

# Chardon Bikeway & Pedestrian System Plan

February 26, 2010



Prepared by:



in association with: **URS**



# TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	ii
<b>I. SYSTEM FIRST PRIORITIES AND IMPLEMENTATION .....</b>	<b>1</b>
A. INTRODUCTION .....	1
<i>Purposes of the Plan</i> .....	1
<i>The Vision</i> .....	1
<i>Methodology</i> .....	1
B. SYSTEM PRIORITIES .....	2
C. IMPLEMENTATION.....	5
<b>II. BACKGROUND.....</b>	<b>7</b>
A. RESEARCH FINDINGS AND EXISTING CONDITIONS .....	7
<i>Types of Bikeway Facilities and Related Terminology</i> .....	7
<i>Types of Users</i> .....	7
<i>Minimum Design Standards</i> .....	8
<i>Facility Usage Studies</i> .....	8
<i>Impact of Bikeways – Summary of Research</i> .....	9
<i>Review of Prior Concepts</i> .....	9
<i>Existing Bikeways and Sidewalks</i> .....	10
B. FUNDAMENTAL PRINCIPLES .....	12
<i>Target Users and Trip Purposes</i> .....	12
<i>Primary Origins and Destinations</i> .....	12
<i>System Hierarchy</i> .....	16
<i>Cost Considerations</i> .....	16
<b>III. LONG-TERM POSSIBILITIES .....</b>	<b>17</b>
A. POSSIBILITIES - BIKEWAY .....	17
<i>Location Clusters</i> .....	17
<i>Principles for Potential Bikeway Route Identification</i> .....	19
<i>Design Guidelines</i> .....	20
<i>Supplemental Considerations to Complement the Bikeway System</i> .....	21
B. POSSIBILITIES – PEDESTRIAN SYSTEM PLAN .....	22
<i>Pedestrian System Evaluation</i> .....	22
<i>System Rationale</i> .....	23
<b>APPENDIX .....</b>	<b>27</b>
MAPLE HIGHLANDS TRAIL CONNECTION DETAILS.....	28
ORIGIN DESTINATION MAPS.....	40
SUMMARY OF FOCUS GROUP MEETINGS .....	43
SUMMARY OF PUBLIC FORUM .....	49
REFERENCES.....	50

## ACKNOWLEDGEMENTS

### **City Council**

---

Karen Simpson, Mayor  
Philip King, Vice Mayor  
Leslie Bednar  
Mary Bramstedt  
Jefferey Campbell, Jr.  
Robert Cromwell  
Deborah Reiter

### **Planning Commission**

---

Kenneth Miller, Chairman  
Philip King, Vice Chairman  
Leslie Bednar  
Andrew Blackley  
Gary Hanlon  
Nancy McArthur  
William Niehus  
Mary Jo Stark

### **Focus Group**

---

Samantha Bailo	Bridget Mullaly
Isabelle Bremer	Ken Ovark
David Callahan	Paul Ovark
David Combs	Dennis Pavella
Hector Diaz-Stringel	Gina Piotrkowski
Asha Dinko	Bob Ryan
Deborah Dyer	Sue Schade
Joe Farinacci	Justin Simons
Adrian Gorton	Adam Sopenski
Cindi Hido	Mary Jo Stark
Tim Kempfer	Rick Stark
Jim Knapp	Jean Strojan
James Kriz	Eric Stropkay
Kelley McArthur	Ted Theofrastous
Dan Meleski	

---

# I. SYSTEM FIRST PRIORITIES AND IMPLEMENTATION

---

## A. Introduction

### Purposes of the Plan

The fundamental or “overarching” goal in Chardon’s updated Comprehensive Plan (adopted in 2008) is to ***Maintain and enhance Chardon as a “Complete Small Town,” clearly defined, economically viable, self sustaining, and commensurate with the community’s existing image of itself.*** To fulfill this goal, the community anticipates a mix of uses (housing, commercial, and industrial) and a wide range of supporting community facilities. To this end, the Plan states that Chardon is to establish ***a comprehensive system of pedestrian and bicycle circulation that provides alternatives to vehicular traffic, direct and convenient access to Chardon Square and other prominent destinations, and recreational opportunities.*** The Comprehensive Plan illustrated a concept of how this pedestrian and bicycle system might be achieved throughout the City.

The Transportation for Livable Communities Initiative (TLCI) grant enabled the further development of the concepts included in the comprehensive plan into this long-range Bikeway and Pedestrian System Plan – a system that links non-vehicular trails and sidewalks that will connect the greatest number of Chardon residents, to the most destinations, along the shortest and most direct routes, in the safest and most amenable manner possible.

### The Vision

This Plan envisions a bikeway and pedestrian system that provides Chardon residents and visitors an attractive and convenient alternative to driving to various destinations within the City, enhances opportunities for recreation, and has a positive impact on the community and nearby properties. Additionally, this system will:

- **Improve the quality of life of the residents and employees.** Just as biking and walking benefit the physical and mental wellness of an individual, a bikeway and sidewalk system, benefits the health of a community – its residents and employees, by providing opportunities and access to bikeway and pedestrian facilities that enable the maintenance of healthy lifestyles.
- **Stimulate economic growth within the City.** During a public forum, as this Plan was developed, one person aptly commented that *if you provide convenient and safe trails into the city there is a greater chance we’ll spend money while we’re there.*

### Methodology

The process began with the review of relevant background information (Section II.A) related to bikeway and pedestrian systems using a variety of sources listed in the References section of the Appendix. Prior concepts for a bikeway system were also reviewed and the existing non-motor vehicular system, documented.

A set of fundamental principles (Section II.B) related to the type of user and the purpose of the bike trip and established standards of “comfortable” biking and walking distances guided the de-

termination of primary corridors (for the bikeway system) and primary service area (for the pedestrian system).

After identifying the primary corridors, each corridor was evaluated to develop the bikeway system (Section III.A). Concurrently, the existing and needed sidewalks for improving the pedestrian system (Section III.B) were evaluated based on the inventory of the network and the service area it falls within and developed at two levels – basic and priority.

The Joint Committee consisting of members from Planning Commission and City Council reviewed the Plan at regular intervals and sought input from the community at large. Two focus group meetings and a Public Forum were held to enable residents to voice any concerns related to the proposed Plan.

## **B. System Priorities**

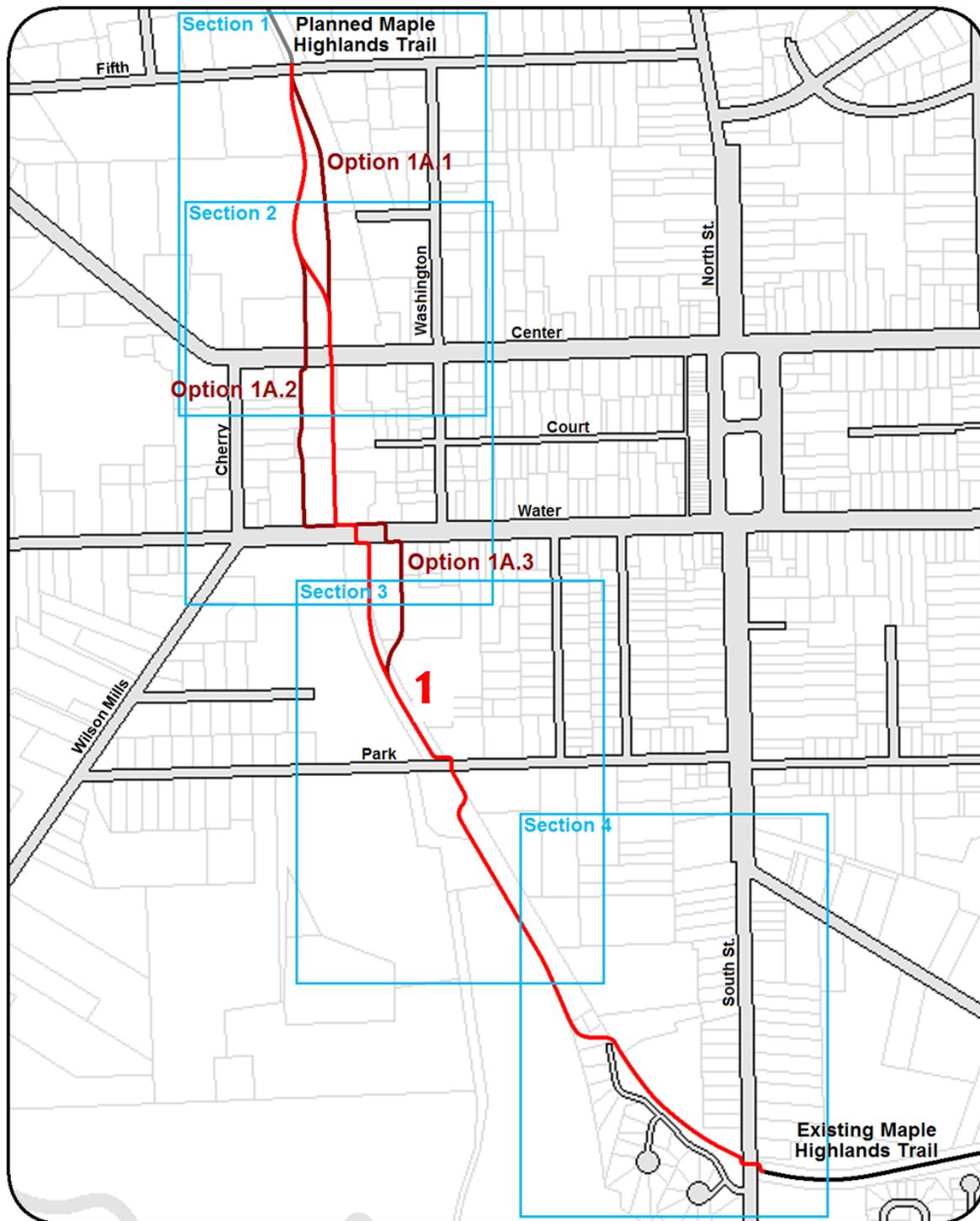
City Council has determined, based on the feedback received from the members of the Joint Committee, focus group, and the public forum that there are two (2) equally important first priorities.

1. **The bikeway connection between the existing Maple Highlands Trail** north and south termini comprising approximately 7,000 lineal feet. Three options for different portions along the alignment are indicated on Map 1. This alignment is also identified as Corridor 1 in Section III.A. Table A-1 in the Appendix has the summary of the details associated with the alignment and options, such as the length of each bikeway facility, grade, area required for acquisition, and street and driveway crossings.

Tables A-2 to A-5 provide additional details of the alignment and segment options related to land use and surrounding ownership. Maps A-1 to A-4 show these details in different sections (as indicated on Map 1) of the alignment on an aerial photo. Realistic representation of the alignment with respect to surrounding uses and placement of the trail within the right-of-way are in Maps A-5, A-6 and Illustration A-1.

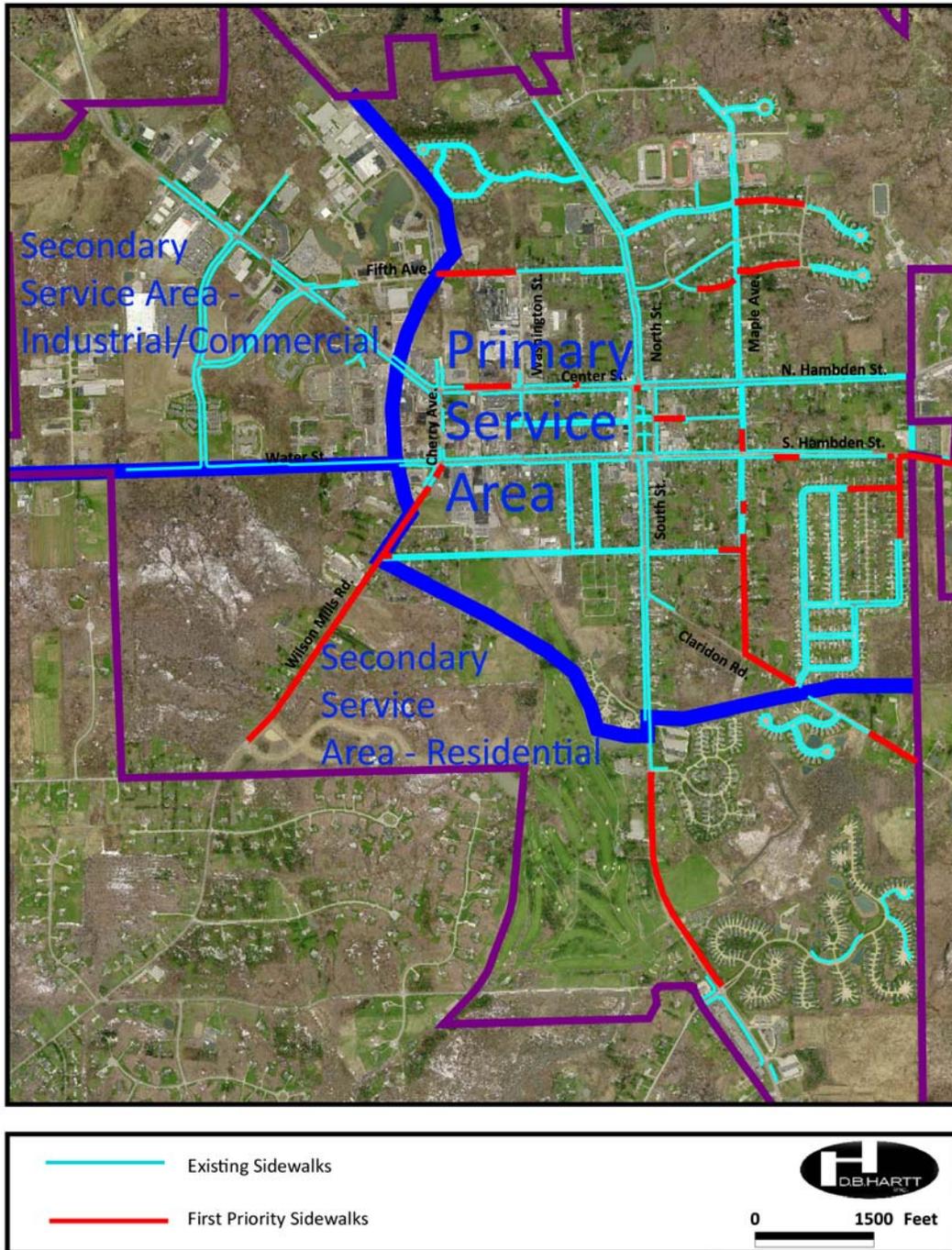
This is a planning and not engineering evaluation. Therefore, the appropriateness and suitability of the specific alignment of the above priority bike trail will need to be more fully investigated and/or confirmed at the time the City proceeds to implementation and engineering stage.

Map 1 - Maple Highlands Trail Connection



2. The **priority sidewalk improvements within all residential areas** (within Primary Service Area and residential portion of the Secondary Service Area identified on Map 2) which comprise 15,900 linear feet of new sidewalk (See Table 3 for details). This would provide: sidewalks on one side of streets that represent the “shortest” route to a destination from the edge of the residential area, sidewalks on both sides of all arterial streets in residential areas, and sidewalks from residential areas to the Maple Highlands Trail.

**Map 2 – Priority Sidewalk Improvements**



## C. Implementation

The City believes that the Plan's implementation is both valuable and important to the community. It also recognizes, however, that this is an ambitious Plan, which is more costly than the City can afford – even to complete the priority items listed above. Therefore, there are several steps that the City will take to facilitate short-term implementation:

- Aggressively seek outside funding - foundations, and /or federal or state programs;
- Evaluate if portions of this Plan can be incorporated into related capital improvements (i.e. road or park improvements) that the City is undertaking.
- Work with property owners, and provide development incentives as appropriate, so that portions of the system could be constructed with private funds, perhaps as part of a development project.

As an interim measure, “bike trail” signs could be installed to direct bikers from the residential areas to the Maple Highlands Trail. These signs could direct riders to the existing Maple Highlands Trail, or the completed trail through the City, depending on when the City intends to install such interim signs. This Plan, however, has not evaluated the appropriate locations for such signs.

As implementation of this Plan proceeds, the City Council is committed to protecting individual property rights. Toward this end, it is the Council's intention to only use private property (for any portion of this system) with the cooperation and acceptance of the affected property owners.

This page has been intentionally left blank.

---

## II. BACKGROUND

---

### A. Research Findings and Existing Conditions

The background information in this Section represents the framework that has guided the development of this Plan by establishing common terminology, identifying minimum preferred and required standards, summarizing results of research related to facility type usage and bikeway impact on communities, and exploring previously considered concepts.

#### Types of Bikeway Facilities and Related Terminology

This study utilizes standard terminology for bikeway facilities that has been well established at both the national and state levels (American Association of State Highway and Transportation Officials (AASHTO) and Ohio Department of Transportation (ODOT)). For the purposes of this Plan, the terminology was broadened to include the following basic facilities:

**Off-Road Trails (Cross-country).** Trails and paths intended for both pedestrian and bicycle use at the same time;

- Shared Use Path. Shared use cross-country trails following their own routes independent of roadways.

**Sidepaths.** Shared use paths built parallel with roadways, usually within the right-of-way;

**Bike Lanes.** Striped lanes restricted to bicycle use along both sides of paved roadways;

- Wide Curb Lanes. Part of vehicular lanes widened to allow safer shared use with bicyclists.
- Paved Shoulders. Uniform pavement shoulders suitable for bicycle use but not designated as bike lanes.

**Signed Roadways.** Normal roadways with signage for shared use with vehicles.

#### Types of Users

There are three general categories of user types established by the Federal Highway Administration – Advanced, Basic, and Children (ABC). These have been broadened to two basic categories for the purpose of this Plan.

**Advanced or experienced bicyclists (A).** Users sharing the roadway with motor vehicles and ride for convenience and prefer directness to destinations.

**Intermediate bicyclist.** Users that are comfortable using a



Shared Use Path



Sidepath – at street crossing



Signed Roadway



Bike Lane

bikeway facility separated from vehicular traffic and will use the system if it promotes recreation while functioning as an alternative to driving to local destinations.

- Basic or less confident adult riders (B). Users comfortable riding on neighborhood streets with not much vehicular traffic and on shared use paths to get to the store or to visit friends. These users prefer to stay on bike-lanes or wide shoulders if on busier streets.
- Children, riding on their own or with their parents (C). Users that travel to destinations in their community, such as schools, convenience stores and recreational facilities on residential streets with low motor vehicle speeds and on shared use paths.

### **Minimum Design Standards**

Both AASHTO and ODOT publish minimum design standards for various trail types. It might be permissible to modify these standards for off road trails or sidepaths along local streets if the City finds it necessary. However, for the purposes of both approval and funding, sidepaths along state roads and any on-road provisions should comply with ODOT requirements. The following standards for paths and trails are considered within Chardon:

1. Width of shared use one-way off road trail or sidepath – 6 feet minimum.
2. Width of shared use two-way off road trail or sidepath – 8 feet minimum, 10 feet recommended.
3. Separation between sidepath and edge of roadway pavement – 5 feet minimum.
4. Width of bike lanes and paved shoulders – 4 feet, more if speed limit exceeds 50 mph.
5. Width of bike lanes if adjacent to on-street parking – 5 feet minimum.
6. Separation between paved shoulders and guard rails, curbs or other barriers – 5 feet minimum.
7. Combined width for bike travel and on-street parking – 12 feet minimum.
8. Width for shared curb lanes – 14 feet minimum, 15 feet recommended for steep grades or other impediments.
9. Vertical clearance – 8 feet minimum.
10. Inside turning radius – 36 feet recommended.
11. Grade – 5% maximum recommended, distance limitations for steeper grades.

### **Facility Usage Studies**

The United States Department of Transportation's National Highway Traffic Safety Administration and the Bureau of Transportation Statistics jointly sponsored a National Survey of Pedestrian and Bicyclist Attitudes and Behaviors. Among other results, it was found that the average bicycle trip was 3.9 miles, theoretically making the entire City of Chardon bike-able. It was also found that the average walk was 1.2 miles. Other sources, however, suggest that 1 kilometer (0.62 miles) is a "comfortable" distance, which may make a more realistic target for Chardon.

As expected, the most common purposes of bike trips were for recreation (26%) and exercise (24%), although another 14% were on personal errands and 10% visited friends or relatives. Only 5% said they took their bikes to work or to school. By far, the most common purpose for walkers was exercise (27%) followed by personal errands (17.5%) and recreation (15.5%). Again, only 5% said they walked to work or school.

Although the *types* of facilities used to walk or bike were also measured, the results almost certainly reflected what was available, rather than what would have been preferred. Thus, nearly half of the bikers rode on paved shoulders and only 13% used bike trails or pedestrian paths. Likewise, nearly half of walkers used sidewalks and another 33% walked on roads themselves (paved and unpaved).

**Impact of Bikeways – Summary of Research**

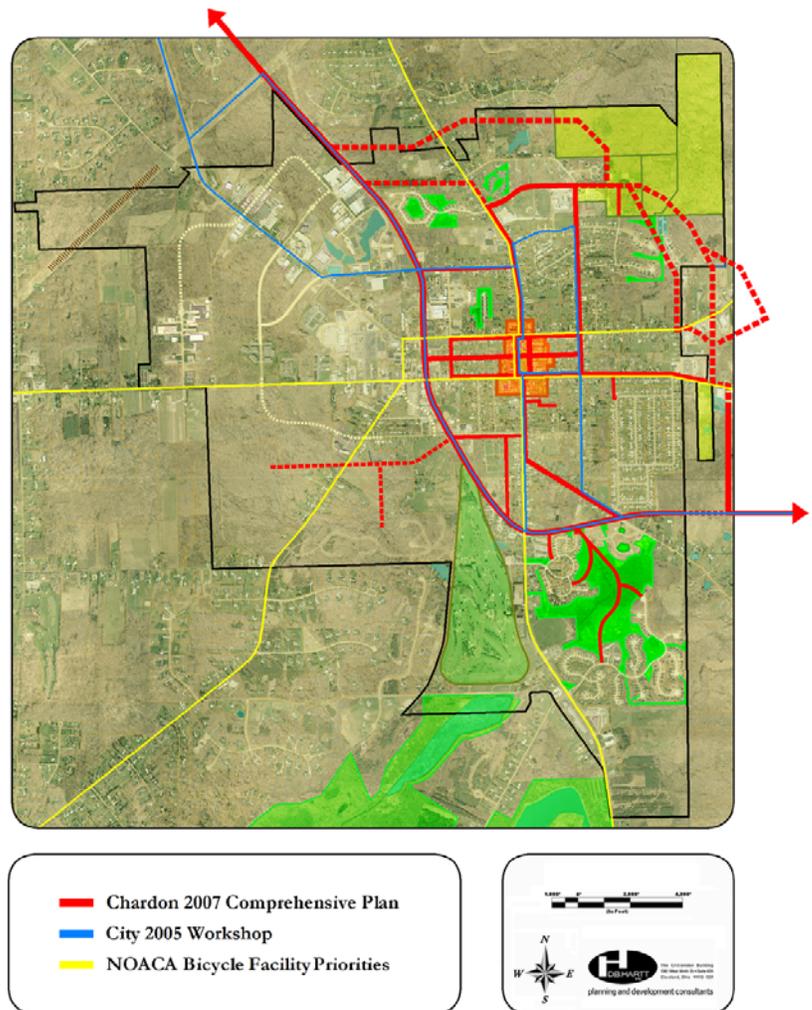
Six studies published by National Park Service, Rails to Trails Conservancy and National Trails Training Partnership were reviewed by the Consultants in researching the impact of trails on property values. Five of these surveyed property owners, real estate agents and developers in 12 communities nationwide for the impact of a trail on property value and quality of life. Rails to Trails Conservancy, which surveyed 372 trails nationwide, conducted one of the studies.

Based on the research, trails either have no effect or increase property value and positively influence the quality of life. There were no findings of adverse impact of trails on communities.

**Review of Prior Concepts**

This is not the first time a bike-way plan has been advocated for Chardon. Three prior plans discuss the conceptual routes (see Map 3).

In 2005, the National Center for Walking and Biking conducted a workshop in Chardon to discuss concepts for future bike routes within the City. The participants identified several trail corridors within Chardon (represented with blue colored lines) that they believed were worth considering as adjuncts to the Maple Highlands Trail. One segment suggested a connection between the existing termini of the Maple Highlands trail through the City, substantially along the abandoned railroad right-of-way. The other segments were shown along streets connecting the schools and Chardon Square to various other parts of the City.



Map 3 – Composite of Prior Trail Concepts

Also, the Northeast Ohio Area-wide Coordinating Agency (NOACA) maintains a Bicycle Facility Plan (represented with yellow colored lines) which in-

cludes priority bicycle routes on or beside the three major routes through Chardon: Water Street-South Hambden Street; Wilson Mills Road-Cherry Avenue-Center Street-North Hambden Street; and North Street-South Street. While the intended purposes of these route designations are not identical to this study's plan for predominantly internal circulation, the plan needs to consider how it does or does not coincide.

A condition of any state or federal funding of improvements along these priority roads requires, as a minimum, the provisions for bicycles along the improved sections. Generally, these are expected to be either signed roadways or designated bike lanes.

Finally, the 2007 Comprehensive Plan Update included a Conceptual Non-Vehicular Trails System Plan (represented with red colored lines).

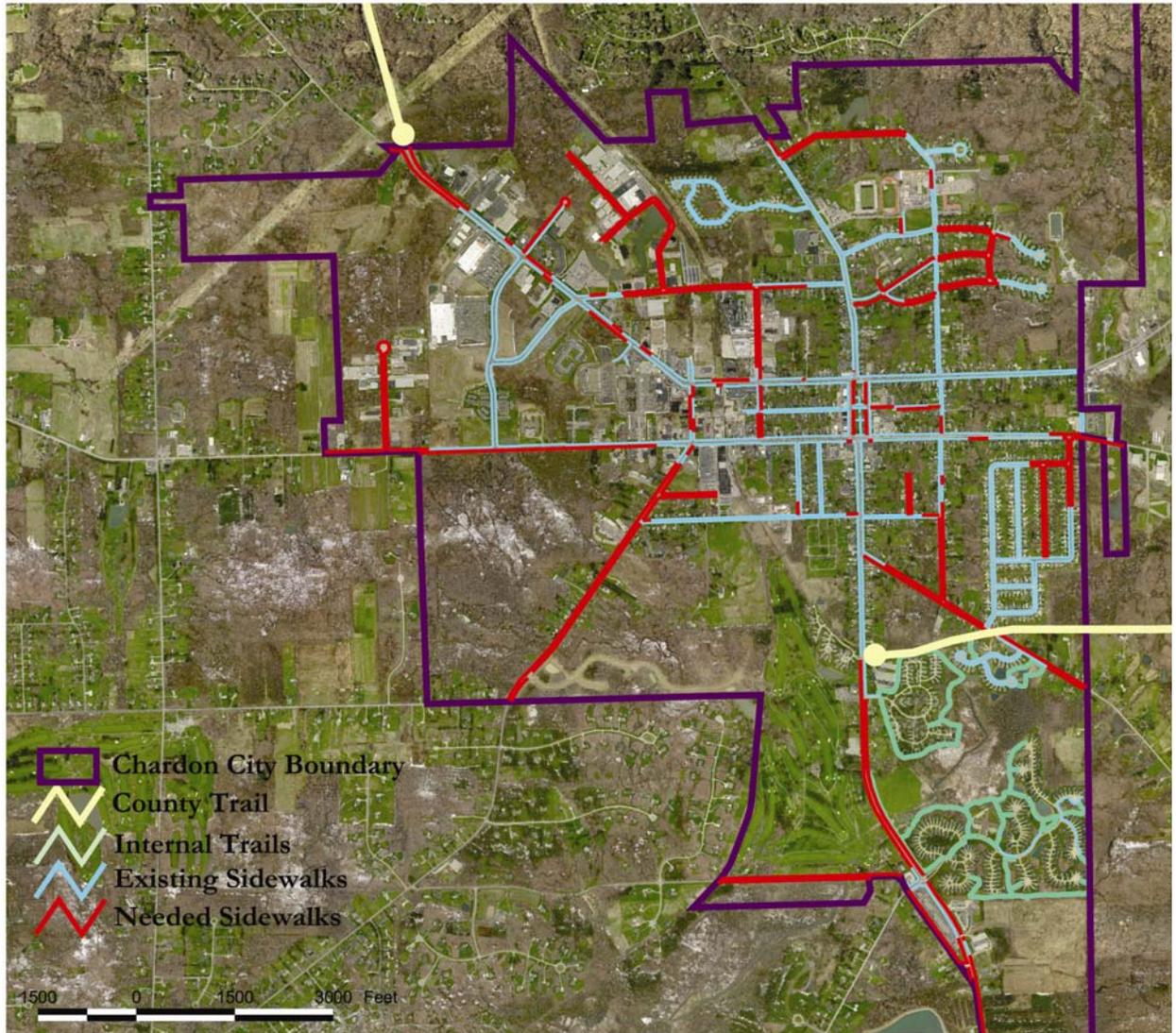
### ***Existing Bikeways and Sidewalks***

The Maple Highlands Trail, which is maintained by the Geauga County Park District, runs parallel to SR 44 in the northwestern portion of the Chardon Township and currently terminates at the Chardon City line along SR 44. It continues towards east into Hambden Township with the trailhead located east of South Street and across (slightly north) from Greenway Drive. Bicyclists access the two portions using SR 44; the northern portion is a signed roadway, and the southern portion has signs that direct bicyclists to the trail. These systems are however, used by "advanced" bicyclists.

The existing public sidewalks and private residential paths contribute to complete the non-vehicular trail system. While normally intended only for pedestrian use, sidewalks are still the most recognized and effective way for the "intermediate" bicyclist, including families, to get around where an off-street trail is not available.

An inventory determined current facilities available to assist with, or supplement, the proposed trail system. All public sidewalks existing in 2007 were identified and mapped using 2007 Geauga County aerial photographs. The existing and planned sections of the Maple Highlands Trail in and around Chardon were included, as well as the significant network of private trails already available to residents of the planned residential developments in the southeast corner of the City. Also highlighted are sides of streets where there are currently no sidewalks. See Map 4.

Map 4 – Existing Public and Private Trails and Public Sidewalk Inventory



## B. Fundamental Principles

### Target Users and Trip Purposes

The design of a bikeway system is predicated upon the type of user targeted – Advanced or Intermediate bicyclist. Clearly, parts of the plan tying into the Geauga Park District’s county-wide, Maple Highlands Trail will invite the “advanced” bicyclists, joggers and hikers that utilize that trail to proceed into and through the City using the streets. Nevertheless, since those users already have substantial opportunities and the purpose of this Plan is to “link most residents to most destinations...”, this **Plan targets the “intermediate” bicyclists** who are comfortable using a bikeway facility when separated from vehicular traffic and will use the system if it offers recreation opportunities while functioning as an alternative to driving within Chardon.

### Primary Origins and Destinations

Two concurrent processes were developed to identify focus areas based on findings that the average bicycle trip is 3.9 miles, and the comfortable walking distance is 0.6 mile.

### Bikeway System

Origins and destinations were identified in detail (see Maps 5 and 6). Origins included all existing and future residences, and destinations included the school campus, Chardon Square, Mel Harder Park, the planned park southwest of Mel Harder Park and abutting a segment of the southern portion of the existing Maple Highlands Trail, and the commercial concentration in the northwestern portion of the City.

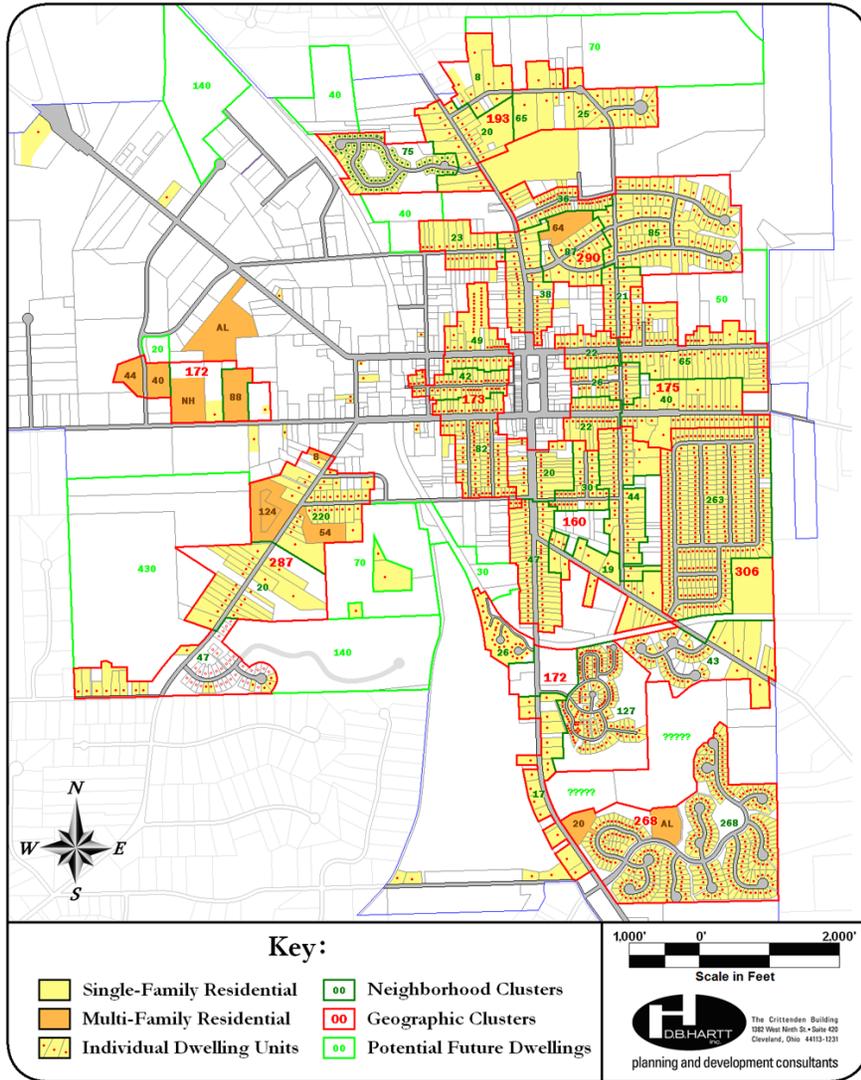
All of the origin and destination information was translated into a small number of manageable clusters represented by circles centered on the middle of each concentrated area, with diameters scaled to the relative size and significance of each cluster. The connections between the origin and destination clusters was mapped and slightly modified to maximize commonalities while minimizing deviations from direct routes (See Origin and Destination Maps A-7 through A-11 in the Appendix)

The modified connections helped clarify the geometric patterns being represented. These patterns suggested three primary corridors (See Map 7-Corridors Suggested by All Connections): Between the now separated sections of the Geauga Park District’s Maple Highlands Trail to the southeast and northwest, from the residential concentrations in the south, through Chardon Square to the school campus and recreation facilities in the north, and from the existing and large future residential development in the southwest, through Chardon Square to Mel Harder Park at the eastern edge of the City.

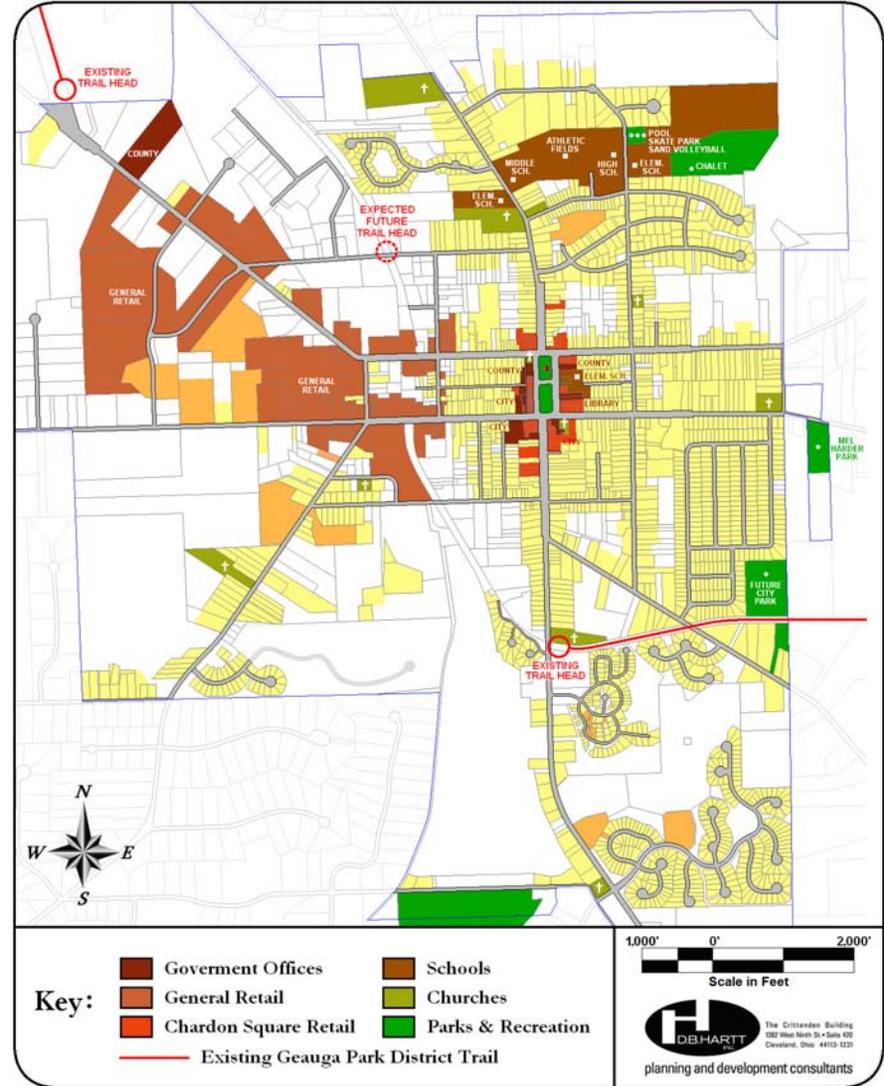
Because two of the three corridors run through Chardon Square, it was decided that for the purposes of further evaluation in the following sections, they would be expanded into two additional corridors to achieve five (5) primary corridors (See Map 8 – Corridor Designations for Further Analysis):

- Corridor 1 – Maple Highlands Trail connection,
- Corridor 2 – School campus to Square,
- Corridor 3 – Southern portion of Maple Highlands Trail to Square,
- Corridor 4 – City Park to Square, and
- Corridor 5 – Southwest Area to Square.

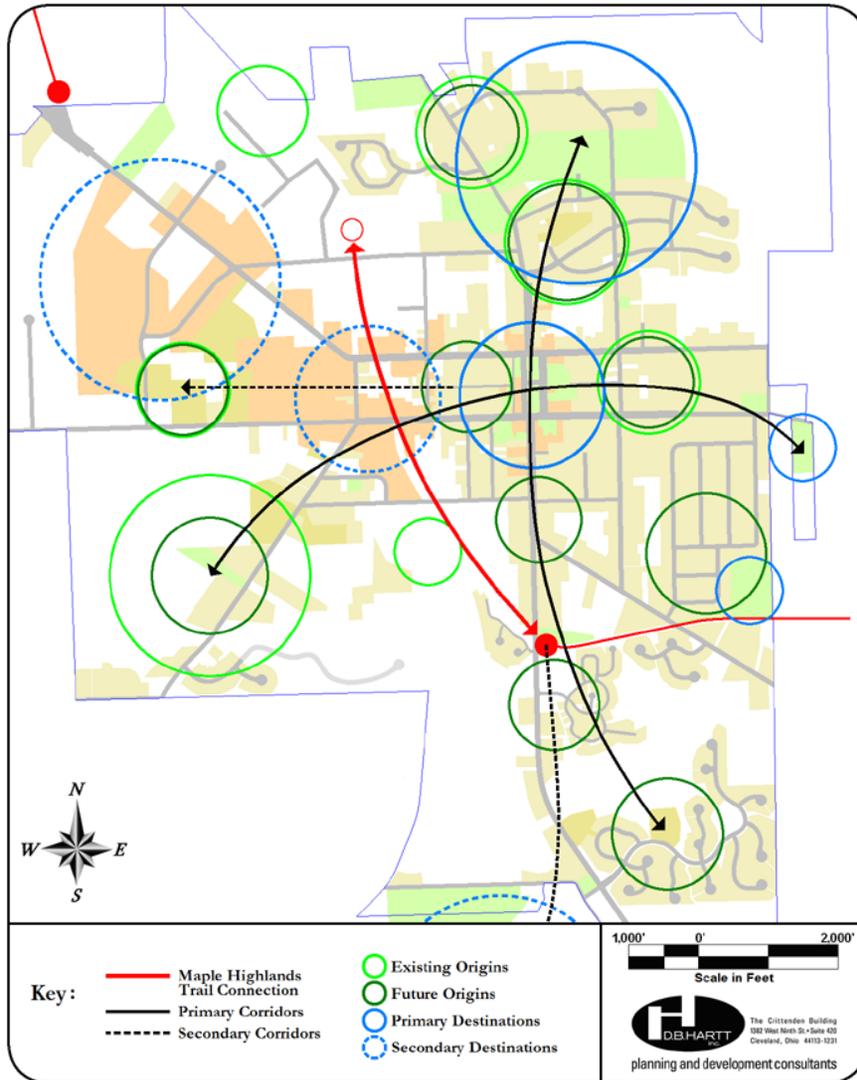
Map 5 - Existing Residential Distribution - Groupings



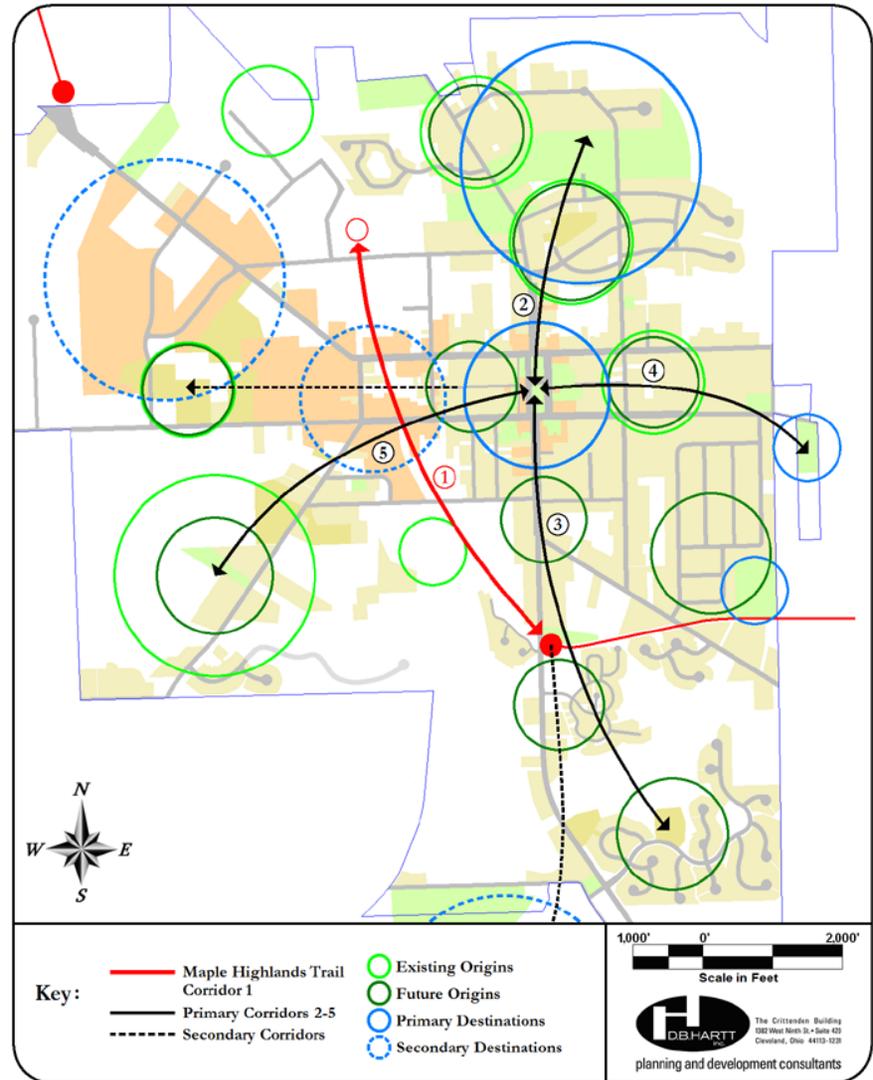
Map 6 - Potential Destinations



Map 7 - Corridors Suggested by All Connections



Map 8 - Corridor Designations for Further Analysis

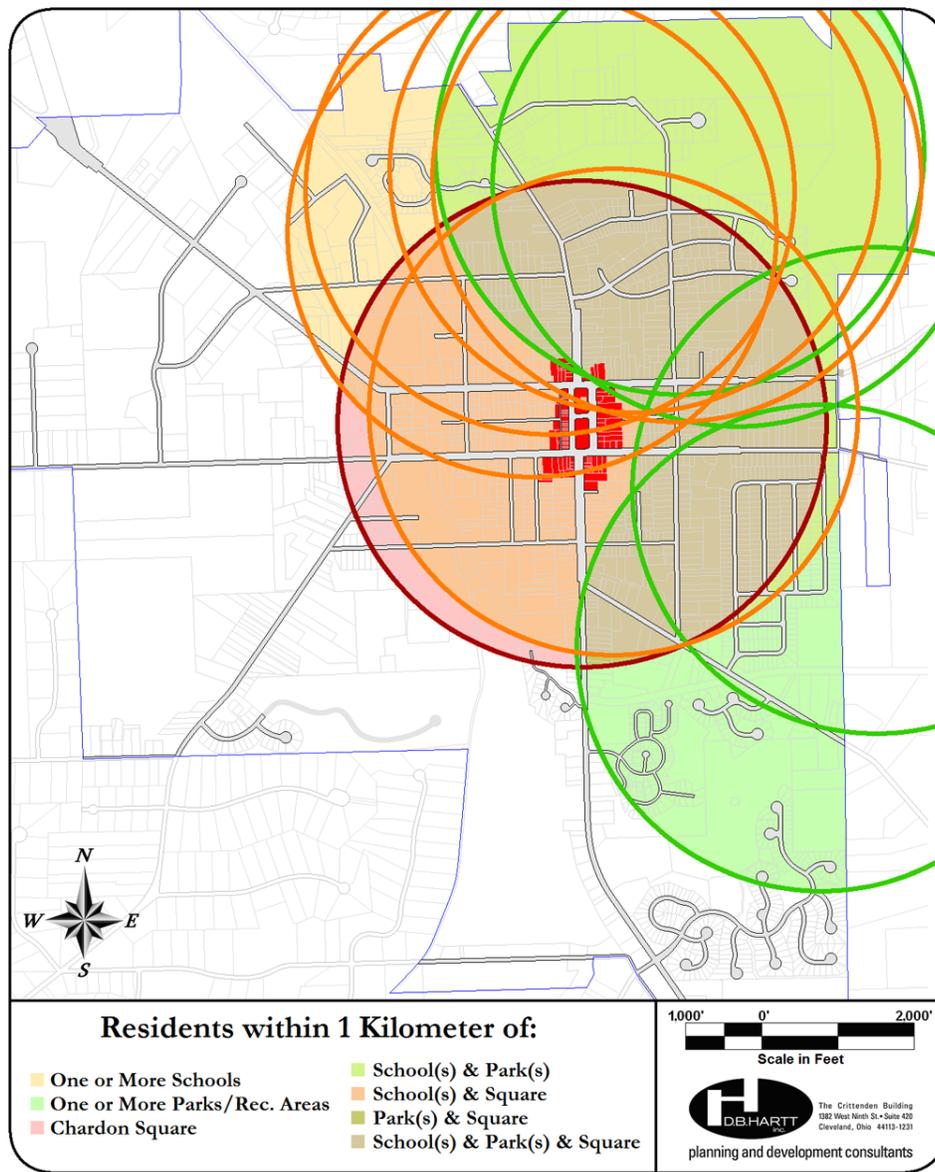


***Pedestrian System***

The second concurrent process identified the areas within which residents might be expected to walk to primary destinations such as schools, parks and the city center (here, the Square). These areas were determined by establishing circles with a radius of 0.6 mile around each of the identified destinations. The circles were then overlaid (on Map 9) to identify overlaps and establish the overall extent of the area most appropriate for the focus of sidewalk additions.

The resulting areas were generally concentrated around the Square extending into the northern and eastern portion of the City, roughly mirroring the 1 kilometer radii around Chardon Square and the overall school campus.

**Map 9 - Comfortable Walking Distance from Chardon Square School(s), City Park(s), Recreation Area(s) or Square**



### System Hierarchy

Since it is not possible to provide every dwelling with a direct connection to every potential destination within the City, this system hierarchy was created to utilize both new and existing trails and sidewalks to travel from a particular point of origin to a specific destination. The system includes three basic components:

1. The **origin** begins at each resident's front door and extends to a **feeder** (local street, sidewalk).
2. The **feeders** extend from the local street and/or sidewalk to the **bikeway**.
3. The **bikeway** leads to the intended **destination**.

### Cost Considerations

The costs associated with constructing or otherwise implementing specific bikeway facilities are difficult to estimate in the planning stages due to the large number of variables involved. These include extent of grading required, paving material and labor cost fluctuations and necessary relocations of utilities. Determining reliable numbers for the construction of specific trail types in particular locations will most likely be restricted to the engineering phase of development. Even then, the final costs for necessary land acquisitions will not be known until each particular purchase has been negotiated and finalized.

It is possible, however, to compare the likely relative costs for different alternatives, and to determine a tentative range of possible outcomes based on prior experiences with similar projects. A NOACA study, identified the per mile costs for various facilities constructed around the region, state and country in 2006. While the numbers varied extensively, they did offer general upper and lower limits, and some comparison between trail types. In particular, the figures for the surrounding Maple Highland Trail, as well as the nearby West Creek Trail in Seven Hills and Metroparks Valley Parkway Trail, offer an informative range for ten feet wide, shared use, off road trails in the vicinity of Chardon. NOACA's own experience with construction of bike lanes within the region is also reflected in Table 1 – 2006 Cost Experiences.

**Table 1 – 2006 Cost Experiences**

<b>Project</b>	<b>Cost Per Mile</b>
<b>10' Shared Use Trails</b>	
West Creek – Seven Hills	\$ 493,000
Maple Highlands Trail	\$ 344,000
Metroparks Valley Parkway	\$ 299,000
Morgana Run Trail	\$ 285,000
<b>5' Bike Lanes</b>	
NOACA Region	\$ 327,000
Morgana Run Trail	\$ 285,000

---

## III. LONG-TERM POSSIBILITIES

---

### A. Possibilities - Bikeway

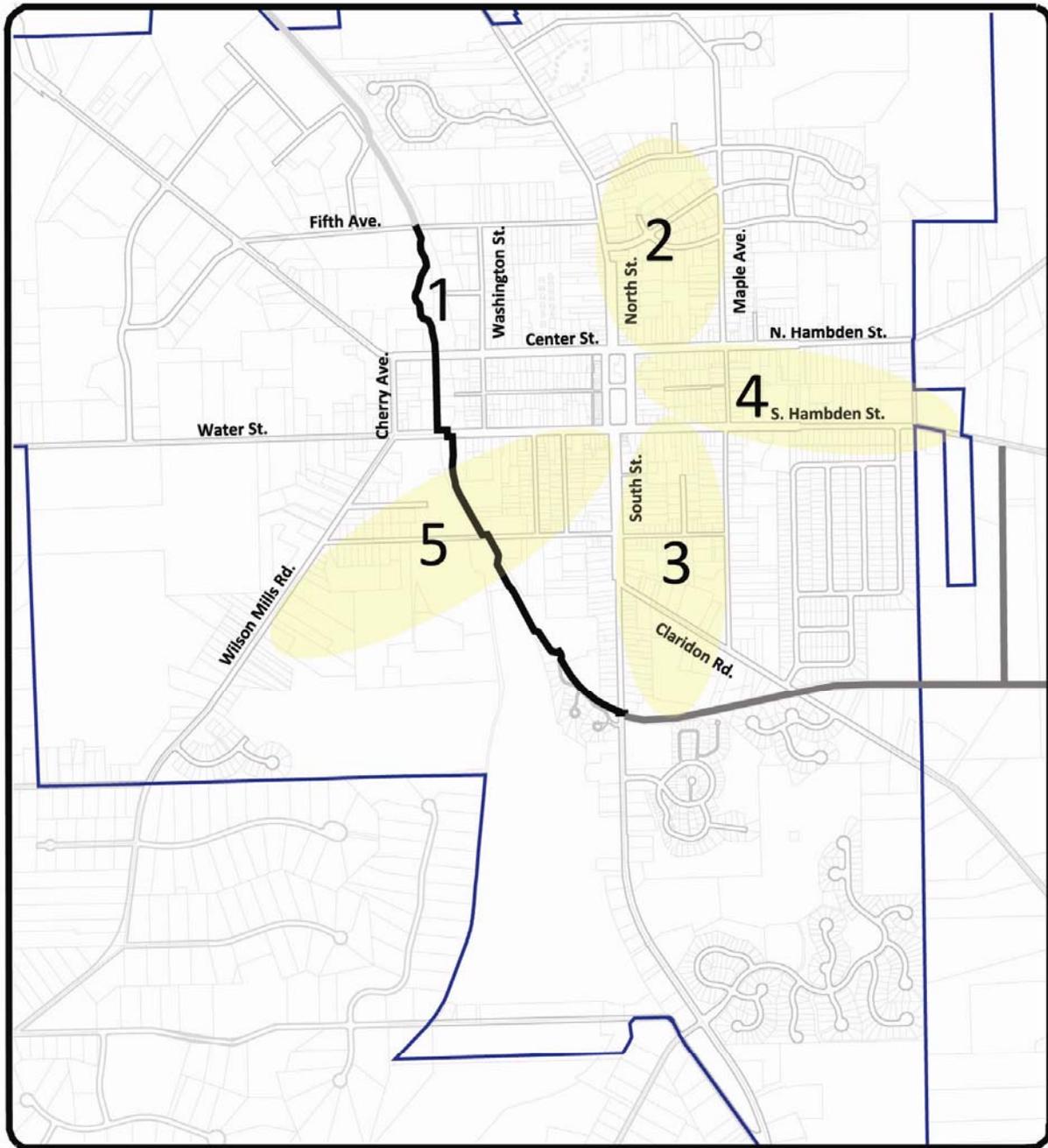
#### *Location Clusters*

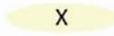
The five primary corridors derived in Section II.B were further evaluated to generally define the proposed bikeway system.

Corridor 1, the Maple Highlands Trail termini connection that generally follows the abandoned railroad right-of-way and has for long been discussed as a desirable bicycle route, is the first priority for implementation and discussed in greater detail in Section I.B.

For the other four corridors, general “bikeway location clusters” (see Map 10) were identified for possible consideration of bikeways in the longer term consistent with the objective: of targeting an “intermediate bicyclist” and to generally maximize the opportunity for recreation while minimizing distances between origin and destination clusters.

Map 10 –Bikeway Location Clusters



	Corridor 1 - Maple Highlands Trail Connection	
	Bikeway Location Clusters	
	Existing Maple Highlands Trail	
	Planned Maple Highlands Trail Extension	
		

## *Principles for Potential Bikeway Route Identification*

Factors that influence the suitability of locating a bikeway within the cluster are classified into the following four criteria:

### **Desirability.**

1. Minimize distances between origins and destinations,
2. Access to bikeway from individual dwellings and feeder facilities,
3. Maximize physical, visual, and/or perceived separation from roadways and vehicular traffic (existing trees, curbs, shrubs, etc.),
4. Minimize physical obstacles to enjoyment of bikeway usage (driveways, intersecting street, steep grades, adjacent traffic volumes, etc.),
5. Maximize bikeway amenities (attractive settings and landscaping, inclusion of bike racks and resting places, scenic bridges, etc.), and
6. Consider inviting adjacent uses and mid-trip secondary destination potential (a church, community center etc. along the bikeway).

### **Feasibility.**

1. Maximize use of public land (city, schools, county, Park District) to minimize need for land acquisition,
2. Minimize potential for negatively impacting adjacent or other residents,
3. Consider segments that could be privately funded by future development,
4. Consider locations where zoning incentives might encourage acceptance (i.e. within required setbacks where only landscaping would otherwise be permitted),
5. Stay adjacent to periphery property lines when on private property to minimize limitations on land's future development potential,
6. Maximize right-of-way widths if sidepaths are to be considered,
7. Avoid both natural and man-made physical impediments (trees, utility poles, etc.),
8. Consider NOACA's bicycle facilities priorities,
9. Minimize impacts on existing driveway and apron grading or paving,
10. Limit the need for bridges or culverts (with the possible exception of scenic bridges as amenities and use incentives),
11. Avoid impacting existing drainage swales and/or need for new sewers,
12. Avoid sidepaths any closer to adjacent private uses than the existing sidewalks,
13. Maximize utilization of existing sidewalks' grading and pavement base, and
14. Consider programs and/or policies to promote "citizen ownership" of system that otherwise foster public acceptance.

### **Functionality.**

1. Give selection preference to shared use facilities (or at least two-part solutions accommodating both bicycles and pedestrians),
2. Accommodate two-way traffic (together in one trail or separately),
3. Maximize overlap of multiple origin-destination connections,
4. Accommodate accepted distance limitations for users (average 3.9 miles for bicyclists and 0.62 miles for walkers), and
5. Maximize compliance with AASHTO and ODOT recommended minimum standards.

## **Safety.**

1. Maximize physical separation from vehicular roadway and traffic (particularly near roadways with higher traffic volumes and/or speed limits) by using landscaped areas, bollards, etc.,
2. Consider vehicular lane widths where relevant, and
3. Limit number of street crossings number and width of driveways to be crossed.

## **Design Guidelines**

A number of functional and aesthetic design issues identified below will likely be important to consider as part of the detailed design and implementation of any bikeway alignment for the City of Chardon. The guidelines below address them.

1. Consider acquiring a 30 feet wide right-of-way for 10 feet wide cross-country trails to provide design flexibility and construction access. Such a width should be sufficient to accommodate the recommended 36 feet minimum radius for turns at corners, to curve bikeways around trees and other features worth preserving, and to allow some lateral flexibility to minimize topographical restraints. It should also result in opportunities to add curves for aesthetic purposes, to include landscaping for aesthetic and screening from adjacent development. Once construction and landscaping are completed, the only remaining physical presence will be the 10 feet wide bikeway itself.
2. Consider using a special surface treatment for bikeways that intersect with driveways to help alert drivers to the likely presence of passing bikers and pedestrians. One concept might be to run the same bikeway construction and material straight through the drives, differentiating bikeways from driveways. This would, however, require the removal and reconstruction of the 10 feet of the private driveways. Another possibility would be to artificially color the 10 feet strip of driveways where the bikeways intersect, or perhaps even coloring the entire bikeway to match.
3. Precautions should be taken where bikeways intersect road rights-of-way and street crossings to prevent bicyclists or pedestrians from proceeding unabated into vehicular traffic. Considerations might include warning signs, cross-hatched surface markings, and perhaps, attractive bollards, landscaping or other physical barriers (i.e. decorative wood posts, fences, hedges or street trees). Particularly at major streets, bikeways should avoid right angle approaches and intersections with the actual roadway for safety reasons. Instead they could be turned parallel to the roadway within the right-of-way, and then enter the street crossing after the offset to maximize safety.
4. Consider ways to alert motorists where bikeways cross the roadway within their path. This might also involve warning signs, and/or unique road coloring or other surface markings, similar to pedestrian crosswalks - a crossing comprised of brick or decorative pavers might be ideal, if practical. In locations where the threat of collisions with vehicles is greatest, the City should investigate obtaining permission to install flashing signals similar to those employed within school zones.
5. Consider ways to make bikeways aesthetically attractive, inviting to use, and interesting. Consider providing rest stops in attractive settings with benches, drinking fountains,

and/or landscaping. Consider markers identifying places or points of interest, perhaps even botanical information. Promote intermediate secondary destination opportunities (i.e. fast food restaurants, bicycle shops, etc.) and provide bike racks wherever bicyclists are likely to need them.

6. Consider potential promotional and public relations concepts and opportunities in order to encourage use of the system. This might include exposing residents to the system through special walking and bicycling events, and/or promoting “pride of ownership” with volunteer landscaping or maintenance activities, sponsorships, or the design and display of “Chardon Trail System” logos.

### ***Supplemental Considerations to Complement the Bikeway System***

However, to maximize the ability of the potential bikeway routes within the clusters, it needs to be supplemented by second and third tier collectors and feeders. These include the priority sidewalk improvements recommended in the next Section, as well as the following suggestions. These supplemental considerations discuss the concepts for future expansions of the system, to eventually increase the number of residents served and destinations being made accessible.

#### **City Trail Extensions:**

- **Chardon Square.** All of the primary corridors are intended to link residential points of origin to Chardon Square, from where other destinations are then accessible. As proposed, however, the Maple Highlands Trail, or the bikeway location clusters do not indicate how users could or should proceed into, through, and around the Square. Developing a specific plan for this area will greatly complement the system.
- **Meadowlands.** Early in the planning process there was some discussion of the importance of the commercial areas west of Cherry Street as a potential destination. While it was decided that the Square, schools, and park should take precedence, extending a bikeway into the area would be a logical response if the initial bikeway system becomes successful.
- **New Park.** If and when the future City park south of Crickett Road is opened to the public, a direct connection to the immediately adjacent Maple Highlands Trail should be an obvious priority.

**School Board:** The School Board should seriously consider enhancement of their own internal circulation across the broad range of individual destinations within their campus, and connections to the City’s bikeway system.

**St. Mary Catholic Church:** The site of St. Mary Catholic Church and School is directly opposite the public school campus on North Street. It also stretches from the North Street area and schools to the planned Maple Highlands Trail extension. A bikeway across their property could be a good way to provide an east-west system connection on the north side of town. The United Methodist Church has expressed an interest in connecting with the City’s system, but may be too far north to serve more than a minimal number of residences.

**Woods of Burlington, Burlington Oval & Fox Point Communities.** These three planned developments south of the Maple Highlands Trail already have an excellent internal trail system, but

lack interconnections between the three areas. To better serve and connect their residents, however, the three homeowners association should consider connection across the protected vacant land to the east, and from Fox Point directly to the Maple Highlands Trail.

## B. Possibilities – Pedestrian System Plan

### Pedestrian System Evaluation

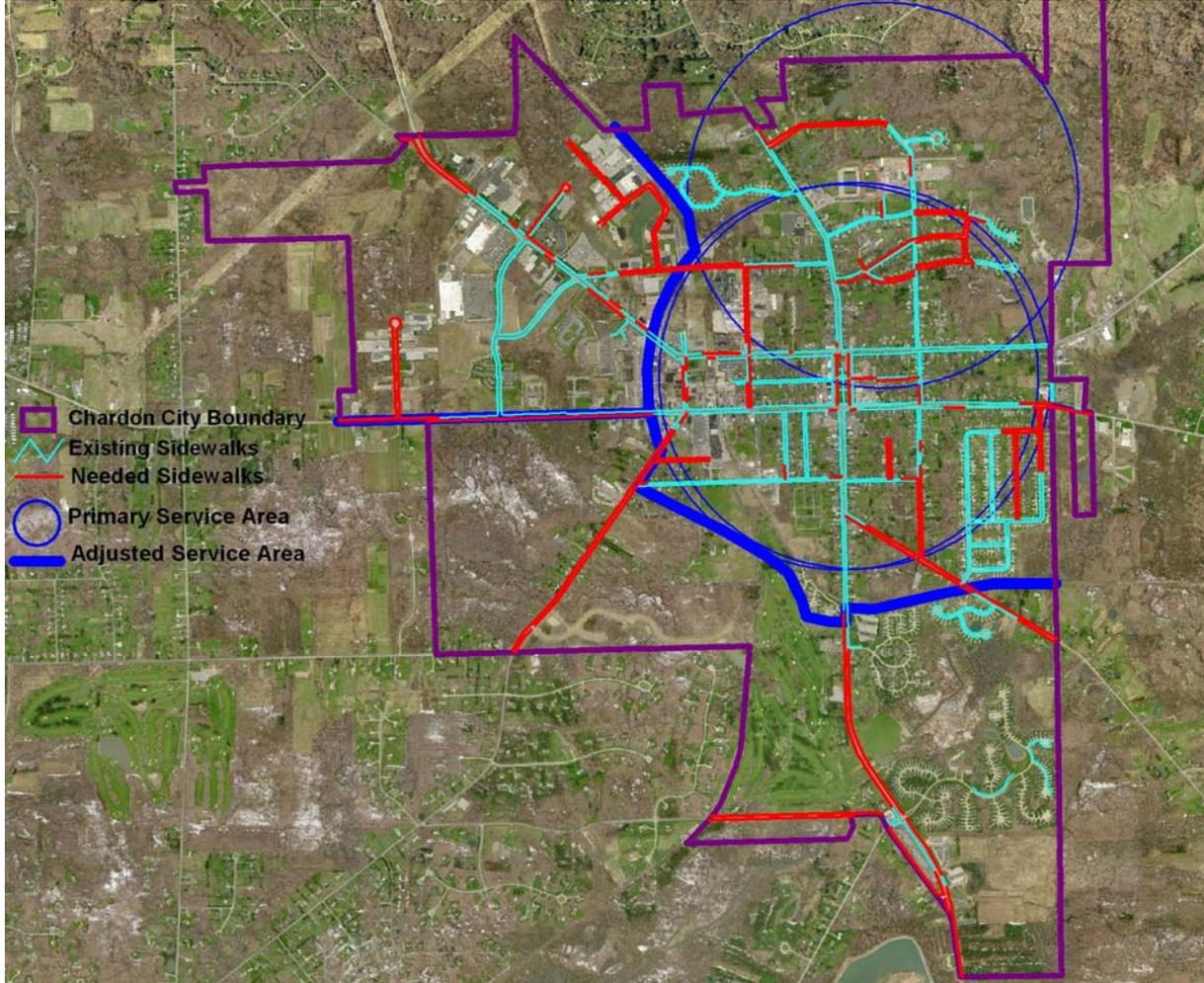
Section II.B established the area from where residents could walk to the primary destinations in Chardon and identified it as the Primary Service Area (PSA). This boundary was adjusted to include small segments of streets and subdivisions that were otherwise excluded along the periphery of the area demarcated by the circles. The adjusted area is shown in Map 11. The area outside of the PSA is the Secondary Service Area (SSA), which is divided into two sub-areas demarcated by the line along Water Street – commercial portion (to the north) and residential portion (to the south).

The existing system and needs were identified for each of the three areas. About 80% of all existing sidewalks in the City are in the PSA. The commercial portion has 15% of the remaining needed length. Considering the addition of sidewalks on two sides of the streets to complete the system, 48% were needed in the PSA, 31% in the residential and 21% commercial portions of the SSA. See Table 2.

**Table 2 - Existing and Needed Sidewalks by Service Area**

	City-wide		Primary Service Area (% of City)	Secondary Service Area (Residential) (% of City)	Secondary Service Area (Industrial/Commercial) (% of City)
Existing Sidewalks (Ft.)	132,600 (58% of Total)		105,400 (80%)	7,600 (6%)	19,600 (15%)
Needed Sidewalks (Ft.)	97,100 (42% of Total)		46,300 (48%)	30,500 (31%)	20,300 (21%)
Total Potential Sidewalks (Ft.)	229,700		151,700 (66%)	38,100 (17%)	39,900 (17%)

## Map 11 – Pedestrian Service Areas



### ***System Rationale***

The sidewalk improvements were identified at two levels: “basic” and “priority” (See Map 12). The first level of improvements was derived for the entire sidewalk system in the City. The needs were addressed by making the following improvements:

1. Adding a sidewalk on at least one-side of all streets where there currently are none, and
2. Filling in short gaps in order to complete the sidewalk system on both sides of a street.

Doing so achieves 44% of the needed length in the City; 43% in the Primary Service Area (PSA), 36% in the residential portion of the Secondary Service Area (SSA), and 57% in the commercial portion of the SSA. The ‘basic’ improvement derivation does not prioritize the needed improvements.

The second level - “priority” improvements analyzed the network further to include only those segments in the “basic” improvements which:

1. Provide the shortest alternate pedestrian route to a destination,
2. Connect to existing and proposed segments completing Maple Highlands Trail, and
3. Fill a short gap along either side of sidewalks along the arterial street, the addition of which completes both sides of the sidewalk along that section.

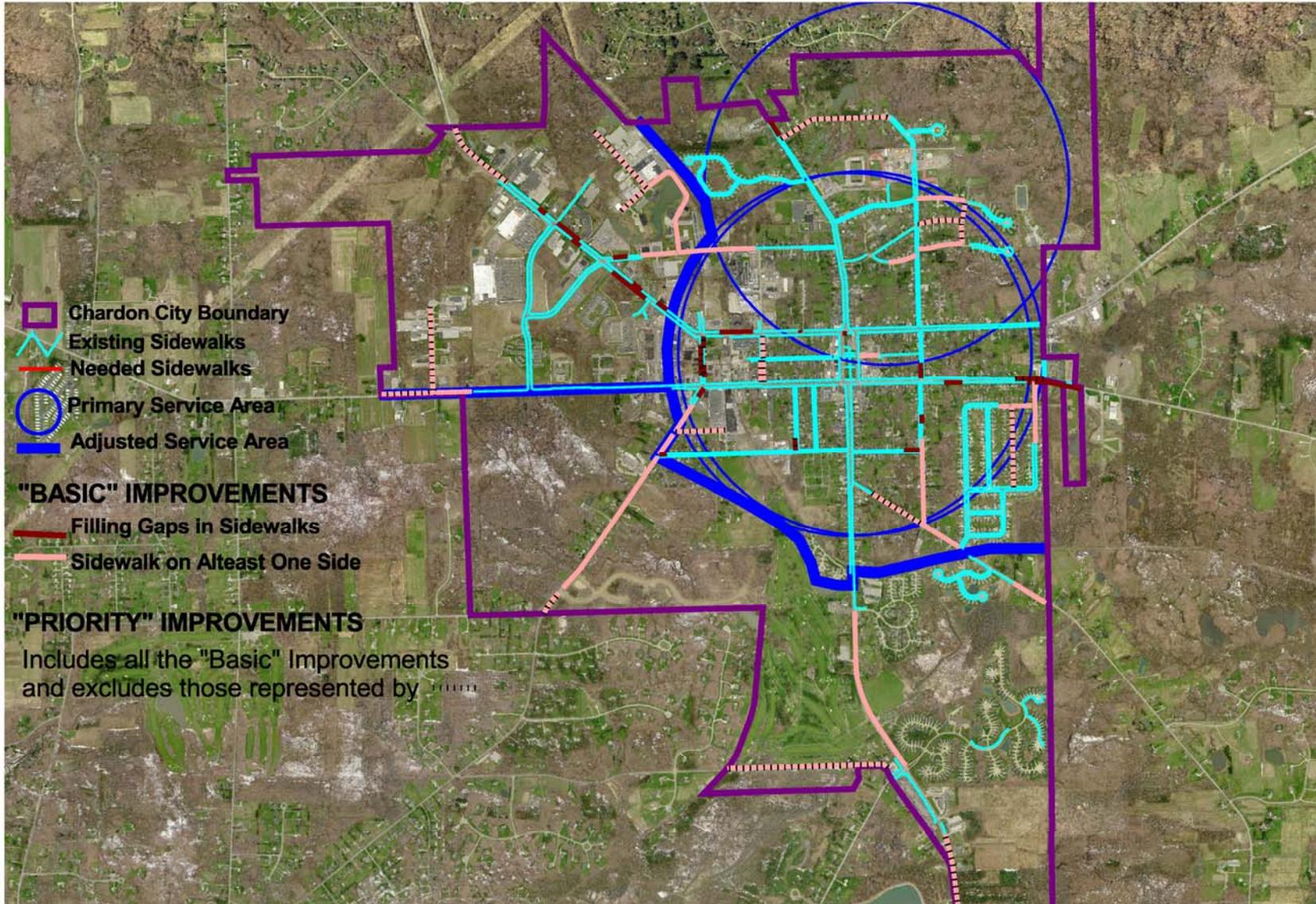
This achieves 22% of the needed length of sidewalk in the City; 21% in the PSA, 21% in the residential portion of the SSA, and 29% of the commercial portion of the SSA.

**Table 3 –New Public Sidewalk Improvements**

	City-wide	Primary Service Area	Secondary Service Area (Residential)	Secondary Service Area (Ind./Comm.)
Needed Sidewalks (Ft.)	97,100	46,300	30,500	20,300
“Basic” Improvements	42,660 (44% of needed)	20,060 (43% of needed)	11,100 (36% of needed)	11,500 (57% of needed)
- One side atleast (Ft.)	35,500	15,100	11,100	9,300
- Fill gaps to complete 2-sides (Ft.)	7,160	4,960	0	2,200
“Priority” Improvements	21,700 (22% of needed)	9,600 (21% of needed)	6,300 (21% of needed)	5,800 (29% of needed)
- One side (Ft.) (Direct connection, access to #1A	17,740	7,840	6,300	3,600
- Arterials (Ft.)	3,960	1,760	0	2,200

As shown in Table 3 it is estimated that the combined length of such gaps is 9,600 feet (1.8 miles) within the PSA and 12,100 feet within the SSA. The first priority improvements are discussed in Section I.B.

Map 12 - New Public Sidewalk Improvements



This page has been intentionally left blank.

---

## APPENDIX

---

## Maple Highlands Trail Connection Details

Table A-1 – Summary of Maple Highlands Trail Connection with Segment Options

	Total Length				Total Length (Miles)	Lengths (Feet)			Street Crossings	Drive-way Crossings <sup>1</sup>	See Additional Footnotes
	Cross-Country	Side-path	Bike Lanes and St. Crossings	Total		Estimated Grade – 5-10%	Acquisition Required (Ares) <sup>2</sup>	Undeveloped Land <sup>3</sup>			
Corridor 1 - MHT Connection	6,240	205	358	6,803	1.29	180	4.30	5,490	5	2 C	<sup>3</sup>
Option 1 A.1	6,159	205	359	6,723	1.27	180	4.24	4,635	5	2 C	4 and 5
Option 1 A.2	6,238	440	360	7,038	1.33	180	4.30	5,225	5	5 C	4 and 6
Option 1 A.3	6,232	570	361	7,163	1.36	180	4.29	5,120	5	3 C	4 and 7

<sup>1</sup> Driveways are denoted as “C” for property being used for commercial purpose

<sup>2</sup> Length times 30’ width – Purchase or easement

<sup>3</sup> Crosses land not yet developed – more is favorable

<sup>4</sup> - Passes fast food restaurants & shopping center  
 - May require one or two bridges  
 - Uses abandoned railroad ROW & track bed  
 - Passes near gas storage tanks  
 - Tight fit between parking areas just south of Water St.

<sup>5</sup> - Passes behind Chardon Rubber

<sup>6</sup> - Passes very close to gas storage tanks  
 - Beside & in front of gas station

<sup>7</sup> - Avoids tight fit just south of Water St.  
 - Less use of abandon railroad ROW & track bed

Table A-2 – Details of Corridor 1 - Maple Highlands Trail Connection

PROPERTIES TRAVERSED (OWNERS)	ALONG PROP. LINE:	ADJACENT PROPERTIES		ACQUISITION REQUIRED (YES/NO) <sup>(1)</sup>	ESTIMATED GRADES (FEET±)			TOTAL LENGTH (FEET±)	COMMENTS	ROW DETAIL
		OWNER	ADJ. TO:		0-5%	5-10%	OVER 10%			
Maple Highlands Trail ROW	--	--	--	--	--	--	--	--	Where Park District intends to end their extension	
Street Crossing - Fifth Ave.					50			50		
Chardon Rubber	Rear	Ayrshire Developers	Side	Yes	85	0	0	85		
Ayrshire Developers	Side	Chardon Rubber	Rear	Yes	370	0	0	370	Away from property line to avoid trees	
Mentor Lumber	Rear	--	--	Yes	500	0	0	500	Across vacant backland - May require bridge or culvert	
Vacant Commercial Land	Side	--	--	Yes	180	0	0	180	Across vacant backland	
Vacant Commercial Land	Side	Retail Building	Side	Yes	120	0	0	120	Across vacant backland	
Vacant Commercial Land	E. Side	"	"	Yes	255	0	0	255	Away from property line - site to small to develop?	
Street Crossing - Center St.					99			99		
Geauga County	E. Side	Car Wash	Side	??	450	0	0	450		
Gas Storage/Gas Station	E. Side	Car Wash	Rear	Yes	80	0	0	80	Safety/security issues?	
"	"	Fast Food Rest.	Side	Yes	260	0	0	260	Fast food = good destination /rest stop	
Water St. ROW (99')	--	"	Front	No	100	0	0	100	Fast food = good destination /rest stop	1
Street Crossing - Water St.					99			99		
Water St. ROW (99')	--	Fast Food Rest.	Front	No	80	0	0	80	Fast food = good destination /rest stop - elimination of buffer?	2
Fast Food Restaurant	Side	Retail Business	Side	Yes	350	0	0	350	Fast food = good destination /rest stop	
CSX Railroad	--	"	"	Yes	140	0	0	140	Original railroad track bed	
"	Center	Eagles Lodge	Rear	Yes	345	0	0	345	Original railroad track bed	
"	"	City Land	Front??	Yes	175	0	0	175	Original railroad track bed - conflict with access to City land?	
"	"	Farm Bureau	Side	Yes	170	0	0	170	Original railroad track bed	
"	Front	--	--	Yes	50	0	0	50		
Farm Bureau	Front	--	--	Yes	20	0	0	20		
Street Crossing - Park Ave.					50			50		
Hidden Glen (Vacant)	Side	CEI	Side	Yes	240	0	0	240	Future Subdivision	
"	Center	--	--	Yes	460	0	0	460	Future Subdivision	
"	Side	Golf Course	Periphery	Yes	790	0	0	790	Future Subdivision - May require bridge or culvert	
"	Side	Burlington Green	Periphery	Yes	240	80	0	320	Future Subdivision	
Vacant - Zoned "Special"	Periphery	"	Periphery	Yes	740	100	0	840		
South St. ROW	--	"	Front	Yes	25	0	0	25		
Street Crossing - South St.					60			60		
Maple Highlands Trail ROW	--	--	--	--	40	0	0	40		
<b>TOTALS</b>					<b>6623</b>	<b>180</b>	<b>0</b>	<b>6803</b>		
<sup>(1)</sup> Might be Easement Only					<b>MILES</b>	<b>1.25</b>	<b>0.03</b>	<b>0.00</b>	<b>1.29</b>	

Table A-3 – Details of Maple Highlands Trail Connection – Option 1 A.1

PROPERTIES TRAVERSED (OWNERS)	ALONG PROP. LINE:	ADJACENT PROPERTIES		ACQUISITION REQUIRED (YES/NO) <sup>(1)</sup>	ESTIMATED GRADES (FEET±)			TOTAL LENGTH (FEET±)	COMMENTS	ROW DETAIL
		OWNER	ADJ. TO:		0-5%	5-10%	OVER 10%			
Maple Highlands Trail ROW	--	--	--	--	--	--	--	--		
Street Crossing - Fifth Ave.					50			50		
Chardon Rubber	Rear	Ayrshire Developers	Side	Yes	450	0	0	450		
"	Rear	Mentor Lumber	Rear	Yes	145	0	0	145		
Mentor Lumber	Rear	Chardon Rubber	Rear	Yes	335	0	0	335	Vacant Backland	
Vacant Commercial Land	Side	"	Rear	Yes	135	0	0	135	Somewhat away from property line	
Vacant Commercial Land	Side	Retail Bldg.	Side	Yes	110	0	0	110	Somewhat away from property line - May require bridge or culvert	
Vacant Commercial Land	E. Side	"	"	Yes	255	0	0	255	Away from property line - site to small to develop?	
Street Crossing - Center St.					99			99		
Geauga County	W. Side	Car Wash	Side	??	450	0	0	450		
Gas Storage/Gas Station	W. Side	Car Wash	Rear	Yes	80	0	0	80	Safety/security issues?	
"	"	Fast Food Rest.	Side	Yes	260	0	0	260	Fast food = good destination /rest stop	
Water St. ROW (99')	--	"	Front	No	100	0	0	100	Fast food = good destination /rest stop	1
Street Crossing - Water St.					99			99		
Water St. ROW (99')	--	Fast Food Rest.	Front	No	80	0	0	80	Fast food = good destination /rest stop - elimination of buffer?	2
Fast Food Restaurant	Side	Retail Business	Side	Yes	350	0	0	350	Fast food = good destination /rest stop	
CSX Railroad	--	"	"	Yes	140	0	0	140	Original railroad track bed	
"	Center	Eagles Lodge	Rear	Yes	345	0	0	345	Original railroad track bed	
"	"	City Land	Front??	Yes	175	0	0	175	Original railroad track bed - conflict with access to City land?	
"	"	Farm Bureau	Side	Yes	170	0	0	170	Original railroad track bed	
"	Front	--	--	Yes	50	0	0	50		
Farm Bureau	Front	--	--	Yes	20	0	0	20		
Street Crossing - Park Ave.					50			50		
Hidden Glen (Vacant)	Side	CEI	Side	Yes	240	0	0	240	Future Subdivision	
"	Center	--	--	Yes	460	0	0	460	Future Subdivision	
"	Side	Golf Course	Periphery	Yes	790	0	0	790	Future Subdivision - May require bridge or culvert	
"	Side	Burlington Green	Periphery	Yes	240	80	0	320	Future Subdivision	
Vacant - Zoned "Special"	Periphery	"	Periphery	Yes	740	100	0	840		
South St. ROW	--	"	Front	Yes	25	0	0	25		
Street Crossing - South St.					60			60		
Maple Highlands Trail ROW	--	--	--	--	40	0	0	40		
<b>TOTALS</b>					<b>6543</b>	<b>180</b>	<b>0</b>	<b>6723</b>		
<sup>(1)</sup> Might be Easement Only					<b>MILES</b>	<b>1.24</b>	<b>0.03</b>	<b>0.00</b>	<b>1.27</b>	

Table A-4 – Details of Maple Highlands Trail Connection – Option 1 A.2

PROPERTIES TRAVERSED (OWNERS)	ALONG PROP. LINE:	ADJACENT PROPERTIES		ACQUISITION REQUIRED (YES/NO) <sup>(1)</sup>	ESTIMATED GRADES (FEET±)			TOTAL LENGTH (FEET±)	COMMENTS	ROW DETAIL
		OWNER	ADJ. TO:		0-5%	5-10%	OVER 10%			
Maple Highlands Trail ROW	--	--	--	--	--	--	--	--		
Street Crossing - Fifth Ave.					50			50		
Chardon Rubber	Rear	Ayrshire Developers	Side	Yes	85	0	0	85		
Ayrshire Developers	Side	Chardon Rubber	Rear	Yes	370	0	0	370	Away from property line	
Mentor Lumber	Rear	--	--	Yes	500	0	0	500	Across vacant backland - May require bridge or culvert	
Vacant Commercial Land	Side	--	--	Yes	180	0	0	180	Across vacant backland	
Vacant Commercial Land	Side	Retail Bldg.	Side	Yes	120	0	0	120	Across vacant backland	
Vacant Commercial Land	W. Side	Different Retail Bldg.	"	Yes	255	0	0	255	Away from property line - site to small to develop?	
Street Crossing - Center St.					99			99		
Center St. ROW (99')	--	Geauga County	Side	No	55	0	0	55		3
Geauga County	W. Side	Car Wash	Side	??	450	0	0	450		
Gas Storage/Gas Station	W. Side	Car Wash	Rear	Yes	80	0	0	80	Safety/security issues?	
"	"	Diff. Fast Food Rest.	Side	Yes	260	0	0	260	Fast food = good destination /rest stop	
Water St. ROW (99')	--	"	Front	No	180	0	0	180	Fast food = good destination /rest stop	1
Water St. ROW (99')	--	Fast Food Rest.	Front	No	100	0	0	100	Fast food = good destination /rest stop	1
Street Crossing - Water St.					99			99		
Water St. ROW (99')	--	Fast Food Rest.	Front	No	80	0	0	80	Fast food = good destination /rest stop - elimination of buffer?	2
Fast Food Restaurant	Side	Retail Business	Side	Yes	350	0	0	350	Fast food = good destination /rest stop	
CSX Railroad	--	"	"	Yes	140	0	0	140	Original railroad track bed	
"	Center	Eagles Lodge	Rear	Yes	345	0	0	345	Original railroad track bed	
"	"	City Land	Front??	Yes	175	0	0	175	Original railroad track bed - conflict with access to City land?	
"	"	Farm Bureau	Side	Yes	170	0	0	170	Original railroad track bed	
"	Front	--	--	Yes	50	0	0	50		
Farm Bureau	Front	--	--	Yes	20	0	0	20		
Street Crossing - Park Ave.					50			50		
Hidden Glen (Vacant)	Side	CEI	Side	Yes	240	0	0	240	Future Subdivision	
"	Center	--	--	Yes	460	0	0	460	Future Subdivision	
"	Side	Golf Course	Periphery	Yes	790	0	0	790	Future Subdivision - May require bridge or culvert	
"	Side	Burlington Green	Periphery	Yes	240	80	0	320	Future Subdivision	
Vacant - Zoned "Special"	Periphery	"	Periphery	Yes	740	100	0	840		
South St. ROW	--	"	Front	Yes	25	0	0	25		
Street Crossing - South St.					60			60		
Maple Highlands Trail ROW	--	--	--	--	40	0	0	40		
<b>TOTALS</b>					<b>6858</b>	<b>180</b>	<b>0</b>	<b>7038</b>		
<sup>(1)</sup> Might be Easement Only					<b>MILES</b>	<b>1.30</b>	<b>0.03</b>	<b>0.00</b>	<b>1.33</b>	

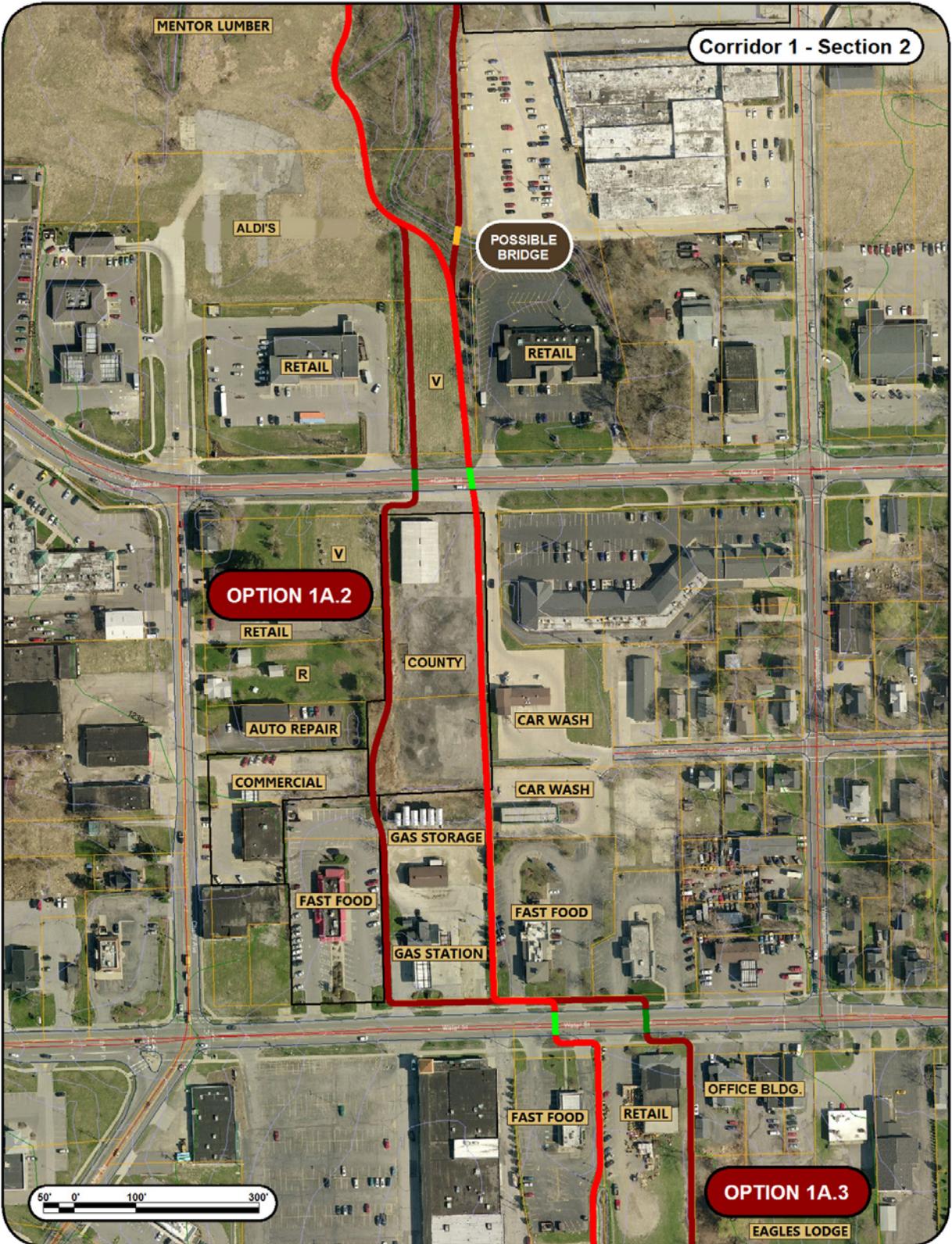
Table A-5 – Details of Maple Highlands Trail Connection – Option 1 A.3

PROPERTIES TRAVERSED (OWNERS)	ALONG PROP. LINE:	ADJACENT PROPERTIES		ACQUISITION REQUIRED (YES/NO) <sup>(1)</sup>	ESTIMATED GRADES (FEET±)			TOTAL LENGTH (FEET±)	COMMENTS	ROW DETAIL
		OWNER	ADJ. TO:		0-5%	5-10%	OVER 10%			
Maple Highlands Trail ROW	--	--	--	--	--	--	--	--		
Street Crossing - Fifth Ave.					50			50		
Chardon Rubber	Rear	Ayrshire Developers	Side	Yes	85	0	0	85		
Ayrshire Developers	Side	Chardon Rubber	Rear	Yes	370	0	0	370	Away from property line	
Mentor Lumber	Rear	--	--	Yes	500	0	0	500	Across vacant backland - May require bridge or culvert	
Vacant Commercial Land	Side	--	--	Yes	180	0	0	180	Across vacant backland	
Vacant Commercial Land	Side	Retail Building	Side	Yes	120	0	0	120	Across vacant backland	
Vacant Commercial Land	E. Side	"	"	Yes	255	0	0	255	Away from property line	
Street Crossing - Center St.					99			99		
Geauga County	E. Side	Car Wash	Side	??	450	0	0	450		
Gas Storage/Gas Station	E. Side	Car Wash	Rear	Yes	80	0	0	80	Safety/security issues?	
"	"	Fast Food Rest.	Side	Yes	260	0	0	260	Fast food = good destination /rest stop	
Water St. ROW (99')	--	"	Front	No	100	0	0	100	Fast food = good destination /rest stop	1
"	--	"	Front	No	55	0	0	55		1
"	--	Bank	Front	No	85	0	0	85		1
Street Crossing - Water St.					99			99		
Water St. ROW (99')	--	Retail Business	Front	No	70	0	0	70	Less site disruption than Alts. 1A, 1A.1 or 1A.2?	2
Retail Business	Side	Office Bldg.	Side	Yes	150	0	0	150		
"	Side	Eagles Lodge	Side	Yes	340	0	0	340		
"	Rear	"	Side	Yes	30	0	0	30		
Eagles Lodge	Side	Retail Business	Rear	Yes	60	0	0	60		
"	"	CSX Railroad	Side	Yes	60	0	0	60		
CSX Railroad	Side	Eagles Lodge	Side	Yes	80	0	0	80		
"	Center	Eagles Lodge	Rear	Yes	180	0	0	345	Original railroad track bed	
"	"	City Land	Front??	Yes	175	0	0	175	Original railroad track bed - conflict with access to City land?	
"	"	Farm Bureau	Side	Yes	170	0	0	170	Original railroad track bed	
"	Front	--	--	Yes	50	0	0	50		
Farm Bureau	Front	--	--	Yes	20	0	0	20		
Street Crossing - Park Ave.					50			50		
Hidden Glen (Vacant)	Side	CEI	Side	Yes	240	0	0	240	Future Subdivision	
"	Center	--	--	Yes	460	0	0	460	Future Subdivision	
"	Side	Golf Course	Periphery	Yes	790	0	0	790	Future Subdivision - May require bridge or culvert	
"	Side	Burlington Green	Periphery	Yes	240	80	0	320	Future Subdivision	
Vacant - Zoned "Special"	Periphery	"	Periphery	Yes	740	100	0	840		
South St. ROW	--	"	Front	Yes	25	0	0	25		
Street Crossing - South St.					60			60		
Maple Highlands Trail ROW	--	--	--	--	40	0	0	40		
<b>TOTALS</b>					<b>6818</b>	<b>180</b>	<b>0</b>	<b>7163</b>		
<sup>(1)</sup> Might be Easement Only					<b>MILES</b>	<b>1.29</b>	<b>0.03</b>	<b>0.00</b>	<b>1.36</b>	

# Map A-1 – Maple Highlands Trail Connection Section 1



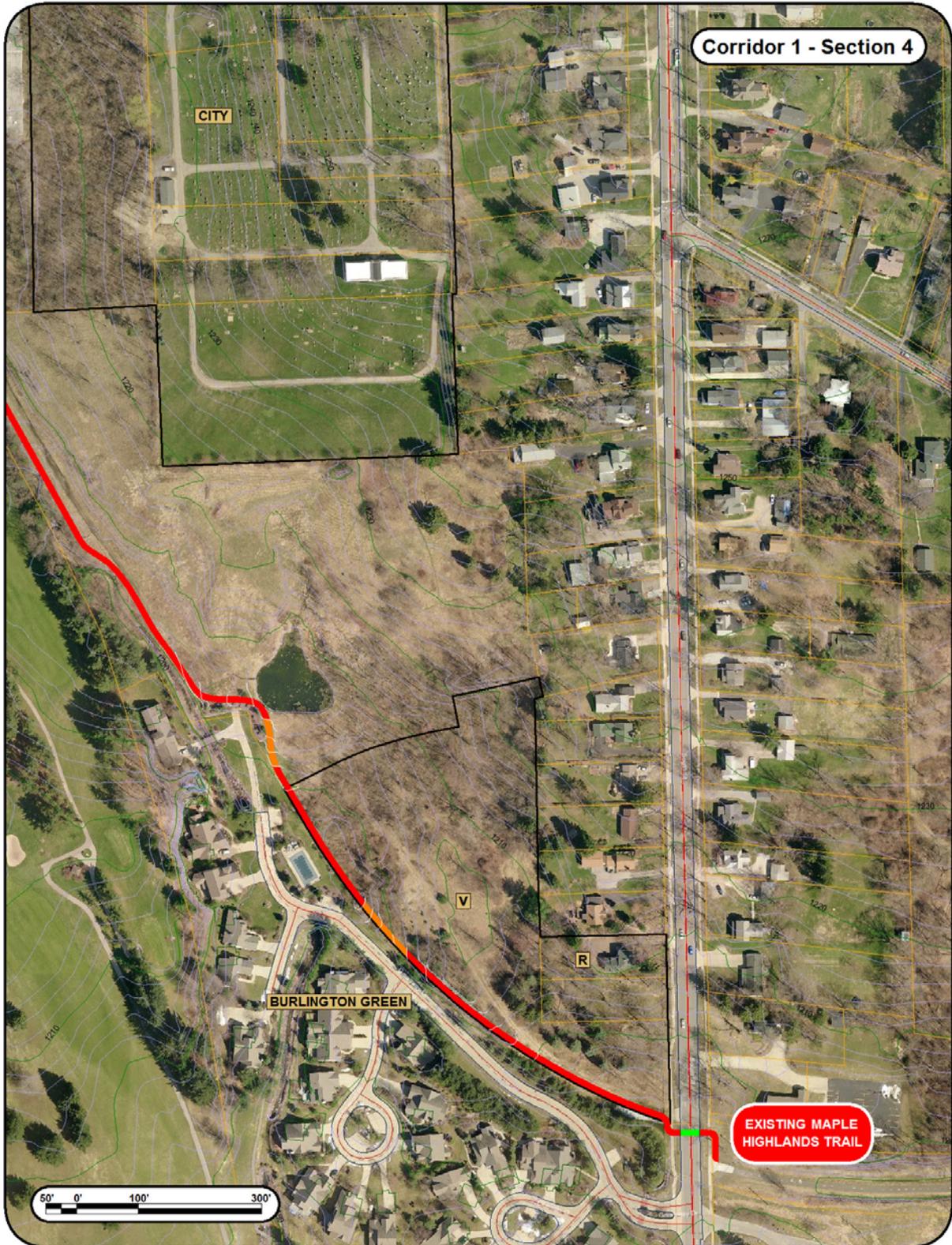
Map A-2 - Maple Highlands Trail Connection Section 2



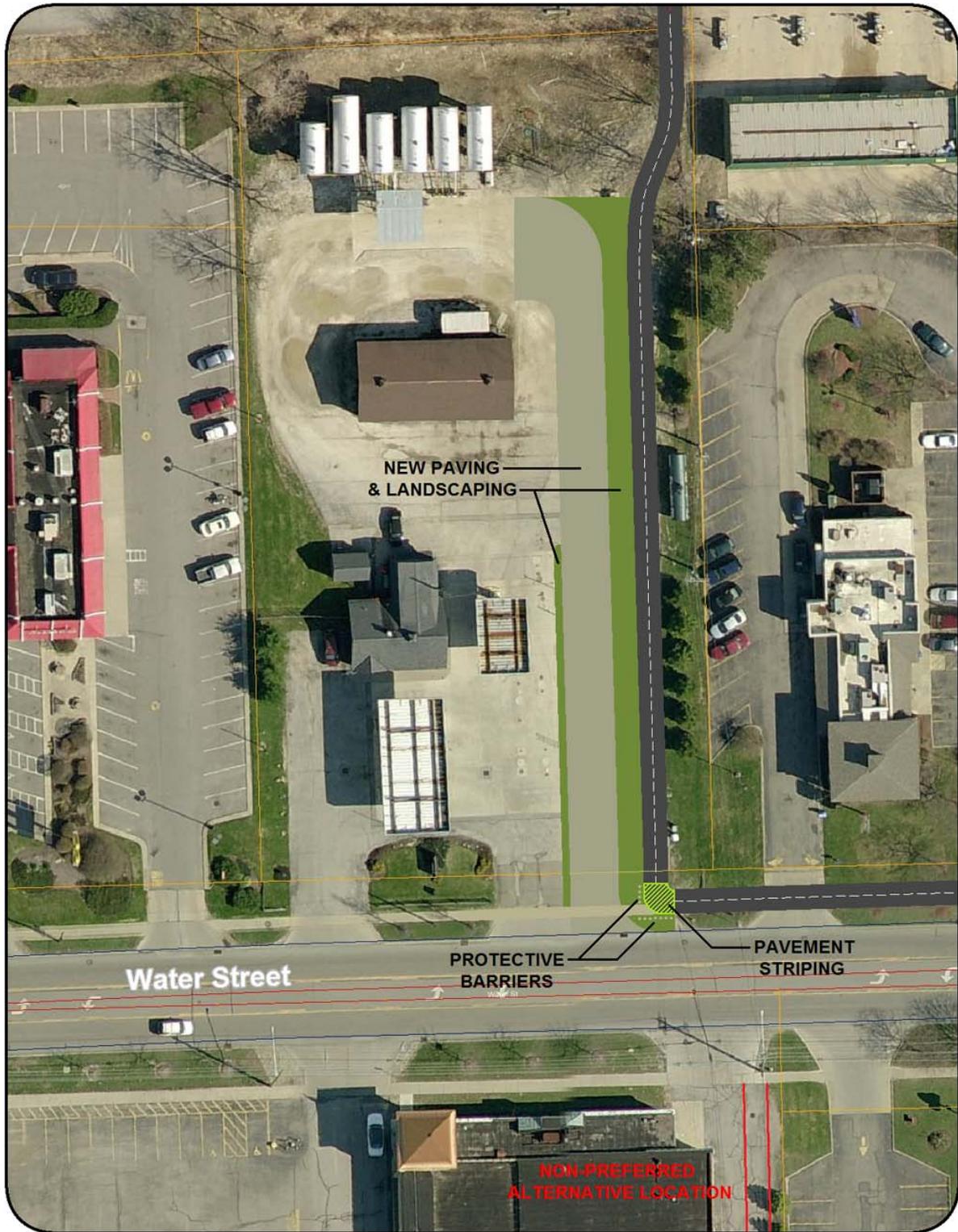
# Map A-3 - Maple Highlands Trail Connection Section 3



# Map A-4 - Maple Highlands Trail Connection Section 4



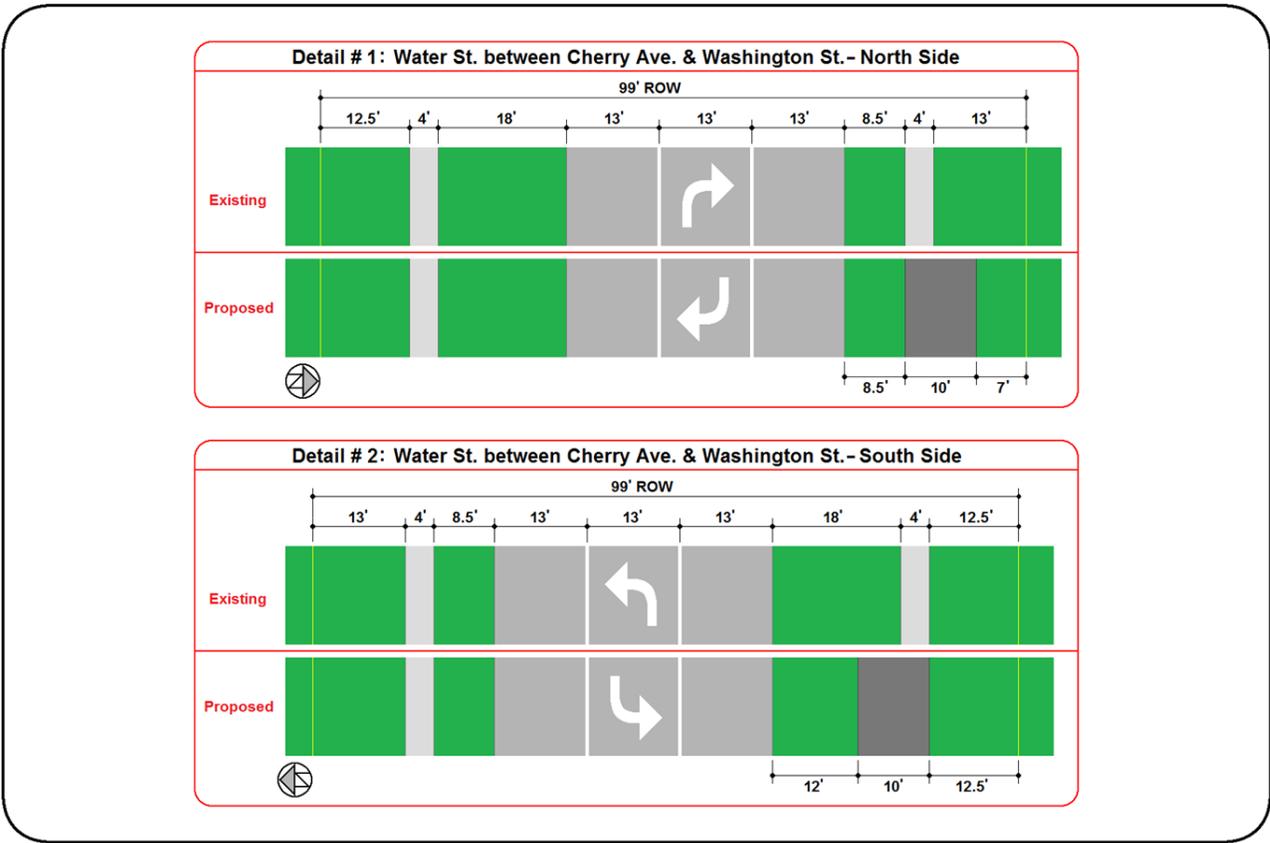
# Map A-5 - Maple Highlands Trail Connection - Detailed Illustration at Water Street – North West



# Map A-6 - Maple Highlands Trail Connection - Detailed Illustration at Water Street – South East

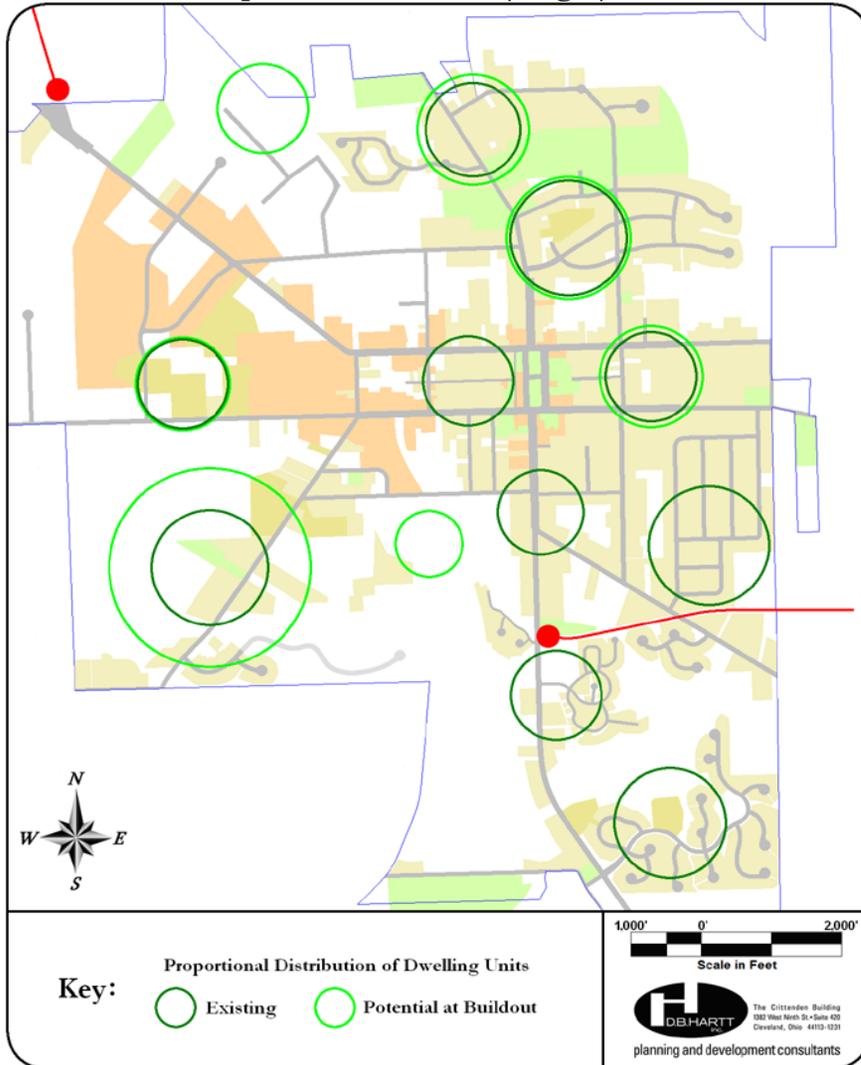


# Illustration A-1 – Maple Highlands Trail Connection - Relevant R.O.W. Details

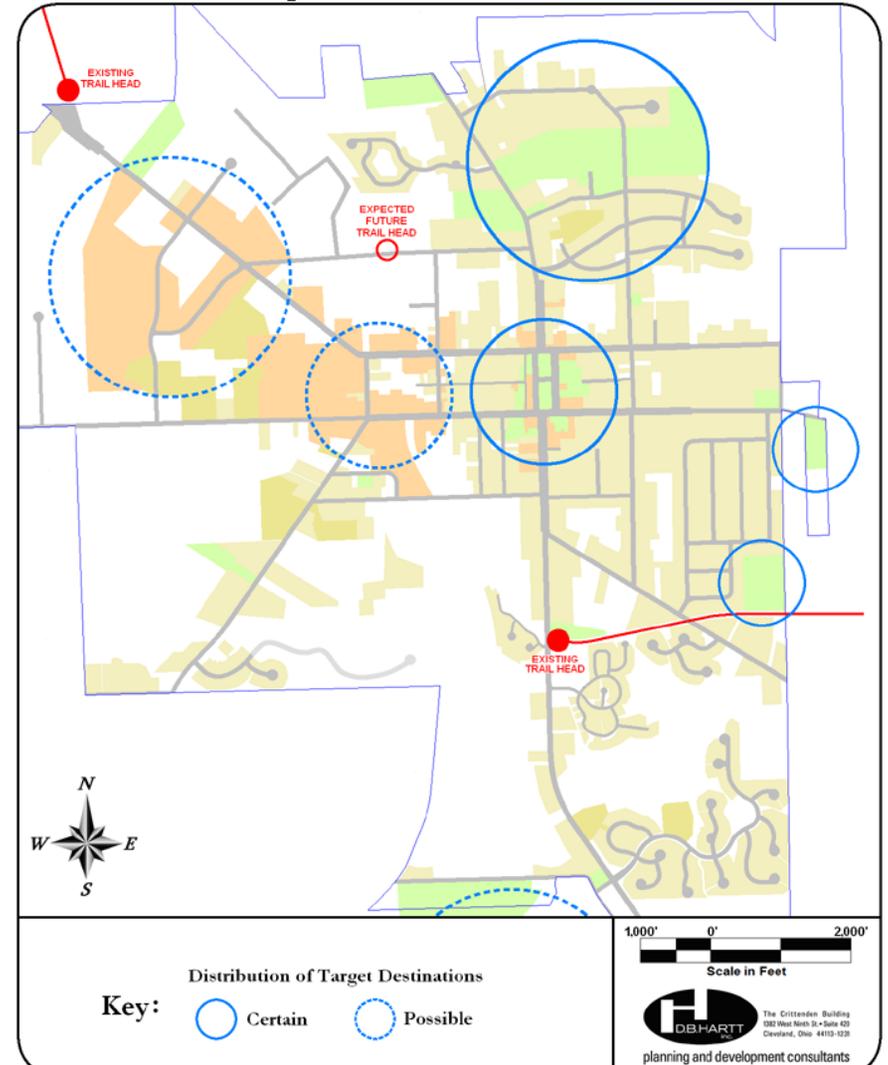


# Origin Destination Maps

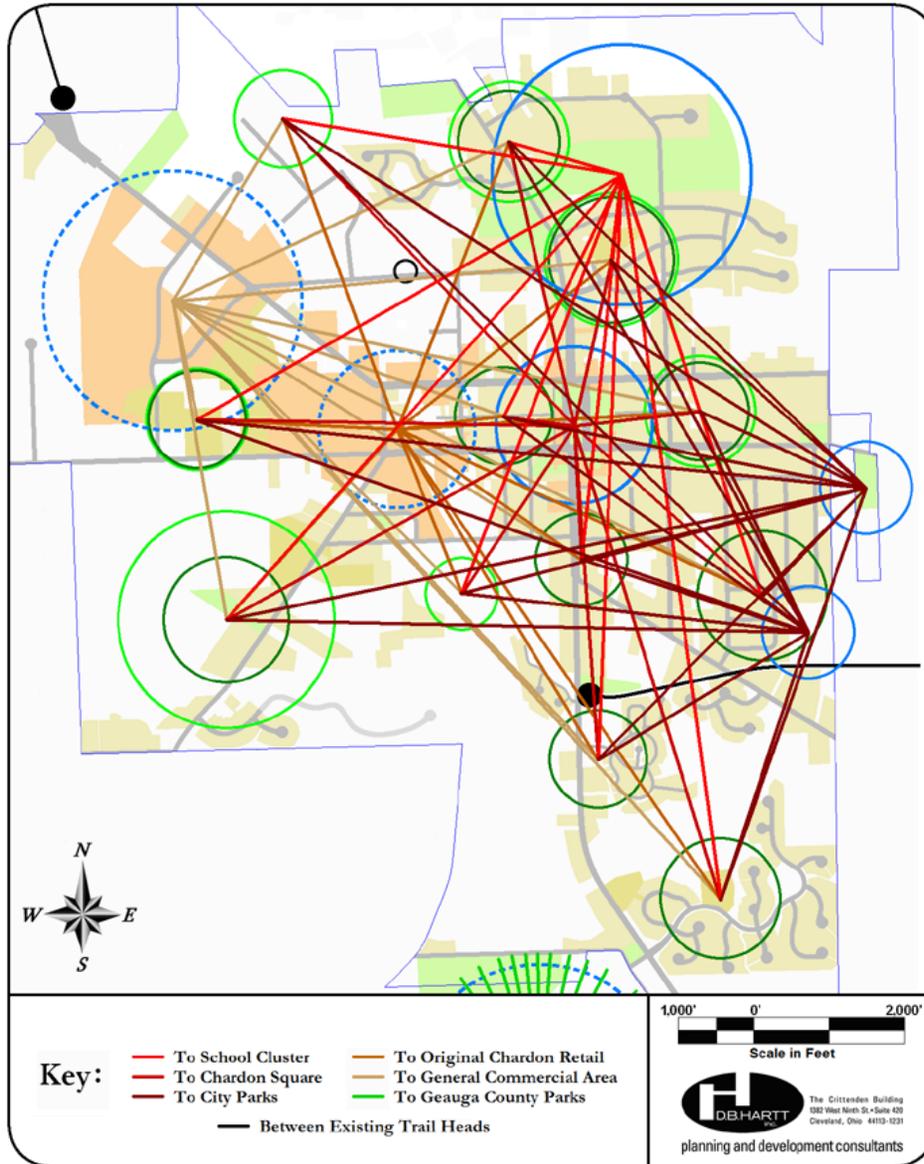
## Map A-7 - Residential (Origin) Clusters



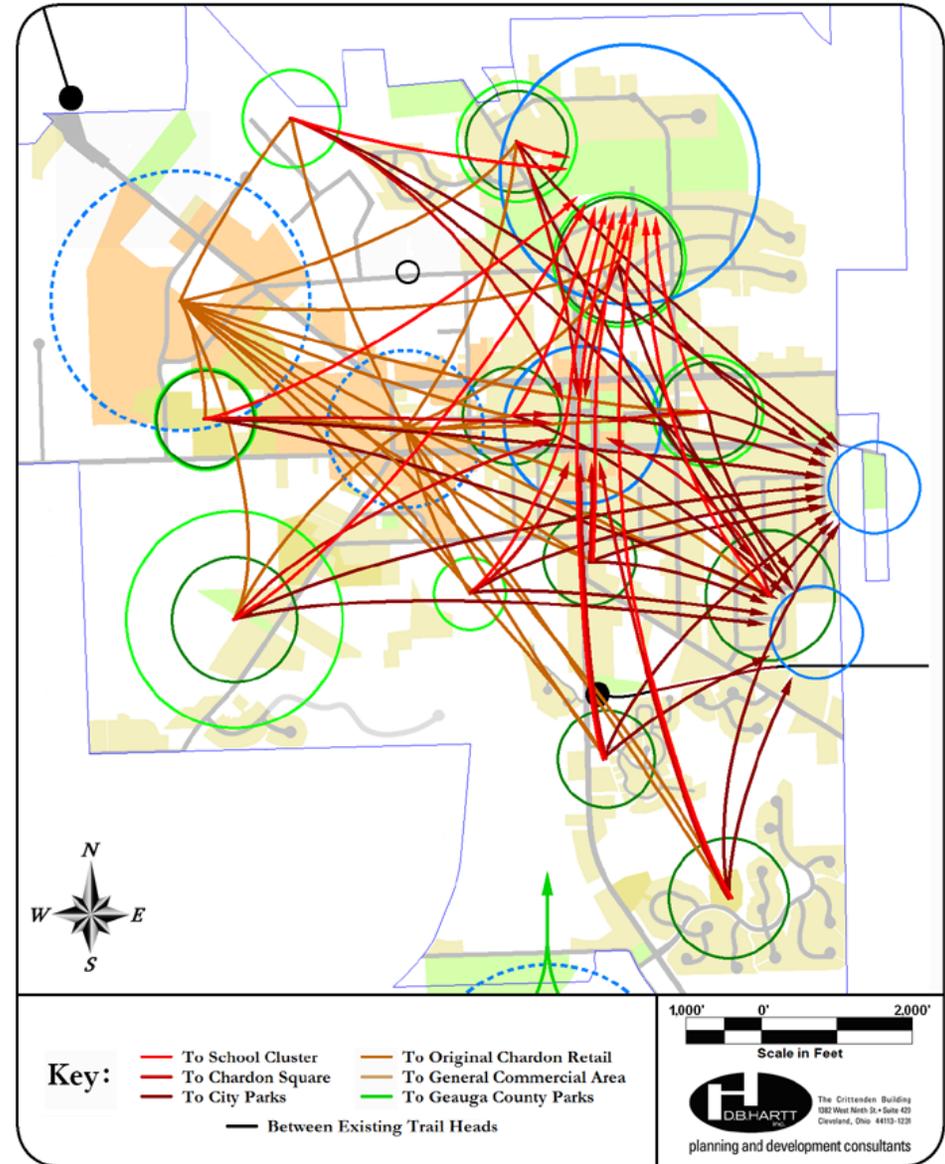
## Map A-8 - Destination Clusters



Map A-9 - Direct Origin-Destination Connections



Map A-10 - Minimally Adjusted Connections



Map A-11 - Comfortable Walking Distance from Destinations – Schools, Parks and Square



## Summary of Focus Group Meetings



### Memorandum

**TO:** Focus Group – Pedestrian and Bike Trail Plan

**FROM:** D.B. Hartt, Inc.

**SUBJECT:** Summary of August 12, 2009 Meeting with Focus Group (Plus Comments Received Since)

**DATE:** August 24, 2009

---

Following is the summary of the meeting with the Focus Group held on August 12, 2009:

1. The initial presentation and discussion generally followed the meeting agenda which is attached to this summary:
  - a. Welcome and review the Purpose of Focus Group,
  - b. Introductions,
  - c. Presentation of Preliminary Vision, Background, and General Parameters,
  - d. Questions/Clarifications of the items presented.
2. The power point and material distributed at the meeting should also be considered as part of this meeting summary.
3. Focus group participants were asked (for approximately 15 minutes) to “brainstorm on their own”, how a new trail system might be developed – considering both locations and trail type preferences. The purpose was for the participants to gain a better understanding of the existing conditions and the possibilities and issues associated with the development of the trail system.
4. D.B. Hartt presented the Preliminary Plan Recommendations that were previously presented to the joint work sessions of Planning Commission and City Council.
5. The following is a summary of the discussions that followed the presentation (#4 above):

The Crittenden Building • 1382 West Ninth St. • Suite 420 • Cleveland, Ohio 44113-1231  
216.696.0400 • Fax 216.696.3464 • www.DBHartt.com

- a. There was general consensus that:
  - i. The target users would be the “intermediate recreational bicyclist” as stated in the hand-out.
  - ii. The type of trail preferences should be as set-forth in the presentation: (1) off-road, (2) side-paths, (3) striped lanes, and (4) signs only.
  - iii. The origin and destination corridors were generally acceptable. However, the actual paths and alignments needed further discussion. Also, one person stated that the trail system should only include the central corridor (corridor #1) connecting the north and south Maple Highlands Trail. Most, however, felt strongly that trails to and from Chardon Square were important. Getting through the square on bikes continues to be unresolved.
- b. Further discussion is needed regarding the specific roads, types of trails by route, and priorities. This discussion will occur at the August 26<sup>th</sup> meeting.
- c. In these discussions it was expressed by one or more that:
  - i. A route to the northwest commercial areas should receive equal priority as the five corridors presented.
  - ii. Tunnel access should be provided to Fox Point.
  - iii. All sidewalks should be completed.
  - iv. An alternate from the south to Chardon Square should be via corridor #1 to 5th Ave. to North St. and then back south to the Square.
  - v. Bike racks will be needed at priority destinations.
- d. Two questions were raised:
  - i. What’s the cost to build Segment #1A? The consultant’s did not have the answer.
  - ii. Are there “comparable communities” that Chardon could look at and compare? The consultant’s indicated they’d try to identify one.
6. It was agreed that the next meeting would be held on August 26<sup>th</sup>, at 6:30 pm at the same location.



**Comments Received Since the August 12, 2009 Meeting**

1. Want to accomplish Plan
2. Propose plan in Phases
3. Agree with top priorities
4. The top priority should be #1A
5. “Hills” a concern – provide easiest route
6. “Hills” – reconsider #2A and #4B
7. Consider “5<sup>th</sup> Ave. – North St. as possibility
8. Link Maple Highlands to Square
9. Access to Fox Pointe
10. Maximize separation from vehicles





## Memorandum

**TO:** Focus Group – Pedestrian and Bike Trail Plan

**FROM:** D.B. Hartt, Inc.

**SUBJECT:** Summary of August 26, 2009 Meeting with Focus Group

**DATE:** September 09, 2009

---

Following is the summary of the second meeting with the Focus Group held on August 26<sup>th</sup> 2009:

- 1 The meeting generally followed the Agenda:
  - (a) Welcome, Purpose and Expectations,
  - (b) Follow-up to August 12<sup>th</sup> meeting,
  - (c) Presentation of pedestrian considerations,
  - (d) Discussion of long-range plan vision, short-term priorities, and plan implementation.
2. All material distributed at the meeting is attached herewith and should be considered as part of this summary.
3. D.B. Hartt, Inc. presented the pedestrian considerations that were not covered at the previous Focus Group meeting on August 12, 2009.
4. The Focus Group participants were asked to address questions related to the long-range plan vision (segment additions, route preferences, amenities etc.), short-term priorities, and plan implementation.
  - a. General comments and conclusions:
    - i. Like Plan, Good Plan
    - ii. May be too ambitious, Whole system is too bold
    - iii. Agree with principles

The Crittenden Building • 1382 West Ninth St. • Suite 420 • Cleveland, Ohio 44113-1231  
216.696.0400 • Fax 216.696.3464 • www.DBHartt.com

- b. New corridors to be considered:
  - i. Focus on system within Chardon Square and then outside of the Square.
  - ii. Connection between north/northeastern areas of City and commercial areas west/northwest.
  - iii. Perimeter bikeway connection between Mel Harder Park and north of City.
  - iv. 5<sup>th</sup> Ave. and North St. connection (was also mentioned in August 12<sup>th</sup> meeting).
- c. Other considerations/comments
  - i. Not all spoke regarding the route along their properties, but there was about equal support for having trails along their homes and otherwise.
  - ii. Corridor 2 may have to be realigned since segments along its current path occupy the new school property.
  - iii. Court St. could be a shared roadway and connect to Corridor 1A/Maple Highlands Trail (MHT).
  - iv. Roadway improvements should relate to bikeway plan.
  - v. Provision of amenities such as rest rooms, fountains, benches (for seniors); also expressed concern about costs, especially for the rest rooms.
  - vi. Maple Highlands Trail will bring in people to the City and be an economic benefit.
  - vii. Consider access to emergency services on trail in order to address safety concerns of trail users.
  - viii. Do what is best for the City.
- d. Almost all participants concurred on the following elements of the trails and sidewalks for short-term priorities:
  - i. Trails: Corridor 1A/Maple Highlands Trail, segments connecting schools, and sidewalk and local street feeders to Corridor 1A
  - ii. Sidewalks: Fix existing sidewalks, connect network around schools.
- e. Participants suggested and discussed the following to implement the Plan:



- i. Secure representation from the Park Board to discuss the potential to secure the land to complete MHT.
  - ii. Consider wider sidewalks, maybe 6 feet, which could be sufficient for dual purpose (bikes/pedestrians in one direction).
  - iii. Identify funding mechanism(s) for construction and maintenance of sidewalks.
  - iv. Require developers to provide sidewalks on new streets with biking amenities (L. Bednar mentioned that the City currently practices this policy).
  - v. Priority to be influenced by availability of \$\$.
  - vi. Some interim steps suggested were signage on existing streets, but it was decided that signage should be combined with other facilities and not used outright, although it is low cost. Temporary striping of lanes and lowering speed limits was also suggested.
5. Announcement of Public Forum to be held on September 29, 2009 at St.Mary's Church and to bring friends and neighbors.



## Summary of Public Forum

Below is a summary of the comments made at the public forum held in September 2009.

1. General:
  - a. Be the leader you have been and set an example.
  - b. Concentrate on filling sidewalks and then sell the bikeway plan to demonstrate “accomplishment”
  - c. Encourage families to use the system
  - d. Safety is an issue
  - e. Riding on the bike lane is a “sense of false security”. Help it by reducing speed limit, adding signage etc.
  - f. Concern about loss of trees and impact on personal property.
  - g. Use good phasing of plan.
2. Priorities:
  - a. Connect Maple Highlands Trail (MHT) trailheads and access to destinations to the “casual” rider seeking recreation
3. Interim:
  - a. Use signs and paint to identify secondary connections between the existing MHT trailheads

## References

*Guide for the development of bicycle facilities*, American Association of State Highway and Transportation Officials, 1999

*ODOT Design Guidance for Independent Bicycle Facilities*, Office of Local projects Ohio Department of Transportation, October 2005.

*ODOT Design Guidance for Roadway-Based Bicycle Facilities*, Office of Local projects Ohio Department of Transportation, October 2005.

*Oregon Bicycle and Pedestrian Plan – An Element of the Oregon Transportation Plan*, Oregon Department – Bicycle and pedestrian program, June 14, 1995.

*A 2002 National Survey of Pedestrian and Bicyclist Attitudes and Behaviors*, National Highway Traffic Safety Administration, Retrieved from [www.walkinginfo.org](http://www.walkinginfo.org)

*Ohio Manual of Uniform Traffic Control Devices*, Ohio Department of Transportation – Office of Traffic Engineering, 2005 Edition.

*Regional Bicycle Transportation Plan – An Element of the Regional Transportation Plan, Connections 2030*, NOACA, March 2008.

*Economic Impacts of Rivers, Trails and Greenways: Property Values*, Resource Guide published by National Parks Service, 1995.

*Economic benefits of Trails and Greenways*, Rails-to-Trails Conservancy, 2004.

*Rail-Trails and Safe Communities: The Experience on 372 Trails*. National Park Service Rivers, Trails, and Conservation Assistance Program, January 1998.

*Economic and other benefits of Trails, Greenways and Open Space*. [www.miamivalleytrails.org](http://www.miamivalleytrails.org).

*The effect of greenways on property values and public safety*; The Conservation Fund and Colorado State Parks, State Trails Program (1995). National Trails Training Partnership ([www.americantrails.org](http://www.americantrails.org)).

*Impact of Brush Creek Trail on property values and crime*; Santa Rosa, CA, Michelle Miller Murphy, Sonoma State University, ((1992) ([www.americantrails.org](http://www.americantrails.org)))