maintaining the safety of bicyclists and pedestrians depends on not only on well-designed routes but also most importantly intersections, where it is estimated that 40% of pedestrian crashes occur.

3. Roadway speeds can be disastrous for pedestrians.

Having the necessary space for people isn’t the only roadway design issue. In addition to the practice of widening roads and leaving whatever space is leftover to the pedestrian, speed is also critical. Pedestrians are the most vulnerable users of a roadway network and roadway speeds can significantly impact feelings of safety or danger. As cars increase speeds the driver’s field of vision is impacted as is their reaction time and stopping distance. In fact, for every 10 miles per hour increase in speed the likelihood of a hit pedestrian perishing increases exponentially.

4. In lower traffic areas road design can improve safety & walkability.

Previous road design strategies - intended to improve efficiency - can be re-purposed to create safer conditions for drivers and pedestrians. One method is a Road Diet, a reconfiguration of travel lanes to calm traffic, provide space for bicycle lanes, turn lanes, streetscapes, wider sidewalks, and other purposes. Many streets have excess capacity due to designs that accommodate peak traffic flow or over-forecasted traffic volumes that were never realized. Streets aiming to relieve rush hour congestion fail to provide a safe environment when traffic is low. A road diet can make a street more welcoming for all users with minimum inconvenience during peak hours.
The RTA’s 41/41F bus route continues to be a significant transportation fixture for commuters who work in Solon and elsewhere. More than 80% of Solon’s RTA commuters have access to one or fewer personal vehicles, making safe and equitable connections to reliable public transportation a critical component of this plan. Those that utilize public transportation need safe and complete pedestrian facilities and stops, well placed road crossings, and separation from traffic to feel comfortable and confident navigating to work safely and reliably.

As a job hub, Solon has a large inflow of daily workers on its highways and streets during peak hours in the morning and afternoons. Unfortunately, most of the 25,000 daily commuters who work in Solon, drive to their jobs alone. This not only impacts the environment it also significantly alters the physical landscape in our cities. Decisions for infrastructure, roadway design, and street layouts have largely been influenced by the preference for driving, leaving less room for pedestrian and cyclists in the roadway - and making streets in Solon during non-peak hours appear bleak and unsafe.

Changing the way people think about mobility and overcoming decades of customs that support these perceptions to choose a different transportation option is one of the main challenges in developing a successful plan.

While 85% of daily commuters drive to work in Solon alone, the decision to drive is almost a necessity when living in Solon. Most residents will choose to drive because it is seen as the most convenient option. Those households who don’t have access to a personal vehicle – less than 3% in Solon – don’t have the same autonomy. Changing the way people think about mobility and overcoming decades of customs that support these perceptions to choose a different transportation option is one of the main challenges in developing a successful plan.

The RTA's 41/41F bus route continues to be a significant transportation fixture for commuters who work in Solon and elsewhere. More than 80% of Solon's RTA commuters have access to one or fewer personal vehicles, making safe and equitable connections to reliable public transportation a critical component of this plan. Those that utilize public transportation need safe and complete pedestrian facilities and stops, well placed road crossings, and separation from traffic to feel comfortable and confident navigating to work safely and reliably.

- **85%** of daily commuters drive to work in Solon alone.
- **39%** of Solon's daily workforce commute less than 10 miles.
- **76%** of households in Solon own two or more vehicles.
- **4th** most popular route for RTA ridership.
9. **Solon has a valuable existing trail and bike network.**

Solon has nearly 10 miles of bike lanes and 10 miles of all-purpose trails within the community, of which 54% are located within the Cleveland Metroparks along Hawthorn Parkway. The length of both features paints a portrait of a strong existing network, although some routes connect to other regional systems, most of the current system is fragmented and not distributed though out the community evenly. This makes direct access for some residents unsafe or inconvenient and limits opportunity for residents to choose walking or biking as an alternative transportation option.

10. **Rail corridors and vacant land provide connection opportunities.**

Solon is nearing full build out with minimal land remaining for trail development. Much of the vacant land within the community is City owned or under the control of Homeowners Associations, but there are also several vacated rail and powerline corridors that are underutilized. These present a unique opportunity for expanding the pedestrian and bicycle network within the City to areas beyond just street rights-of-way and sidewalks. These connections have the potential to link neighborhoods and connect Solon to other destinations in the region.

11. **Solon has gaps in its sidewalk inventory, limiting some access.**

Sidewalks are a vital component when determining mobility, enhancing access for all residents and visitors regardless of age or mode of travel. They act as public spaces for the city activating streets, neighborhoods, and the community. At many points during daily life residents and visitors need a solid pedestrian network for safety and access. Sidewalks are that fundamental piece and a necessary infrastructure investment that improves connectivity and encourages walking. Closing critical gaps in Solon’s sidewalk inventory is an important step in improving the health and safety of the community.

12. **Solon’s has park space, but it is not easily accessible without a car.**

Only 4% of Land in Solon is dedicated to park space, below the National Median of 15%. In addition, not many of these existing parks are accessible by pedestrians. According to the Trust for Public Land Database only 23% of residents live within a 10-minute walk to a park, well below the National Average of 54%. In fact, it is estimated that more than 17,000 Solon residents live outside this 10-minute walk to a park. In addition to boosting well-being for entire neighborhoods and fostering community interaction, parks are one destination that people want to access easily on foot or by bike with their family and friends.
Solon’s large land area and sprawling car-centric street network make connectivity improvements challenging.
What is Connectivity?

‘Connectivity’ refers to the density of connections and the directness of links. A well-connected network has many links, numerous intersections, and minimal dead-ends. As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations through a variety of modes, creating a more unified and accessible system. (Healthy Spaces & Places)

How do we Measure it?

While most understand that ‘connectivity’ mainly refers to how streets are connected, this section intends to expand on this definition and underscore the key aspects of streets and networks that improve connectivity. Identifying patterns and characteristics that can be measured today to help determine not only where the network functions well for pedestrians and cyclists but also where this network can be improved.

Measurement of existing connectivity in Solon looked at and analyzed these four factors; Street Patterns and Connections using the Connectivity Index, Network Density and Block lengths using Intersections Per Square Mile, Accessibility and the ability to reach destinations using ‘Travelshed’ Analysis, and Walkability through an analysis of the networks Quality, Safety, and Urban Form. While the first two measures are good for giving residents and leaders a general understanding Solon’s network at a larger scale. The two-remaining measures help determine the more on-the-ground aspects of connectivity that a resident or employee might experience when walking in Solon. These secondary and more detailed evaluations illustrate how sidewalks and corridors for travel are more than just lines on a map and that it is important to not only create more access points but to also understand what positive and negative walking conditions these corridors produce. All four of these factors are key pieces to creating a connected network. A truly connected system that achieves equitable community-wide mobility will have strong metrics in each one of these categories.
These two networks (in the images below) differ in many ways. The network on the right has fewer intersections than the one on the left is less of a grid pattern and has more dead ends (cul-de-sacs). This creates fewer intersections and makes direct access to the network longer and more difficult. These differences represent key aspects and difficulties in connectivity when dealing with the network that exists today.

Connections & Street Patterns

- Same Lane Miles
- Greater Capacity
- More Choices
- More Connections
There are many different methods to measuring and assessing a community’s or neighborhoods connectivity. To better understand existing street connectivity in Solon this plan will use a variety of simple and complex analyses including the Connectivity Index, Intersections Per Square Mile, and Travelshed Analysis.

The Connectivity Index measures the relative level of connection happening now in Solon, which is expressed by the ratio of the number of street segments to the number of intersections in a given area. The metric helps articulate how many links a community has and how efficient the intersections of those links are. One key influencer of a well-connected network are intersections that connect to several links (grid pattern) as opposed to intersections that have few, if any, links such as modern cul-de-sac developments. The Connectivity Index helps measure this quality in various street patterns.

**Connectivity Index**

\[
\text{Connectivity Index} = \frac{\# \text{ of street links}}{\# \text{ of intersections} + \text{dead ends}}
\]

- **Index Should be as High as Possible**
- **2.5 is Perfect Score**
- **Dead Ends & Cul-De-Sacs Reduce Value**

**MAP 3: STREET LINKS & NODES IN SOLON**

- **667 Links**
- **370 Intersections + 157 Dead Ends**
- **= 1.26 Connectivity Index**
  - (1.21 Collector & Above Only)

**1.4 is Considered Minimum for a Walkable Community**

**Community Based Benchmarks for CI**
- Urban 2.0 - Suburban 1.6 - Rural 1.2

>.75 recommended ratio of intersections / intersections + dead-ends
Solon = .70
Network Density & Block Lengths

Two comparable cities could have nearly similar grid patterns; however, one could work differently and feel much more connected due to network density. Block lengths—the distance between intersections—and how far one person might have to walk to change directions or cross the street safely can greatly impact a network’s density. For example, take the network of the A, B, and C streets in Solon and compare it to a similar neighborhood in Chagrin Falls. Both have gridded street patterns; however, with approximately 400’ blocks in Chagrin Falls compared to 1,600’ in Solon, the Chagrin Falls neighborhood clearly has better overall connectivity.
Intersections Per Square Mile

Network density can easily be measured using the metric of Intersections per Square Mile in a given area. Unlike the Connectivity Index, counting the number of intersections per square mile does not include dead ends or cul-de-sacs — only the connections where two or more segments meet. One of the benefits of using Intersections per Square Mile is that it can be easily scaled to a city-wide network like Solon simply by including or limiting the number of street intersections being measured.

For example, for the Connectivity Index metric two calculations were taken one using all links and nodes, and a second using only links and nodes that take place on connector level streets or higher. The same rules can be applied for Intersections per square mile, while a neighborhood network might take into account intersections of all streets, a community-wide or regional network might take into account only intersections of arterial streets with other arterial streets, because these are generally used by travelers making trips across the city or region. Intersections are one of the basic units of any street network, therefore it is important to measure the quality of these connections within the existing street pattern.

Intersections Per Square Mile =

\[ \frac{\text{# of intersections}}{\text{area in square miles}} \]

Intersections Per Square Mile Should be as High as Possible

CNU Recommends 150 Intersections sq/m

MAP 4: COLLECTOR & LOCAL INTERSECTIONS

370 Intersections
20.49 Square Miles
= 18 Intersections sq/m

6 Intersections sq/m Collector & Above Streets Only
(Based on 128 Intersections)

Community Based Benchmarks for Intersections Per Square Mile
Collector & Above: Urban 7 - Suburban 5 - Rural 3
Suburban Residential Neighborhood: 175
Rural Residential Neighborhood: 50
A,B,C Streets Neighborhood ~ 56
Accessibility

Accessibility recognizes that not all destinations are easy to get to and may not assert a high demand for better connections. Some popular destinations can benefit from a variety of direct multi-modal connections while others might not. A school, city park, job center, or transit node might demand or generate more trips in a network, so it is important to understand how accessible by foot or bike these specific points are and what the desired level of connection should be. Does a community want larger areas around its schools to be walkable? Or to have easily accessible parks within a 10-minute walk by a majority of its residents? It is important to understand how well a given network connects the community via walking and biking to these specific destinations. Incorporating pedestrian and bicycle facilities into city street improvements are the most effective ways a built-out community like Solon can improve connectivity to specific destinations such as schools or parks.
**Travelsheds**

Accessibility can easily be measured by generating a ‘travelshed’ for specific destinations, origins, or a set of destinations. This slightly more advanced measurement tool provides a greater understanding of a community’s street connections and its capacity to provide safe and pleasant access for various modes of travel from cars, transit, bicycles and pedestrians (with the latter two the most vulnerable modes). Depending on the mode of travel desired, the ‘travelshed’ analysis can be scaled up from a neighborhood analysis to a citywide study. To determine overall accessibility, the length of the radius being measured depends on the specific travel mode, the desired destination, and its context. In a neighborhood-scale study the radius can be a half-mile, while in a community-scale area the radius could be up to two miles. This metric can easily tell city leaders, stakeholders, and users how well the street network is doing in providing access to a particular destination or groups of destinations.

To develop a ‘travelshed’ analysis, the user will select a destination or set of destinations (like schools or parks). Next, the user selects the travel mode (note that the focus of this connectivity study is on pedestrian and bicycle access along the existing street network to help determine what facilities are needed or available). The distance for these ‘walksheds’ or ‘bikesheds’ can vary, but for pedestrians it is recommended to use a 1/4 mile (5-minute walk) to a 1/2 mile (10-minute walk) to demonstrate how well each destination point can be accessed by residents on foot through the existing network. Sometimes as the diagrams on the previous page show the analysis will find that because of the previous factors of Connectivity, Street Pattern, Network Density, and Block lengths, close proximity to a destination - as the crow flies - does not always result in high pedestrian accessibility. Or conversely, the analysis will also determine that close proximity to the destination does result in good pedestrian access but lack of infrastructure (sidewalks & crossings) make travel either unpleasant, unsafe, or in some cases not feasible. The final result can help identify for example what percentage of the community has pedestrian access to an elementary school, park, or community center and where that access might need to be improved with upgraded facilities.
School Access

The Solon City School District is comprised of one high school, two middle schools, three elementary schools, and one preschool. All of the District’s education facilities are located just south of the downtown area near the center of the community. However, one facility, the Dorothy Lewis Elementary School, is located to the north on Cannon Road. Very few children live within a ten-minute walk to school, but nearly all sections of the City can reach the facilities within a 10 minute bike ride. Due to isolated subdivisions, the eastern and southeastern portions of the City are at the largest disadvantage for safely accessing education by walking or biking.

MAP 5: ELEMENTARY SCHOOL ZONES

Source: City of Solon
MAP 6: 10 MINUTE WALK TO ALL LOCAL SCHOOLS

- No Sidewalk
- Sidewalk - One Side
- Sidewalk Both Sides
- 10 Minute Walk (1/2 Mile)
- 10 Minute Bike Ride
- Schools
Park, Job, & Transit Access

The City of Solon’s winding subdivisions make connectivity to nearby amenities a challenge without the means of a personal vehicle. While the majority of the community lives within a 10-minute bike ride to a park, less than a quarter of Solon residents can safely access a park or recreational amenity within a 10-minute walk; this is 31% below the national average. Additionally, even if residents live within a 10-minute walk to a park, they might not have adequate pedestrian infrastructure to safely access them. Many of the residential areas adjacent to park facilities within the City of Solon do not have sidewalks or only have sidewalks on one side of the street. This can make safe accessibility and road crossings a challenge.

The City of Solon is a major job hub. A large portion of jobs within the City are located within industrialized areas just to the west of downtown Solon. Many of the City’s top employers, such as Swagelok and Nestle, have facilities in this area and account for nearly 50% of all jobs within the community.

The City of Solon has access to one of the most well-used Greater Cleveland Regional Transit Authority (GCRTA) routes within the region. Bus Routes 41 and 41F connect the communities of East Cleveland, Shaker Heights, and Warrensville Heights, to Bedford, Solon, and Glenwillow. In the City of Solon, the 41 directly serves the community’s industrial core. A number of the City’s largest employers, such as Swagelok and Nestle, are located directly on this line with easy access for those employees who utilize public transit.

23% of Residents live within a 10 minute walk of a park
Source: Trust for Public Land

The National Average is 54%
Source: Trust for Public Land

>17,000 Residents Outside a 10 Minute Walk to a Park
Source: Trust for Public Land

After Cleveland Solon is in Jobs in the County with ~26,739 Jobs
Source: US Census Bureau - On the Map, 2017

Ranked Route in RTA Network

1,164,613 riders in 2019
MAP 8: JOB ACCESS: 10 MINUTE WALK TO TOP 20 EMPLOYERS

No Sidewalk

Sidewalk - One Side

Sidewalk Both Sides

10 Minute Walk (1/2 Mile)

10 Minute Bike Ride

Larger Circles Indicate More Jobs

Top 20 Employers

SUMMIT COUNTY

Bainbridge
Due to existing street patterns, block lengths, and accessibility issues, connectivity within the City of Solon is challenging. However, the community has unrealized potential for future pedestrian and bicycle networks through rail corridors and along existing street. In its current state, the City is largely car-dependent and almost all errands or trips require the use of a personal vehicle. Residents and employees of Solon’s workforce who do not have access to a vehicle or those who choose to leave their car in the garage have significant obstacles to safe and equitable access to work and other destinations.

While the City of Solon as a whole may be car-dependent, pockets of connectivity do exist. For example, Solon is on par with Hudson in terms of overall walkability based on each city’s overall Walkscore. Walkscore like the Connectivity Index, Intersections Per Mile, and Travelsheds, is a free metric that is used to “measure the walkability of any address using a patented system. For each address or community, Walk Score analyzes hundreds of walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category. Amenities within a 5-minute walk are given maximum points, with no points given after a 30-minute walk.” When applying this analysis to just the downtown areas of Solon and Historic Hudson you can see the difference in distance to amenities and overall score, with Walkscores of 48 and 62 respectively. While better than each City’s community-wide Walkscore of 11, the Hudson score shows how focused improvements in select areas can greatly impact connectivity. While Solon’s street network, block lengths, pavement widths, parking requirements, and vacant land may present challenges, they also provide extremely unique opportunities for improving both on and off-street connectivity options.
The last metric impacting connectivity considers that having more than just the bare minimum of necessary infrastructure available might be the most important aspect of walkability. On the ground streets can feel much different than just lines on a map. Each path, corridor, and sidewalk facility offer different environments for walkers, bikers, joggers, transit riders, and drivers. Obstructions, topography, crossing locations, traffic, quality of the pavement and especially building location can all make walking and biking a relatively pleasant or unpleasant experience. Pedestrians and cyclists are often the most vulnerable users of the network, so it is critical to pay attention to the various conditions along the street - especially in designated ‘walksheds’ for popular destinations – to ensure the appropriate infrastructure is in place to make destinations reachable safely and conveniently for all ages and abilities. One way to accomplish this is to divide the corridor into various zones and to determine what the best features and spatial requirements are required for each zone depending on context and potential user groups. The diagram on the facing page illustrates the location of each zone and provides an example of a well-designed street with all necessary infrastructure working in unison to create a welcoming environment designed and built for walkability all mobility groups.

The safety of bicyclists and pedestrians depends on not only on well-designed routes and paths but also most importantly intersections, where it is estimated that 40% of pedestrian crashes occur. Pedestrians will typically walk in places that they feel safe and cross the street at points that are the most convenient. Therefore, all necessary infrastructure requirements need to extend out beyond the curb and into the street at intersections to help encourage walking and increase safety. Raised or high visibility crosswalks, reduced curb radii, curb bump outs, limited curb cuts, and refuge islands are all positive and relatively simple steps forward in creating safe and convenient crossings at all existing intersections. When installing these and other measures, it is important to gather detailed corridor information including inventories of traffic, crash types, and safety issues. Then with input from the public and design guidelines it is essential to select the proper enhanced countermeasures for the highest priority locations.
**FIGURE 4: STREETS BUILT FOR CARS VS. PEDESTRIANS**
Network Quality & Safety

While many of the residential streets in Solon have sidewalks on both sides, several of the City’s more heavily trafficked roadways do not. These incomplete sidewalk networks can pose safety risks to residents, employees, transit users, and visitors. As seen in the image to the right (top), if you are one of the residents within a 10 minute ‘walkshed’ to a desired destination (such as a trailhead or park), your only option may be walking along a 35-mph roadway with no existing sidewalks. Here along Cannon Road there is only one existing sidewalk, that connects Nestle employees safely to Hawthorne Parkway, but not one for adjacent residents. Additionally, as seen in the image to the right (bottom), similar situations arise for transit users and employees at one of the many job centers located along Aurora Road or for those who use RTA Bus Route 41. Here we have many different bus stop locations but only one sidewalk on the south side of the street (image-1) and only one marked crosswalk (image 2). Riders and employees who want to safely cross the street might need to walk at least 8 minutes in the opposite direction to reach the marked crosswalk. This situation can force pedestrians to either choose the longer walk or resort to a “dart-dash” move to reach the other side of the street to access the sidewalk or to reach to their preferred destination.
MIDBLOCK DART/DASH IS THE MOST FREQUENT PEDESTRIAN CRASH CATEGORY

Cannon Road - Speed Limit 35

Aurora Road - Speed Limit 35

MOST FREquent Pedestrian Crash Category
Urban Form

One of last remaining issues that Solon must contend with in building greater connectivity is Urban Form. The way communities are designed and built can create heavy amounts of traffic and demands for driving—especially those communities where cul-de-sac developments and wide streets are the norm. What is built, where it is built, and how it is built affects how much we drive and how safe it can be to walk or bike. As we have seen in the earlier analyses, the sprawling suburban development created in Solon has increased distances between home and other local destinations. New roads and freeways built to serve sprawling development usually attract one development type—car-centered business with deep setbacks from the right-of-way and large parking lots between the sidewalks and buildings. This can be seen in the development of shopping centers across America and at the intersections of Aurora and SOM Center Roads in Downtown Solon (top). Even if a resident wanted to walk while completing a set of errands—to the gym, bank, dry cleaner, grocery and take-out—they might find that it would be extremely challenging and time consuming to reach every destination without a car.

Contrast the experience in Downtown Solon to the one occurring in Historic Hudson (bottom) where First and Main, with its multiple intersections, short blocks, on-street parking, and buildings right at the street helps foster a greater sense of walkability. Here a pedestrian can easily reach all their destinations in a single trip combining both walking and driving. If development is clustered closer together, people can take shorter trips between home, groceries, entertainment, and other destinations—sometimes if short enough or easy enough they can make those trips solely by walking or biking. However, if that development is dispersed along a corridor and designed for the car, even if existing sidewalks are in place, people will likely still choose to drive, thereby creating more traffic and deemphasizing the need for active transportation connections. However, it’s an indisputable fact that all drivers must leave their cars and become pedestrians at many points in their journeys. Therefore, it is important to create safe pedestrian and bicycle routes wherever possible, and to understand that connectivity is more than just providing a sidewalk—it is the thoughtful combination of design, location, and amenities that makes a corridor feel safe and welcoming for all users.
“Over half of all people (52%) and 63% of millennial’s would like to live in a place where they do not need to use a car very often, and half of U.S. residents believe their communities need more bike lanes.”

- Urban Land Institute (ULI), America in 2015
Vision

The vision of the ‘Solon Connects’ Plan is simple: build safer and stronger pedestrian and bicycle connections between existing civic, commercial, and open space assets to create safe and beneficial active transportation options for everyone.

Plan Objectives

The Solon Connects plan is a coordinated planning effort that aims to provide a comprehensive set of recommendations for improving connectivity in Solon. In an effort to achieve this vision the plan has identified four key objectives to the recommendations outlined herein, Enhance, Expand, Educate, & Evaluate. These objectives are intended to reference to the traditional E’s included in Bike and Pedestrian literature and programs: Engineering, Education, Enforcement, Encouragement, and Equity. Re-imagining what a different set of 4 E’s might look like for Solon and the Solon Connects Plan. Each E contains a different approach to improving connectivity, some involve physical infrastructure, while others involve residents, groups, or citywide policies and programs. Taken together they represent an integrated and all-inclusive methodology for improving connectivity in Solon.

Recommendations

The Recommendations section is where the Solon Connects plan describes in significant detail the projects, programs, and best courses of action necessary to achieve each objective and fulfill the community’s vision. In this section each one of the plan’s objectives are broken down into a series of physical improvements or policies and programs the City can achieve through partnerships and collaboration. One of the final and most important stages of the planning process, the recommendations included in the Solon Connects plan respond to input gathered from city leaders, focus groups, and public engagement opportunities. They combine that personal and on the ground knowledge with the significant expertise and analysis of County Planning Staff to generate a series of tangible and comprehensive methods to improve connectivity in Solon. Some of these recommendations can immediately move towards execution, while others may require additional study, funding, or long-term phasing efforts, laying the foundation and need for a series of action steps and implementation strategies.
Enhance

Many residents, students, and employees currently use the existing network of sidewalks, trails, and transit routes in Solon to reach their destinations. However, in many cases they might be faced with dangerous or uncomfortable conditions including a lack of safe or adequate facilities. Enhance recommendations are aimed at improving conditions in the existing network for all users.

Expand

Many Solon residents choose not to walk or bike to destinations because they don’t feel safe or don’t have convenient facilities available for them to leave their car in the garage. Expand recommendations are determined to meet this challenge by identifying opportunities to expand the cities all ages and abilities to network to capture more users by providing a variety of accessible multi-modal options to reach destinations safety and easily.

Recommendations that improve the quality and safety of the existing active transportation network for current users.

I. Existing Network
II. Streetscapes
III. Safety
IV. Maintenance & Quality

Recommendations that increase mobility options and potential users thanks to a well-connected active transportation network

V. Space for All Users
VI. Connections
VII. Experience & Identity

PHYSICAL IMPROVEMENTS
Evaluate

The needs of residents are constantly changing along with transportation technology. Staying up to date is a challenge for any community or organization. However, there are some tried and true emerging policies and programs that can be utilized to help meet any future need by increasing and prioritizing connectivity as part of every future infrastructure project. The Evaluate section identifies some tools and technologies that can help build a stronger and more connected Solon now and into the future.

Educate

Educating the community on the benefits, needs, and challenges to mobility is critical to any successful connectivity plan. Advocating for safer streets, better facilities, and more funding is key to enhancing and expanding the network. The Educate objective is a critical piece to achieving this goal. Through the establishment of new groups and programs Solon residents can continually campaign and educate each other on the Community’s needs and opportunities through a variety of stakeholder groups and events.

Groups and programs that engage and inform residents about events, safety, and benefits surrounding active transportation

Progressive policies, procedures, and opportunities that will help advance active transportation in Solon now and into the future

VIII. Groups
IX. Programs

X. Collaboration & Funding Opportunities
XII. Policies & Designs
XIII. Technology

POLICIES & PROGRAMS
ENHANCE

Recommendations that improve the quality of the existing active transportation network for current users

PHYSICAL IMPROVEMENTS

IMPROVE SAFETY WITHIN THE EXISTING NETWORK

ENRICH STREETSCAPES WITHIN THE EXISTING NETWORK

REPAIR, REPLACE, & MAINTAIN FACILITIES

POLICIES & PROGRAMS

ESTABLISH NEW GROUPS & ORGANIZATIONS

DEVELOP NEW EVENTS & PROGRAMS

DEVELOP & STRENGTHEN PARTNERSHIPS

EDUCATE

Programs and activities that engage and inform residents about the value and benefits of active transportation

SOH CONN
Strategic recommendations that increase mobility options and users thanks to a well-connected network.

**Recommendations**

- Increase bike & pedestrian connections
- Create a network that has space for all users
- Build walkable buildings & projects
- Build an identity with signage & wayfinding

**Expanding**

Policies and procedures that will continually advance active transportation in Solon for many years to come.

**Evaluating**

- Evaluate new opportunities for connectivity
- Survey new equipment & technology
- Explore new policies & procedures
- Evaluate new options for connectivity
Zones of the Street & Sidewalk

A street corridor can be described as the entire area located within the right-of-way; however, within this space several different functions can take place which requires the roadway to be designed in a way that accommodates all potential users. To help provide the space necessary for each function and user the overall corridor and sidewalk has been divided into a series of different zones, each having some preferred spatial requirements. All these elements combined help define a street’s character. City owner Right-of-Way is valuable public space and when it is designed properly a street can be an inviting and welcoming environment that provides the space and amenities needed for cars, pedestrians, bicycles, and transit. When these components are unbalanced or biased towards the automobile, the street can become unappealing and bleak. The Solon Connects Plan aims to better balance car needs with the needs of other users and to measure the success and quality of streets not based upon how quickly traffic moves but on how well they create a safe, attractive, fun, and thriving network for all users.
1 **Roadway & Extension Zone**
- Section of the street that extends beyond the curb into the roadway representing the primary space for car travel.

2 **Edge & Furnishing Zone**
- Section of the street between the curb and the sidewalk, acting as a buffer and transition space between the roadway (car travel) and the sidewalk (pedestrian travel).

3 **Sidewalk & Pedestrian Through Zone**
- Section of the street running parallel to the roadway that extends between the furnishing zone and the building frontage zone.
- The sidewalk zone is the primary pathway for pedestrian travel and ensures that pedestrians always have a safe, adequate, and accessible facility to use.

4 **Building & Frontage Zone**
- Section of the street extending between the sidewalk zone and building (or property line).
- The frontage zone consists of both the structure and of the building and other amenities including parking areas, and is intended to provide adequate space to enter and exit buildings safely.
Sidewalks

The City of Solon is a well-established community of winding residential streets and cul-de-sacs. While this creates a picturesque landscape, it also drastically increases trips generated by vehicles because direct and efficient access to destinations by foot or bike becomes significantly diminished. As seen in the map to the right, in order for the City to have a complete sidewalk network throughout the entire community, the community would need over 100 miles of sidewalks added to existing roadways that do not currently have them. However, this is probably not necessary in many situations due to demand and traffic volumes. Therefore it is important to identify priority sidewalk projects in the community through community engagement and analysis. Priorities that are based upon streets with higher speeds, access to jobs, amenities, or transit. For example, many RTA bus stops in Solon don't have a sidewalk to provide transit riders safe and comfortable access. Closing these gaps in the sidewalk network and building facilities with increased minimum design standards would create a much more comfortable and safer environment for pedestrians on many local streets.

### Action Steps:

<table>
<thead>
<tr>
<th>Priority</th>
<th>Near-Term</th>
<th>Mid-Term</th>
<th>Long-Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>✔️</td>
<td></td>
<td></td>
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<tr>
<td>Medium</td>
<td></td>
<td>✔️</td>
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</tr>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>

### Timeline

- Near-Term
- Mid-Term
- Long-Term

### Costs & Funding

- City of Solon, ODOT, NOACA, GCRTA, Cuyahoga County Public Works, Cuyahoga County Planning Commission

### Project Leaders & Partners
MAP 9: MISSING SIDEWALK NETWORK WITH PRIORITY INFLUENCES (SPEED TRANSIT, ETC.)
Sidewalks

1. Edge & Furnishing Zone
2. Sidewalk & Pedestrian Zone
3. Building & Frontage Zone

Frontage Zone
1'-2' width minimum can be widened to include patio seating / landscaping

Sidewalk Zone
5' width minimum (6'-12' in high volume areas)

2' Minimum separation (for furniture curb zone)
4' or > for tree plantings

Edge of pavement to right-of-way varies

12' or > Rec.
8' Mfr.

ROW
Bike Facilities

Expanding and enhancing bicycle and pedestrian infrastructure means ensuring that a network is in place to make bicycling or walking viable modes of travel. It also means ensuring that the infrastructure is safe and comfortable for all users. 45% percent of all vehicle trips in the United States are 3 miles or less, and due to Solon’s size, roadway networks, and land use patterns, a 10 to 15-minute walk drastically limits the number of destinations someone might be able to reach before ultimately choosing to drive to their destination. However, a 10 to 15-minute bike ride, which can cover a larger distance such as 2 miles, can start to bring more destinations within reach. While Solon does have some bicycle infrastructure in place, very few residents actually have direct access to such facilities. Additionally, most existing bike facilities in Solon are located on 35mph streets – an environment that can make almost any rider feel uncomfortable. Therefore it is important that any new bicycle facilities work to capture more riders and convert those short cars trips into fun family friendly bike trips.

**FIGURE 5: 10 MIN. WALK VS. 10 MIN BIKE**

**FIGURE 6: EXISTING CONDITIONS: BRAINARD ONE LANE (LEFT), HARPER NARROW LANE <5 (RIGHT)**
MAP 11: EXISTING BIKE NETWORK WITH 10 MINUTE TRAVELSHED TO DOWNTOWN SOLON
Bike Facilities: Types of Cyclists

A rider’s comfort on any route is directly related to the level of stress they feel from cars or traffic during their trip. As part of a national survey of cyclists conducted in 2015, the graphic below shows that the majority of users (51%) including adults, children, and beginners, would all like to bike more but choose not to ride because the existing facilities available – for example bike lanes on 35 mph streets – are too stressful and do not make them feel comfortable enough to ride. This means that these users have a relatively low stress tolerance when it comes to using different facility types. Facilities on higher speed or higher volume roadways without a separated facility are generally not going to be suitable for most users. This target group – Interested But Concerned - is whom the Solon Connects plan aims to build a network for. Right now only users that are categorized as confident or strong riders will likely be the only people to utilize the facilities that exist throughout Solon.

*Source: Jennifer Dill and Nathan Michell, “Revisiting the Four Types of Cyclists: Findings from a National Survey.”*
Most Adults

Fed But Concerned

Confident
Prefer more separated facilities, but comfortable using traditional bike lanes and wide shoulders

Expert
Comfortable riding in all kinds of traffic conditions, including roads without bike lanes

High Stress Tolerance

51%

5%

7%
Bike Facilities: Level of Traffic Stress

One chief deterrent to riding a bike in the U.S. is the stress of riding without protection from the danger of cars and traffic, an attribute that can now be accurately quantified using a measurement labeled, Level of Traffic Stress (LTS). Level of Traffic Stress is a rating given to a road segment or crossing to evaluate the stress a bike rider will experience while riding on the road. LTS is a key factor in determining which type of facility should be installed and where. The higher the LTS number is, the less separation there is from traffic, the faster speed limits are, and fewer users feel comfortable using facilities. In comparison, the lower the LTS number is, the more separation there is from traffic, the slower speed limits are, and more users feel comfortable using facilities. In general, an all ages and abilities network needs to take into account a wide spectrum of users and should strive to achieve the lowest level of traffic stress rating possible (1 or 2). This will help capture a wider range of users and ensure they feel safe and comfortable using these types of facilities. Like all analyses, LTS is subject to the availability and thoroughness of data. Common data inputs used to calculate LTS can be seen below.

![Number of Travel Lanes + Speed of Traffic + Number of Vehicles](image)

**Low Stress**

- LTS 1: Strong separation from all except low speed, low volume traffic. All Ages and abilities network.
- LTS 2: Physical separation from traffic and cyclists have their own space that keeps them from interacting with traffic except at intersections. Comfortable for most adults and those riders classified as 'interested but concerned'.

Existence of Bike Lanes  +  Width of Bike Lanes  +  Existence of Physical Barrier

Limited separation from traffic, involves interaction or close proximity to traffic frequently having only traditional bike lanes as a dedicated space. An acceptable level of stress for ‘enthused and confident’ riders.

No separation from traffic and no existing bike facilities. Uncomfortable for most riders and an acceptable level of stress to only those classified as ‘strong and fearless.’

High Stress

LTS 3  +  LTS 4
The City of Solon's current bike network is structured to support more advanced riders. However, we also know what type of network to build to capture the Interested but Concerned group of cyclists and reduce LTS. A network that is safe and comfortable with more physical separation between riders and vehicles. The types of facilities that should be considered include trails, side paths, separated or buffered bike lanes, and bike boulevards. The Solon Connects Plan recommends building more of these all ages and abilities facilities giving more residents and riders a safe and comfortable way to reach destinations that might be only a few miles or minutes away.
Visual Separation

LTS 3

Conventional bike lanes or paved shoulders

No Separation

LTS 4

Riding with traffic, no bike lane
**Sidepaths & Separated Lanes**

Now that we understand the factors that can influence a rider’s comfort and safety we can work on selecting the appropriate facility for various roadways based up context and potentially costs. Using a selection chart or matrix (as shown) is a good starting point to identify the ‘preferred’ facility to create and all ages and abilities network based upon the roadways posted speed and traffic volumes. In this example, to use the chart, one just needs to apply the appropriate traffic volumes and speed to locate the necessary facility specified based upon those variables. Additional variables should also be considered including traffic type including trucks (as seen on Cochran), on-street parking, or number of driveways and curb cuts.

To best capture the needs of all users and abilities, using this type of matrix, the plan has identified several higher-volume and higher-speed streets throughout the city that would be good candidates for a separated bike facility like a sidepath. Many of these streets like Harper Road or Liberty Road, where no sidewalks currently exist, are current identified as priority sidewalk candidates. Expanding those sidewalk facilities into a sidepath will help expand connectivity options by providing a safe and comfortable place for users to walk and/or bike to destinations.

**FIGURE 7: FACILITIES FOR 35MPH STREETS**

<table>
<thead>
<tr>
<th>VOLUME</th>
<th>SPEED</th>
<th>Priority:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
</tbody>
</table>

**Action Steps:**

- Use matrix to evaluate opportunities and requirements to implement facilities that create an all ages and abilities network
- Use matrix to evaluate opportunities to build better facilities when adding sidewalks (i.e. Sidepaths on pg. 95) or roadway resurfacing
- Use Matrix to build more protected & separated on road bike lanes when off road facilities like sidepaths are not feasible
- Don’t give up design at intersections or driveways, all should be designed and built to maintain the comfort and level of stress intended
- Build protected intersections or use necessary signage, signals, and markings for safety

**Details:**

- **Priority:**
  - High
  - Medium
  - Low

- **Timeline:**
  - Near-Term
  - Mid-Term
  - Long-Term

- **Costs & Funding:**
  - High
  - Medium
  - Low

- **Project Leaders & Partners:**
  - City of Solon, ODOT, NOACA, Cuyahoga County Public Works, Bike Cleveland, Cleveland Metroparks

MAP 12: UPGRADING PRIORITY SIDEWALKS ON 35MPH STREETS INTO SIDEPATHS
Bicycle Boulevards

In addition to separated bike lanes and sidepaths, Bicycle Boulevards also offer another unique opportunity for an improved all ages and abilities network. As seen in the earlier study of rider types, many cyclists are less willing to ride with traffic on the high-speed arterials that exist throughout Solon. Cyclists using Bike Boulevards typically share the road with motorists, however Bike Boulevards are streets with lower speeds and traffic volumes, that have been enhanced to create a more comfortable walking and biking experience. Many local and residential streets within the community already offer the basic components of a safe bicycling environment and only need to be retrofitted using variety of speed and volume treatments, such as speed humps or mini roundabouts, to help create a comfortable and convenient facility for all users. As seen in the map to the right, several key bicycle boulevard routes have been identified as alternatives to separated bike facilities on arterial streets, giving Solon bicyclists a safe and comfortable on-street route to reach destinations. Bike Boulevards are an integral part of the all ages and ability benefiting cyclists, pedestrians, and residents throughout Solon by bringing connections and awareness to other users on the roadway.

FIGURE 8: FACILITIES FOR >25MPH STREETS


Action Steps:

- Implement bicycle boulevards on low-speed, low-volume residential streets as much as possible a safe and low cost alternative to unsafe routes
- Combine Bicycle Boulevard selection with other traffic calming measures (pg. 114) to maximize effectiveness and safety
- Use wayfinding & signage with traffic calming measures to clearly identify bicycle boulevards
- Use temporary infrastructure as method to test feasibility of Bicycle Boulevards

Details:

Priority:

- High
- Medium
- Low

Timeline:

- Near-Term
- Mid-Term
- Long-Term

Costs & Funding:

- High
- Medium
- Low

Project Leaders & Partners:

City of Solon, ODOT, NOACA, Cuyahoga County Public Works, Bike Cleveland,
MAP 13: ADDING BIKE BOULEVARD ROUTES ON LOW SPEED AND VOLUME STREETS

NEIGHBORHOOD BIKEWAY

EXISTING BIKE LINES

PARKWAY CONNECTOR

COMMUNITY CONNECTOR

CAMPUS CONNECTOR

EXISTING TRAILS

ENHANCE
Bike Facilities

Bicycle boulevards are an efficient and cost-effective way to utilizing existing residential streets. For example, a rider traveling from southern Solon to Downtown Solon, could choose SOM Center Road, a street with a sidewalk that averages over 15,000 cars a day, has no bike lanes, and a speed limit of 35 mph. If a bicycle boulevard existed as a parallel route to the west, the rider could make the trip in the same amount of time using a safer and more comfortable route. Bike Boulevards are a key element of the Plan and provide an immediate opportunity to implement facilities quickly and inexpensively, but they should not serve as long term replacements for separated facilities on busy streets. In Solon, the chances to utilize bicycle boulevards are somewhat limited because of the many residential streets that connect directly to high speed arterials or result in dead ends, limiting neighborhood connections. Therefore, it is important to take advantage of opportunities like these when they are available.

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>LENGTH</th>
<th>BIKE TIME</th>
<th>SPEED LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campus Connector</td>
<td>2.2 Miles</td>
<td>11 Minutes</td>
<td>25 mph</td>
</tr>
<tr>
<td>SOM Center</td>
<td>2 Miles</td>
<td>10 Minutes</td>
<td>35 mph</td>
</tr>
</tbody>
</table>
### Map 14: Benefits of Having a Bicycle Boulevard

<table>
<thead>
<tr>
<th>TRAFFIC</th>
<th>FACILITY TYPE</th>
<th>ALL AGES &amp; ABILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Bicycle Blvd.</td>
<td>Yes</td>
</tr>
<tr>
<td>High &gt;16,000 Daily</td>
<td>None (With Traffic)</td>
<td>No</td>
</tr>
</tbody>
</table>
Bike Facilities

1. Edge & Furnishing Zone
2. Sidewalk & Pedestrian Zone
3. Building & Frontage Zone

Horizontal clearance 3' for trees / landscaping

6.5' Rec. 5' Min.
10' Rec. 8' Min.
Varies

5' Minimum buffer from traffic (6.5' recommended)

Horizontal clearance 2 Min. clearance from signs and other elements

10' Recommended width (8' is minimum allowed in constrained conditions)

Edge of pavement to right-of-way varies

19' or > Rec. 15' Min.

Sidewalks may include centerlines or be unmarked.
Primary surface of asphalt or concrete
Designated bikeway and route signs
Local Streets (low speed)
Traffic Calming (mini-roundabout)

Roadway width varies
12’-24’ Recommended

Speed Management
Horizontal Deflections (chicane, bump out, neckdown)

Speed Management
Vertical Deflections (speed hump, cushions, tables)

Markings
No centerline markings
Shared lane markings

BICYCLE BOULEVARD
## Amenities

Street furniture, trees, and other similar features are key components of creating a vibrant, comfortable, and welcoming environment conducive for walking and biking. City-owned right-of-way is valuable public space and should be filled with comfortable and safe infrastructure and streetscape amenities that support social interaction and equity. Adding these types of features promote a sense of identity by proudly displaying a location's heritage and individual character. Additionally, carefully planted and maintained street trees are also key attributes for creating a comfortable connectivity network. Street trees are a great way to not only help absorb stormwater, they also increase the safety of all users by framing the streetscape, softening the visual aesthetics of necessary security measures, and provide a buffer between pedestrians and the sidewalk.

### Healthy Urban Tree Canopy Program

This is an initiative of Cuyahoga County Executive Armond Budish to promote a healthy tree canopy in our county with grant funds for tree planting and maintenance projects in late fall to help with snow clearance during the winter months. The importance of a healthy tree canopy was emphasized in the 2019 Cuyahoga County Climate Change Action Plan and the 2019 Cuyahoga County Urban Tree Canopy Update. This competitive grant program is coordinated by the Cuyahoga County Department of Sustainability, the Cuyahoga County Planning Commission, and the Cuyahoga Soil & Water Conservation District, with assistance from the Cuyahoga County Board of Health.

### Action Steps:

<table>
<thead>
<tr>
<th>Action Steps</th>
<th>Details</th>
</tr>
</thead>
</table>
| Coordinate the addition of street trees in locations with highest pedestrian activity or in areas that space in ROW that can immediately support them | Priority:  
Highconomy | Medium | Low |
| Use County Tree Program and identify other funding sources to increase street tree plantings | Timeline:  
Near-Term | Medium | Long-Term |
| Work to incorporate public art elements into projects within the public right-of-way or setup program to fund projects from local artists | Costs & Funding:  
High | Medium | Low |
| Add site furniture (benches, trash cans, bike parking, lighting, & signage) in key locations throughout the community to improve comfort | Project Leaders & Partners:  
City of Solon, ODOT, NOACA, GCRTA, Cuyahoga County Public Works, Cuyahoga County Planning Commission, |
| Upgrade lighting (LED) or add additional fixtures throughout community, including areas with transit access to improve nighttime visibility | | | |
MAP 15: POTENTIAL STREET TREE LOCATIONS (EXISTING TREE LAWN SPACE & SIDEWALK)
Landscape

Plants are a key element in any quality streetscape, and they offer visual appeal, soften architecture features, and improve street enclosures. If tree cover declines, those areas also suffer environmental degradation from loss of shade, increased ‘heat island’ effect, and loss of pollutant and stormwater absorption. Landscaping can be used in a variety of ways from seasonal plantings to green infrastructure; however, the primary landscape features are high-quality street trees located within the ‘Edge & Furnishing Zone’

Street Trees

Street trees are chief contributors to a pleasant and dynamic environment. They provide many aesthetic benefits and help generate a sense of enclosure for outdoor spaces and roadways making them more appealing to pedestrians. Available in a variety of sizes, colors, and shapes, street trees are primarily located in the ‘Edge & Furnishing Zone’ within the public right-of-way. This zone adjacent to the curb and sidewalk provides a great buffer separating pedestrians from vehicular traffic. In suburban and rural areas, street trees are usually planted in grass strips adjacent to the curb, while in more urban areas they are located in tree wells with decorative grates. Most street tree plantings are the responsibility of the local government. Therefore; City staff must understand growth, maintenance, and health of street trees Salt spray and road salt absorption is a common problem in Northeastern Ohio. Planting street trees away from curbs or using species that have shown some salt tolerance is one way to help prevent this problem. Other issues include lack of tree diversity and inclusion of native plants. Diversity of tree species should be promoted to not leave an entire city network vulnerable to pests and disease. Native species should be evaluated for selection over non-native and invasive species. Inadequate growing space, soil compaction, and utility conflicts are other common problems that can be prevented. The simple and fundamental solution to most of these problems is to select the proper tree for each location, use better soils, and give each tree more room to grow. The following examples from soil and tree specialist James Urban are strategies to achieve better growing environments and well landscaped cities:

- Plant Easy Places First (See Map)
- Create Bigger Planting Spaces
- Preserve, Reuse, and Improve Existing Soil
- Improve Drainage and Reduce Soil Compaction
- Select the Right Tree for The Right Location
- Establish Tree and Soil Improvement Budgets
- Utilize Detailed Construction Documents
- Design and Select Trees for Maintenance

Shrubs, Walls, & Fencing

These elements are used to define or screen spaces. Screening plants should be at least 36” tall and consist of native shrubs or ornamental trees. Evergreen shrubs provide the best year-round opportunities for screening and should be a low maintenance species from an approved plant list. Planting should be done in clusters with a variety of colors and textures, avoiding single species being placed in a singular row. Zoning codes can further define the height and opacity requirements of the buffer. If privacy, property delineation, or a 100% opacity requirement is needed, walls and/or fences can also be utilized for screening. Fences can provide character and define front patios, side yards, parking lots, and utilities, allowing some privacy between the street and semi-private zones. Fence design can be ornamental and short (36”), maintaining a visual connection, to tall (6’) and opaque, providing complete coverage. A variety of types can be utilized, but to preserve District harmony special attention should be paid to maintaining a good balance between visual appeal and monotony
<table>
<thead>
<tr>
<th>GENUS</th>
<th>SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small - (Under 25’)</strong></td>
<td></td>
</tr>
<tr>
<td>Acer Buergerianum</td>
<td>Trident Maple</td>
</tr>
<tr>
<td>Quercus prinoides</td>
<td>Dwarf Chinkapin Oak</td>
</tr>
<tr>
<td>Syringa Reticulate</td>
<td>Ivory Silk Japanese Tree Lilac</td>
</tr>
<tr>
<td>Tilia cordata</td>
<td>Littleleaf Linden</td>
</tr>
<tr>
<td>Zelkova serrata</td>
<td>City Sprite, Japanese zelkova</td>
</tr>
<tr>
<td><strong>Medium - (25’ - 50’)</strong></td>
<td></td>
</tr>
<tr>
<td>Acer Campestre</td>
<td>Hedge Maple State Street</td>
</tr>
<tr>
<td>Acer Miyabei 'Morton'</td>
<td>Miyable Maple</td>
</tr>
<tr>
<td>Carpinus Betulus</td>
<td>European Hornbeam</td>
</tr>
<tr>
<td>Koelreuteria Paniculata</td>
<td>Goldenrain Tree</td>
</tr>
<tr>
<td>Quercus Robur x Bicolor 'Nadler'</td>
<td>Kindred Spirit Oak</td>
</tr>
<tr>
<td>Ulmus Parvifolia Allee</td>
<td>Lacebark Elm</td>
</tr>
<tr>
<td>Ulmus Propingua Emerald Sun</td>
<td>Elm</td>
</tr>
<tr>
<td>Zelkova Serrata 'Mushashino'</td>
<td>Columnar Japanese Zelkova</td>
</tr>
<tr>
<td>Zelkova Serrata 'Village Green'</td>
<td>Japenese Zelkova</td>
</tr>
<tr>
<td><strong>Large - (+50’)</strong></td>
<td></td>
</tr>
<tr>
<td>Acer x Freemannii 'Autumn Blaze'</td>
<td>Fremanii Maple</td>
</tr>
<tr>
<td>Betula Nigra</td>
<td>River Birch</td>
</tr>
<tr>
<td>Ginko Biloba</td>
<td>Ginko (Male Clones Only)</td>
</tr>
<tr>
<td>Gleditsia Triacanthos Var. Inermis</td>
<td>Honeylocust</td>
</tr>
<tr>
<td>Platanus x Acerfolia 'Exclamation'</td>
<td>London Planetree</td>
</tr>
<tr>
<td>Quercus Palustris</td>
<td>Pin Oak</td>
</tr>
<tr>
<td>Quercus Rubra</td>
<td>Red Oak</td>
</tr>
<tr>
<td>Tilia Cordata</td>
<td>Greenspire, Littleleaf Linden</td>
</tr>
<tr>
<td>Ulmus Americana</td>
<td>American Elm Cultivars</td>
</tr>
<tr>
<td>Zelkova Serrata 'Green Vase'</td>
<td>Japanese Zelkova</td>
</tr>
</tbody>
</table>

Source: Cleveland Tree Plan, 2015 - Davey Resource Group
Amenities
Lighting

Lighting is an essential element in the overall composition of streetscapes and public spaces. Lighting design and technology has evolved tremendously with the performance of longer lasting LED units and the acknowledgement of light pollution and its effects on surrounding neighborhoods and the environment. Even with the adoption of cut off luminaries, light zones, and legislation aimed at preventing light pollution, the main lighting objectives of safety, security, and aesthetics have not changed. Lighting should provide a clear view of obstacles and pathways, and facilitate the safe movement of pedestrians on sidewalks and vehicles in the street. Lighting also serves as a deterrent, offering the natural surveillance needed to help create feelings of safety and comfort for inhabitants, while minimizing the potential for trespassing, vandalism, theft, and personal harm. Lastly, lighting helps highlight important areas and features within a city or District, drawing attention to critical buildings, landmarks, and intersections, while encouraging nighttime use for activities and social interaction.

Street Lighting

The foundation of lighting for the public realm is street lighting; its design can have a major impact on the overall quality of a streetscape and atmosphere of neighborhood. Developing design guidelines for poles, fixtures, and light selection (with the option of burying underground wires and connections) can dramatically change the appearance of a street while still providing the desired lighting required for clear and safe movement.

Pedestrian & Specialty Lighting

Pedestrian lighting is placed at a lower height than roadway and parking lot lighting, and is used to highlight those corridors and spaces occupied by pedestrians and cyclists. Pedestrian-scale lighting, with correct spacing, is important to achieve uniform light levels along the desired path, allowing object and people recognition without the creation of shadows. Adequate light presents the natural surveillance needed to help create feelings of safety and comfort for pedestrians. A wide range of pole and fixture styles are available, and those selected should be consistent with the new or existing design of any lights within the neighborhood. Uniform lighting, along with a signage and wayfinding strategy, helps reinforce the appearance and character of the Community. Specialty lighting can be used to illuminate outdoor spaces, plants, buildings, and special objects such as benches, walls, or public art. Used in collaboration with pole mounted street and pedestrian lights, specialty lighting can be installed in bollards, wall mounts, recessed lighting, string lights, and spotlights. Each has its own distinct qualities that contribute to the overall atmosphere and safety of the nighttime environment.
Amenities

Site Furniture

Site furnishings are elements such as benches, tables, signage, bike racks, bus stops, and artwork placed in a streetscape or other public space for accessibility, comfort, information, and enjoyment. The proper selection, placement, and design of these features requires special consideration. Style, material, durability, maintenance, and cost are just a few of the factors that should be considered to ensure appropriate design, placement and installation. It is important for each item to respond to the existing and proposed character of the site, as well as the current and feature needs of users.

Bicycle Parking

The simplest and most necessary amenity to promote bike use should be utilized throughout the City of Solon. Available in a variety of styles, bike racks can be no-frills or composed of whimsical shapes, colors, and icons focused on drawing attention to the City of Solon, a specific district, or specific streets and business within the Community.

Benches, Tables, & Seating

Benches and seating make the streetscape and public realm more enjoyable and accessible for all ages and abilities, and provide places for pedestrians and visitors to sit, rest, wait, eat, and socialize. Generally, all benches are fixed to the pavement, building, or built into a wall to avoid theft and/or vandalism; however, temporary or movable furniture can be provided in public spaces to support events, activities, and community gatherings.

Trash Bins & Recycling

Characteristically utilitarian in nature, trash receptacles are aimed at keeping the public area clean. However, with proper selection and potential utilization of a City logo, they can reinforce the uniform appeal and character of the City's furniture. They should be visible, plentiful, and durable and allow ease of use, maintenance, and cleaning.

Public Art

Public art can create attention, enthusiasm, and add individuality to the City and Streets that does not currently exist. Murals, sculptures, and temporary installations create a vibrancy and interest that draw people to an area, and transform some of the most monotonous buildings and ordinary street items into exciting and distinctive elements. Public art, whether horizontal, vertical, abstract, or symbolic, helps activate spaces while emphasizing community participation, investment, and stewardship.
The City of Solon is one of the largest employment hubs in Cuyahoga County, meaning that many workers commute into the community on a daily basis for their jobs. Even though most Solon residents do not use transit and a large portion of commuters prefer to carpool or drive alone, many still need public transit to reach their place of employment. Not only do many of the stops along the existing RTA route in Solon not have sidewalks - which we have worked to address - but as this map shows only one stop currently provides a shelter. This makes for a daunting and uncomfortable waiting environment for transit users. In order to increase user comfort at these high-volume transit stops, this plan recommends improvements at 2 of the City’s highest frequency stops, including the addition of shelters at these locations. Ideally, we would like all businesses and employees to be within a 10-minute walk to shelter - but the potential addition of these 2 new shelters is a good start in expanding the number of businesses and employees having access to a more comfortable and safer waiting environment.

**ActionSteps:**

- Prioritize addition of new shelters at the highest frequency stops: Cochran & Carter & Cochran & Aurora
- Add landing pads and sidewalks to allow access to stops and any new shelters along route
- Utilizing Mid-Block Crossing and other elements to create convenient and safe access to shelters
- Add amenities to shelters including trash cans, street trees, signage, and lighting
- Continually add shelters with goal of having only a 10-15 minute walk from all job hubs to a shelter

**Details:**

**Priority:**

- High
- Medium
- Low

**Timeline**

- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding**

- High
- Medium
- Low

**Project Leaders & Partners**

City of Solon, NOACA, GCRTA, Local Businesses,
MAP 16: POTENTIAL BUS SHELTER LOCATIONS

10 Minute Walk to New Shelter

Existing Bus Shelter

New Bus Shelters

10 Minute Walk to Ex. Shelter

RTA Stops

Larger circles indicate more boardings.
Bike Parking

Encouraging and accommodating bicycling infrastructure reinforces a high quality of life for a community’s residents. However, with that needs to be a thoughtful approach to when and where cyclists become pedestrians and how destinations plan for bicycle parking. Bicycle parking can generally take on two forms: 1) short term parking, which is usually uncovered and exposed to the elements; and 2) long term parking, which is typically covered or fully enclosed with the added protection of a dedicated shelter. Either way, the location of such facilities needs to be safe, highly visible, close to destinations, and away from moving traffic. A dedicated bike parking program will support growing bike infrastructure in the city by providing parking in new areas and updated Solon branded racks in existing locations. It should provide the necessary guidelines, support, and opportunities for city supplied bike racks on private property and within the public right of way when they are needed. This plan recommends that the City update any necessary policies or codes to adopt a bicycle parking standard, including materials, location, and style, that can be implemented consistently across the community, which includes processes for business owners to apply for bike rack and for the potential removal (or reduction) of parking spaces in lieu of the addition of bike racks.

<table>
<thead>
<tr>
<th>Action Steps:</th>
<th>Details:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Inventory and create GIS database of existing parking in Solon (location and number of spaces)</td>
<td>Priority:</td>
</tr>
<tr>
<td>🚫 Design and develop the color and style of Solon branded racks</td>
<td>✔ High  ☐ Medium  ☐ Low</td>
</tr>
<tr>
<td>🚫 Explore the purchase of racks in bulk through Bike Cleveland so a portion of sales receipts can be shared with local Bike Solon Chapter</td>
<td>Timeline</td>
</tr>
<tr>
<td>🚫 Install racks at municipal locations and create program which allows racks to be provided to applicants for a small fee</td>
<td>✔ Near-Term  ☐ Mid-Term  ☐ Long-Term</td>
</tr>
<tr>
<td>🚫 Update code to provide guidelines and technical assistance about the proper location of racks at business or within the Right-of-Way</td>
<td>Costs &amp; Funding</td>
</tr>
<tr>
<td>✔</td>
<td>✔ High  ☐ Medium  ☐ Low</td>
</tr>
<tr>
<td>Project Leaders &amp; Partners</td>
<td>Project Leaders &amp; Partners</td>
</tr>
<tr>
<td>City of Solon, Bike Cleveland, Local Businesses</td>
<td></td>
</tr>
</tbody>
</table>
Many communities have embraced a bike parking program or the establishment branded racks through the community. In Pittsburgh the City install sidewalk bike racks and does not charge any fees. Willing applicants can apply to for a rack permit where the city installs the rack through their rack installation program, with all applications evaluated to ensure they meet any space or other regulatory requirements. In Minneapolis, the city provides guidelines for where bike parking can be located, and the applicant and city share the cost of the rack and installation equally, with the city maintain ownership of the rack the applicant responsible for the upkeep and maintenance. In Seattle racks can be installed at the request of citizens and businesses and remain the property of the Seattle Department of Transportation.

Locally, the City of Lakewood established the Bike Racks for Business Program in 2014 and relaunched it again in 2017. Similar to the earlier examples the City of Lakewood made a onetime purchase of racks in 2017, accepting the first 25 qualifying applicant into the program. Each applicant was required to schedule a site visit with city staff to ensure the location met city codes and received city approval before installation. All racks for this program were to be installed in the public right-of-way and made available for public use. Each rack cost applicant $200 dollars, with the purchases supporting Bike Lakewood (a local Bike Cleveland Chapter) that further supports the establishment of a local Solon Chapter. In addition Lakewood has also been installing bike corrals on public streets in key locations throughout the community using existing public right-of-way. This conversion of pavement, potentially existing parking spaces at businesses throughout Solon could when spaces in limited could also be beneficial.
Traffic Calming Measures

Designing roads for high speeds dramatically increases the likelihood that a person struck will be killed. In fact, the actual likelihood of surviving a crash at any speed could be getting worse because of the rapid increase in size of vehicles on the road. While it is important to consider lowering speed limits, additional design treatments can help reduce traffic speeds and collisions, while improving safety for all users. Traffic calming is used to mitigate the effects of speeding and cut-through traffic in residential neighborhoods and the goal of traffic calming is to create an environment that improves safety for pedestrians, cyclists, and residents who travel along neighborhood streets. Using vertical speed controls (speed humps and raised crosswalks) and horizontal speed controls (mini-roundabout, medians, and curb bump outs) forces motorists to slow down, improving reaction time and awareness of their surroundings. All of these features can increase the use of bicycle boulevards where such features have been implemented and are further strengthened with community education and appropriate signage indicating that the neighborhood network is built for all users. Traffic calming approaches will be different for neighborhood streets versus arterial streets, however, residents, block groups, and community leaders should be encouraged to have their street evaluated and tested for applicable traffic calming devices.

**FIGURE 10: IMPACTS OF CAR SPEED IN CRASHES WITH PEDESTRIANS**

<table>
<thead>
<tr>
<th>Action Steps:</th>
<th>Details:</th>
</tr>
</thead>
<tbody>
<tr>
<td>With resident input identify possible pilot projects for implementation of traffic calming measures, especially on any proposed Bicycle Boulevards</td>
<td>Priority:</td>
</tr>
<tr>
<td>With resident input identify possible pilot projects for reducing speed limits from 25 to 20, especially on any proposed Bicycle Boulevards</td>
<td>Timeline</td>
</tr>
<tr>
<td>Use temporary infrastructure as method to test feasibility and outcomes of various traffic calming measures on pilot projects</td>
<td>Costs &amp; Funding</td>
</tr>
<tr>
<td>Identify and funding sources available for implementation of traffic calming features</td>
<td>Project Leaders &amp; Partners</td>
</tr>
</tbody>
</table>
**Intersections, Markings, Crossings, & Signals**

While it is important to slow down motorists in efforts to improve reaction times, stopping distances, and safety. Additional markings and design treatments at intersections and crossings – where a majority of crashes occur - are also important features that can help driver awareness of people walking and biking, hopefully leading to fewer mistakes, or mistakes with less deadly outcomes. Pavement marking such as high-visibility crosswalks and Bike boxes along with HAWK and Rectangular Rapid Flashing Beacons (RRFB) can help make drivers more aware of pedestrians and cyclists at intersections. While Leading Pedestrian Intervals (LPI) help give pedestrians a head start when entering a crosswalk. The size of the corner can also directly relate to the length of a crosswalk. Longer crosswalks take more time to cross, increasing pedestrian exposure. Eliminating right turn “slip” lanes in favor of a smaller curb radius not only produces slower and safer turns it also expands the pedestrian area shortening crossing distances and time. Other crossing improvements that increase safety include the addition of pedestrian islands and mid-block crossings at key locations. Pop-up and temporary installations are also one important method to help demonstrate and study the impacts and benefits of these recommendations on streets and at intersections throughout the community.

**FIGURE 11: IMPACTS OF CURB RADIUS ON CROSSING Distances AND CROSSING TIMES**

![Diagram showing impact of curb radius on crossing distances](image)

**Action Steps:**
- Reduce Curb Radii and add Curb Extensions, Median Refugee Islands, and Mid-Block Crossings to reduce crossing distances and improve Safety
- Focus on safety at all driveways and develop an access management plan to help reduce curb cuts and conflict points between cars and other users
- Increase visibility and safety for pedestrians and cyclists by using high visibility markings, signage and other safety measures at intersections
- Add Rectangular Rapid Flashing Beacons, Pedestrian Hybrid Beacons, or signalized intersections to improve visibility.
- Prioritize recommendations and improvements around transit stops, schools, and other high activity areas such as downtown Solon

**Details:**

**Priority:**
- High
- Medium
- Low

**Timeline**
- Near-Term
- **Mid-Term**
- Long-Term

**Costs & Funding**
- High
- **Medium**
- Low

**Project Leaders & Partners**
- City of Solon, ODOT, NOACA, Cuyahoga County Public Works
Vertical Traffic Calming Measures

1. Speed Cushions
2. Speed Humps
3. Pass Through for Bicycles and Emergency Vehicles
4. Speed Hump Warnings
5. Shared Lane Paint Markings
6. Route Identification
Horizontal Traffic Calming Measures

- **Neckdown / Bump Outs**
  - Opportunities for Green Infrastructure
  - Optional Bicycle Pass Through Pavement Markings or Islands
  - Minimal Impact to Bicycle Travel
  - Shared Lane Paint Markings

- **Pinchpoint / Choker**
Traffic Volume Measures

- Diagonal Diverter
- Chicane

Opportunities for Green Infrastructure
Minimal Impact to Bicycle Travel

Alt. Signage Options

Bike Boulevard
Local St

Optional Bicycle Path
Minimal Impact to Bicycles
**Intersections, Markings, Crossings, & Signals**

### Layout

The inclusion of slip lanes and large corner radii directly impact vehicle turning speeds and pedestrian safety. Removing slip lanes and minimizing the size of a curb radius is critical to creating compact and safer intersections. The size of the corner can directly relate to the length of a crosswalk. Larger radii equal longer crosswalks which take more time to cross, increasing pedestrian exposure. Radii exceeding 15 should be the exception rather than the rule and eliminating slip lanes in favor of smaller curb radius not only produces slower and safer turns it also expands the pedestrian area shortening crossing distances at time. In some cases, a reduction in curb radius can be as simple as using interim materials such as paint, planters, and bollards until funding becomes available for more permanent reconstruction. Sneddowns, resulting from large snowfalls, are a natural form of traffic calming can be helpful in identifying intersections where smaller curb radii can be implemented.

### Markings

The design and material used to identify pedestrian and bicyclist zones should provide as much visibility, comfort, and protection as possible. Many locations only provide the bare minimums required with narrow striping that does not reinforce awareness or yielding requirements. Crosswalks should be striped as wide as possible - using High-visibility ladder, zebra, and continental markings which have been shown to improve yielding behavior - with limited deviations from the desired route. On streets with lower volumes, and speeds, high visibility crosswalks might not be necessary at the intersection, however at schools, parks, and transit stops, high visibility markings might be useful regardless of traffic circumstances. Colored pavement in a bicycle facility increases visibility and helps reinforce priority, understanding, and identify conflict points. Colored pavement can be can be applied along the entire length of bike lane or used as a spot treatment (i.e. bike Box) at conflict points like driveways, crossings, and intersections.
Crossings

Improving safety at all crossings for pedestrians is critical. Mid-block crossings – installed at locations between intersections – can improve connectivity and safety for pedestrians. The mid-block dart/dash is the number one pedestrian crash in Ohio and mid-block crossings can help provide a more direct and safer route to key destinations - like parks, schools, and bus stops - when navigating long block lengths in Solon. When appropriate for maximum comfort and safety, mid-block crossings can be combined with pedestrian refuge islands and high visibility signals to notify motorists. Median Refuge Islands are located at the mid-point of any crossing - including mid-block crossings and (un)signalized intersections – and help increase safety by permitting pedestrians to cross one direction of traffic at a time. Islands help limit pedestrian exposure by reducing crossing distances and time. Preferred applications include roadways with center turn lanes or existing medians that are at least 6’ wide.

Signals

Equally important to markings and the allocation of space is the signalization and allotment of time to traverse the street. High intensity activated crosswalk (HAWK) Signals and Rectangular Rapid Flashing Beacons (RRFB) are both used to improve safety of crossings on major streets. RRFB are pedestrian activated lights at that use a high visibility strobe effect at unsignalized intersections or mid-block crossings. The RRFB system will flash when a pedestrian is present and requires motorists to yield and stop until all pedestrians (or cyclists) have cleared the intersection. A HAWK signal has two red lenses over a single yellow lens to alert drivers to stop at unsignalized intersections or mid-block crossings when pedestrians are using the crosswalk. Unlike ordinary traffic signals, HAWK and RRFB’s are dark until activated by push buttons, but they can also be triggered by other detectors. A Leading Pedestrian Interval (LPI) located at a signalized intersection typically gives pedestrians a 3–7 second head start when entering an intersection. LPIs enhance the visibility of pedestrians in the intersection and have been shown to reduce pedestrian-vehicle collisions as much as 60%. Research found that nearly 2/3 of older pedestrians and 1/3 of younger pedestrians do not have adequate time to cross the street based on current design standards.
**Vertical Traffic Calming Measures**

**Speed Tables - Akron, Oho**

The AMATS (Akron Metropolitan Area Transportation Study) is going to install 28 speed tables. Which comes because of a successful test in two neighborhoods. An AMATS press release states “After the successful testing of temporary speed tables in two Akron neighborhoods in 2020, the City will install 28 speed tables throughout Akron’s 10 Wards. Speed tables are raised areas placed at mid-block points across roadways and are designed to limit the speed at which vehicles travel. Unlike speed bumps, tables have tapered ends and long flat tops to accommodate the entire wheelbase of most passenger cars. Akron’s tables consist of interlocking pieces made from recycled rubberized material and will be bolted and glued into place on street surfaces. During last year’s pilot program, there was a 23% reduction in the number of speeders from 90 percent to 67 percent of traffic, and surveys provided to residents showed support for the speed tables.” The cost budgeted for the purchase and installation of the temporary speed tables is $155,000 ($5000 per table) and the installation will begin in early summer. The tables will be removed in late fall to help with snow clearance during the winter months.
Intersections, Markings, Crossings, & Signals

Bike Markings - Cleveland, Ohio

The addition of bike lanes on Detroit-Superior Bridge began in October 2017. The new eastbound bike lane has a physical barrier separating bikes from vehicles. Additionally, the lane increased from 7 to 15 feet wide. The new westbound bike lane has no traffic buffer and is 8 feet wide. Both lanes use textured green paint in “strategic spots”. Additionally, a bike signal was added at West 9th Street and Superior Avenue allowing bikes to go on their own signal. Two-stage left-turn bike boxes, delineated by green paint, at West 9th and Huron Road and at Detroit Avenue and West 25th Street were also added. The project is a collaboration between the city, ODOT and NEORSD. The city-funded project cost $81,000.

Source: Bike Cleveland
Source: Green City Blue Lake: Cleveland Museum of Natural History
Source: Cleveland.com
Source: bike Cleveland
Temporary Installations

Temporary infrastructure, Pop-up demonstrations, pilot projects, or tactical urbanism are terms used to describe low-cost alternatives to permanent design features and solutions. These methods for testing out new pedestrian, streetscape, or traffic calming projects has been embraced as a valuable strategy for implementing projects cheaply and quickly. Temporary projects are designed to meet all safety and engineering standards but are implemented using low cost materials and resources including volunteers and are mainly carried out over a short period of time (days, weeks, or months) with the support and approval of local governments. These projects have the potential to generate excitement around recommendations since they allow residents to test and envision what various improvements might look like. By testing these potential new features, the community will gain a better understanding of how certain roadway modifications will impact drivers, pedestrians, and bicyclists. They also provide significant and low-cost opportunities to harvest traffic data and community feedback on any project in determining if desired goals and/or metrics have been met. Since these solutions are temporary, modifications and adjustments to the design can be made before investing significant funds towards full implementation and permanent improvements.

**Action Steps:**

- Use low cost temporary improvements as method to test or implement bike and ped improvements
- Use low cost temporary improvements as method to test or implement traffic calming or other roadway safety improvements
- Monitor outcome and engage public on results to determine if desired results have been achieved
- Adjust, revise, redesign, and retest if needed and proceed towards long-term and permanent implementation measures if desired
- Dedicate funding to pilot projects, explore existing resources, (NOACA Street Supplies) or partner with local groups to help identify and test projects

**Details:**

**Priority:**
- High
- Medium
- Low

**Timeline**
- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding**
- High
- Medium
- Low

**Project Leaders & Partners**
- City of Solon, ODOT, NOACA, Cuyahoga County Public Works
Street Supplies is a program by NOACA that gives communities a free library of resources such as paint, tape, cones, and signs to parklets, bike racks, colorful street furniture, and planters to use for temporary infrastructure projects. Funded by a grant from the Ohio Department of Transportation and the Ohio Department of Health, the purpose of the program is to allow communities to see the benefits of potential infrastructure projects before they are permanent. In fall 2018, volunteers came with brooms, brushes, rollers and cans of paint to transform a stretch of Lake Shore Boulevard to slow traffic and make the city’s downtown safer and more inviting for pedestrians and cyclists. The project, called “Pop-up Parkway,” was a 30-day experiment that involves roughly 750 feet of the boulevard from East 218th to East 220th streets. The main reason for this, safety concerns. The design removed two of four traffic lanes and reapportioned the space with parking lanes on the north and south sides of the street, plus dedicated bike lanes and a center median with turn lanes at intersections.

**FIGURE 12: FROM POP-UP TO PERMANENT**
Access & Comfort

User-friendliness is a key element that must be considered when maintaining a practical and safe network. Sidewalks and Bike Lanes are designed to specific standards, however in many areas the width, or actual usable space, is much smaller due to permanent or temporary obstructions within the ‘Sidewalk Zone’. Due to many factors such as bad design, too much parking, constrained rights-of-way, or poor coordination, many of these features end up being located within the ‘Sidewalk Zone’ reducing accessibility and creating areas that are impassable for pedestrians, cyclists, wheelchair users, and strollers. No matter how permanent or temporary the issue or obstruction may be it is extremely important to consider all modes of transportation when working to maintain comfort and safety. Sidewalk obstructions or closures result in re-routing, which causes users to often walk in the street (or parking lot) instead of using an alternative route. This is especially true when considering ADA requirements and ensuring that all routes have convenient and well-maintained access for those with disabilities. Plans should be made to identify and address fixed and temporary objects within ‘Sidewalk Zones’ and no new sidewalk should be built that results in an obstacle or barrier. Minimum standards should be increased to include space for a ‘Furnishing Zone’ allowing space for fixed and temporary objects to be located.

**Action Steps:**

- Ensure ADA accessibility is achieved in all locations and remove and or/limit fixed obstructions (utility poles, etc.) to maintain clear access
- Implement specific city ordinances or a monitoring and enforcement program with penalties for un-permitted closures of sidewalks or bike lanes
- Dedicate funding and establish routine schedule to maintain trails and bike lanes and purchase necessary equipment (like sweepers)
- Partner with existing agencies, business, block clubs, or friends of trail groups to help perform cleanup or fund maintenance of facilities
- Maintain markings for visibility and update to high visibility markings when repainting

**Details:**

**Priority:**
- High
- Medium
- Low

**Timeline**
- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding**
- High
- Medium
- Low

Project Leaders & Partners
- City of Solon
Inventory & Repairs

To better understand where investments need to be made to existing facilities, it is important for the City of Solon to inventory what currently exists within the community today. This could include previously mentioned sidewalks that are too narrow or have obstructions, but it should also include locations that are not ADA compliant, in poor condition, or in locations that are safe, comfortable, or conducive to pedestrian travel. Areas or corridors where the sidewalk is directly adjacent to the ‘back of curb’ which results in no buffer between the pedestrian and traffic, which on many roads can include cars traveling in excess of the 35mph posted speed limits. No new sidewalk should be built that results in this type of condition. Minimum standards for sidewalk construction should be increased to include space for a ‘Furnishing Zone’ in addition to minimum sidewalk widths, allowing space for a buffer to increase comfort and safety. Repairs of existing facilities can be identified and ranked either by condition (areas in most need of repairs) or by location (higher traffic areas, 10-minute walks to parks, schools, and bus stops). An online portal or app could be one opportunity to help identify issues and allow members of the public to actively take part in identifying places where problems exist, and where repairs or replacements are needed, allowing City staff to better assess, plan, and coordinate maintenance.

**Action Steps:**

- Ensure ADA accessibility is achieved in all locations and prioritize replacement in any area that is not accessible
- In addition to obstructions, inventory constrained sidewalks or those adjacent to curb and prioritize these locations for repair or replacement.
- Use classification system to focus on high traffic areas and/or areas in most need of repairs
- Increase minimum standards for sidewalk construction (i.e. width, location, furnishings) to increase comfort and safety (pg. 84)
- Explore creation of web based app or online mapping system for residents to report issues (cracks, pot holes, & missing paint etc.)

**Details:**

**Priority:**

- High
- Medium
- Low

**Timeline**

- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding**

- High
- Medium
- Low

**Project Leaders & Partners**

- City of Solon
AARP Walk Audit Guides & Toolkits

The AARP Livable Communities initiative supports efforts to make all communities regardless of size to be great places for people of all ages and abilities by providing safe and walkable streets, age-friendly housing and transportation options. Walkable communities promote increased health and help make a neighborhood livable for people of all ages and life stages, which is critical because by 2030 one in five Americans will be age 65 or older. One method to ensure this access and comfort is preserved and barriers to mobility for seniors and all residents are properly identified and corrected is to routinely conduct a Walk & Bike Audit or Walkability Workshop in their communities, understanding that sidewalks are more than just lines on map. Walkability workshops and walk audits provide a way for local leaders, community groups, and concerned citizens to assess an area’s connectivity by observing streets, intersections, and various infrastructure components and recording information about those facilities and then, if needed, making a case to the community and local leaders for change. The Walk Audit Leader Guide & Walk Audit Tool Kit help provide a step-by-step guide for assessing a community like Solon’s walkability. The guides help community’s conduct walkability audits consisting of on-the-ground walking events in which teams of city staff or volunteers observe and document the use and safety of local streets. The goal of any Walk and/or Bike Audit Program or event is to identify obstruction issues, safety issues, maintenance issues, and other concerns and to use these walk/bike audit experiences to create positive change in places like Solon.
MAP 17: SAMPLE PRIORITY SIDEWALK REPLACEMENT & MAINTENANCE OF HIGH TRAFFIC AREAS
Multi-Modal Streets

Building multi-modal and inclusive streets is a critical component of any connectivity plan. The number of people struck and killed each year has grown by 45 percent between 2010 and 2019, and 2018 and 2019 saw the highest numbers of pedestrian deaths since 1990. (NHTSA) Many of the factors responsible for these deaths are because we continue to design streets that prioritize the movement of cars over the needs or safety of all users. This is incredibly important because more people are driving trucks and SUVs which are 2 to 3 times more likely to kill pedestrians when involved in an accident. Safer designs have many livability and connectivity benefits while helping to make distracted driving mistakes and collisions less deadly by reducing the severity of those outcomes. Many of our earlier recommendations like reducing speed limits, removing slip lanes, and using traffic calming measures have been recommended to help alleviate these issues for pedestrians and cyclists on certain routes or intersections. However, there are many additional and proven FHWA approved safety counter measures that help create calmer and safer streets using physical improvements such as medians, narrow lanes, roundabouts, road diets and others. Incorporating these recommendations into any roadway infrastructure project will help the City of Solon continue to emphasize that roadways should be safer for all users including motorists and pedestrians.

**Action Steps:**
- Identify key permanent infrastructure improvements that could be applicable in Solon (i.e. Road Diets, Roundabouts, Medians, etc.)
- Using upcoming TIP an other infrastructure programs, identify additional upcoming projects that could support infrastructure improvements
- With input from various departments and groups, identify potential intersections and streets that could be potential locations for improvements
- Explore temporary improvements to test potential recommendations in various locations and to help educate residents on changes and benefits
- Utilize funding resources available to implement measures to build more complete streets

**Details:**
- **Priority:**
  - High
  - Medium
  - Low
- **Timeline:**
  - Near-Term
  - Mid-Term
  - Long-Term
- **Costs & Funding:**
  - High
  - Medium
  - Low
- **Project Leaders & Partners**
  - City of Solon, ODOT, NOACA, CGRTA, Cuyahoga County Public Works, Cuyahoga County Planning Commission
Building Access

Urban form, where and how buildings are placed on a site, is critical for a community to support active transportation. Buildings that are oriented towards the street / sidewalk that have easily accessible primary entrances are important to foster a more connected experience. The City could invest funds to create the safest walking and biking routes through the city only to have the final 200 feet to their destination be the most dangerous, uncomfortable, or least accessible part of the journey requiring the user to traverse a parking lot because no dedicated path to the entrance exists. If residents are constantly faced with this situation they might think twice about continuing to use that sidewalk, trail, or bike path to reach their destination. To prevent this scenario, the city of Solon should require that all new developments be placed directly adjacent to the sidewalk when possible. If existing buildings or conditions do not allow this, all buildings should be required to create a safe, direct, accessible, and clearly marked path to the entrance from the sidewalk or trail. We don’t want the City to spend significant energy on connectivity improvements only to have the urban form work against the vision of the Solon Connects Plan. One method to implement these recommendations consistently, is for the City of Solon to modify various zoning regulations to support walkable developments.

**Action Steps:**

- Ensure that all buildings have a safe accessible route to the entrance from sidewalk.
- For buildings with no access determine proper steps to help create access either with new construction or possible change in ownership.
- Require new buildings be placed adjacent to sidewalk to make them more walkable.
- Review zoning code for setback deficiencies and proposed updates to code to require walkable buildings in all or some districts / locations.

**Details:**

**Priority:**
- High
- Medium **✓**
- Low

**Timeline**
- Near-Term
- Mid-Term
- **Long-Term**

**Costs & Funding**
- High **✓**
- Medium
- Low

**Project Leaders & Partners**
- City of Solon, Local Businesses
Multi-Modal Streets

South Green Road - South Euclid, Ohio

A road diet is a useful tool to improve safety and integrate multi-modal options into an existing street. A road diet reduces the number of travel lanes on a roadway and re-balances this space for other users and travel modes. The most common road diet reconfiguration is the conversion of a four-lane road into a three lane road (two through lanes and a center turn lane). The reallocated space can be used for bicycle infrastructure, pedestrian infrastructure, transit infrastructure, green infrastructure, or transit infrastructure. Road diets can be a low-cost option if no curb adjustments are required and planned in conjunction with repaving or re-striping projects. Each community has developed its own standards for applicability, but it has been shown that roads with 15,000 Average Daily Traffic (ADT) or less had very good results in the areas of safety, operations, and livability when implementing a Road Diet. However, many additional operation and volume factors need to be considered include number of curb cuts, intersections, transit needs along the corridor. Road diets are an FHWA approved safety counter measure and have grown in popularity as case studies and analysis have been able to quantify some the numerous quantitative benefits they provide in addition to the qualitative benefits like increased livability and comfort.

Between April 2021 and Fall 2022, the city of South Euclid, Ohio will be implementing a Road Diet on South Green Road from Monticello Blvd to Cedar Rd. The program costing $5.7 million and plans to optimize street space to benefit all users including pedestrians, bicyclists and public transit riders. Reducing the number of lanes on South Green will improve crossing distance and exposure for pedestrians, while also reducing vehicle speeds and the potential for collisions. A common misconception is that reducing the number of lanes by installing a Road Diet will cause traffic to become more congested. With proper signalization control, and maintaining turning lanes at main intersections (like at Mayfield Road) will create minimal impact to automobile drivers. This project will drastically improve quality of life along the corridor and the livability of the area which connects to jobs, shopping, parks, housing, medical and educational institutions, and more. When completed, the South Green Road Improvements will make it easier for people to safely walk, bike, bus or drive along this important corridor.
ROAD DIETS SAVE LIVES
CONVERTING A ROAD FROM FOUR LANES TO TWO LANES CAN REDUCE VEHICLE ACCIDENTS BY 19% TO 47%

US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

CROSSWALKS
PEDESTRIANS WILL BE ABLE TO SAFELY CROSS SOUTH GREEN RD AT WHITEHALL OR AT A MIDBLOCK CROSSWALK. LED STAMPED CONCRETE CROSSWALKS WILL BE INSTALLED TO INCREASE VISIBILITY & IMPROVE STREETSCAPE DESIGN.

SIGNALIZED INTERSECTIONS
- MAYFIELD ROAD
- EDMOND ROAD
- LIBERTY ROAD
- ANDERSON ROADS
- MONTECILLO BLVD

WHAT’S A BIKE BOX?
DESIGNATED AREA AT THE TOP OF A SIGNALIZED LANE PROVIDING BICYCLISTS A SAFE & VISIBLE WAY TO GET AHEAD OF TRAFFIC DURING A RED SIGNAL PHASE.

5 FT BIKE LANE WILL BE INSTALLED WITH SIGNAGE AND ROAD MARKINGS.

SOUTH GREEN ROAD WILL BE CLOSED TO ALL TRAFFIC FROM ADRIAN ROAD TO ANDERSON ROAD AS A BRIDGE ALONG THE EAST SIDE IS COMPLETELY REPLACED. DETOURS INCLUDE MONARCH ROAD & SOUTH BELLEVOIR BLVD.

ELECTRIC SCOOTERS & BIKES ARE PERMITTED TO RIDE ON THE STREET AND IN BIKE LANES.

Source: City of South Euclid
Trails

Trails offer enormous benefits to communities, they not only create recreational and environmental opportunities but they also have positive impacts on the economy, the physical health of its residents, property values, quality of life, and much more. Solon has unique opportunities for trails along vacated railway corridors, utility corridors, and even through existing neighborhoods. As seen in the map to the right, this plan outlines a number of trail opportunities, such as the Solon to Chagrin Trail, Norfolk Southern Trail, A Powerline Corridor Trail, and the Richmond Connector as part of the Hawthorne Parkway Trail. Like Sidepaths and Bike Boulevards the opportunities to add Multi-Use trails in these locations can provide a huge boost in connecting Solon residents to desired destinations quickly, safely, and comfortably. In a 2012 survey 72 percent of residents agreed that more trails are needed in Solon and when we asked residents what type of facility they would be most comfortable using 90% of respondents said trails. These trail projects create a game changing opportunity for expanding active transportation in Solon. Building these all ages and abilities facilities is where you can hopefully start to change people’s perception on mobility in Solon by having the necessary infrastructure and network that supports converting car trips into short and fun walking and biking trips that are safe for the entire family.

**Action Steps:**

- Prioritize implementation of Solon to Chagrin Trail to utilize ODNR funding and existing partnerships
- Work with neighboring communities such as Aurora to gain ownership of vacated NS RxR
- Reach out First Energy to discuss construction of trail through powerline corridor easement and/or on Solon and First Energy owned properties
- Identify opportunities for East-West trail connections through Hawthorn Valley property
- Identify Funding Sources and bundle projects together with partners to increase collaboration and competitiveness of application

**Details:**

- **Priority:**
  - High
  - Medium
  - Low
- **Timeline:**
  - Near-Term
  - Mid-Term
  - Long-Term
- **Costs & Funding:**
  - High
  - Medium
  - Low
- **Project Leaders & Partners**
  - City of Solon, ODOT, NOACA, ODNR, Cuyahoga County Public Works, Cuyahoga County Planning Commission, First Energy, Cleveland Metroparks, Norfolk Southern RxR, Neighboring Communities, HOAs, Solon City School District
MAP 18: RECOMMENDED TRAILS

- Norfolk Southern R2T
- Richmond Connector
- Powerline Corridor
- Solon to Chagrin Trail
- Hiking Trails
- Existing Trails
As connectivity analysis showed when looking closely at Solon’s existing street network, finding direct and sometimes safe options for pedestrians and bicyclists to reach destinations efficiently is challenging. As seen in the map below, active trail corridors offer an immense opportunity to not only create more direct routes for non-motorized transportation, but also greatly improve the safety of those choosing to walk or bike throughout the community. For example, if someone wanted to walk or bike the Solon to Chagrin Trail Route using the existing road network, they would need to travel 3.2 miles, cross the street 10 different times, and be redirected onto the physical street at times where there is no bike lane or sidewalk to use. A trail at this location would remove many of those barriers, in addition to reducing travel time, travel distance, and potential conflict points with cars.
<table>
<thead>
<tr>
<th>STREET CROSSINGS</th>
<th>FACILITY TYPE</th>
<th>MISSING SIDEWALK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Mid-Block)</td>
<td>Multi-Use Trail</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>Mixed (Sidewalk &amp; Bike Lanes)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Easements, Partnerships, & Land Acquisitions**

With numerous large-scale projects identified as part of this plan, it is important to strategically consider how these projects can safely and efficiently navigate and connect a nearly built-out community. From focusing on areas where existing municipal owned land can be assembled to exploring utility easements and vacated railroad corridors, the City has a wealth of options for creating a well-connected community. This plan recommends carefully analyzing all additional alternatives - including both publicly and privately-owned land - for adding new connections to existing and proposed facilities, giving residents greater access and flexibility to reach trails and their destinations. Many tools are available to add or create these access points throughout Solon including partnerships with land owners to provide access. Dedicated conservation or trail easements on private property to provide necessary access, or the purchase of specific parcels of land to allow public access opportunities. Combined together these tools can make any new network more connected and convenient for Solon residents, allowing the opportunity to choose walking and biking to reach friends, neighbors, or destinations only a few minutes away.

<table>
<thead>
<tr>
<th>Action Steps:</th>
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<tbody>
<tr>
<td>✅ Engage all current and future land owners and projects along proposed trail corridors for potential easement opportunities</td>
</tr>
<tr>
<td>🚫 Identify all existing City of Solon or other municipally owned property adjacent existing or proposed trails for access opportunities</td>
</tr>
<tr>
<td>🚫 Identify all other vacant properties and open space that could provide trail access such as HOA property and other private land</td>
</tr>
<tr>
<td>🚫 Approach land owners and groups about possibly allowing a recreation or other access easement through their property to improve connectivity</td>
</tr>
<tr>
<td>🚫 Explore the creation of or partnership with non-profits that could help strategically purchase or acquire key parcels that would increase access</td>
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<th>Details:</th>
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<tr>
<td><strong>Priority:</strong></td>
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<td>✅ High</td>
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<td>Near-Term</td>
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<tr>
<th><strong>Costs &amp; Funding</strong></th>
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<tbody>
<tr>
<td>✅ High</td>
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<td>Medium</td>
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<td>Low</td>
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</tbody>
</table>

**Project Leaders & Partners**

City of Solon, ODOT, NOACA, Cuyahoga County Public Works, Cuyahoga County Planning Commission, First Energy, Cleveland Metroparks, Norfolk Southern RxR, Neighboring Communities, HOAs, Solon City School District
MAP 20: TRAILS NETWORK WITH EXPANSION AND ACCESS OPPORTUNITIES (I.E. EASEMENTS)
Easements, Partnerships, & Land Acquisitions

Increasing the City’s network to reach into various neighborhoods is important, however having access to those options within each neighborhood is just as critical. If a resident lives 5-minutes away from a trail but does not have a safe way to access it, they might not consider using this facility as a viable option for recreation, exercise, or commuting. Take the example of the Summit Hike and Bike trail where you can see the main spine and all the little neighborhood links on and off the trail. We want every trail facility in Solon to have this type of access. In some cases, this access may be simple, the City may already own adjacent land necessary to create trailheads or access points. However, in other places future access might require new solutions or partnerships with land owners, HOA’s and business to ensure everyone has convenient and safe entrance points on and off the trails throughout the entire community of Solon.
**MAP 21: EXAMPLE OF GOOD NEIGHBORHOOD ACCESS**

**MAP 22: NEED FOR INCREASING NEIGHBORHOOD ACCESS**
**West Creek Conservancy - Parma, Ohio**

The West Creek Conservancy is a land conservancy serving Greater Cleveland. The 501(c)3 non-profit works to protect natural areas by acquiring land and conservation easements through purchase or donation. They have a strong focus on streams, rivers, and watershed protection and restoration. They work collaboratively to restore water quality and natural habitats for the urban environment. West Creek Conservancy works to reclaim and re-use urban land. Additionally, they facilitate recreational trails and greenways and have helped with the creation of many trails, including the Treadway Creek Trail and Hemlock Trail connecting to the Ohio & Erie Canal Towpath Trail. West Creek has become a model for conserving, protecting and connecting land throughout the county through partnerships and perseverance, working to provide links to regional resources across municipal boundaries. The West Creek Greenway, a vision for 20-mile natural public trail network interconnecting the communities of Seven Hills, Parma, Brooklyn Heights, and Independence is an ideal example of this effort to open new links and pathways in full developed communities where such opportunities seem remote. Work on this project has been progressing steadily as new trailheads, links, and land or right-of-way acquisitions are made.
River’s Bend Community - Maineville, Ohio

The Little Miami Scenic Trail is a jewel in the 330-mile network of paved, off-road trails in Ohio’s Miami Valley. The 75-mile paved path runs between Springfield and Newtown (near Cincinnati), connecting a dozen towns and five counties along the way. It passes through beautiful state parks, picturesque scenery, old and new bridges and natural habitat. The Little Miami Scenic Trail is one of the longest paved trails in the United States, running 74.9 miles through five southwestern counties in the state of Ohio.

River’s Bend is a premier residential golf community located adjacent to the Little Miami Trail in Warren County. The Community provides direct access to the Little Miami Trail from the neighborhood using a mix of private and HOA land at the terminus of Turning Point Lane.
Wayfinding & Signage

Accurate, reliable, and easy to understand signage programs are an important element for any community, especially those where pedestrian and bicycle use is a priority. Wayfinding components such as signs, markers, kiosks, and maps help users and visitors identify routes that better connect them to community assets and locations. A wayfinding system with a distinct brand and style that provides easy-to-follow and legible directions can give visitors an experience that is unique to Solon. This plan recommends that the City of Solon develop a signage package that not only incorporates the community’s brand but also works to incorporate any regional or statewide system to create a comprehensive non-motorized network of materials. This system should be clear and concise integrating pedestrian and bicycle scaled maps and signage with larger vehicular focused local street and traffic guidance. Over the long-term this system could be expanded to include a specific downtown style or component that works in combination with the citywide active transportation system to create one seamless and well-defined web of information. As Solon builds out its active transportation network the number of residents and visitors using it will increase, therefore, it is important that Solon have wayfinding system ready that will enable all users to easily navigate the city and its surroundings.

**Action Steps:**

- Develop a comprehensive wayfinding system with local branding for all users and routes (trails and road + vehicular and pedestrian)
- Using existing resources develop signs that not only reflect locality (Solon) but also work with any future regional networks (Cuyahoga Greenways)
- Use signs to convey most important information, like key destinations and amenities, plus time and/or distance to locations
- Reference all current and future standards (NACTO & MUCTD) for uniform, style, location, and materials.
- Explore various funding opportunities (i.e. SID) and prioritize implementation in key locations

**Details:**

**Priority:**

- High
- Medium
- Low

**Timeline:**

- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding:**

- High
- Medium
- Low

**Project Leaders & Partners**

City of Solon, Cleveland Metroparks, Destination Cleveland, Neighboring Communities, Local Businesses
Cleveland continues to expand its bike and trail network, giving residents and visitors a multitude of mobility options to reach neighborhoods and destinations. Although these pathways provide great access and opportunities, many don’t have established identities and even fewer have a dedicated wayfinding program. In addition to off-road facilities, many on-road routes throughout Cleveland and the suburbs only utilize sign standards established by federal guidelines, which may not include any content, branding, or character. To help address this issue Destination Cleveland working with Guide Studio collaborated with community stakeholders on developing and designing what could be a standard citywide trail navigation system for Cleveland and the budding Cuyahoga Greenways Network. A key pilot project for this initiative was the ‘Lakefront Bikeway’, a multipurpose path where signs were installed between West 25th Street and Edgewater Park. Once installed user feedback was generated through surveys to determine what elements might need to be refined to help foster a better city and countywide system. The Lakefront Bikeway Signage Program represents a best practices approach to developing a seamless program that can integrate existing signage and existing branding into one unified system that is applicable for all current and future routes throughout the city and potentially county. With the completion of the Towpath and Redline Greenway the City of Cleveland and the region are really embracing trails as major community assets and infrastructure. Creating visual consistency across this trail network that intends to go beyond neighborhood, community, and county boundaries is critical. It allows each route to have its own local character while still maintaining a visual connection to the larger network, helping residents and visitors remain informed and comfortable as they navigate through various neighborhoods and communities.
Bike Solon Chapter

The City of Solon is surrounded by many regional amenities and has immense potential to not only tap into those locally, but also establish its own network of trails and bikeways. Creating a dedicated group of residents and businesses that can advocate and educate the community on the importance of establishing an all ages and abilities network is an important step in the process. Bike Cleveland, a 501(c)(3) advocacy nonprofit in the Greater Cleveland area, has dedicated their mission to creating a region that is sustainable, connected, healthy, and vibrant by promoting bicycling and safe and equitable transportation for all. Bike Cleveland works on behalf of cyclists across Greater Cleveland and has developed a local chapter program to help residents raise bicycle awareness within their own communities, helping to reach as many residents in the region as possible. Local chapters can leverage Bike Cleveland’s extensive expertise and experience with their firsthand knowledge of their city and its needs. This includes hosting fun rides, events, safety and education programs, or advocating to city leaders and stakeholders to build better infrastructure in their communities. Having a local chapter in Solon would help residents cultivate community support for projects and events through their local relationships with neighbors, friends, and business.

<table>
<thead>
<tr>
<th>Action Steps:</th>
<th>Details:</th>
</tr>
</thead>
</table>
| ✔ Contact Bike Cleveland to discuss forming a Local Bike Solon Chapter | **Priority:**
| ✔ Identify any potential residents, stakeholders, or departments to lead potential chapter | ![High](checkmark.png) ![Medium](medium.png) ![Low](low.png) |
| ✔ Identify potential outreach opportunities throughout the summer that could help generate memberships and support for local group | **Timeline:**
| ✔ Contact other local chapters and Bike Cleveland to identify potential events or programs that could be utilized in Solon (i.e. Bike Parking Program) | ![Near-Term](checkmark.png) ![Mid-Term](medium.png) ![Long-Term](low.png) |
| ![Exclamation](exclamation.png) Use Chapter as way to advocate, educate, and support active transportation projects, events, and opportunities in Solon | **Costs & Funding:**
| ![Exclamation](exclamation.png) | ![High](checkmark.png) ![Medium](medium.png) ![Low](checkmark.png) |
| Project Leaders & Partners | **City of Solon, Bike Cleveland, Local Businesses** |
Walk & Bike Board or Committee

In addition to local advocacy groups to help raise awareness about connectivity within the community, the City should also look to establish a more formalized group of stakeholders to ensure that implementation of connectivity improvements remain a priority for Solon. This formal group could meet at designated times monthly or quarterly and advise and consult with the City Council and City Administration on the implementation of bicycle and pedestrian plans, as requested. They could also help support and coordinate bicycle and pedestrian safety education programs, promote bike and pedestrian events, and seek public input and feedback on projects or programs. In addition to or as an alternative to creating this group, the city could work to establish a dedicated staff member to help implement or oversee implementation of this plan. The establishment of a Bike and Pedestrian Coordinator position, would increase efficiency, provide greater oversight of active transportation projects, and serve as a central contact for all sidewalk and bikeway projects and programs in Solon. The creation of this committee or this staff member division would signify a significant long-term commitment to improving connectivity in Solon.

**Action Steps:**

- Research existing communities that utilize a Bike and Pedestrian Board or Commission to help with implementation of recommendations
- Determine proper board structure (# of members, terms, and appointments)
- Potentially transition existing Mobility Task Force into a Committee, Board, or Commission
- Create a dedicated staffer or manager of bike and pedestrian projects (i.e. Bike & Ped Coordinator) to help with implementation

**Details:**

- **Priority:** Low
- **Timeline:** Long-Term
- **Costs & Funding:** Low
- **Project Leaders & Partners:** City of Solon
Bike Euclid Chapter - Euclid, Ohio

Bike Euclid is a local advocacy group, formed in spring of 2014, working to promote a comprehensive stress-free bicycling network for transportation and pleasure, and to encourage and connect bicyclists to resources which support their safe and legal use of their bicycle. Bike Euclid, in the winter of 2017, became a chapter of Bike Cleveland.

Bike Euclid's goal is for the City to be a Bicycle Friendly Community, and designated as such by the League of American Bicyclists. A community recognized by the League as Bicycle Friendly welcomes bicyclists by providing safe accommodation for cycling and encouraging people to bike for transportation and recreation. Encouraging bicycling is a simple way towards improving public health. With more people bicycling, communities experience reduced traffic demands, improved air quality and greater physical fitness. Building such a community can translate into a more connected, physically active, and environmentally sustainable community that enjoys increased property values, business growth, increased tourism, and more transportation choices for citizens.

Bike Euclid, works with citizens, the City of Euclid, and Bike Cleveland, to make Euclid a great place for bicycling by focusing on the 5 E's; Engineering, Education, Encouragement, Enforcement, Evaluation and Planning. Some examples of efforts around these programs include:
Worthington, Ohio is northern suburb of Columbus, who in 2015 established a Bicycle and Pedestrian Advisory Board to advise and consult with the City Council and City Administration on the implementation of bicycle and pedestrian plans, like those identified in the Solon Connects Plan. Establishment of the Bicycle and Pedestrian Advisory Board is one clear signal to residents that the City of Worthington is committed to promoting health, wellness, and a high quality of life for all residents by providing a safe and connected network of bike and pedestrian infrastructure.

Establishing a Bicycle and Pedestrian Advisory Board was one of the recommendations outlined from a previous study and report adopted by City Council in 2104. The Board consists of Nine (9) members, seven (7) of which must reside within the City limits and all members serve without compensation. Members have been appointed with staggered that last for three years. The Bicycle and Pedestrian Advisory Board meets the fourth Monday of every month at 6:00 p.m. and elects a Chair and Vice-Chair at the beginning of each calendar year. The board has variety of duties but some of its many accomplishments since inception include:

- Intersection crossing improvements,
- Trail head improvements,
- Bike and pedestrian accommodations
- Bike events
- Complete streets policy
- Trail signage
**Safe Routes to School Program**

One way to work towards building a safe, connected, and active network is to start with children. In an earlier survey – 55% of respondents told us they would not feel safe letting their children walk or bike to school. A Safe Routes to School (SRTS) program provides resources, assistance, and funding as part of a comprehensive approach to promote walking and biking to school through both infrastructure and non-infrastructure projects. Providing 4 million in annual funding for projects in 5 categories: Engineering, Encouragement, Education, Enforcement, and Evaluation. Infrastructure projects must be located within two miles of a school and have a limit of $400,000, with 100% reimbursement of any eligible costs including engineering, right-of-way acquisition, and construction. Non-infrastructure activities include education, encouragement, enforcement or evaluation. For items such as training, program supplies, safety and education incentives, and public awareness campaigns ODOT will reimburse 100% of eligible costs up to $60,000. We know that most Children in Solon arrive to Solon via car or bus, however when looking at map, we can clearly see how many more students with 2 miles or a 10 minute ride to school could potentially benefit from the proposed facilities and a SRTS program. When cities choose to develop a SRTS program the entire community becomes a better place for everyone to walk and bike.

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<td>City of Solon, ODOT, NOACA, Solon City School District, Local Businesses</td>
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MAP 23: 10 MINUTE BIKE SHED TO SCHOOLS WITH PROPOSED ALL AGES & ABILITIES ROUTES
Safe Routes Chagrin - Chagrin Falls, Ohio

Safe Routes Chagrin is one of the most recognizable, established and award-winning Safe Routes to School Programs in Ohio. Safe Routes Chagrin works to promote healthy and active lifestyles for school age children, with a mission to encourage and support school-age students in leading active lifestyles that incorporate walking and biking to and from school and around town as part of their daily physical activity, while boosting personal responsibility, safety and independence. Established in 2007, the Safe Routes to School Program has helped Chagrin develop many programs and fund infrastructure improvements that encourage alternative transportation for students in grades 4-8. These changes have also made the community a more pedestrian friendly environment for residents and visitors of all ages and abilities. Safe Routes Chagrin is sponsored by various local merchants and the planning of programs and events is led by a variety of representatives and volunteers from the school district, police force, village council, library, local small business owners, community organizers and many parents and grandparents. Many successful events include: Bike-a-Palooza (Bike Rodeo), Bike to School Day, July 4th Bike Parade and Walk to School Day, described by Safe Routes Chagrin President Deborah Wilkinson as

“A fun event energizes students who might not normally walk to school or to town to give it a try and find out first-hand how fun it can be to be active while walking with friends. Walk to School events help to emphasize the importance of issues such as increasing physical activity among children, pedestrian safety, traffic congestion, concern for the environment and building connections between families, schools and the broader community.”
Events Program

The City of Solon already has a robust and exciting community events calendar. However, with the implementation and construction of an all ages and abilities trail network, this opens the community to even more opportunities to come together and celebrate Solon. In conjunction with existing programs and potential new partnerships with groups like Bike Solon and a SRTS program, this plan recommends that the City integrate programs focused on coming together and celebrating, learning, and gathering around connectivity.

### Action Steps:

- Utilize existing resources (Rec Department & Others) to identify Bike/Ped event opportunities
- Build bike/ped events around existing events (Home Days) and new opportunities (Temporary Infrastructure Pop-Ups or SRTS)
- Research events and programs from other communities that could be applicable for use in Solon
- Support other recommended groups (Bike Solon, SRTS, etc.) events including funding, promotion, or providing logistics like road closures & police
- Help streamline the application process for organizations and residents to establish new bike and pedestrian events throughout Solon

### Details:

**Priority:**
- High
- Medium
- Low

**Timeline**
- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding**
- High
- Medium
- Low

**Project Leaders & Partners**
- City of Solon, Neighboring Communities, Bike Cleveland, Solon City School District, Local Businesses
Safe Solon Campaign

Solon does not currently have an outreach program that is focused on educating residents and improving pedestrian and cyclist safety, an important part of any connectivity plan. While various projects and alignments are being studied, designed, and constructed, the City can begin educating its residents about any topics, laws, and concerns that might be applicable to changes in infrastructure, traffic patterns, or behaviors. Previous plan recommendations focused on various engineering improvements including traffic calming strategies and building more protected or safer all ages and abilities. To assistance these physical endeavors the City of Solon should invents resources in programming efforts that focus on some of the other E’s of Active Transportation; Education, Enforcement, and Encouragement. This plan recommends the city look for and for implement various programs to help raise awareness about multi-modal options and how active transportation can be a part of resident’s everyday lives. Many of the previous recommendations can be major partners in this effort including, Bike & Ped Board, Bike Solon Chapter, and the Safe Routes to School Program. It could also include expanded partnerships with Solon law enforcement, senior facilities, and child care centers to make this a community led effort to ensure everyone understands all the guidelines and standards that both motorists, cyclists, and pedestrians should follow.

**Action Steps:**

- Develop a Safe Solon campaign that educates and encourages the use of active transportation
- Use the Safe Solon campaign in conjunction with any Safe Routes to School Programs or activities to maximize outreach and programing
- Partner with other organizations to incorporate materials in K-12 school programming and other groups including seniors
- Partner with police, fire, and other groups to help target enforcement and also educational opportunities

**Details:**

- **Priority:**
  - High
  - Medium
  - Low

- **Timeline:**
  - Near-Term
  - Mid-Term
  - Long-Term

- **Costs & Funding:**
  - High
  - Medium
  - Low

- **Project Leaders & Partners:**
  - City of Solon, ODOT, NOACA, Bike Cleveland, Solon City School District, Local Businesses
Bike Smarts & Others - Bike Cleveland

Bike Cleveland is not only a wealth of information for coordinating bicycle efforts and infrastructure throughout the region, they also host or can help co-host events within individual communities, which is another additional reason why establishing a Bike Solon Chapter is so important. Bike Cleveland hosts year-round events, including cycling seminars, family-friendly bike smart programs, and group fun rides. In addition to in-person and virtual events, Bike Cleveland also provides support to its local chapters, which help raise bicycle awareness in their communities by hosting rides and fun events, advocating for better infrastructure and more bicycle parking, urging their city councils to create or update their bicycle master plans, hosting safety courses, and much more. In 2021, Bike Cleveland celebrated its 10-year anniversary and continues to be a leader and advocate for bicycle safety, education, and access across northeast Ohio. One example of their successful Bike events programming and an opportunity for Solon is their 'Bike Smarts' series. This year monthly program hosted at variety of locations provides participants a variety of bike safety tips and other cycling topics and issues to learn about, from trail planning, work commuting, and riding safety to helmet tips and child carrier information for families.
Safe Solon Campaign

We’re All Drivers - Bike Cleveland

The Ohio Department of Transportation (ODOT) provides several educational tools and resources to help communities develop promotions and programming in support of bicycle and pedestrian safety. In response to a decade of statewide increases in fatal pedestrian and bicycle crashes and epidemic levels of chronic disease ODOT developed ‘Your Move’ an approach to educate and encourage more Ohioans to choose active transportation and to make it safer for them to walk and bike. Your Move’s goals are to: Educate all road users how to use the road safely, Encourage Ohioans to choose active transportation, and Increase safety for people walking and biking. This program includes an extensive set of existing campaign materials as an easy to use resource to educate, encourage, and increase safety. Each set of materials has been created for different media (Billboards, TV, Radio, Digital, Social Media) and audiences (Females, Males, Drivers, Bicyclists, and Transit Riders). Participation in this program with partners from health departments, hospitals, law enforcement, schools and others, is an effective way to leverage any money spent and increase the programs reach through the community.

Source: Bike Cleveland

Your Move - ODOT

The Ohio Department of Transportation (ODOT) provides several educational tools and resources to help communities develop promotions and programming in support of bicycle and pedestrian safety. In response to a decade of statewide increases in fatal pedestrian and bicycle crashes and epidemic levels of chronic disease ODOT developed ‘Your Move’ an approach to educate and encourage more Ohioans to choose active transportation and to make it safer for them to walk and bike. Your Move’s goals are to: Educate all road users how to use the road safely, Encourage Ohioans to choose active transportation, and Increase safety for people walking and biking. This program includes an extensive set of existing campaign materials as an easy to use resource to educate, encourage, and increase safety. Each set of materials has been created for different media (Billboards, TV, Radio, Digital, Social Media) and audiences (Females, Males, Drivers, Bicyclists, and Transit Riders). Participation in this program with partners from health departments, hospitals, law enforcement, schools and others, is an effective way to leverage any money spent and increase the programs reach through the community.

Source: ODOT.
Coordinate & Combine Projects

The Plan identifies several opportunities that have varying timelines, priorities, and costs associated with implementation. In addition, many of these projects are regional in nature providing connections to adjacent communities, regional park systems, or major job centers, providing benefits for Solon residents and all citizens of Northeast Ohio. As the City begins to implement connectivity improvements it is important that adjacent communities and regional groups are involved at every step of the process. Even if a project ends at a municipal boundary it still provides connections outside beyond the local area. The Richmond Connector (pg. __) is a critical gap in Cuyahoga Greenways Plan is such a connection located outside Solon, however this link would provide Solon residents uninterrupted all ages and abilities access to the Bedford reservation. Identifying the need to collaborate across boundaries to ensure facilities and connectivity remain consistent and comfortable. For some projects to move forward new partnerships and coordination will need to take place to maximize results. Coordinating these projects with neighboring communities and key partners statewide, (ODOT, Trails Caucus Members,) regionally, (RTA, First Energy, NOACA) and locally (Nestle & Swagelok) will make funding applications more competitive and help ensure that key goals and benefits are met and distributed throughout the region.

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<td>Coordinate with adjacent Cities and Partners on implementation of Bike/Ped Projects and to strengthen funding applications for projects</td>
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<td>Work with partners to gain ownership of vacated RxR's and discuss potential powerline corridor trails with First Energy via easements</td>
<td>High</td>
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<td>Collaborate with and encourage State Reps. to join the Ohio Trails Caucus and support more funding and laws that support active transportation and the Ohio Trails Vision</td>
<td>Timeline:</td>
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Public & Private Partnerships

Batching projects together with adjacent communities to secure funding through competitive application processes or support from regional groups is one way to move projects from vision to reality. Public-Private Partnerships (PPP) have become another popular tool to help trails get built when public resources are limited or competition for scarce funding resources is high. A PPP is an arrangement between a public agency (i.e. Solon) and a private sector entity (i.e. Business) to construct, operate, maintain, or manage a facility that provides some public benefit or service. In this arrangement the skills, risks, and rewards of each are shared in the delivery or operation of a service or facility. PPP’s can be used variety of reasons but have become a way to leverage public money for private contributions to projects such as trails and parks. PPP’s are not a one size fits all approach and cannot close any funding gap alone, but when combined with other programs and quality leadership they can be a valuable tool in helping to get projects completed on time and on budget, when communities might not have all the resources necessary to build the infrastructure it needs.

**Action Steps:**

- Identify successful PPP infrastructure projects including Greenways that can be utilized as a model for projects in Solon
- Identify other successful PPP projects including operations and maintenance of facilities that might applicable to Solon’s growing network
- Develop criteria for companies that might want to enter cost-sharing projects with the city for infrastructure items
- Partner with businesses and organizations to help fund projects or programs in Solon that support active transportation

**Details:**

**Priority:**

- High
- Medium
- Low

**Timeline**

- Near-Term
- Mid-Term
- Long-Term

**Costs & Funding**

- High
- Medium
- Low

**Project Leaders & Partners**

City of Solon, ODOT, NOACA, Cuyahoga County Public Works, First Energy, Cleveland Metroparks, Norfolk Southern RxR, Neighboring Communities, HOAs, Solon City School District, State Representatives, Bike Cleveland, NESTLE, Swagelok
Redline Greenway - Cleveland, Ohio

The Red Line Greenway is a nearly two-mile paved all-purpose trail that links the Cleveland Foundation Centennial Lake Link Trail to two RTA Red Line Rapid Transit stations. Additionally, the trail also acts as the primary active transportation corridor from West 65th Street to downtown Cleveland, connecting eight densely populated neighborhoods and over 66,000 people to an even wider regional trail network.

The project has been several years in the making and represents extremely high levels of collaboration through funding applications and implementation strategies. Costing almost $6.5 Million to build, the project was part of a larger batch of connectivity improvements on Cleveland’s near west side that were funding through the Federal Department of Transportation’s TIGER grant program (now known as the RAISE program). Lead by the Cleveland Metroparks this application and subsequent project required support and coordination amongst numerous regional agencies and non-profit partners, such as LAND studio, The Trust for Public Land, Greater Cleveland Regional Transit Authority (RTA), Northeast Ohio Areawide Coordinating Agency (NOACA), and the Cleveland Rotary Club. Through this long term commitment and cooperation the Red Line Greenway will bring a wealth of benefits to the region and connect into numerous key employment, education, recreation, and shopping destinations; making for healthier, and more livable neighborhoods and communities in Cleveland and beyond.
**Public & Private Partnerships**

**Towpath Stage 2 - Cleveland, Ohio**

Public Private Partnerships allow for the private developers to create projects that provide public benefits. One could argue that no trail project has provided more community benefits to the residents of Cuyahoga County than the Ohio & Erie Towpath Trail. Stage 2 of the Towpath Trail runs along the Steelyard Commons shopping center, a project built by developer First Interstate Properties. First Interstate took it upon itself to build the Towpath Trail through the projects property using its own sources of funds. This act of corporate collaboration is the type of support that can sometimes be necessary to complete trail projects. Beyond the physical infrastructure built by First Interstate for the trail, it also left funds designated to the project through a Tax Increment Financing Program (TIF) into a trust for future improvements and maintenance along the trail. As this trust grows in the value the opportunities for trail amenities and improvements increase, bringing even more potential and benefits to residents of the region.

**Sidepaths - Orange Village, Ohio**

Orange Village has over seven miles of recreational trails that connect its neighborhoods to the Pinecrest Mixed-Use District where guests can shop, dine, work and live. The 6-foot-wide meandering, all-purpose trails of Orange Village allow users to connect with Orange Village Park and its state-of-the-art playground along with other destinations including the City of Solon. These new recreational trails implemented throughout the city were paid for by Fairmount Properties the developers of Pinecrest, as part of an assessment. Fairmount Properties and Orange Village established an agreement by which, as part of the Development, Fairmount Properties provide funds for the design and construction of the Orange Village Trails. Orange Village staff managed all aspects of the project from planning through design and construction. Construction of these trails began in 2018 with a total estimated cost of $4.59 million to date. The Village has worked well in not only creating a new destination for residents to visit but also incorporating years of resident feedback into trail design and programming and connecting existing community assets with the trail system as well.
Alternative Funding Sources

In terms of implementation, finding the right funding model to get projects on the ground can take on many forms. While the City of Solon should continue to integrate projects into annual budgets and Capital Improvement Plans, other funding mechanisms may be a good fit for the right project. Alternative funding sources, such as Special Improvement Districts (SIDs), Tax Increment Financing (TIF), or Ohio’s Transformational Mixed-Use Development Tax Credit (TMUD) are all great options to incorporate mobility improvements while also enhancing an area’s overall aesthetics and usability. However, these funding mechanisms require additional steps to establish specialized zones or districts in which these improvements would ultimately be made. This in-turn may also require larger zoning code and map modifications, a review of related ordinances and regulations, and opportunity for community input.
Cedar Lee Special Improvement District  
Cleveland Heights, Ohio

The Cedar Lee Special Improvement District is in the heart of Cleveland Heights and has many notable anchors in the area, including the Cedar Lee Theater, Cleveland Heights High School, the Heights Libraries Main Branch, and Cain Park. The business district itself is more than a mile long with different design aesthetics and business types. To tie the business district together, merchants along the corridor sought physical improvements, specifically streetscape improvements. Working together, the city and business district finalized a streetscape improvement plan to add amenities such as decorative lamp posts, additional landscaping, benches, trash receptacles, and new crosswalks. The Special Improvement District contributes $30,000 annually to fund elements of the streetscape plan. In 2016, the city was awarded federal funding which, combined with county and local funding, allowed for the completion of the project. The streetscape improvements began in the summer of 2016 and were completed by the end of the year. Since then, numerous businesses have opened their doors including a winery, brewery, and new restaurants. The city also reopened a request for proposals for the development of a city-owned site in the center of the Cedar Lee business district. The SID’s contribution to the streetscape effort allowed Cedar Lee to rebuild its major thoroughfare and add the amenities that can attract shoppers, visitors, and new businesses to the area.

The Cuyahoga County Planning Commission offers a wealth of resources to the communities in Cuyahoga County, including a Special Improvement District (SID) Guidebook. To learn more about SIDs and to see if one might be a good fit in your own community, please visit: www.countyplanning.us/resources/guidebooks/special-improvement-districts-guidebook/
Downtown Master Plan

One method to ensure that land use polices, and connectivity ideas properly align and to help identify the types of zoning updates needed is to develop a downtown master plan for the city's commercial and civic center. The City of Solon has begun to take the initiative for stronger pedestrian and bicycle connections throughout the entire community. However, the City's downtown area, development in and around the intersection of Solon and Bainbridge Roads, is a major convergence point for many of this plan's proposed trails, sidepaths, and bicycle boulevards. Where could potential trailheads be located? How does a trail user get to the mixed-use district or the Chipotle safely and easily? A Downtown Master Plan would help provide guidance to these issues and give the City a long-term vision for how future decisions and policy recommendations align with the community's continued momentum for citywide connectivity.

Action Steps:

- Conduct walkability audits of downtown and develop recommendations that support the Solon Connects plan and its objectives
- Hire consultant to develop downtown master plan or host design charette
- Use master plan process to gather community feedback and buy-in on the plan and goals
- Use master plan as guide for any zoning updates or future development opportunities
- Host pop-up events during and after the planning process to engage public and help show proposed developers community support for a new Solon

Details:

Priority: High Medium Low
Timeline Near-Term Mid-Term Long-Term
Costs & Funding High Medium Low
Project Leaders & Partners City of Solon, Cuyahoga County Planning Commission, Local Businesses
Van Aken District - Shaker Heights, Ohio

Shaker Heights wanted to create a cohesive downtown area for East Side Cleveland suburb, known for its historic homes, so the development of The Van Aken District began in 2000. Recently completed and thriving this almost 20-year and $100 million mixed use district opened last summer too much acclaim. In addition to various studies the project began with a strategic investment in the reconfiguration of a dangerous 6-way intersection at Warrensville Center Road, Chagrin Boulevard and Van Aken Boulevard to make a four-way intersection that was much more pedestrian friendly. The planning process also broke the area into smaller more man-age able chunks, each of which were analyzed to find strengths, weaknesses and opportunities. The Van Aken District strengths include; its location on main streets, the presence of a transit station and a full collection of civic uses nearby. The area's weaknesses were; the inability to function as an effective village center and the lack of a coherent pattern of pedestrian circulation. After completion almost all of the office and residential space is occupied, restaurants and retail spaces are being filled, and future phases are already in process Winner of the American Planning Association's Gold Award in 2019: “The Van Aken District demonstrates the long-term view of planning,” Wendy Shabay, American Planning Association, 2019 Awards Jury Chair said. “A significant level of coordination and public engagement was necessary for the Van Aken District to become a reality.”
City Codes & Ordinances

Zoning Ordinances outline specific rules for how property in Solon can be developed. These mandatory and sometimes rigid set of regulations are enforced by the city unless specifically waived and can only be changed by a legal process. Unfortunately, as connectivity and mobility improvements are made these regulations can still lag the demands and needs of the community. Transportation and Land use polices must work together if the City is going to achieve its desired goals of increased mobility and connectivity. We don’t want the City of Solon to spend significant energy on connectivity improvements only to have their land use policies be at odds with or work against the community’s vision for connectivity. Therefore, it is important to update local Zoning Codes to accurately correspond with the Community’s Vision.

Conventional Zoning Codes typically focus on automobile circulation, designing streets for cars and designating large areas for parking. An updated code would focus more on the pedestrian and other users by reducing parking requirements and designing buildings to create more walkable environments. Another fundamental rule of Zoning Ordinances is the separation of uses. Cities have been consistently divided into single use zones (Residential, Commercial, & Industrial) that have segregated interconnected activities and functions. Modern codes allow more mixed-use zones, where corresponding uses can coexist, and the physical form and character of the project are the primary concern.

In addition to physical improvements to connectivity, this plan also recommends a number of policy changes to the City’s existing codified ordinances. Many of the trails and other multi-modal facilities proposed connect directly to downtown Solon. So, it is important to ensure that the end of everyone’s journey into downtown on foot or by bike is as safe and comfortable as the beginning. For example, right now the downtown area has multiple zoning districts each with their own land use and design requirements, like setbacks. How do each of these districts support walkability? Some existing ordinances would not permit the types of development discussed within this plan and should be reviewed for relevance and applicability to better meet the needs of the community’s desire for connectivity. This should include guidance to support more walkable developments along with integrating best practices from prominent transportation resources, such as FHWA, ODOT, and NACTO into bike and pedestrian planning and design. All combined these zoning and design guidelines will help create a more walkable and bikeable Solon.

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<td>![ Code updates, including complete streets, should incorporate best practices from current resources (FHWA, NACTO, ODOT) ](Code updates, including complete streets, should incorporate best practices from current resources (FHWA, NACTO, ODOT))</td>
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<td>![ Continually review and update zoning code based upon best practices and emerging technology ](Continually review and update zoning code based upon best practices and emerging technology)</td>
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<td>![ Update code to have more uniform requirements and more walkable developments and streets. (see sample recommendations) ](Update code to have more uniform requirements and more walkable developments and streets. (see sample recommendations))</td>
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<td>![ Update code to allow more mixed-use districts and increased density with more variety in housing types downtown and elsewhere ](Update code to allow more mixed-use districts and increased density with more variety in housing types downtown and elsewhere)</td>
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Costs & Funding

- High
- Medium
- Low

Project Leaders & Partners

- City of Solon, Cuyahoga County Planning Commission,
The City of Dublin, Ohio introduced their first instance of form-based code in 2017 in the Bridge Street District. Bridge Street is a major commercial corridor that runs through Dublin, Ohio, a Columbus suburb known for its high quality of life. Bridge Street was a mix of various uses including low-density office parks, adjacent to Dublin’s historic town center. City leaders and planners worked to position this area of the city as one ripe for new development that could attract residents and employers. The city envisioned transforming the district into a more walkable neighborhood that would maintain Dublin’s high quality of life while positioning to remain competitive well into the future. One recommendation that arose from this visioning process was to potentially create a form-based zoning district for this area.

Form based codes are an alternative to traditional zoning which separates uses. Form-based codes center more on urban form rather than a distinct use of the land. This type of zoning allows for more flexibility in terms of use while maintaining specific standards and typologies for the relationship between building and the street, sidewalk, and public space. Rather than taking a bird’s eye view and separating uses, form based codes get down to eye level and focus on the height, scale, form, and facade of the buildings, and they relate to each other along the street and in the district. The goal of form-based codes is to create neighborhood character by addressing its architecture and pattern, rather than just its commercial, residential, or office uses. This will allow the Bridge District to grow and change over time without losing any of its style or character.
City Codes & Ordinances

Zoning Code Changes can take on a variety of forms, here we have outlined a few different options for the City of Solon to consider. Ranging for more comprehensive to more limited in scope and potentially cost

**Option-1 Complete Zoning Code re-write**
Complete re-write of the entire Solon Zoning Code to increase walkability. Options include a form-based code or graphic code that is based upon the Community Vision for improved connectivity.

**Option-2 Re-write of select Zoning Districts or Creation of Overlay District**
Complete re-write of select Zoning Districts, specifically those located downtown to increase walkability. An example would to re-write codes for Commercial or Historic Commercial Districts. An alternative option would be to designate an overlay district for Downtown Solon, for example a Pedestrian Retail Overlay (PRO). The PRO District would focus on locating buildings at the sidewalk edge to encourage the development of a more walkable mixed-use district. The Overlay District would run parallel with the current code; however, the Overlay regulations should control and supersede any areas that may be inconsistent with the current zoning code. It is also recommended that any Overlay District contain development incentives like reduced parking requirements, increased density, mixed-use, and faster permitting. Without any incentives, the city may never realize the desired outcomes identified in the overlay District.

**Option-3 Update Portions of Zoning Code or Add New Design Standards**
A third option would be to change elements within the code that do create the desired from of development, for example a reduction in parking minimums or required setbacks. Corresponding adjustments to design standards could also aid in achieving the desired community Vision. Design Standards generally reinforce or complement the existing character of an area and can be utilized to help maintain the style and scale of historic Districts. Design standards can take on many forms from regulating architectural styles, materials, and facade treatments to building patterns, parking lot locations and pedestrian enhancements. Recommendations can vary throughout a city and be applied to different areas, allowing flexibility to match the distinct nature and features of each location. While attempting to maintain specific typologies and materials, they should also encourage innovation, acknowledging that there needs to be some flexibility to respond to the desires of businesses and residents.

**FIGURE 14: EXAMPLE OF A PEDESTRIAN RETAIL OVERLAY OR FORM BASED CODE**
FIGURE 15: REQUIRED BUILDING SETBACKS IMPACT ON WALKABILITY & URBAN FORM
**Complete & Green Streets**

At their core, roadways are designed to move people from one location to another, whether by car, bike, bus, or walking. Many of the previous recommendations identified ways to retrofit or incorporate traffic calming measure or designs for multi-modal infrastructure into new roadway projects. One method to ensure those efforts become the rule and not the exception is to adopt a complete and green streets policy in Solon. With a complete and green streets policy in place all road and infrastructure projects are designed and constructed with the safety, mobility, and accessibility needs of all users in mind, in addition to capturing and allowing stormwater runoff to soak into the ground in a more natural manner. Complete and green streets provide a wealth of benefits, such as reduced infrastructure costs and improved stormwater runoff management, but they also help beautify streetscapes as well. A complete and green streets policy will help Solon create a better transportation system that is more equitable, balanced, and effective and which offers every user of the public right-of-way safe, connected, and sustainable multi-modal options.

![Image of complete and green streets comparison](source: PAWalkworks)

<table>
<thead>
<tr>
<th>Action Steps:</th>
<th>Details:</th>
</tr>
</thead>
</table>
| ![Research existing complete and Green Street Policies in Cleveland Heights, Cleveland, & NOACA for examples of best practices](image) | **Priority:**
| ![Evaluate existing code to determine what current regulations do not support complete and green street goals](image) | ![High](checkmark) | ![Medium](checkmark) | ![Low](image) |
| ![Engage city departments and regional organizations (RTA, NEORSD) to identify feasibility, cost, or implementation concerns](image) | **Timeline:**
| ![Create draft policy for review to ensure goals are met and concerns addressed](image) | ![Near-Term](checkmark) | ![Mid-Term](checkmark) | ![Long-Term](image) |
| ![Create public campaign before and during implementation to explain results and benefits](image) | **Costs & Funding:**

**Project Leaders & Partners**
- City of Solon, NOACA, Cuyahoga County Planning Commission
In May 2018, Cleveland Heights City Council approved a Complete and Green Streets Policy. The policy describes the City’s commitment to the comfort and safety of all users of our streets with special attention to the least mobile and most vulnerable. Of 66 Complete Streets policies submitted in 2018, the National Complete Streets Coalition of Smart Growth America chose Cleveland Heights’ policy as #1 in their Best Complete Streets Policies of 2018 report receiving 91 points. The policy has a focus on equity, attention to detail and binding language to help spur implementation. The formation of a Complete and Green Streets Policy demonstrates that the City of Cleveland Heights is “committed to improving the economic, environmental, and social well-being of its residents; and providing safe and desirable travel for users of all ages and abilities.” Planning Director Richard Wong began looking into a Complete Streets Policy in 2012. For six years Wong worked to build support from his city’s manager and council. Safety was the starting point for initial conversations with the city council. Cleveland Heights took advantage of a variety of resources, many of them free. Even with a small area like Cleveland Heights, a strong Complete and Green Streets Policy can make a big difference. The Complete and Green Streets programs includes additional features like bike parking, repair stations, and amenities at Cedar Lee, Cedar Fairmount, Coventry, Cedar Taylor, North Park, Edgehill at Overlook, and Noble Roads. Many current projects in the city are already incorporating the complete streets recommendations.
Web & Mobile Apps

Keeping residents up to date on what bike events are happening is a key element to generate interest in active transportation. In addition, regularly updating the community on the status of projects or what future meetings they might attend to advocate for projects is also important. Solon like many other communities should establish a webpage where this and any additional information can be found. This website can be aided in development through a Bike Solon chapter or a Bike and Pedestrian Advisory Board. Solon occupies over 20 square miles, locating and documenting where infrastructure issues are can be a challenge for such a large area. Utilizing technology as a means to allow residents, visitors, and businesses to accurately pinpoint where issues exist in real time can drastically help Solon keep up with the demands of maintaining the network. Many communities have launched online GIS mapping software or mobile apps to allow users greater accesses to community services and information. Through these web portals, apps, or programs residents can report a problems with sidewalks and streets including any potential ‘near misses’ at dangerous intersections. Many also include the ability to upload photos from a smartphone. Solon should work to integrate similar applications to help make infrastructure maintenance much more streamlined and accessible.

<table>
<thead>
<tr>
<th>Action Steps:</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="Image" alt="Develop webpage specific to pedestrian and bike projects and improvement in Solon" /></td>
</tr>
<tr>
<td><img src="Image" alt="Use webpage as location for project updates and information on status and new development" /></td>
</tr>
<tr>
<td><img src="Image" alt="Use webpage as source for information on all bike and pedestrian events and programs in the community including SRTS and Bike Solon events" /></td>
</tr>
<tr>
<td><img src="Image" alt="Create online portal, GIS map, and/or mobile application for residents to report and upload photos of issues occurring on bike lanes, trails, sidewalks, and roads throughout Solon." /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority:</strong></td>
</tr>
<tr>
<td>High</td>
</tr>
<tr>
<td><strong>Timeline:</strong></td>
</tr>
<tr>
<td><img src="Image" alt="Near-Term" /></td>
</tr>
<tr>
<td><strong>Costs &amp; Funding:</strong></td>
</tr>
<tr>
<td><img src="Image" alt="High" /></td>
</tr>
<tr>
<td><strong>Project Leaders &amp; Partners:</strong></td>
</tr>
<tr>
<td><img src="Image" alt="City of Solon" /></td>
</tr>
</tbody>
</table>
Engage Hudson - Hudson, Ohio

In 2015 the City of Hudson launched “Engage Hudson,” a mobile app designed to allow users greater access to Hudson’s services through both iPhone and Android platforms. Users of the app can submit issues and those service requests go directly to the City and into its maintenance and work program. This allows requests for service to be responded to quickly and efficiently. Once the request is in the system, users will be notified as the problems are addressed and completed. In fact, anyone can visit the City’s website and view the submitted, reviewed and completed requests in real time. Through Engage Hudson, residents can report a pothole, report problems with streets or sidewalks and notify the City of other service-related issues. It’s quick, easy, and includes GPS mapping and the ability to upload photos of the problem from a Smartphone. If residents don’t have a smartphone or don’t want to download the app they can create the same convenient work request submission through the city’s website. Some of the unique features of the Engage Hudson app include: A streamlined user interface, making it easy to submit customer service requests; GPS mapping, including map-based selection of the service location; The ability to easily upload a photo along with the issue or request; and notifications when a service request has been completed. The Engage Hudson phone app also offers quick access to City news, key seasonal service programs, social media pages and other information. “Smartphones have transformed the way we live our lives, so it is imperative that Hudson use the latest technologies to make it easier to engage our citizens and solve problems,” said City Manager Jane Howington. “This is all part of our ongoing effort to make information, data and services transparent and available to all our citizens. It is just one of a number of future technologies we hope to add that will encourage citizen engagement in our local government.”
**Shared Micromobility**

Bike and scooter share programs are becoming popular choices for transportation and recreation. In some cases, these programs have filled a gap in mobility options including ‘first mile, last mile’ trips. In general, ‘first mile, last mile’ refers to the problem many travelers face, especially those using public transit. This symbolic distance between the transit stop, parking garage, or trail, to any destination is more times than not longer than desired, or requires traveling on facilities that do not meet the users comfort levels. Shared mobility options have become a readily available tool to not only meet ‘first mile, last mile’ needs but also the demands of a wide group of users who can know think about accessing multiple destinations in an area much more quickly and easily. These methods are changing perceptions on mobility and the infrastructure required to provide safe operation for all users including new scooter and bike share programs. These programs are increasing in reach and demand each year by expanding connections between employees and businesses or residents and entertainment. Therefore, although the Solon network might not by immediately ready for any shared micromobility program, it should diligently work to establish potential locations, necessary application or permit processes, regulation and licensing requirements, and potential sponsorship or business partnership opportunities as needed.

<table>
<thead>
<tr>
<th>Action Steps:</th>
<th>Details:</th>
</tr>
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</table>
| Work with regional partners to establish processes for applications, permits, licenses, & regulations | **Priority:**
| Identify potential locations for pilot projects when network and micromobility programs expand beyond urban core | ![High](#) ![Medium](#) **Low** |
| Work on integrating micromobility program with RTA service and stops to improve first mile & last mile connections for transit riders | **Timeline**
| Work on establishing a public private partnership to help sponsor or fund the implementation or ongoing maintenance of bike share programs | ![Near-Term](#) ![Mid-Term](#) **Long-Term** |
| Identify any addition funding sources available and city department responsible for implementation & maintenance | **Costs & Funding**
| ![High](#) ![Medium](#) **Low** | **Project Leaders & Partners**
| City of Solon, City of Cleveland, Bike Cleveland, Cuyahoga County Department of Sustainability, Cuyahoga County Planning Commission |
Lime Bike Share Pilot - Dublin, Ohio

In 2018 the City of Dublin, Ohio partnered with Lime Bike to test out a pilot bike share program in the Columbus suburb. This program didn’t include permanent docking stations, allowing users more flexibility in where they could pick up or drop off a bicycle. Rides using Lime bikes cost $1 for 30 minutes, or 50 cents for Dublin students with a valid ID. Once riders reach their destination it was suggested they park the bike in a safe area where it does not block traffic, pedestrians, or encroach on private property. Dockless bike-sharing can pose some challenges, and some cities have banned them because bikes have left in awkward spaces cluttering the street and other locations. Lime tracks bike usage to ensure that enough bikes are located in high demand areas and not all stationed at low demand ones. Officials believed the bikes would be popular in their downtown areas giving people access to parks, schools, businesses, and events. Lime rolled out 100 bikes in Dublin, its first location in Ohio, with hopes of expanding into other areas. The program did not cost the city anything, since it was a pilot to test the feasibility of dockless bike sharing in a suburb. The pilot program ended in 2019 still leaving the question of can bike sharing work outside of an urban area. Through this program the City was able to gather valuable data and information on peak times, routes, and demand. Dublin was considered a great location to test this program because of the areas expanding network of safe biking facilities and resident’s familiarity with bike share, having the CoGo bike system in nearby Columbus. Expansion of the CoGo is also an option for Dublin and other suburban communities. CoGoBike has recently expanded service to Upper Arlington and is expected to grow even further. Due to the pilot program Dublin is now well positioned to utilize any micromobility program in the future.
Shared Transportation

Solon is one of Cuyahoga County’s largest job hub and represents a pattern of industrial, commercial, and residential development migrating outward from the urban core. This spread has not resulted in meaningful job or population increases. The result has created situations where jobs – like those in Solon – are farther and farther away from where people live, cutting off some residents from opportunities or making the ownership of an automobile a requirement for employment. This means people send much of their day to reach jobs, if they have a method to reach them at all. Improving mobility for these residents who have been left behind, or for whom public transportation to work is the only reliable option is critical not only for the business in Solon who need to attract talent and fill vacant positions but for those who need better access to jobs and opportunities. Many technological advancements and pilot programs – including the paradox prize – have worked to try and fill this gap and reduce the spatial mismatch between jobs and people. The city of Solon should work with local business partners Nestle and Swagelok and regional partners at the RTA to continue these efforts and provide greater access to jobs in Solon.

Action Steps:
- Collaborate with RTA on the potential expansion of RTA service to include more of downtown Solon including Som Center Road.
- Continue to expand and utilize work of Solon Mobility Task Force as an opportunity to expand job access for transit users.
- Partner with RTA and utilize their expertise, resources, and potential ConnectWorkS program to improve first mile & last mile connections.
- Research existing examples of shuttle services and other job connection services in Ohio and the region including paradox prize winners.
- Partner with existing businesses and agencies to survey employees and employers to identify best opportunities to increase job access.

Details:
- Priority: Medium
- Timeline: Near-Term
- Costs & Funding: High
- Project Leaders & Partners: City of Solon, ODOT, GCRTA, Cuyahoga County Planning Commission, Nestle, Swagelok
LakeTran is the Regional Transit Authority in Lake County providing three different types of service, local fixed routes, commuter express routes, and dial-a-Ride. Working closely with large employers such as Lincoln Electric and Component Repair technologies along Tyler Boulevard, a major manufacturing hub in Lake County, LakeTran was awarded funding through the Paradox Prize Program. $75,000 was awarded to LakeTran to tailor transportation programs to get employees to these job sites in an effort to help each company attract and retain employees where transportation to and from remains a consistent barrier. These improvements including growth of its Dial-a-Ride and Route 8 & 9 services to provide more on-demand service form under served areas to the more that 300 employers located along or near Tyler Boulevard. The Dial-a-Ride programs includes door-to-door van transportation - Monday through Friday until 8pm and Saturday until 7pm - that can be booked online or by phone over the phone from 1 to 12 days in advance. This service combined with the expanded Routes 8 and 9 connecting major destinations and equipped with amenities of a traditional fixed route bus including; bike racks, stop cords, destination signs and a fare box.
“Analyses of more than 45,000 residential property sales near trails in Franklin and Delaware Counties show there are no adverse effects on prices associated with proximity to trails.”

- Mid-Ohio Regional Planning Commission (MORPC), Central Ohio Greenways and Trails Group (COG), The Impacts of Central Ohio Trails, 2015
Implementation Strategies

Finishing the planning process and developing the Solon Connects Plan is just the first step in a much longer and in many cases more challenging aspect of improving mobility in Solon. The Implementation Strategies section aims to inform city leaders and the public about the how they can successfully transition from plan to implementation using public input, partners, and a variety of funding resources available. Moving from vision to implementation requires commitments of time and resources and is much more of a marathon than a sprint. The Solon Connects plan crafts recommendations to meet Solon’s challenges and opportunities, but it is up to the City, its partners, and the larger community to move from idea to action during the implementation phase. As part of this process it is sometimes necessary to identify ‘early wins’, or projects with significant support that can be built relatively quickly and easily. These projects help build momentum towards more long-term goals while showing residents that Solon is committed to active transportation and implementing recommendations included in the plan.

The plan is intended to be flexible when it comes to not only types of recommendations but also implementation strategies, providing the community a guide or menu of different options to choose from to help achieve their goals. In addition, what might be considered a low priority now could become a higher priority later as circumstances and opinions change, projects get built, or technology and funding expand. Changes in community support and available resources should be constantly reevaluated against the recommendations as they arise. This flexibility will allow the community to take advantage of opportunities and potential cost savings when constructing projects or evaluating new policies and programs. Results are the goal of any planning process and the steps to get there can vary across communities. However, there are a few key steps and critical features that should be part of any implementation strategy. This section includes a summary of those components: partnerships, priority, cost, timing, funding, and monitoring, describing how each it has been applied to the Solon Connects Plan. The Solon Connects plan is intended to be a valuable tool, resource, and reference for the City of Solon — as well as property owners and developers — when deciding where, when, and how to make investments and act upon recommendations.
Overview

The first step to Implementation is often the most overwhelming. Where to start? Who should do what? While every community's path to implementation is different, some strategies to implementation remain the same regardless of the project or recommendation. The following pages cover some of those key strategies that should be considered: recognizing potential partners, setting priorities, outlining timelines, developing cost estimates, identifying funding resources, and monitoring performance. While all of these various categories have been summarized for each recommendation included in Solon Connects plan, it is important to recognize that they only serve as a guide and are intended to be updated when circumstances warrant impacting the overall implementation strategy and respective timelines.

Partners

Implementation is the result of hard work and collaboration with a variety of departments, agencies, staff members, and groups. The Solon Connects Plan helps identify potential opportunities for engaging and coordinating with local and regional entities. It is critical to recognize some factors that impact Solon are beyond its control, making it more important than ever to forge and maintain supportive partnerships with those who can provide assistance. In many cases the construction of projects or the establishment of programs cannot be completed by Solon alone. These efforts might require aid or support from other communities or organizations. In a region facing declining populations, collaboration for assistance is a must. This assistance can come in many different forms from technical support to funding for construction. The city of Solon has the legal authority and jurisdiction to implement many of the recommendations in the connectivity plan and will in many cases act as the lead agency or group responsible. With this in mind, the City needs to serve as the project champion and leverage its local knowledge and resources when communicating and/or collaborating with other internal and external groups during the development of plans and projects. Working alongside these groups will help maximize the knowledge, experience, and resources necessary to support active transportation improvements in the City.
<table>
<thead>
<tr>
<th>Organization/Group</th>
<th>Departments/Programs</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Solon</td>
<td>Planning, Public Works, Recreation, Economic Development</td>
<td>Legal jurisdiction and local authority to incorporate walk and bike facilities into city owned or city sponsored projects as part of its local infrastructure program.</td>
</tr>
<tr>
<td>Ohio Department of Transportation (ODOT)</td>
<td>Safe Routes to School, Walk &amp; Bike Ohio, State and US Bike Routes</td>
<td>ODOT has legal authority over state routes and highways, and works to implement walk and bike elements into projects. They can also provide a variety of technical assistance and resources through various programs including Safe Routes to School and Walk. Bike.Ohio.</td>
</tr>
<tr>
<td>Northeast Ohio Areawide Coordinating Agency (NOACA)</td>
<td>Transportation For Livable Communities (TLCI) Program, Congestion Mitigation and Air Quality Improvement Program</td>
<td>NOACA is the region's metropolitan transportation agency (MPO) and does not own any roadways, but does support walk and bike projects and a variety of other technical assistance and federal funding programs including (CMAQ, TLCI, etc.).</td>
</tr>
<tr>
<td>Cuyahoga County Public Works</td>
<td>Road &amp; Bridge Program, 50/50 Program, Preventative Maintenance Program</td>
<td>Responsibility for County Road and Bridge improvements in Cuyahoga County. It allows for the inclusion of bike or pedestrian improvements on bridge reconstruction or other roadway improvement programs</td>
</tr>
<tr>
<td>Cuyahoga County Planning Commission</td>
<td>Master Planning Grant Program, Healthy Urban Tree Canopy Program, DOPWIC, SCIP</td>
<td>Provides technical planning and zoning assistance including the administration of the County's healthy urban tree canopy grant program.</td>
</tr>
<tr>
<td>Ohio Department of Natural Resources (ODNR)</td>
<td>Clean Ohio Trails Fund</td>
<td>This Ohio program works to improve outdoor recreational opportunities by funding trails for outdoor pursuits including land acquisition of all kinds.</td>
</tr>
<tr>
<td>Greater Cleveland Regional Transit Authority (GCRTA)</td>
<td>Disadvantaged Business Enterprise (DBE) Program, Commuter Advantage Program, U-Pass Program</td>
<td>Regional Transit Agency responsible for RTA access and expansion in Solon.</td>
</tr>
<tr>
<td>Cleveland Metroparks</td>
<td>Planning &amp; Real Estate</td>
<td>Regional Park Agency Responsible for Hawthorn Parkway and South Chagrin Reservations located in Solon.</td>
</tr>
<tr>
<td>Bike Cleveland</td>
<td>Community events, education, advocacy, and bike parking programs</td>
<td>Bike Advocacy Group working to support safer and more inclusive transportation.</td>
</tr>
<tr>
<td>Federal Representatives</td>
<td>RAISE Program Funding, Earmarks</td>
<td>Federal funding through the RAISE Programs or earmarks.</td>
</tr>
<tr>
<td>State Representatives</td>
<td>Ohio Trails Caucus</td>
<td>Funding thought the State Capital Budget.</td>
</tr>
<tr>
<td>Non-Profits</td>
<td>West Creek Conservancy, Western Reserve Land Conservancy</td>
<td></td>
</tr>
<tr>
<td>Other Groups &amp; Organizations</td>
<td>Solon Chamber of Commerce, Nestle, Swagelok, local businesses</td>
<td></td>
</tr>
</tbody>
</table>
04.2 Project Prioritization

**Priority Projects**

The Solon Connects Plan has identified a comprehensive list of recommendations that can be implemented to improve connectivity and active transportation for everyone in Solon. After developing these recommendations through significant analysis and public outreach the first step towards implementation is to prioritize recommendations. Prioritizing projects helps to establish a potential order for the construction of projects, which can be based on a variety of inputs either determined through the planning process or established by the agency responsible for implementation. As mentioned earlier cities and organizations have limited funding streams that may be subject to specific project types or competitive applications processes. Prioritization can help the City of Solon determine which projects provide the greatest benefits to the largest number of residents, or which recommendations have gathered the most support through stakeholder engagement activities. Prioritization can help the city determine which projects they should immediately allocate capital improvement dollars towards or match with existing funding sources to efficiently execute active transportation infrastructure investments.

There are two different methodologies that can be used to help prioritize recommendations, a qualitative approach and/or a quantitative approach. The qualitative approach is a much simpler method and works best when trying to compare recommendations that include both physical projects and programs like in the Solon Connects Plan. Qualitative is also a much less data intensive exercise that in most cases involves simple voting activities (online or in-person) that can be done as part of the planning process. During these activities city leaders, community stakeholders, focus group members, and the public rank the various recommendations from highest priority to lowest priority or most important to least important. Public and stakeholder participation in this process is vital to confirm that each recommendation aligns with local demands. The Quantitative approach to prioritization is a much more complex method that can use a variety of Geographic Information System (GIS) data and methods to score projects on a variety of predetermined criteria including safety, feasibility, cost, or potential benefits to those residents in most need. Data for each criterion can usually be publicly available but in some case might require additional analysis or study. Due to the nature of recommendations in the Solon connects plan (Physical Improvements + Policies and Programs) and the difficulty in evenly applying scoring criteria to a new trail versus a Safe Routes to School program the quantitative approach was not used. However, the Cuyahoga Greenways Active Transportation Plan is a good example of how a quantitative approach could be applied to future projects.

The Solon Connects Plan used the qualitative approach to determine following maps and lists of priority projects. Project Team members, Focus Group members, and the Public through online surveys, online GIS mapping tools, and online interactive MURAL exercises voted on what recommendations were the highest priority or most important. These projects not only represent those that have significant community support but also provide significant benefits in terms of safety and accessibility, including increased access to jobs, schools, parks, and transit. These benefits can be seen when comparing the number of households with access to an all ages and abilities facility within a ¼ mile from their home before and after implementation of the priority projects.
Prioritizing Solon Connects

Prioritizing Recommendations for the Solon Connects Plan was done using a variety of methods including online surveys and GIS web mapping tools, giving residents and stakeholders opportunities to vote for recommendations or projects they considered high priorities or most important to improving connectivity in Solon. The results were used to identify high priority recommendations included in the plan.

**FIGURE 16: ARC GIS ONLINE PROJECT COMMENT MAP**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Harper Road Sidewalk</td>
<td>18</td>
</tr>
<tr>
<td>Liberty Road Sidewalk</td>
<td>16</td>
</tr>
<tr>
<td>New Bus Shelters</td>
<td>7</td>
</tr>
<tr>
<td>Norfolk Southern Rail to Trail</td>
<td>36</td>
</tr>
<tr>
<td>Solon Road Sidewalk</td>
<td>10</td>
</tr>
<tr>
<td>Solon and Chagrin Trail</td>
<td>25</td>
</tr>
</tbody>
</table>

**FIGURE 17: ONLINE SURVEY**

How important is it for Solon to install Bike Boulevards on specific neighborhood roadways within Solon?

1. Not Important
2. Neutral
3. Very Important
Summary of High Priority Recommendations

01 Trails
1. Norfolk Southern
2. Solon to Chagrin
3. CEI Powerline

02 Sidepaths
1. Solon Rd.
2. Harper Rd.
3. Liberty Rd.

03 Downtown Master Plan

04 Access Easements

05 Safe Routes to School

06 Sidewalks
Aurora, Braillard, Bainbridge, Cannon

07 Crossings, & Signals
Downtown Solon & Som Center Rd.

08 Bike Solon Chapter

09 Bike Parking
Downtown Solon

10 Bus Shelters
Cochran & Carter
Cochran & Aurora
MAP 24: PRIORITY SIDEWALK, BIKE, TRAIL, & BUS SHELTER PROJECTS
MAP 25: CURRENT HOMES ¼ MILE FROM AN ALL AGES FACILITY

- Existing Trails
- 5 Minute Walk From All Ages & Abilities Network
MAP 26: HOMES ¼ MILE FROM AN ALL AGES FACILITY AFTER PRIORITY PROJECT IMPLEMENTATION
Project Timelines

04.3 Project Scheduling

Focusing efforts on executing high priority recommendations – those that score very high or gather significant community support through public engagement - is one manner in which to implement the Solon Connects Plan. Ideally, building these projects would be easier than focusing on lower-ranked projects. Unfortunately, this is not always the case, many times those recommendations that rank high during the prioritization process are not nearly ready for construction and require further study, design, or funding. In some instances, significant physical or psychological barriers already exist preventing these recommendations from moving forward quickly and easily. Therefore, it is important in addition to ranking projects to set time frames based upon local information and resources. Placing recommendations into near-term, medium-term, and long-term time frames helps maximize resources and manage expectations. It is important however, to maintain flexibility when viewing any estimated time frames. In many cases unexpected challenges (recession) or opportunities (grant award) will arise requiring the City to shuffle long-term and near-term projects around to exploit coordination and collaboration opportunities. Having a project phasing strategy that allows the city to be flexible and accomplish goals early and often helps build momentum and maintain community support towards the Solon Connects Plan.

Near-term recommendations are often identified as the ‘low-hanging fruit’ of a plan. These can be high priorities but are mainly those recommendations that are easy to execute because they can be completed in house using existing resources, have low costs of construction, or lack significant challenges to formation. Sometimes considered boring or not as flashy as other higher priorities, near term recommendations are still a significant piece of any implementation strategy. These projects can sometimes serve those in most need, solve a significant transportation issue, or just simply demonstrate a commitment to executing the plan and supporting active transportation in Solon. Medium-Term recommendations often build upon the results of near-term projects, and work on expanding the network using additional resources and funding. As with near-term recommendations, many medium-term projects can score high during the prioritization process, with residents patiently waiting for their completion. However, now the design, space, (ROW) timing, (Roadway Resurfacing) and/or funding (Grant) necessary for their implementation is in place. Long-term projects can sometimes be the most dramatic and iconic of recommendations, resulting in high-costs, significant phasing and lengthy timelines. These projects can also be smaller recommendations that may not have scored as high during the prioritization process but still remain a significant component of Solon’s active transportation network. No matter the significance, each project should build upon efforts from previous phases becoming key pieces to establishing multi-modal transportation in Solon.
Summary of Near-Term Recommendations

- **10** Bus Shelters
  Cochran & Carter, Cochran & Aurora

- **01** Sidewalks
  Aurora, Brainard, Bainbridge, Cannon

- **02** Sidewalks
  1. Solon Rd.
  2. Harper Rd.
  3. Liberty Rd.

- **03** Bike Boulevards

- **04** Bike Parking
  Downtown Solon

- **05** Temporary Installations

- **06** Bike Solon Chapter

- **07** Safe Routes to School

- **08** Coordinate Projects

- **09** Downtown Master Plan
Cost Estimates & Feasibility

Many near-term recommendations include those that can be implemented quickly or at a fairly low-cost to the City. While many higher priority projects may include more ‘iconic’ projects that require additional design and feasibility studies after the Solon Connects Plan is complete. Developing conceptual designs and layouts for these projects is one successful way to more accurately determine what resources and funding are required to implement. In addition to delivering preliminary cost estimates, conceptual designs can also help communicate to residents what elements are included in the project. These preliminary designs are critical pieces of the implementation process because they illustrate valuable and detailed information to residents and leaders about what exactly is included in the proposal. If a preliminary design shows a very ambitious concept as opposed to a more fiscally constrained version to drum up support, leaders should be aware that residents might be disappointed if a final product does not live up to what was described because of an effort to reduce costs. This is why it is important to identify lower cost options early so that other projects can go through feasibility studies to determine any fiscal constraints that might prevent the recommendation from reaching its full potential. Once constraints are identified the city can use various funding programs or partnerships as a way to help fill funding gaps and allow each project achieve the community’s vision. The network cannot be built in a year, so the Plan has identified three levels of cost estimates, Low, Medium, & High, to identify those that provide immediate low-cost opportunities. These projects are feasible using current resources and represent a good opportunity to build momentum while other recommendations undergo additional studies to accurately determine what resources and funding are required to implement. However, it should be understood that because of the changing nature of materials and projects, these costs can vary and are only intended to act as a guide.

**FIGURE 18: SAMPLE IMPROVEMENT COSTS**

<table>
<thead>
<tr>
<th>Improvement Type</th>
<th>Unit</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street painting (Bikelanes, Pavement Marking)</td>
<td>Mile</td>
<td>$100,000.00</td>
</tr>
<tr>
<td>Sidewalk (Remove and Replace)</td>
<td>Sq Foot</td>
<td>$10.00</td>
</tr>
<tr>
<td>Sidewalk (New)</td>
<td>Sq Foot</td>
<td>$8.00</td>
</tr>
<tr>
<td>Multi-Use Path/Trail (Simple)</td>
<td>Mile</td>
<td>$1,000,000.00</td>
</tr>
<tr>
<td>Multi-Use Path/Trail (Avg)</td>
<td>Mile</td>
<td>$2,000,000.00</td>
</tr>
<tr>
<td>Multi-Use Path/Trail (Complex)</td>
<td>Mile</td>
<td>$4,000,000.00</td>
</tr>
<tr>
<td>Monument Signs</td>
<td>Each</td>
<td>$8,000 - $50,000</td>
</tr>
<tr>
<td>Wayfinding Signs</td>
<td>Each</td>
<td>$300.00</td>
</tr>
<tr>
<td>Streetscape Minor Enhancements*</td>
<td></td>
<td>$10 - $50</td>
</tr>
<tr>
<td>Streetscape Major Enhancements*</td>
<td></td>
<td>$275 - $500</td>
</tr>
<tr>
<td>Bike Racks</td>
<td>Each</td>
<td>$200.00</td>
</tr>
<tr>
<td>Streetlights</td>
<td>Each</td>
<td>$150 - $500</td>
</tr>
<tr>
<td>Street Trees</td>
<td>Each</td>
<td>$150 - $400</td>
</tr>
<tr>
<td>Benches</td>
<td>Each</td>
<td>$1,500.00</td>
</tr>
<tr>
<td>Bump Out Traffic Calming</td>
<td>Sq Foot</td>
<td>$100.00</td>
</tr>
<tr>
<td>Raised Crosswalk</td>
<td>Sq Foot</td>
<td>$100.00</td>
</tr>
<tr>
<td>Ladder Crosswalk</td>
<td>Intersection</td>
<td>$10,000.00</td>
</tr>
<tr>
<td>ADA Curb Ramps</td>
<td>Intersection</td>
<td>$12,000.00</td>
</tr>
<tr>
<td>Pedestrian Refuge Island</td>
<td>Each</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>Pedestrian Signals - RRFB</td>
<td>Per Crossing</td>
<td>$100,000.00</td>
</tr>
<tr>
<td>Pedestrian Signals - Hawk</td>
<td>Intersection</td>
<td>$200,000.00</td>
</tr>
</tbody>
</table>
Summary of Low Cost Recommendations

01 Sidewalks
   Aurora, Brainard, Bainbridge, Cannon

02 Bike Boulevards

03 Bus Shelters
   Cochran & Carter, Cochran & Aurora

04 Bike Parking
   Downtown Solon

05 Temporary Installations

06 Bike Solon Chapter

07 Walk & Bike Board

08 Safe Routes to School

09 Coordinate Projects

10 City Codes & Ordinances
‘Early Wins’

Over 80% of residents felt implementation of recommendations included in the Solon Connects Plan should begin immediately upon completion. To help jump start this effort and help the City know where to begin when transitioning from plan to implementation, the Solon Connects Plan has identified some key ‘Early Wins’. These initial investments can be described as recommendations that can be accomplished in a reasonable amount of time that deliver active transportation and connectivity improvements in Solon. These projects represent those that are

1. Higher Priorities
2. Near-Term Opportunities
3. Relatively low-cost (or have some dedicated funding in place)

Getting early wins helps build momentum quickly and shows residents that leadership is working to build connectivity in Solon. These projects can help energize the community by taking advantage of existing opportunities or working to solve current issues.
Summary of ‘Early Wins’

- **10 Access Easements**
- **01 Sidewalks**
  - Aurora, Brainard, Bainbridge, Cannon
- **02 Bus Shelters**
  - Cochran & Carter
  - Cochran & Aurora
- **03 Bike Parking**
  - Downtown Solon
- **04 Bike Solon Chapter**
- **05 Safe Routes to School**
- **06 Downtown Master Plan**
- **07 Solon to Chagrin Trail**
- **08 Harper Road Sidepath**
- **09 Coordinate Projects**
04.6 Project Funding

**Potential Funding Sources**

Funding for projects is one of the most critical if not most challenging aspects of implementations. Many organizations and cities potentially rely on more local, regional, state, federal, and private funding opportunities for active transportation outside of the traditional capital improvement program. Matching projects with the appropriate funding programs and timelines provide a way to help the City of Solon identify some available funding opportunities and the type of projects they support to help with the implementation of the recommendations included in the Solon Connects Plan. One of the most critical if not most challenging aspects of implementations is funding for projects. Many organizations and cities potentially rely on more local, regional, state, federal, and private funding opportunities for active transportation outside of the traditional capital improvement program. Matching projects with the appropriate funding programs and timelines provides a way to help the City of Solon identify some available funding opportunities and the type of projects they support to help with the implementation of the recommendations included in the Solon Connects Plan.

### Transportation Projects

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Hiking Society</td>
<td>American Hiking Society</td>
<td><a href="http://www.americanhiking.org/national-trails-fund">www.americanhiking.org/national-trails-fund</a></td>
<td>Through its National Trail Fund, the Hiking Alliance. Once a year, the AARP Community Challenge is awarded funds to support the development of trails and other community improvements.</td>
</tr>
<tr>
<td>Better Utilizing Investments to Leverage Development (BUILD) Grants</td>
<td>Federal Highway Administration (FHWA)</td>
<td><a href="https://www.transportation.gov/BUILDgrants">https://www.transportation.gov/BUILDgrants</a></td>
<td>The Better Utilizing Investments to Leverage Development, or BUILD Transportation Discretionary Grant program, provides a unique opportunity for local, state, and tribal governments to work with the Federal Highway Administration (FHWA) to fund a variety of transportation projects.</td>
</tr>
<tr>
<td>Bus and Bus Related Equipment and Facilities Program (Section 5339)</td>
<td>Ohio Department of Transportation (ODOT)</td>
<td><a href="https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/Transit">https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/Transit</a> Related/Transit Related-funding-resources/buses-bus-facilities</td>
<td>Administered by the Ohio Department of Transportation, the Ohio Office of Public Works Comission provides funding for buses, bus-related equipment, and facilities.</td>
</tr>
<tr>
<td>Clean Ohio Fund Green Space Conservation Program</td>
<td>Ohio Public Works Comission</td>
<td><a href="https://development.ohio.gov/cleanohio/GreenSpaceConservation/">https://development.ohio.gov/cleanohio/GreenSpaceConservation/</a></td>
<td>The Clean Ohio Green Space Conservation Program supports economic and racial inclusion for residents and the provision of quality schools, transportation, and employment.</td>
</tr>
<tr>
<td>Cleveland Foundation</td>
<td>Cleveland Foundation</td>
<td><a href="https://www.clevelandfoundation.org/grants/impact-areas/">https://www.clevelandfoundation.org/grants/impact-areas/</a></td>
<td>The Cleveland Foundation supports economic and racial inclusion for residents and the provision of quality schools, transportation, and employment.</td>
</tr>
<tr>
<td>Community Development Block Grant Program (CDBG) and the Ohio Community Development Program</td>
<td>Ohio Office of Housing and Community Partnerships, Department of Housing and Community Development (HUD)</td>
<td><a href="https://www.development.ohio.gov/cs/cs_cdbg.htm">https://www.development.ohio.gov/cs/cs_cdbg.htm</a></td>
<td>The CDBG program provides funding for slums or blight, or addresses immediate threat to the health and safety of the community.</td>
</tr>
<tr>
<td>Community Services Block Grant Program (CSBG)</td>
<td>Department of Health and Human Services</td>
<td><a href="https://www.acf.hhs.gov/ocs/programs/csbg">https://www.acf.hhs.gov/ocs/programs/csbg</a></td>
<td>The Community Services Block Grant Program supports the provision of services to low-income people of all ages. Applications are accepted for projects to improve housing, transportation, public space, technology (“smart cities”), civic engagement and more. Area other community improvements.</td>
</tr>
<tr>
<td>Congestion Mitigation and Air Quality Improvement (CMAQ) Program in Ohio</td>
<td>Northeast Ohio Areawide Coordinating Agency</td>
<td><a href="https://www.noaca.org/community-assistance-center/funding-programs/congestion-mitigation-air-quality-program">https://www.noaca.org/community-assistance-center/funding-programs/congestion-mitigation-air-quality-program</a></td>
<td>The CMAQ program supports the provision of services to low-income people of all ages. Applications are accepted for projects to improve housing, transportation, public space, technology (“smart cities”), civic engagement and more. Area other community improvements.</td>
</tr>
</tbody>
</table>
Cities are facing budget constraints and very competitive grant application processes. This requires Solon to get creative and explore traditional capital improvement program. Matching projects with the appropriate funding programs and timelines provides an important opportunity to explore adding active transportation projects as part of any new infrastructure or development proposal. Solon can add active transportation pieces while construction is in progress. In many cases, some of the highest priority projects are infrastructure improvements, developing a project in phases, or explore additional funding resources. The tables on the next pages outline the implementation of the recommendations included in the Solon Connects Plan.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cleveland Foundation</td>
<td></td>
<td>Invests in projects that invigorate Metropolitan Cleveland’s neighborhoods through supportive collaborations. It also supports economic and racial inclusion for residents and the provision of quality schools, transportation, and employment.</td>
</tr>
<tr>
<td>The American Hiking Society</td>
<td></td>
<td>Funds the preservation of open spaces, sensitive ecological areas, and stream corridors. Projects that provide pedestrian or bicycle passageways between natural areas and preserves; enhance eco-tourism related to outdoor recreation in economically challenged areas.</td>
</tr>
<tr>
<td>The Community Services Block Grant provides funds to alleviate the causes and conditions of poverty in communities and includes slums or blight, or address community development needs having a particular urgency because existing conditions pose a serious and ongoing threat to the health or welfare of the community.</td>
<td></td>
<td>Provides annual grants to communities for projects that benefit low- and moderate-income persons, prevent or eliminate community development needs having a particular urgency because existing conditions pose a serious and ongoing threat to the health or welfare of the community. CDBG funds may be used for construction of public facilities such as sidewalks and streets.</td>
</tr>
<tr>
<td>The Clean Ohio Fund Green Space Conservation Program funds the preservation of open spaces, sensitive ecological areas, and stream corridors.</td>
<td></td>
<td>The Clean Ohio Trails Fund supports transportation projects that to contribute air quality improvements and provide congestion relief. The Ohio Department of Transportation (ODOT) sub-allocates a portion of available CMAQ funds to Metropolitan Planning Organizations (MPO) in U.S. areas through the Metropolitan Planning Organizations (MPO) and Large Cities Program. Bicycling and walking are key components of this program because of their link to air quality improvements.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Sidewalks, Streetscapes, Transit, Trails, Bikes, Inclusiveness, Placemaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund, the American Hiking Society offers “hiking trail improvement” grants to active member organizations of their Alliance Members have the opportunity to apply for a grant ($500-$5,000) to improve hiking access or hiker safety elements to Leverage Development, or BUILD Transportation Discretionary Grant program, provides a unique opportunity to add active transportation pieces while construction is in progress. In many cases, some of the highest priority projects are infrastructure improvements, developing a project in phases, or explore additional funding resources. The tables on the next pages outline the implementation of the recommendations included in the Solon Connects Plan.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nature</th>
<th>Environment, Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>AARP Community Challenge</td>
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</table>

<table>
<thead>
<tr>
<th>Planning, Infrastructure, Streetscapes, Transit, Trails, Bikes</th>
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</thead>
<tbody>
<tr>
<td>Transit</td>
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<tr>
<td>Sidewalks, Streetscapes, Trails, Bikes, Environment</td>
</tr>
<tr>
<td>Nature, Environment, Health</td>
</tr>
<tr>
<td>Planning, Road Safety Analysis, Safety Education, Streetscapes, Transit, Trails, Bikes</td>
</tr>
<tr>
<td>Planning, Road Safety Analysis, Sidewalks, Streetscapes, Transit, Trails, Bikes</td>
</tr>
<tr>
<td>Sidewalks, Streetscapes, Transit, Trails, Bikes</td>
</tr>
<tr>
<td>Mapping, Sidewalks, Transit, Trails, Bikes</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Dominion Foundation</td>
</tr>
<tr>
<td>Enhanced Mobility of Seniors and Individuals with Disabilities Program (Section 5310)</td>
</tr>
<tr>
<td>George Fund Foundation</td>
</tr>
<tr>
<td>Highway Safety Improvement Program (HSIP) in Ohio</td>
</tr>
<tr>
<td>Knight Foundation</td>
</tr>
<tr>
<td>Kresge Foundation</td>
</tr>
<tr>
<td>Land and Water Conservation Fund</td>
</tr>
<tr>
<td>National Recreation and Park Association (NRPA)</td>
</tr>
<tr>
<td>Nature Works</td>
</tr>
<tr>
<td>Ohio Public Works Commission (State Capital Improvement Program)²</td>
</tr>
<tr>
<td>People for Bikes Grant</td>
</tr>
<tr>
<td>Pilot Program for Transit-Oriented Development Planning - Section 20005(b)</td>
</tr>
<tr>
<td>Recreational Trails Program</td>
</tr>
<tr>
<td>Agency</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>NRPA</td>
</tr>
<tr>
<td>ODNR</td>
</tr>
<tr>
<td>PWC</td>
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<tr>
<td>KF</td>
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<tr>
<td>GFF</td>
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<tr>
<td>NOACA</td>
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<td>DNF</td>
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<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TODPilot</td>
<td>Infrastructure-Programs/ohio.gov/Programs/</td>
<td>Pilot Program for Transit-Oriented Development (TODPilot) is designed to integrate land use and transportation planning with a new fixed gateway or core capacity transit facility.</td>
</tr>
<tr>
<td>HSIP</td>
<td><a href="http://www.dot.state.oh.us/">http://www.dot.state.oh.us/</a></td>
<td>The Local Transportation Improvement Program was created by the legislature in 1989 and currently provides approximately $55 million annually (the equivalent of one cent). Applicants may apply for grants up to 100% of the project cost.</td>
</tr>
<tr>
<td>Land Water Conservation Fund</td>
<td><a href="https://ohiodnr.gov/wps/portal/land-water-conservation-fund/apply-for-grants/grants/">https://ohiodnr.gov/wps/portal/land-water-conservation-fund/apply-for-grants/grants/</a></td>
<td>Acquisition, development, and rehabilitation of recreational areas; nature; environment; health. The Environmental Stewardship Grants program is designed to protect and preserve natural habitats, improve open spaces, and make nature accessible.</td>
</tr>
<tr>
<td>NatureWorks</td>
<td><a href="https://www.natureworks.org/grants">https://www.natureworks.org/grants</a></td>
<td>NatureWorks provides grants to nonprofit organizations and government agencies seeking financial assistance for projects that contribute to the fight against climate change; promoting a vibrant and diverse arts community in Cleveland; supporting Cleveland Municipal School District and partners, to produce engaged citizens; invest in growth and developmentally marginalized people at critical life junctures; work to achieve inclusive growth and opportunity for all of Cleveland’s residents.</td>
</tr>
<tr>
<td>Ronald McDonald House Charities</td>
<td><a href="https://www.rmhc.org">https://www.rmhc.org</a></td>
<td>Enhances the health, education, and safety of children and families in need. The Ronald McDonald House Charities grants support bicycle infrastructure projects and advocacy initiatives that make it easier and safer for all people to ride. Most funds projects and programs related to communities, attracting and keeping talented people in them, expanding and creating a culture of engagement in addition to arts programming focused on weaving the arts into the fabric of a community and inspire the people living in them. The Foundation works in 26 communities where brothers John S. and James L. Knight were born and raised.</td>
</tr>
<tr>
<td>What We Believe</td>
<td><a href="https://www.kresge.org/opportunities">https://www.kresge.org/opportunities</a></td>
<td>The Kresge Foundation provides grants to nonprofit organizations and government agencies seeking financial assistance for projects that contribute to the fight against climate change; promoting a vibrant and diverse arts community in Cleveland; supporting Cleveland Municipal School District and partners, to produce engaged citizens; invest in growth and developmentally marginalized people at critical life junctures; work to achieve inclusive growth and opportunity for all of Cleveland’s residents. The Foundation works in 26 communities where brothers John S. and James L. Knight were born and raised.</td>
</tr>
<tr>
<td>Enhanced Mobility of Seniors</td>
<td><a href="https://www.dominionenergy.com/charitable-foundation">https://www.dominionenergy.com/charitable-foundation</a></td>
<td>The purpose of the 5310 program is to enhance the mobility of seniors and individuals with disabilities by removing barriers to transportation services planned, designed, and carried out to meet the special transportation needs of seniors and individuals with disabilities.</td>
</tr>
<tr>
<td>Knight Foundation</td>
<td><a href="https://www.knightfoundation.org">https://www.knightfoundation.org</a></td>
<td>Provides funding to local communities to integrate land use and transportation planning with a new fixed gateway or core capacity transit facility. The Local Transportation Improvement Program was created by the legislature in 1989 and currently provides approximately $55 million annually (the equivalent of one cent). Applicants may apply for grants up to 100% of the project cost.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning, Sidewalks, Streetscapes, Transit Trails, Bikes</td>
<td>Community revitalization, economic development, arts, education, environment.</td>
</tr>
<tr>
<td>Planning, Road Safety Analysis, Sidewalks, Streetscapes, Transit, Trails</td>
<td>Road Safety Analysis, Sidewalks, Trails, On Road Bike Facilities, Transportation.</td>
</tr>
<tr>
<td>Planning, Road Safety Analysis, Safety Education, Streetscapes, Trails</td>
<td>Planning, Sidewalks, Streetscapes, Transit Trails, Bikes.</td>
</tr>
<tr>
<td>Planning, Road Safety Analysis, Safety Education, Sidewalks, Streetscapes, Transit, Bikes</td>
<td>Community, health, education, Planning, Road Safety Analysis, Safety Education, Sidewalks, Streetscapes, Transit, Bikes.</td>
</tr>
<tr>
<td>Planning, Sidewalks, Streetscapes, Transit Trails, Bikes</td>
<td>Planning, Sidewalks, Streetscapes, Transit Trails, Bikes.</td>
</tr>
<tr>
<td>Transit, Trails, Bikes</td>
<td>Transit, Trails, Bikes.</td>
</tr>
<tr>
<td>Transportation</td>
<td>Transportation.</td>
</tr>
<tr>
<td>Name</td>
<td>Agency</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------</td>
</tr>
<tr>
<td>Rivers, Trails, and Conservation Assistance Program</td>
<td>National Park Service (NPS)</td>
</tr>
<tr>
<td>Rockefeller Foundation Grants</td>
<td></td>
</tr>
<tr>
<td>Safe Routes to Schools (SRTS)</td>
<td>Ohio Department of Transportation</td>
</tr>
<tr>
<td>Section 402 State and Community Highway Safety Grant Program</td>
<td>Ohio Traffic Safety Office</td>
</tr>
<tr>
<td>Section 405 National Priority Safety Programs</td>
<td>Ohio Traffic Safety Office</td>
</tr>
<tr>
<td>State Capital Improvement Program</td>
<td>Ohio Public Works Commission District One Public Works Integrating Committee</td>
</tr>
<tr>
<td>Street Supplies for Temporary or “Pilot” Transportation Projects</td>
<td>Northeast Ohio Areawide Coordinating Agency</td>
</tr>
<tr>
<td>Surface Transportation Block Grant (STBG)</td>
<td>Northeast Ohio Areawide Coordinating Agency</td>
</tr>
<tr>
<td>The Conservation Fund</td>
<td></td>
</tr>
<tr>
<td>Transit Related Oriented Development (TOD) Planning Pilot Grants</td>
<td>Federal Transit Related Administration (FTA)</td>
</tr>
<tr>
<td>Transportation Alternatives</td>
<td>Northeast Ohio Areawide Coordinating Agency</td>
</tr>
<tr>
<td>Transportation for Livable Communities Initiative (TLCI)</td>
<td>Northeast Ohio Areawide Coordinating Agency</td>
</tr>
</tbody>
</table>
The Rockefeller Foundation provides grants for projects that improve community health and the health care system with a focus on primary care. Most grants are awarded through calls for proposals available on their website. Brief proposals for projects that demonstrate new and creative approaches to solving health and health care problems can be submitted at any time. Most active transport funding is in the Healthy Communities section.

The Conservation Fund works to spread the benefits of globalization to more people in more places around the world. Funding inquiries must fit within four core issue areas: Advance Health, Revalue Ecosystems, Secure Livelihoods & Transform Cities. Transform Cities focuses on transportation planning and infrastructure policy that serves the needs of 21st century America.

The NOACA's Transportation for Livable Communities Initiative (TLCI) provides assistance to communities and public agencies for integrated development and ridership, foster multimodal connectivity and accessibility, improve Transit Related access for pedestrian and bicycle traffic, engage the private sector, identify infrastructure needs, and enable mixed-use development near TOD stations.

The Conservation Fund provides loans for land acquisition to support the creation of bicycle and pedestrian facilities. Their loan program offers as sustained and expert technical assistance to organizations aiming to protect key properties in their communities. The National Park Service, help connect Americans to their parks, trails, rivers, and other places. When assistance is need, NPS staff provides free, on-location facilitation and planning expertise from conception to construction. Visioning and planning, developing concept plans for trails, parks and natural areas, setting priorities and securing funding.

The Safe Routes to School program provides funds for safety projects that encourage or enable children in grades K-8, including those with special needs, to walk or ride their bikes to school. Ohio sets aside $4 million yearly to continue the Safe Routes to School program.

The Section 402 program provides grants to states to improve driver behavior and reduce deaths and injuries from motor vehicle-related crashes. The program is jointly administered by the National Highway Traffic Safety Administration and the Federal Highway Administration at the State Highway Safety Offices at the state level.

The STBG provides flexible funding that may be used by States and localities for projects to improve the conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle facilities, and Transit Related capital projects, including intercity bus terminals.

Transportation Projects
- Street Supplies for Temporary or "Pilot"
- Ohio Public Works Commission District
- Programs
- Ohio Traffic Safety Office
- Section 405 National Priority Safety
- Section 402 State and Community Highway
- Safe Routes to Schools (SRTS)
- Rockefeller Foundation Grants
- National Park Service (NPS)
- Rivers, Trails, and Conservation Assistance
- The Conservation Fund
- Northeast Ohio Areawide Coordinating Agency
- Transportation for Livable Communities
- Transportation Alternatives
- Transit Related Oriented Development
- The Rockefeller Foundation
- The Robert Wood Johnson Foundation

<table>
<thead>
<tr>
<th>Agency</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOACA's TLCI</td>
<td><a href="https://cms7.fta.dot.gov/TODPilot">https://cms7.fta.dot.gov/TODPilot</a></td>
<td>Provides assistance to communities and public agencies for integrated development and ridership, foster multimodal connectivity and accessibility, improve Transit Related access for pedestrian and bicycle traffic, engage the private sector, identify infrastructure needs, and enable mixed-use development near TOD stations.</td>
</tr>
<tr>
<td>Federal Transit Related Administration</td>
<td><a href="http://www.countyplanning.ohio.gov/">http://www.countyplanning.ohio.gov/</a></td>
<td>Provides funding to advance planning efforts that support Transit Related-oriented development (TOD) associated with new fixed-guideway transit projects. Comprehensive planning funded through the program must examine ways to improve economic development, foster multimodal connectivity and accessibility, improve Transit Related access for pedestrian and bicycle traffic, or identify infrastructure needs, and enable mixed-use development near Transit Related stations.</td>
</tr>
<tr>
<td>The Robert Wood Johnson Foundation</td>
<td><a href="http://www.rwjf.org/what-we-do/">www.rwjf.org/what-we-do/</a></td>
<td>The Robert Wood Johnson Foundation provides grants for projects that improve community health and the health care system with a focus on primary care. Most grants are awarded through calls for proposals available on their website. Brief proposals for projects that demonstrate new and creative approaches to solving health and health care problems can be submitted at any time. Most active transport funding is in the Healthy Communities section.</td>
</tr>
</tbody>
</table>

**Project Types**
- Planning, Road Safety Analysis, Safety Education, Nature, Environment, Health
- Planning, Road Safety Analysis, Safety Education
- Planning, Road Safety Analysis, Safety Education, Transit, Trails, Bikes
- Planning, Safety Education, Mapping, Sidewalks, Trails, Bikes
- Road Safety Analysis, Safety Education, Sidewalks, Bikes
- Safety Education
- Roads, bridges, water, sewer
- Transportation, community planning
- Planning, Road Safety Analysis, Safety Education, Sidewalks, Streetscapes, Transit, Bikes
- Trails
- Planning, Transit
- Sidewalks, Streetscapes, Transit, Trails, Bikes
- Planning, Road Safety Analysis, Safety Education, Mapping, Sidewalks, Streetscapes, Transit, Trails, Bikes

**Project Types**
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- Trails
- Planning, Transit
- Sidewalks, Streetscapes, Transit, Trails, Bikes
- Planning, Road Safety Analysis, Safety Education, Mapping, Sidewalks, Streetscapes, Transit, Trails, Bikes
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05.1 Land Use & Development

Citywide Context

Development patterns in Solon vary depending on location, land use, and year built. The current buildings represent a variety of land uses, architectural styles, features, locations, and urban form. Consideration of existing context, assets, land use, and zoning is important since each category can have both positive and negative influences on the transportation network surrounding it.

This section will evaluate existing land uses, zoning, employment, character, and other features throughout Solon to establish any underlying patterns or impacts to the city’s existing transportation network. It also identifies building locations, zoning, uses, frontage characteristics, access, and parking change as one moved around the City. Understanding what exists today can help provide recommendations for future developments and possibly reduce barriers to creating a more walkable, healthy, and multi-modal network that serves users of all ages and abilities.

The City of Solon contains a diverse array of commercial, social, entertainment, and community services located within its boundaries. It still maintains its somewhat traditional New England style plan, having been laid out like similar neighboring townships with established public squares in their town centers. This location, near the intersections of SOM Center Road with Bainbridge and Aurora Roads, still functions as the community’s commercial and entertainment hub with several shops, restaurants, and other community gathering spaces. Unfortunately, the Route 422 corridor does cut off some areas of Solon from this “town center”, creating a visual, physical, and possibly psychological barrier between the northern and southern halves of Solon. In addition to having numerous community and entertainment services, Solon maintains a strong business and manufacturing community base located mainly to the west of its ‘town center district’. The ‘Solon Connects’ plan provides a great opportunity to enhance links between these and other key features like school, parks, and trails, connecting Solon residents to its distinct history, assets, and each other in a safe and healthy manner.
MAP 27: COMMUNITY ASSETS

Source: County Planning
**Land Use**

Land use is a term used to describe how land is physically be utilized, which is typically defined by the types of structures on a site and the uses within those structures.

Currently, the City of Solon is primarily a community comprised of single-family detached residential dwellings and open space, which combined account for 76.5% of all land within the City. However, Solon is also a community with a densely packed industrial core located just to the west of downtown Solon, and with two smaller pockets both to the northwest and to the east of downtown Solon. Overall, industrial land uses account for 11.8% of land within the community. The remaining 11.7% of land uses within the City of Solon are a combination of public uses (5.1%), commercial (2.3%), office (2.2%), and institutional (2.1%).

**FIGURE 16: % OF LAND USE BY TYPE**
Population & Density

The City of Solon is over 20 square miles in size and ranks among the highest in the County for total population, but among the lowest in terms of population density. This indicates a relatively sprawling community where access to a personal vehicle is a necessity to residents and for performing daily tasks.

**FIGURE 17: SIZE OF TRACT IN SQUARE MILES**

**FIGURE 18: POPULATION & DENSITY BY TRACT**

<table>
<thead>
<tr>
<th>Census Tract</th>
<th>Population</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>1841.04</td>
<td>295</td>
<td>1,881</td>
</tr>
<tr>
<td>1958</td>
<td>685</td>
<td>3,729</td>
</tr>
<tr>
<td>1841.08</td>
<td>1,064</td>
<td>3,963</td>
</tr>
<tr>
<td>1841.03</td>
<td>1,701</td>
<td>4,598</td>
</tr>
<tr>
<td>1841.05</td>
<td>2,323</td>
<td>3,937</td>
</tr>
<tr>
<td>1841.06</td>
<td>3,592</td>
<td></td>
</tr>
</tbody>
</table>

Source: US Census Bureau - ACS, 2018

12th Most Populated City in Cuyahoga County
(\(~23,038\) Residents)

42nd in Population Density
(\(1,146\) persons per sq/m)
MAP 29: POPULATION DENSITY

Higher Population Density

Lower Population Density

Source: US Census Bureau - ACS, 2018
Employment

The City of Solon not only has great access to jobs for its residents, the community itself is a major job hub. A large portion of jobs within the City are located within industrialized areas just to the west of downtown Solon. Many of the City’s top employers, such as Swagelok and Nestle, have facilities in this area and account for nearly 50% of all jobs within the community. Additionally, manufacturing, wholesale trade, and professional, scientific, and technical services account for 57% of all jobs within the City. This makes these industrialized areas an important component of the City’s economic base.

**FIGURE 19: TOP 10 JOBS BY SECTOR**

<table>
<thead>
<tr>
<th>Sector</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>31%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>16%</td>
</tr>
<tr>
<td>Professional, Scientific, and Technical Services</td>
<td>10%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>6%</td>
</tr>
<tr>
<td>Accommodation &amp; Support Services</td>
<td>6%</td>
</tr>
<tr>
<td>Administration &amp; Support Services</td>
<td>6%</td>
</tr>
<tr>
<td>Health Care &amp; Social Assistance</td>
<td>3%</td>
</tr>
<tr>
<td>Real Estate, Property Management</td>
<td>3%</td>
</tr>
<tr>
<td>Finance &amp; Insurance</td>
<td>3%</td>
</tr>
<tr>
<td>Education &amp; Training</td>
<td>3%</td>
</tr>
</tbody>
</table>

**FIGURE 20: TOP 20 EMPLOYERS**

- **Swagelok**: 3,000 Jobs (27%)
- **Nestle**: 2,400 Jobs (22%)
- **Remaining 18 Companies**: 51%
- **Average 313 Jobs**: 11,000 Total Jobs

Source: City of Solon
**Zoning**

Zoning is a tool that helps plan for how land can and cannot be used in certain areas of the community, and it helps reduce land use conflicts from incompatible uses, such as neighborhoods adjacent to heavy manufacturing.

Currently, the City of Solon has 24 individual zoning districts and is predominantly a community comprised of residential neighborhoods and single-family homes. As seen in the graph to the right, 72.5% of all land within the community is zoned for one of the City's five, Single-family zoning districts. Each of these zoning districts, while very similar, generally differ in permitted minimum lot sizes. Lot sizes can range from the smallest minimum lot size for a single-family home at 15,000 square feet (R-1-F district), up to the largest minimum lot size of five acres (R-1-E).

Following Single-family zoning districts, the most used zoning classification is Industrial Manufacturing (I-2), which accounts for 16.1% of all land within the community. The purpose of this district is to provide a concentrated located to moderate the intensity of heavier uses within the community. Identified as light purple within the map on the next page, the largest Industrial Manufacturing zoning district is just to the west of downtown Solon. This area includes such businesses as Swagelok Company, King Nut Company, and Nestle Stouffer's.

The remaining 12.4% of land is zoned for a variety of uses. Parks and open space (G-1, G-2) only accounts for 5.9% of zoning within the City, which includes the Grantwood Golf Course and Solon Community Park. The Commercial (C-3) district accounts for 1.1% of land and warehousing accounts for an additional 1.0%. The remaining 3.3% of zoning in the City is a combination of high density residential districts and senior care (R-2, R-3, R-3-A, R-3-B) and specialized commercial and office districts (O-1, O-2, C-1, C-2, C-3-A, C-4, C-5, C-6).connecting Solon residents to its distinct history, assets, and each other in a safe and healthy manner.
Vacant Land & Opportunities

The City of Solon is nearing full build out with minimal land remaining for large-scale development. Much of the vacant land within the community is City owned and is considered open space in conjunction with a primary use, such as schools, the City’s civic campus, and Grantwood Golf Course. Additionally, Solon also has a number of large subdivisions that are controlled through a Homeowners Association (HOA). This land is typically reserved open space and acts as a buffer from neighboring developments or as a location for passive recreation. There are large contiguous sections of HOA land in the southeast portion of the community, where connections could tie together a much larger pedestrian and bicycle network.

In addition to vacant land and HOA owned properties, the City of Solon also has a number of vacated rail corridors and overhead powerline corridors. Many of these types of corridors are located in the southeastern portion of the community and could also be candidates for further enhancing connectivity within the City and the region through Rails-to-Trails developments and other initiatives.
MAP 32: VACANT LAND & OPPORTUNITIES

- Vacant Land
- City Owned
- HOA Owned
- CEI Owned
- Existing Openspace
- Vacated Rail Corridor
- Powerline Corridor

Source: County Planning & County Fiscal
Parks & Openspace

Second only to residential land, open space accounts for nearly 25% of all land within the community. However, only 4% of that land is used for public parks, which does not include Grantwood Golf Course and Timberlake Park in Chagrin Falls. The City of Solon falls short of the national median for park spaces, which is typically 15% of land within a community. Additionally, of the 519 acres of parks within the City of Solon, 366 acres are occupied by the Grantwood Golf Course. This accounts for 70% of all park space within the community. Another 446 acres are located within the Cleveland Metroparks and an additional 214 acres are devoted to greenspace. Overall, public park spaces in Solon are isolated and have limited access from adjacent neighborhoods.

**FIGURE 22: ACRES OF PARK* PER 1,000 RESIDENTS**

*Grantwood & Timberlake not included

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Acres per 1,000 Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Median</td>
<td>10.1</td>
</tr>
<tr>
<td>Jurisdictions &lt; 20K</td>
<td>11.8</td>
</tr>
<tr>
<td>Jurisdictions 20K to 50K</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Source: City of Solon & National Recreation and Parks Association

**FIGURE 23: SHARE OF PARKS BY TYPE**

- **Metroparks - Reservation - 446 Acres**: 38%
- **Solon - Parks - 519 Acres**: 44%
- **Solon - Greenspace - 214 Acres**: 18%

Grantwood GC
366 Acres = 70% of Solon’s Parks

Source: City of Solon

---

Only 4% of land in Solon is used for Public Parks*

(*Grantwood & Timberlake not included)

Source: City of Solon & Trust for Public Land

The National Median is **15%**

Source: Trust for Public Land
MAP 33: PARKS & OPENSPACE

- Metroparks
- City Park
- Other Openspace

Source: County Planning
Environmental Features

The City of Solon is located in the southeastern portion of Cuyahoga County and has a number of topographical and environmental challenges. While a large portion of central Solon has few areas with steep slopes (>12%) or large water features, the southeastern portion of the community has significant wetlands, streams, and riparian corridors. These types of environmental features can pose challenges to development, which in turn can have adverse effects on the environment. The City of Solon is also located within a number of watersheds, including the Tinkers Creek Watershed and the Chagrin River Watershed. These prominent watersheds have an impact on water quality as stormwater and runoff enter nearby streams and ultimately into Lake Erie.
MAP 34: ENVIRONMENTAL FEATURES

- Metroparks
- City Park
- Other Openspace
- Major Water Features
- 100 Year Floodplain
- Wetlands
- Riparian Buffer
- Watershed Boundary
- Contours / Steep Slope
- Elevation Points

Source: County Planning
Land Cover

The City of Solon is a well-treed community with an ample and leafy canopy. When viewed from above, 77% of the community is covered by trees, shrubs, or grass, 1% is covered by above ground water features, and an additional 1% is covered by bare land. The remaining 21% of land is covered by impervious surfaces, such as buildings, roads, and surface parking lots.

The area of impervious surfaces within a community can have a direct impact on water quality, erosion, bank failures, and flooding. As seen in the images to the right, the City of Solon falls closest to the 10-20% impervious surfaces model. In this situation during a heavy rain event, 38% of the water re-enters the atmosphere through evapotranspiration, 21% enters the ground through shallow infiltration, and an additional 21% of water enters the ground through deep infiltration. The remaining 20% of water then becomes surface runoff.

As more and more impervious surfaces are added, less water can be absorbed naturally and as a result there is an increase in surface runoff. This has the potential to overwhelm storm sewers, especially during heavy rain events, and can cause community-wide flooding. It is important to strike a balance between development and preserved greenspaces to help offset the need for efficient and environmentally friendly drainage solutions.

**FIGURE 24: SURFACE IMPACT ON STORMWATER**

Source: FSIRWG
MAP 35: LAND COVER

Source: County Planning

US Route 422
CEI Corridor
Tree Canopy Cover

The City of Solon ranks 20th out of Cuyahoga County’s 59 municipalities in terms of tree canopy coverage. From 2011 to 2017, Solon lost roughly 1% of its tree canopy, and reduced the total coverage from 41% coverage down to 40%. The majority of the City’s most dense tree canopy coverage can be found in residential areas, Grantwood Golf Course, and the Cleveland Metroparks. The lowest concentrations of tree canopy coverage is located within the City’s downtown area and industrialized areas just to the west of downtown Solon.

Less tree canopy coverage and more impervious surfaces (especially surface parking lots) can create a “heat island” effect. A heat island occurs in large, developed areas. On a hot, sunny day, the sun can heat dry, exposed impervious surfaces, such as roofs and pavement, to temperatures 50–90°F above air temperatures, while shaded or moist surfaces remain close to air temperatures. Dark colored buildings materials like brick, asphalt, and steel absorb and trap heat, which can compound the heat island effect. Many urbanized areas are exploring new techniques to combat the heat island effect by planting more trees, using lighter colored building finishes, and installing pervious surfaces to help naturally absorb and retain water. The City of Solon has about 38% of its land coverage that could be re-purposed for planting areas for additional trees as a means to help increase its canopy coverage and reduce the heat island effect in industrialized areas.
MAP 36: TREE CANOPY COVER

Source: County Planning
**Streetscapes**

While the City of Solon has 40% tree canopy coverage, the vast majority of the community’s road rights-of-way typically have less than 20% coverage. The streets with the highest tree canopy coverage are located within newer, residential subdivisions, such as the southeastern portion of the community near the Grantwood Golf Course. Additionally, older, more established neighborhoods just to the north and south of the downtown area also have a higher concentration of trees within their rights-of-way as these trees have had decades to mature and grow.

“Put street trees almost anywhere, there is no better use of public funds”  
- Jeff Speck, Walkable City Rules

**FIGURE 27: ROW AS % LAND AREA**

13% of the County’s land area is public Right-of-way  
Source: County Planning

**FIGURE 28: COUNTY ROW TREE CANOPY DATA**

- 15% County Avg.  
- 16% Local Road  
- 10% Highway  
- 23% more ROW space for trees  

Source: County Planning
MAP 37: TREE CANOPY IN RIGHT-OF-WAY

Source: County Planning
Roadway Network

The City of Solon has a number of roadway types that move vehicles throughout the community. Given the use of cars and trucks to transport goods, link to services, and commute to jobs in Solon, access to highways can be an important metric for current and future residents, business, and users. Solon is well positioned in terms of highway access. The construction of US 422 combined with other highway projects within the I-271 corridor has given Solon more high-speed access to Cleveland and other locations north, south, east, and west. With two interchanges located within its borders, the City is only 30 minutes from various regional amenities including Downtown Cleveland and Hopkins International Airport.

The Northeast Ohio Areawide Coordinating Agency (NOACA) classifies streets throughout our local five-county region into seven Functional Classes from FC1 Interstate Highways to FC7 Local Roads. Functional Classes are used as a management tool in transportation planning. SOM Center Road and a portion of Aurora Road are Principal Arterial roadways and are considered larger and faster roadways on which to move more cars, and with a strict focus on mobility. Smaller, slower roadways focus on land access, such as shopping. Solon has numerous arterial and collector roadways, which need a careful balance between both mobility and land access.

Figure 29: Typical Road Hierarchy in US

During this Period drivers travel delays increased 84% & The areas population grew 0%

Freeway lane miles grew 28% from ’93 to ’17 in the Cleveland Metro
Source: Transportation for America

Figure 30: Proportion of Service

Source: FHWA
MAP 38: ROADWAY NETWORK

- Other Freeways
- Principal Arterial
- Minor Arterial
- Major Collector
- Local Road
- Number of Lanes

Source: NOACA
Traffic Counts

The City of Solon has tremendous access within the region. Aurora Road, SOM Center Road, and US 422 all bisect the community and help move thousands of vehicles every day. With an Annual Average Daily Traffic (AADT) count of 55,000 vehicles, US 422 is the most heavily trafficked roadway in Solon. However, the majority of this traffic is west of the SOM Center Road interchange. East of SOM Center Road, traffic counts drop off to roughly 33,000 vehicles per day. Additionally, there are high daily traffic counts on Aurora Road leading to the SOM Center Road interchange, and on Harper and Cochran Roads leading to the US 422 interchange. Traffic counts and Annual Average Daily Traffic are important metrics because they can help determine if volumes on roadways are low enough to support implementation of a road diet.

In Addition to Vehicles
Solon has Plenty of Truck Traffic

State Route 43 is a Federally Designated Truck Route
Source: ODOT

Road Diets are the reconfiguration of one or travel lanes to calm traffic and provide space for bicycle lanes, turn lanes, streetscapes, wider sidewalks, and other purposes. Road diets are pursued to make more efficient use of the roadway. Many streets have excess capacity as they were designed based on over-forecasted traffic volumes that were never realized due to incorrect estimation or unforeseen changes. Streets are also designed to accommodate peak intervals of traffic flow to relieve rush hour congestion but may fail to provide a safe and attractive environment during other portions of the day when traffic flow is less. The result is an expansive roadway environment that encourages high speeds and careless driving behavior and discourages other modes of transportation. A road diet can make a street more welcoming throughout the day for all users with minimum inconvenience during peak hours by making more efficient use of the excess capacity.
MAP 39: TRAFFIC COUNTS

Source: ODOT

- **< 10,000 AADT**
- **10,000 - 15,000**
- **15,000 - 20,000**
- **20,000 - 30,000**
- **> 30,000**

Truck Counts

- **< 10,000 AADT**
- **10,000 - 15,000**
- **15,000 - 20,000**
- **20,000 - 30,000**
- **> 30,000**

Truck Counts
Crashes

Crashes are a key component of transportation and connectivity, fewer crashes and less traffic can make streets feel safer for drivers and pedestrians. From 2017 to 2019 Solon recorded 1,597 total automobile accidents, with two fatalities. Of those accidents only 10 involved pedestrians and one included a bicyclist, equaling only .7% of the total crashes in the city during this time. The most common crash type in Solon was Rear-End accounting for 50% of all crashes in the City. Some of these common crash types (rear-end, left-turn, and side-swipe) can be potentially reduced with roadway designs including road diets in some sections. Route 43 (Aurora Road) and Route 91 (SOM Center) saw the most crashes in the city over this period. In fact, 42% of all crashes in the city occurred on these two roads. On SOM, street design may be a significant factor since most crashes occurred within the 4-lane 25mph speed zone. On Aurora Road, crashes might be the result of increased speeds, with the majority if incidents transpiring in 2-lane and 35mph zones. The impacts of speed can be seen not only in the severity of crashes but also in the frequency, occurring at almost a 2:1 ratio in comparison in 25mph marked streets.

**FIGURE 33: REDUCING CONFLICT WITH DESIGN**

- **REAR END - #1 Crash Type (50%)**
- **SIDE SWIPE - #2 Crash Type (12%)**
- **LEFT TURN - #4 Crash Type (8%)**
MAP 40: AUTOMOBILE CRASHES FROM 2017 - 2019
05.2

**Speed**

Solon is predominantly a community of neighborhoods; local streets have posted speed limits of 25 mph, while collector roadways are posted at 35 mph. School zones are concentrated just south of the downtown area, with the exception of Lewis Elementary School on Cannon Road. The Cleveland Metroparks has a large section of Hawthorn Parkway in the northwest portion of the City with a posted speed limit of 30 mph. The fastest roadway within the community is US 422, which can see speeds far exceeding the posted speed limit of 55 mph.

Speed is an important factor because the faster a vehicle is traveling, the smaller the driver’s field of vision becomes. Additionally, the faster someone is driving, the less likely a pedestrian would survive a collision. Lower speed limits reduce the distance it takes to stop a vehicle and increases the overall field of vision for the driver.

**FIGURE 34: WHY SPEED MATTERS**

- When a person is driving at 20 MPH:
  - this is their field of vision:
  - it takes 45 ft to STOP:
  - pedestrians hit at this speed have a 95% survival rate

- When a person is driving at 30 MPH:
  - this is their field of vision:
  - it takes 85 ft to STOP:
  - pedestrians hit at this speed have a 55% survival rate

- When a person is driving at 40 MPH:
  - this is their field of vision:
  - it takes 145 ft to STOP:
  - pedestrians hit at this speed have a 15% survival rate

Source: County Planning; Virginia Safe Routes to Schools, Virginia DOT
Commute Patterns

The vast majority of Solon residents commute to work by driving alone and over 39% of those workers travel less than 10 miles to their place of employment. In 2017, there were nearly 10,000 residents that commuted out of the City for their jobs on a daily basis, while 1,729 resident both lived and worked in Solon. However, over 25,000 workers entered the community on a daily basis for their jobs. With a total population around 23,000 residents, Solon’s daytime population more than doubles as workers enter the community. Additionally, the largest portion of Solon’s workforce live in the City of Cleveland (8.8%), but the second largest place that workers live is the City of Solon itself—with 6.5% of the workforce living within the community. The majority of these workers that live in Solon are concentrated just to the southwest of the downtown and east of the industrialized area, which has one of the highest concentration of jobs in the City.

**FIGURE 35: INFLOW VS. OUTFLOW PATTERNS**

<table>
<thead>
<tr>
<th>Lives outside the City, works in Solon</th>
<th>Lives in Solon works outside the City</th>
</tr>
</thead>
<tbody>
<tr>
<td>25,010</td>
<td>9,889</td>
</tr>
</tbody>
</table>

**FIGURE 36: TOP PLACES WHERE WORKERS LIVE**

- Cleveland: 8.8%
- Twinsburg: 6.5%
- Solon: 3.3%
- Aurora: 2.3%
- Garfield: 2.2%
- Maple Hts.: 2.1%
- Bedford: 1.7%

All Other Locations = 66%

Source: US Census Bureau - On the Map, 2017
MAP 42: HOME LOCATION & TRAVEL DIRECTION FOR WORKERS WHO TRAVEL <10 MILES

Source: US Census Bureau - On the Map, 2017
Transit

The City of Solon has access to one of the most well-used Greater Cleveland Regional Transit Authority (GCRTA) routes within the region. Bus Routes 41 and 41F connect the communities of East Cleveland, Shaker Heights, and Warrensville Heights, to Bedford, Solon, and Glenwillow. The 41 and 41F Routes provide direct access to dozens of other RTA Bus Routes as well as the Rapid through the Southgate Transit Center, Warrensville-Van Aken Rapid Station, and the Louis Stokes-Windermere Rapid Station in East Cleveland. In the City of Solon, these routes directly serve the community’s industrial core. A number of the City’s largest employers, such as Swagelok and Nestle, are located directly on this line with easy access for those employees who utilize public transit.

MAP 43: RTA 41 & 41F

>80% of workers who use Public Transit have Access to 0 or 1 Vehicles
Source: US Census Bureau - ACS, 2018

Only 2 Companies take part in RTA’s Commuter Advantage Program
Source: RTA

<1% Residents Commute via Public Transit
Source: US Census Bureau - ACS, 2018

MAP 43: RTA 41 & 41F

1,164,613 riders in 2019
Source: RTA

4th Ranked Route in RTA Network

Source: RTA
MAP 44: TRANSIT ROUTES & ALL BUSINESSES WITH >100 EMPLOYEES

Source: RTA & City of Solon
### Bike & Trail Network

The City of Solon has immense potential for becoming a key nexus for bicycle travel. While 54% of existing trails within the community are located along Hawthorn Parkway within the Cleveland Metroparks, there are nearly 15 miles of proposed trails that would connect residents to an expansive regional network. Additionally, there is a Cuyahoga Greenways Critical Gap located just to the west of Solon, along the border of Oakwood and Glenwillow. This small trail section is roughly a quarter mile in length and would provide users access to hundreds of miles of trails within northeast Ohio and beyond.

In addition to all-purpose trails, the City of Solon also has nearly 10 miles of bike lanes within the community. These bike lanes can be found along Aurora, Bainbridge, Liberty, Brainard, and Harper Roads. These ultimately connect to both all-purpose trails and bicycle friendly roadways in immediately adjacent communities.

![Figure 37: Miles of Trails & Bike Lanes](image)

*Source: County Planning / NOACA*
MAP 45: BIKE & TRAIL NETWORK

Existing Bike Lane
Existing Multi-Use Path
Existing Trail (Hike)

Proposed Bike Lane
Proposed Multi-Use Path
Noteworthy Proposed Multi-Use Path Links

CGW CRITICAL GAP
SOLON TO CHAGRIN TRAIL
Sidewalks

Many of the residential subdivisions within the City of Solon have sidewalks available on both sides of the street. However, many of these neighborhoods are isolated from each other and sidewalks are limited outside of residential areas. Main thoroughfares, such as Aurora, Solon, Cannon, and SOM Center Roads are key connectors into and out of the community but have a largely incomplete sidewalk facilities. Small sections of these roadways do have sidewalks on both sides, but primarily do not have sidewalks on either side of the street or just one side. Additionally, Hawthorn Parkway is a key recreational asset within the community. However, the majority of roadways that cross its path do not have sidewalks to get users safely from their homes onto the trail.

**FIGURE 38: MILES OF SIDEWALKS IN SOLON**

- No Sidewalk: 42.8 Miles (14%)
- Sidewalk - 2 Sides: 80.7 Miles (56%)
- Sidewalk 1 Side: 20.5 Miles (30%)

Source: County Planning
MAP 46: SIDEWALKS

Source: County Planning
MAP 47: ENTERTAINMENT ACCESS: 10 MINUTE WALK TO & AROUND DOWNTOWN SOLON

- No Sidewalk
- Sidewalk - One Side
- Sidewalk Both Sides

10 Minute Walk (1/2 Mile)
10 Minute Bike Ride
Downtown Access
Points / Destinations
MAP 48: TRANSIT ACCESS: 5 MINUTE WALK FROM STOPS

Larger circles indicate more jobs.
Survey #1 Results

756 total number of survey respondents

How old are respondents?

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>65+</td>
<td>17%</td>
</tr>
<tr>
<td>56-64</td>
<td>18%</td>
</tr>
<tr>
<td>46-55</td>
<td>26%</td>
</tr>
<tr>
<td>36-45</td>
<td>24%</td>
</tr>
<tr>
<td>26-35</td>
<td>12%</td>
</tr>
<tr>
<td>16-25</td>
<td>1%</td>
</tr>
</tbody>
</table>

Where do they live?

- NW: 22%
- NE: 25%
- SE: 29%
- SW: 19%

*5% said they do not live in Solon

How long have they lived there?

- <5 Years: 17%
- 6-10 Years: 23%
- 11-20 Years: 40%
- >20 Years: 15%
USE **ONE WORD** TO DESCRIBE WALKING/BIKING IN SOLON?
05.4

HOW OFTEN DO YOU CHOOSE THE FOLLOWING TRANSPORTATION OPTIONS IN SOLON?

COMPARED TO PREVIOUS YEARS, WOULD YOU SAY THAT YOU ARE NOW?
PLEASE INDICATE YOUR PRIORITY FOR THE FOLLOWING IMPROVEMENTS IN THE CITY OF SOLON?

PRIMARY PURPOSES FOR WALKING & BIKING?

Health & Exercise, 91%
Recreation & Pleasure, 69%
Shopping, Entertainment, & Errands, 27%
Commute to work/school, 8%
Choose not to walk/bike, 8%
RTA Bus, 1%
05.4

**REASONS FOR *NOT* WALKING & BIKING?**

- **65%** Safety concerns
- **36%** Weather conditions
- **31%** Unpleasant experience or inadequate facilities
- **17%** Don’t need to/want to (prefer to drive)

**REASONS FOR FEELING **UNSAFE**?**

- **65%** Poor infrastructure
- **48%** Cars too fast or roads too busy
- **40%** Safety at intersections
- **21%** Do not feel unsafe

---

**WHAT TYPES OF **CHANGES OR FACILITIES** YOU WANT TO SEE IN SOLON?**

- **75%** Multi-use paths and trails
- **63%** Add or improve sidewalks
- **57%** Add bike lanes or paths
- **57%** Pedestrian friendly developments
- **50%** Add more amenities
- **40%** Add or improve crosswalks
DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS?

“I can easily access destinations without the use of a car”
- 70% disagree

“I feel safe letting my child(ren) walk or bike to school”
- 55% disagree

“It is important Solon focus on being a bike/pedestrian friendly community”
- 77% agree

“I support longer car trips if roads were safer and more pedestrian friendly”
- 64% agree

“I am satisfied with Solon’s existing facilities for walking and bicycling as an alternative transportation choice”
- 74% disagree

If Solon added sidewalks, trails, and bike lanes I (or my family) would walk & bike more in the community.
- 70% agree

IF NEW FACILITIES WERE ADDED HOW FAR/LONG WOULD YOU BE WILLING TO WALK OR BIKE?

A few blocks - 3%
1/2 mile or less - 4%
1/2 mile to 1 mile - 14%
1 mile to 2 miles - 29%
2 miles or more - 41%
5% wouldn’t walk/bike - 4% might go even farther
05.4 Survey #2 & Online Map Results

225 total number of survey respondents

“Do you have access to a facility directly from your home/office?”

- Yes 64.5%
- No 35.5%

“IIf you had limited access to an car would significantly impact your quality of life in Solon?”

- Yes 82.7%
- No 17.3%

“Do the facilities available provide you with access to destinations?”

- Yes 41.6%
- No 58.4%
USE ONE WORD YOU WOULD LIKE TO SEE USED TO DESCRIBE WALKING AND BIKING IN THE FUTURE?
HAPPY WITH THE EXISTING FACILITIES AVAILABLE THROUGHOUT SOLON?

60% Unhappy

17% Happy

Very Unhappy - 22%
Unhappy - 32%
Neutral - 23%
Happy - 11%
Very Happy - 6%

COMFORTABLE USING THE EXISTING FACILITIES AVAILABLE TO REACH DESTINATIONS?

57% Uncomfortable

18% Comfortable

Very Uncomfortable - 22%
Uncomfortable - 35%
Neutral - 25%
Comfortable - 9%
Very Happy - 9%

WHAT TYPE OF IMPROVEMENTS DO YOU THINK THIS PLAN SHOULD IMPLEMENT?

82%

66%

Multi-use paths and trails

Add or improve sidewalks

62%

Add bike lanes or paths

60%

Walkable developments

32%

Bicycle Parking

29%

Traffic Calming

29%

Crosswalks
IN THE PAST 5-10 YEARS WALKING AND BIKING INFRASTRUCTURE IN SOLON HAS?

59% Stayed the Same

- Stayed the Same - 59%
- Improved - 19%
- Gotten Worse - 13%
- Don't Know - 9%

HOW QUICKLY SHOULD SOLON BEGIN WORK ON RECOMMENDED CONNECTIVITY IMPROVEMENTS?

74% Connectivity is Very Important

- Near-term: 74%
  Connectivity is Very Important
- Medium-term: 19%
  Important, But I have Other Concerns
- Long-term: 9%
  Not Important At All

WHICH TYPE OF FACILITY WOULD YOU BE COMFORTABLE USING?

89%

- Multi-use paths and trails

50%

- Buffered / Protected Bike Lanes

47%

- Bike Lanes

10%

- No Bike Lanes
  (Share Road)
Multi-use paths and trails
Add or improve sidewalks
Add bike lanes or paths
Pedestrian friendly developments
Add more amenities
Add or improve crosswalks

MAP 49: CITIZEN COMMENTS MAP

Larger Circles Indicate More Votes for Comment

Great Places
Connection Opportunity
Connection Challenge
Survey #3 & Online Map Results

220 total number of survey respondents

“How has COVID-19 impacted your walking and/or biking habits?”

“What type of trip do you normally take walking or biking?”

- 41% SAME amount of walking & biking
- 54% MORE walking & biking
- 1% 3%Other

- 54% Exercise or Health
- 31% Recreation or leisure
- 25% Work or School
- 6% Other
05.4

HOW IMPORTANT IS THE DEVELOPMENT OF A COMPLETE STREETS POLICY?

55% Street Safety is Important for all Users

- Very Important - 55%
- Important - 30%
- Neutral - 11%
- Not Important - 6%

HOW IMPORTANT IS IT FOR SOLON TO FILL GAPS IN THE EXISTING SIDEWALK NETWORK?

49% Sidewalks Need Improvement

- Very Important - 49%
- Important - 32%
- Neutral - 15%
- Not Important - 4%

HOW IMPORTANT IS IT FOR SOLON TO IMPLEMENT A SAFE ROUTES TO SCHOOL PROGRAM?

81% Safe Routes to School is Important

SafeRoutes

- Not Important
- Slightly Important
- Neutral
- Important
- Very Important

- 81% Important
“Would you like increased access to existing and new trails from your neighborhood?”

- Yes: 80%
- No: 10%
- Need more info: 10%

“Which facility would be the MOST HELPFUL approach to improve connectivity in Solon?”

- Adding Trails: 47%
- Adding Sidepaths: 22%
- Adding Sidewalks: 10%
- Adding Bike Blvds: 9%
- Nothing: 3%
- Need more info: 4%

HOW IMPORTANT IS THE ADDITION OF SECONDARY LINKAGES AND NEW MULTI-USE TRAILS?

67% Trails are Very Important

PICK ONE POSSIBLE WALKING OR BIKING PROJECT TO BE IMPLEMENTED NOW WOULD IT BE?

- Addition of Bike Paths: 20%
- Addition of Paths/Trails: 18%
- Add or improve sidewalks: 14%
- 25% said start the Rails to Trails program: 23%
- 43% of people want trails: 21%
- All other responses: 22%
05.4

WHICH RECOMMENDATION WOULD BE THE MOST HELPFUL APPROACH TO IMPROVE CONNECTIVITY?

**40% Think Safety is Important**

- Improving safety: 40.7%
- Adding amenities: 18.6%
- Creating walking & biking events: 27.91%
- Walkable buildings & developments: 8.14%
- Creating a Safe Routes to School Program: 2.33%

HOW IMPORTANT IS IT TO REDUCE SPEED LIMITS ON STREETS TO INCREASE SAFETY AND LIVABILITY?

**Traffic Calming Measures are Divided**

- Not Important: 65%
- Slightly Important: 17%
- Neutral: 5%
- Important: 5%
- Very Important: 1%
HOW IMPORTANT IS IT FOR SOLON TO INSTALL BIKE BOULEVARDS ON ROADWAYS?

69% Bike Boulevards are Important

HOW IMPORTANT DO YOU THINK IT IS FOR SOLON TO CREATE A BIKE/PEDESTRIAN ADVISORY GROUP?

68% Bike/Pedestrian Advocacy is Important
MAP 50: CITIZEN COMMENTS MAP

- Norfolk Southern Rail to Trail
- Solon to Chagrin Trail
- Solon Rd Sidewalk
- CEP Powerline Trail
- Harper Rd Sidewalk
- Liberty Rd Sidewalk
- Walkable Downtown Master Plan
- Bike Blvd B
- Cannon Rd Sidewalk
- New Bus Shelters
- Bike Blvd A
- Bike Blvd C
- Baintridge Rd Sidewalk