

# TOWN OF HALLS

# PEDESTRIAN AND BICYCLE

# PLAN



OCTOBER 2016

## Acknowledgments

The Town of Halls appreciates all those who helped contribute to the development of this plan by either reviewing this document or by giving input.

### **Town of Halls**

Eugene Pugh, Mayor

Alan Cherry, Public Works Director

RPM Transportation Consultants, LLC

### **Tennessee Department of Transportation (TDOT)**

Carlos McCloud, Office of Community Transportation – Region 4

Emmily Tiampati, Office of Community Transportation – Region 4

The preparation of this document was financed in part through TDOT's Community Transportation Planning Grant and was prepared by RPM Transportation Consultants, LLC on behalf of the Town of Halls.

# Table of Contents

LIST OF FIGURES.....	iii
LIST OF TABLES.....	iii
LIST OF APPENDIX FIGURES.....	iv
LIST OF APPENDIX TABLES.....	iv
10 INTRODUCTION.....	1
1.1 Planning Area.....	1
1.2 History of Pedestrian and Bicycle Planning.....	1
1.3 Purpose of Study.....	2
1.4 Scope.....	2
1.5 Overview of Transportation System.....	3
1.6 Land Use.....	5
1.7 Trip Generators and Attractors.....	5
1.8 Master Planning Process.....	7
20 SIDEWALK INVENTORY.....	7
2.1 Sidewalk Inventory Data Collection.....	7
2.2 Data Attributes Collected.....	8
2.3 Sidewalk Network Data.....	9
2.5 Users of the Existing Network.....	14
2.6 Summary of Findings.....	15
30 PUBLIC ENGAGEMENT.....	16
3.1 Engagement Process.....	16
3.2 Prioritizing Non-Motorized Improvements.....	16
40 FACILITY TYPES AND DESIGN GUIDANCE.....	18
4.1 Facility Types.....	18
4.2 Design Guidelines.....	18
50 RECOMMENDATIONS.....	19
5.1 Areas of Prioritization.....	19
5.2 Maintenance Recommendations.....	20
5.3 Connectivity Recommendations.....	21
60 IMPLEMENTATION.....	22
6.1 Supportive Strategies, Policies, and Programs.....	22
6.2 Cost Estimates.....	24
6.3 Funding Strategies.....	26
70 CONCLUSION.....	30
APPENDIX I. DATA COLLECTION GIS DICTIONARY.....	31
APPENDIX II. PUBLIC ENGAGEMENT SURVEY.....	33

APPENDIX III. PUBLIC ENGAGEMENT MEETING .....	43
APPENDIX IV. DESIGN GUIDELINES.....	50
A. Non-Motorized Travel Speeds and Physical Space Requirements.....	50
B. Pedestrian Infrastructure Design Guidelines.....	52
C. Bicycle Infrastructure Design Guidelines .....	55
D. Railroad Crossing Treatment Guidelines.....	61
APPENDIX V. NEIGHBORHOOD GREENWAYS.....	64

# LIST OF FIGURES

Figure 1 Roadway Functional Classification ..... 3  
Figure 2 Roadways with Sidewalk on At Least One Side ..... 4  
Figure 3 Halls Non-Motorized Attractors and Generators ..... 6  
Figure 4 Data Collection Segmentation Example ..... 7  
Figure 5 Common Sidewalk Maintenance Conditions ..... 8  
Figure 6 Driveway Cross Slope Solution ..... 9  
Figure 7 Existing Sidewalk Network ..... 10  
Figure 8 Existing Sidewalk Maintenance Conditions ..... 12  
Figure 9 Halls Elementary and Junior High School Proximity to Student Residences ..... 15  
Figure 10 Public Engagement Responses ..... 17  
Figure 11 Maintenance Recommendations ..... 20  
Figure 12 Connectivity Recommendations ..... 21

# LIST OF TABLES

Table 1 Sidewalk Network Summary ..... 11  
Table 2 Existing Conditions - Roadways with Sidewalks ..... 13  
Table 3 Halls Elementary and Junior High School Student Modes of Travel ..... 15  
Table 4 Average Unit Prices for Supportive Recommendation Components ..... 24  
Table 5 Planning-Level Cost Estimates for Sidewalk Improvements ..... 25  
Table 6 Funding Assistance Programs ..... 27

## LIST OF APPENDIX FIGURES

Figure A. 1 Typical Physical Space Requirements by Mode .....	51
Figure A. 2 Non-Downtown Sidewalk Cross-Section .....	52
Figure A. 3 Downtown Sidewalk Cross-Section .....	53
Figure A. 4 Green Strip Buffer Cross-Section .....	53
Figure A. 5 Unsignalized Pedestrian Crossing Signage .....	54
Figure A. 6 Pedestrian and Vehicular Behavior Signage .....	54
Figure A. 7 Paved Shoulder Facility Non-Downtown Cross-Section .....	55
Figure A. 8 Wide Outside Lane Facility Cross-Section.....	56
Figure A. 9 Sharrow Pavement Marking.....	57
Figure A. 10 Bicycle Facility Regulatory Signage .....	58
Figure A. 11 Bicycle Facility Warning Signage and Object Markers .....	59
Figure A. 12 Bicycle Facility Guide Signs.....	60
Figure A. 13 Flashing Light Signal Assembly for Sidewalk Crossings.....	61
Figure A. 14 Pedestrian Gate Placement behind the Sidewalk .....	62
Figure A. 15 Pedestrian Gate Placement with Pedestrian Gate Arm .....	62
Figure A. 16 Pedestrian Gate and Fencing Placement .....	63

## LIST OF APPENDIX TABLES

Table A. 1 GIS Data Dictionary.....	31
Table A. 2 Typical Travel Speeds by Mode .....	50
Table A. 3 Sidewalk Facility Width Recommendations.....	52
Table A. 4 Paved Shoulder Width Recommendations .....	55
Table A. 5 Wide Outside Lane Facility Width Recommendations .....	56

# 1.0 INTRODUCTION

## 1.1 Planning Area

Halls, Tennessee is a rural community located in northern Lauderdale County. The town covers 3.47 square miles and had an estimated 2,621 residents in 2014 (2014 ACS 5-Year Estimates). Nineteen percent of residents had a disability, while 13% had no access to a vehicle. The median household income for the 1,006 households in Halls was \$34,750 (as compared to the state's \$44,361), while 33.1% percent of individuals were living below the poverty level that year. The community experienced the majority of its physical growth between 1940 and 1980 due in part to the Army Air Field training facility during WWII and the site selection of a Tupperware factory. While both facilities are now closed, the growth (and manner of development) largely contributed to the community's existing foundation of walkability, which includes a relatively extensive sidewalk network, more traditional street grid (versus cul-de-sacs), and community destinations within walking distance of many residences.



## 1.2 History of Pedestrian and Bicycle Planning

Over the past decade, the Town of Halls has proactively utilized federal and state grants administered through the Tennessee Department of Transportation (TDOT) to increase the community's walkability and bikeability. Projects have included maintenance improvements, constructing ramps to address ADA (Americans with Disabilities Act of 1990) accessibility, and constructing new infrastructure along key routes. Recognizing the need for and value of a strategic plan for making improvements moving forward, the Town secured TDOT's Community Transportation Planning Grant (CTPG) in 2014 to fund the development of this plan. In addition to this planning effort, the Town recently completed a Safe Routes to School grant application (submitted July 2016) for completing a key east-west connection between Airport and Sumrow Streets. Recommendations from this effort are incorporated in this plan.

### *Recent project examples completed in Halls*



**Bicycle racks in front of Library**



**ADA-compliant ramp retrofits**



**Curb cut retrofits**

### 1.3 Purpose of Study

The Town of Halls' goal is to continue to grow into a well-balanced, interconnected community with multiple transportation options for its citizens and visitors. The objectives of this plan for working towards this goal are as follows:

- To ensure a plan development process that clearly, consistently, and comprehensively considers the needs of all users.
- To provide comfortable, safe, and convenient pedestrian facilities for all users regardless of physical ability. Connections shall focus on schools, parks, and downtown amenities including shops, restaurants, library, and service centers.
- To maximize the multimodal function of existing roadways corridors.
- To ensure all new roadways are safe and comfortable for pedestrians, bicyclists, and motorists alike.
- To increase the percentage of trips taken on foot or by bicycle in the Town.
- To minimize conflicts between motorists and non-motorized users.
- To recommend design guidelines for non-motorized facilities.
- To establish a prioritization of improvement needs, implementation strategy, as well as identify potential funding sources.

### 1.4 Scope

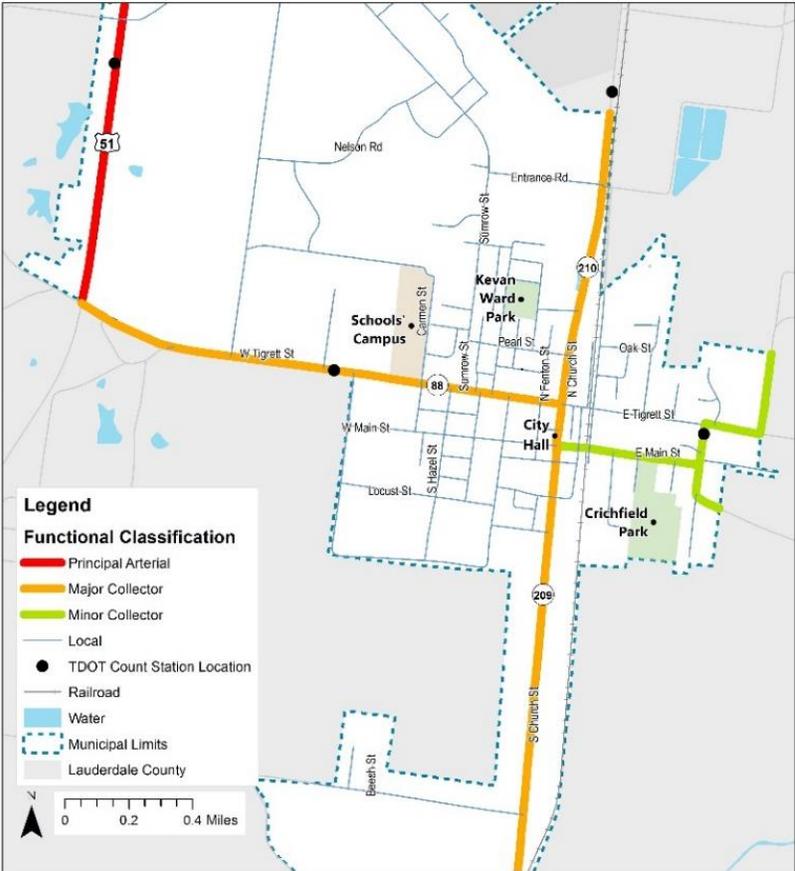
The Halls Pedestrian and Bicycle Plan identifies, documents, and analyzes existing needs and opportunities regarding walking and biking in the community. Based upon technical analyses of existing sidewalk conditions and connectivity, as well as priorities established by residents and municipal staff, recommendations for phased improvements are provided. Planning-level cost estimates and general design standards for pedestrian and bicycle facilities are also provided to assist staff in understanding the magnitude of recommendations, as well as providing a resource for the most up-to-date design recommendations. Having a blueprint for making these improvements encourages more efficient and effective use of municipal dollars, better positions the Town in securing future funding opportunities, and most importantly, works towards improving walking and biking conditions in the community.

### 1.5 Overview of Transportation System

Halls' roadway system is made up of a network of national and state highways, major and minor collector roadways, and local streets, each designed for a functional role in the overall network. Figure 1 illustrates this hierarchical system, commonly referred to as *functional classification*. Highway 51, along the western edge of the city limits, provides an important north-south connection for western Tennessee linking multiple communities from Memphis to Union City. According to TDOT traffic count stations, also illustrated in Figure 1, the roadway averages over 9,000 vehicles per day.

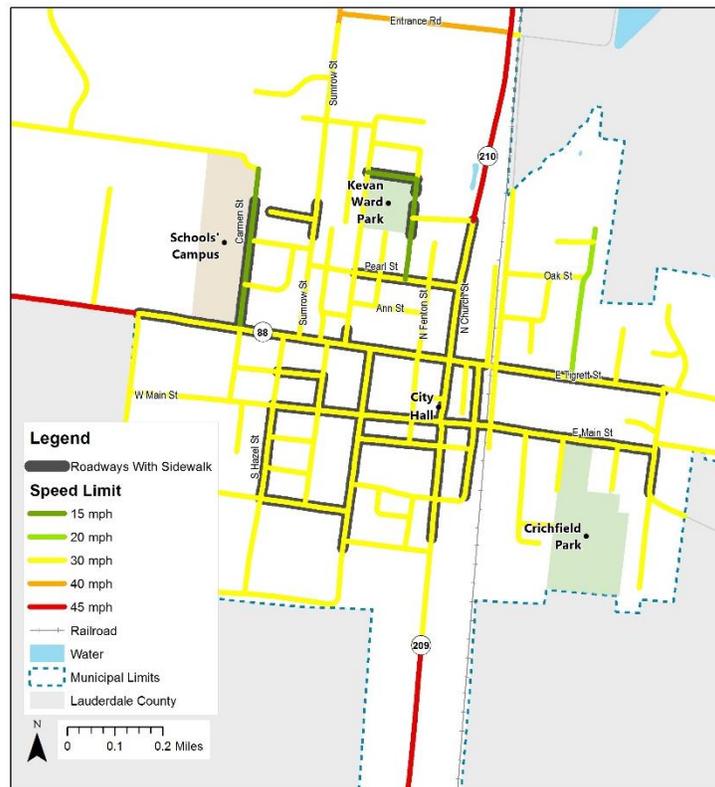
State Highway 88 (Tigrett Street) and State Highway 210 (Church Street) act as the community's two main thoroughfares. These major collector roadways carried an average of 4,360 and 2,055 vehicles per day, respectively, over the past five years. Due to its connection to Highway 51 and access to the schools' campus, Tigrett Street is a particular corridor of focus for the Town.

The local street network resembles a traditional street grid pattern, versus a suburban pattern which is characterized by cul-de-sac subdivisions. This component of Halls overall roadway network is especially important for a pedestrian-friendly community given the shorter block lengths, more direct connections between destinations, increased options for routes, and slower vehicular speeds on secondary roadways.



**Figure 1 Roadway Functional Classification**  
 Source: TDOT TRIMS

In addition to the roadway network's contribution to walkability and bikeability, Halls' existing sidewalk network provides non-motorized connections on one or both sides of approximately 3.4% of roadways within the town (excluding Highway 51) as illustrated in Figure 2. More details regarding the coverage and condition of the network will be further discussed in Chapter 2. Currently, no facilities dedicated solely to bicycles exist; instead, cyclists currently use roadways, roadway shoulders, right-of-way, and sidewalks to navigate the community. Aside from the two park trails, no greenways currently exist within Halls. According to the Halls Police Department, no crashes between pedestrians or cyclists have been recorded in the past ten years.



**Figure 2 Roadways with Sidewalk on At Least One Side**

Final components of Halls' transportation system include a municipal airport, Arnold Field (located approximately one mile northwest of the town center), and an active railroad line, the Illinois Central Railroad, which bisects the community running north-south. According to Town staff, 24 trains on average pass through town daily. All of these modal components make up Halls' transportation system and have varying levels of impact upon the safety and comfort of pedestrians and cyclists in the community.

**1.6 Land Use**

Identifying land uses is important for understanding community connectivity, as each type attracts and generates varying levels of non-motorized traffic. Land uses also have the potential to negatively impact walking and biking conditions, such as truck traffic generated by industrial land uses.

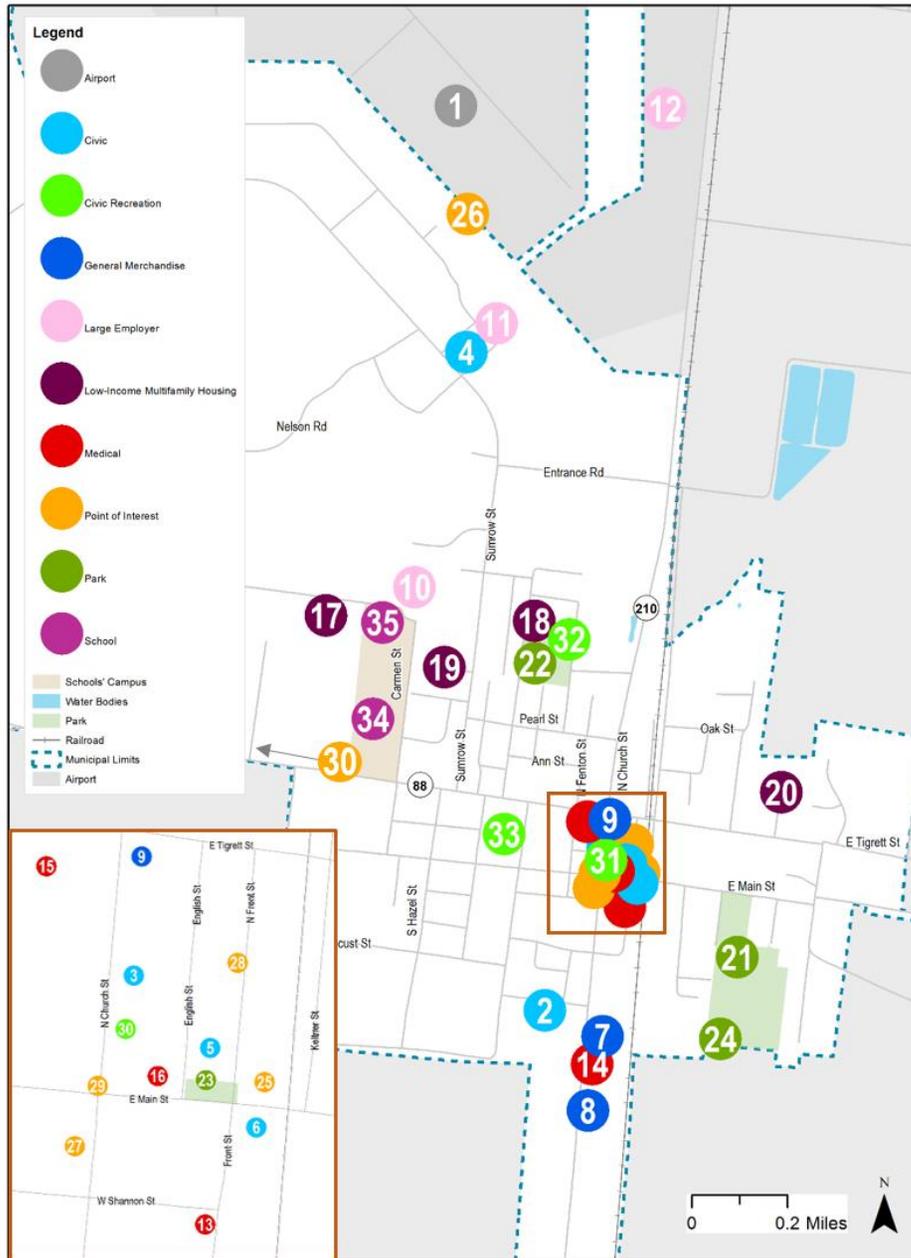
The study area is dominated by low-density residential uses, although, the community has five multi-family housing complexes, all of which are located on the north side of Tigrett Street. Four of these complexes are subsidized including one dedicated to qualifying individuals aged 62 and older. Clusters of commercial development exist in the town center and along South Church Street, while industrial land uses exist mainly in the northwestern section of the town, either in the Industrial Park or off of Industrial Road. Halls has two municipal recreation parks, one located on the northwestern side adjacent to the Senior Center (Kevan Ward Memorial Park) and one on the southeastern side of the town which includes ballfields, tennis courts, and a skate park (Crichfield Park). A mini park is located on the historic Front Street at the intersection of Front and East Main Street and consists of a gazebo and public seating area. Three schools, an elementary, junior high, and high school are located on the same campus on the western side of Halls fronting Tigrett and Carmen Streets.



*Various Land Uses in Halls, TN*

**1.7 Trip Generators and Attractors**

Identifying individual trip generators (origins) and attractors (destinations) within these land uses is critical for planning non-motorized improvements as providing connections to places where people want to go is the ultimate goal. These attractors and generators generally are places that draw or appeal to bicyclists and pedestrians and consist of land uses typically correlated with higher levels of walking and biking trips (such as parks, schools, civic buildings, or neighborhood stores). Locations, displayed in Figure 3 on the following page, were identified using a combination of public input and the Lauderdale County Economic and Community Development’s destination map.



- 1 ARNOLD FIELD
- 2 POST OFFICE
- 3 CITY HALL
- 4 PUBLIC WORKS
- 5 FIRE DEPARTMENT
- 6 POLICE DEPARTMENT
- 7 TOWN AND COUNTRY GROCERS
- 8 DOLLAR GENERAL
- 9 KEY CORNER FOOD MART
- 10 CRAFCO INC
- 11 THE ROYAL GROUP
- 12 HUTCHERSON METALS
- 13 MEDSOUTH MEDICAL CENTER
- 14 PRIMARY CARE CENTER OF HALLS
- 15 HALLS FAMILY WALK-IN CLINIC
- 16 CARE RITE
- 17 WESLEY PARK MEADOWS SENIOR HOUSING
- 18 DYERSBURG HOUSING AUTHORITY UNITS
- 19 DYERSBURG HOUSING AUTHORITY UNITS
- 20 LAUDERDALE APARTMENTS
- 21 CRICHFIELD PARK
- 22 KEVAN WARD PARK
- 23 MINI PARK
- 24 SKATEBOARD PARK
- 25 CABOOSE MUSEUM
- 26 VETERANS' MUSEUM
- 27 MURRAY HUDSON'S ANTIQUARIAN
- 28 HISTORIC FRONT STREET
- 29 DOWNTOWN RETAIL & SERVICES
- 30 MISSISSIPPI RIVER TRAIL
- 31 PUBLIC LIBRARY
- 32 SENIOR CENTER
- 33 COMMUNITY CENTER
- 34 HALLS JR HIGH & HIGH SCHOOL
- 35 HALLS ELEMENTARY

**Figure 3 Halls Non-Motorized Attractors and Generators**

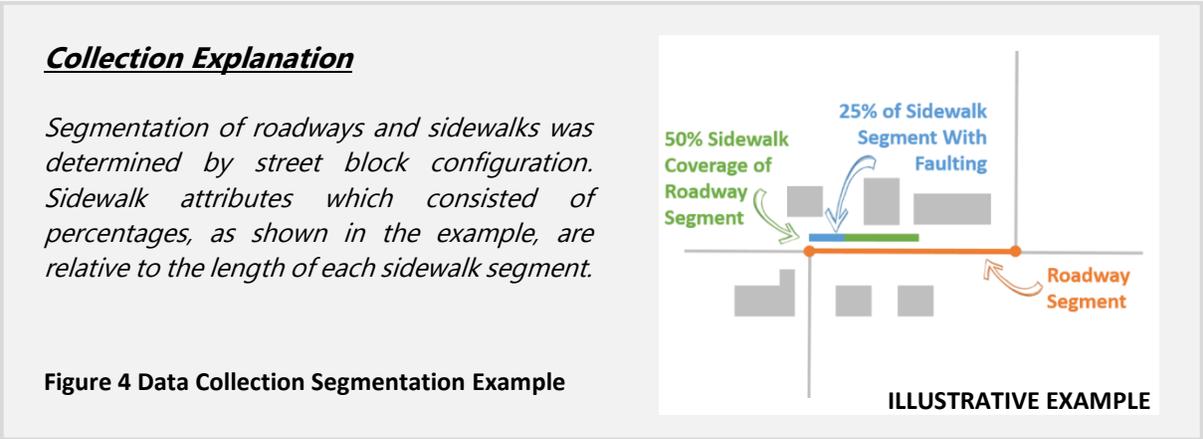
### 1.8 Master Planning Process

The planning process began January 2016 and concluded August 2016. Initial meetings with Town staff provided an understanding of the community's past efforts related to walking and biking as well as current needs. An inventory of Halls' existing sidewalk network was completed in June followed by a public engagement process to review common inventory findings, gain input on resident needs and desires, and establish priorities for implementing planned improvements. Venues for engaging the public and general results are further discussed in Chapter 3. Based upon the previous planning phases, recommendations for making phased improvements aimed at increasing the community's walkability and bikeability through a variety of measures were developed. The planning process was formally completed when the final plan document was formally adopted by the Town's Board of Alderman.

## 2.0 SIDEWALK INVENTORY

### 2.1 Sidewalk Inventory Data Collection

An inventory of the existing sidewalk facilities within Halls' municipal limits was completed in June of 2016. Understanding the condition, general gaps in connectivity, and safety-related concerns of the existing network provides a foundation, rooted in data, necessary for developing effective and efficient recommendations that accurately meet the community's needs. Data was collected at a level of detail necessary for analyzing needs at the community level, and were gathered by segment (i.e. street block). The process of segmentation is illustrated in Figure 4 below.



## 2.2 Data Attributes Collected

The inventory was completed for sidewalks within the municipal limits, although, did not include facilities located on properties such as parks, schools, and housing complexes. Data collected included physical characteristics of the facility, its relationship to the adjacent roadway, condition of the facility (which included noting four common maintenance-related conditions, further described in Figure 5 below), as well as subjective data points relating to safety and connectivity. Appendix I further describes the computer mapping file used for data collection. The following describes these attributes in greater detail, including the measurement used for each element, as it relates to each sidewalk segment inventoried:

- Sidewalk Width (Feet) and Composition
- Percent Sidewalk Coverage Along Roadway Segment
- Width and Composition of Sidewalk Buffer
- Percent of Sidewalk Segment Cracked
- Percent of Sidewalk Segment With Faulting
- Presence of Spalling Along Sidewalk Segment
- Presence of Utility Obstruction (Utility Poles or Fire Hydrants)
- Additional Remarks, Including Safety Concerns and Comments on Surroundings

### Faulting



Sidewalk panels are uneven due to heaving or settling. Common causes include settlement of foundation and tree roots.

### Spalling



Sidewalk's smooth surface is chipping away. Common cause is the deterioration of the surface protectant, often accelerated by deicing materials.

### Cracking



Sidewalk panels are cracked but are generally intact. Settlement, structural overload, and corrosion are a few common causes.

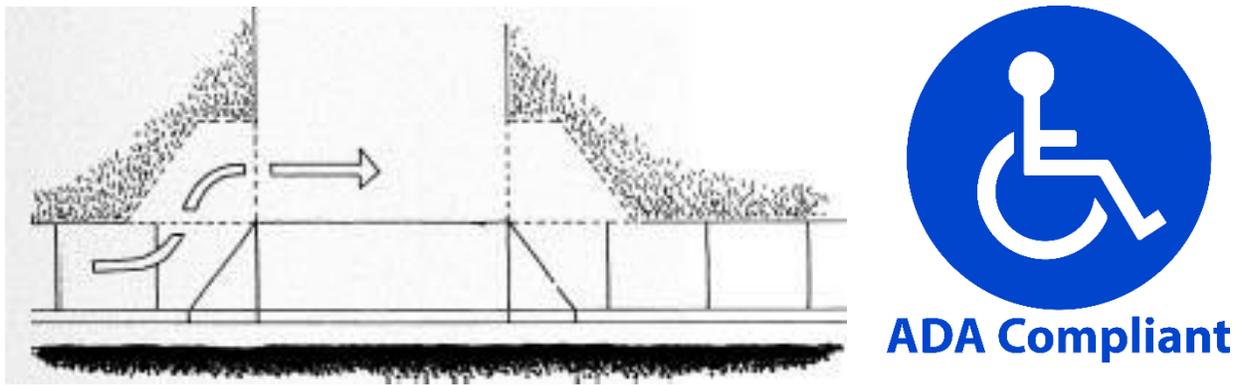
### Obstructions



Includes any foreign object that intrudes into the pedestrian's path including utility poles, mailboxes, vegetation, or fire hydrants.

**Figure 5 Common Sidewalk Maintenance Conditions**

An integral component to sidewalk serviceability is accessibility for all users – regardless of ability. Attributes collected for the Halls inventory purposely included several of the most common ADA compliance issues – faulting, cracking, spalling, pathway obstructions, and slope issues. Running slope was noted for specific locations in the inventory, however, cross slope issues (segments exceeding 2%), most often associated with driveway connections, remains a challenge throughout the community. For priority corridors, the addition of maneuver space, as illustrated in Figure 6, can be a low-cost solution to ensure access for those using wheelchairs or pushing strollers. Inventory components can be used to focus future detailed inventory efforts associated with an ADA Transition Plan, which consists of a comprehensive review and survey of infrastructure, including buildings, and programs and practices within a jurisdiction.



**Figure 6 Driveway Cross Slope Solution**



**Utility Obstructions in Halls, TN**



**Cross Slope and Curb Ramp Issue in Halls, TN**

### 2.3 Sidewalk Network Data

This section describes and illustrates the extent of coverage and condition of Halls' existing sidewalk network, which totals over six miles. Figure 7 below and Table 1 on the following page describes the network's coverage, while Figure 8 on page 12 illustrates maintenance-related conditions. Destinations identified in Section 1.6 are included to illustrate general connectivity provided by the network.

Sidewalks on Tigrett and Main Streets, act as the pedestrian network's east-west backbone providing non-motorized connections almost the entire length of Halls' urbanized area. North-south connections, such as those along College, Church, and Carmen Streets, provide important connections to these two main roadways from nearby residential neighborhoods, therefore providing access to a variety of community destinations. Existing conditions for roadways with sidewalk infrastructure is displayed in Table 2 on page 13.

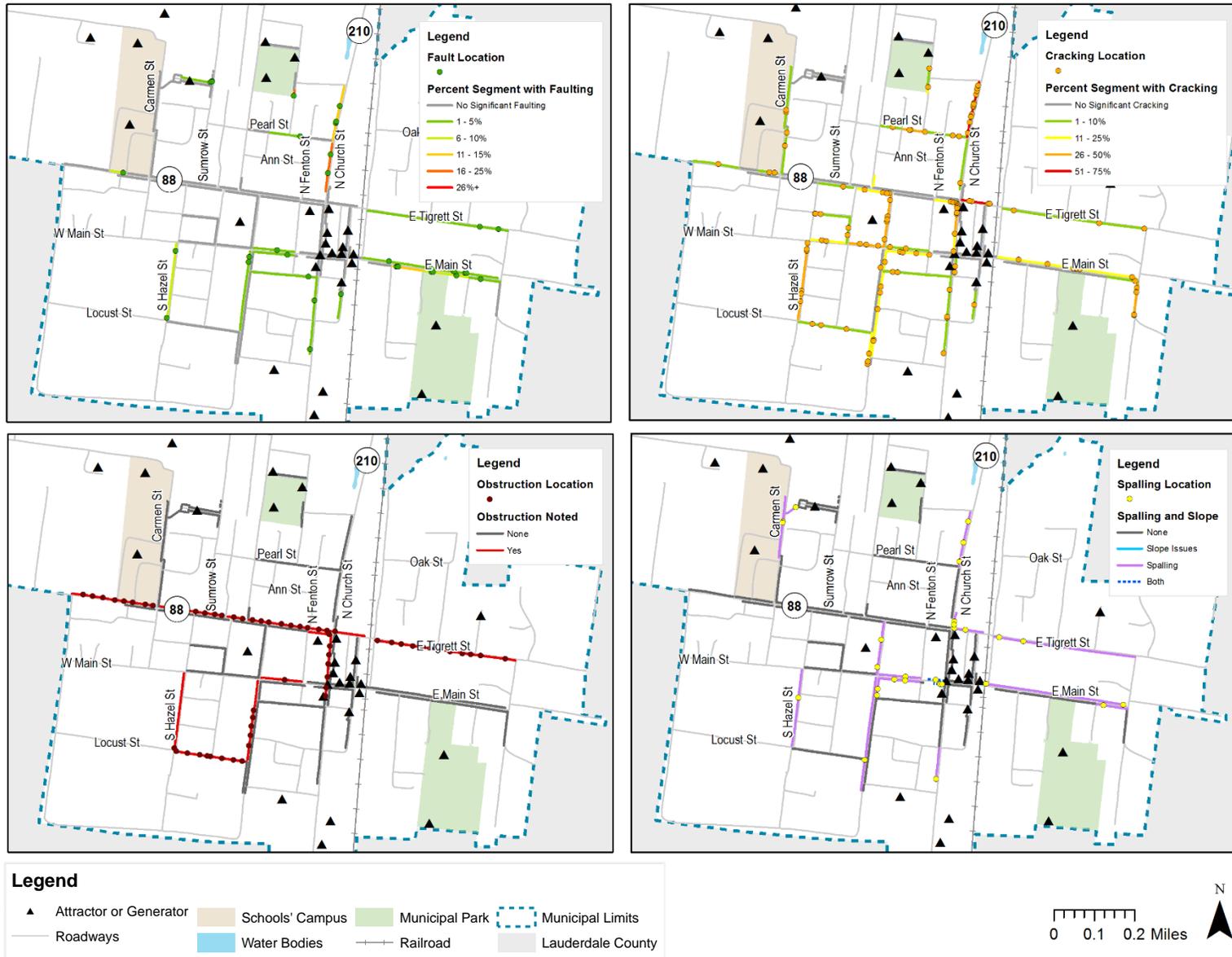


**Figure 7**  
**Existing**  
**Sidewalk**  
**Network**

**Table 1 Sidewalk Network Summary**

Existing Sidewalk Network Summary	
<b>Total Mileage of Sidewalk</b>	6.2 mi
<b>Total Square Feet of Sidewalk</b>	148,649.3 sq ft (~31% on State Routes)
Sidewalk Network Condition Summary	
<b>Square Footage of Segments with Cracking (50% or Greater)</b>	9,696.2 sq ft
<b>Square Footage of Segments with Faulting (25% or Greater)</b>	2,637.9 sq ft
<b>Square Footage of Segments with an Obstruction(s) Noted</b>	44,754.6 sq ft
<b>Square Footage of Segments with Spalling</b>	47,038.6 sq ft
<b>Square Footage of Segments with Slope Issues (Running Slope Only)</b>	3,268.8 sq ft





**Figure 8 Existing Sidewalk Maintenance Conditions**

**Table 2 Existing Conditions - Roadways with Sidewalks**

Street	From	To	Number of Through Lanes	Lane Width (FT)	On-Street Parking (FT)	Bike Lane	Sidewalk Width (FT)
W. Tigrett St	Hwy 51	Church St	2	11 - 18	None/Not Stripped	None	4.5
E. Tigrett St	Church St	Twin Rivers Rd	2	11 - 16	None/Not Stripped	None	3
W. Main St	S. Mitchell Ln	Church St	2	9 - 18.5	8	None	4 - 10
E. Main St	Church St	Hall St	2	12 - 18.5	8	None	3 - 10
N. Church St	Tigrett St	Northern City Limit	2	12 - 23	None/Not Stripped	None	4
N./S. Church St	Tigrett St	Southern City Limit	2	11 - 18	8	None	4 - 10
Carmen St	W. Main St	Elem. School Rd	2	10 - 14	None/Not Stripped	None	4 - 6
Sumrow St	W. Tigrett St	Entrance Rd	2	10 - 14	None/Not Stripped	None	4.5
New St	Sumrow St	Dead End	2	14	None/Not Stripped	None	5
Pearl St	Sumrow St	N. Church St	2	9 - 12	None/Not Stripped	None	3.5
Larson/Gilbert St	Airport St	Myers St	2	10	None/Not Stripped	None	5
Airport St	Pearl St	Larson St	2	9.5 - 12	None/Not Stripped	None	3.5
Myers St	W. Tigrett St	Ann St	2	15	None/Not Stripped	None	4
Park St	N. Hazel St	W. Tigrett St	2	12	None/Not Stripped	None	4
S. Wilson St	W. Main St	W. Tigrett St	2	13	None/Not Stripped	None	4
N./S. College St	W. Tigrett St	Mitchell Ln	2	15 - 17	None/Not Stripped	None	4
S. Hazel St	W. Main St	Locust St	2	13	None/Not Stripped	None	4
W. Shannon St	S. College St	S. Church St	2	12	None/Not Stripped	None	4
Locust St	Pam Cir	S. College St	2	13	None/Not Stripped	None	4
N. Front St	W./E. Tigrett St	W./E. Main St	2	12	8 - 15.5	None	10
S. Front St	W. Shannon St	Maple St	2	12 - 14	None/Not Stripped	None	4 - 6
S. Hall St	E. Main St	Ringer Ln	2	12	None/Not Stripped	None	4

## 2.5 Users of the Existing Network

There are a number of existing of pedestrians, bicyclists, and individuals in wheelchairs using Halls' transportation system. Information regarding general volumes and behaviors were gathered through observations during the sidewalk inventory, as well as from municipal staff, the public, and other planning efforts. Some of the key observations are described below:

- Residents walk or bike for a variety of purposes – recreation, physical activity, and accessing jobs, community services, and basic necessities.
- Town staff identified the Key Corner Food Market, Town and Country Grocers, and Dollar General as especially important destinations given some residents' reliance upon walking or biking for accessing these grocery and general merchandise stores.
- It was noted during the public meeting that the walking trail located in Crichfield Park is the more heavily-used of the two, as opposed to Kevan Ward Park's.
- Some residents use Mitchell Lane as a greenway route of sorts given the low amount of development and rural landscape bordering the roadway to the west and south.
- Sumrow Street was identified as being an especially troublesome secondary roadway for pedestrians and bicyclists given the lack of facilities, width of the roadway, and traffic behaviors. Traffic counts from Halls' 2016 Safe Routes to School (SRTS) grant application, indicated approximately 37 vehicles per hour using this roadway during a 24-hour count, with an 85<sup>th</sup> percentile speed of 39.3 mph (versus a posted speed of 30 mph).



*Downtown Halls, TN*

In particular, safe connections to the schools' campus have long been an important goal for the community. While 70 elementary and junior high students walked to school during the 2015-2016 school year, there is potential for even higher numbers given the number of students living within a reasonable walking distance, illustrated in Figure 9 on the following page. Table 3 breaks down the modes of travel for students of Halls Elementary and Junior High schools during the same school year.

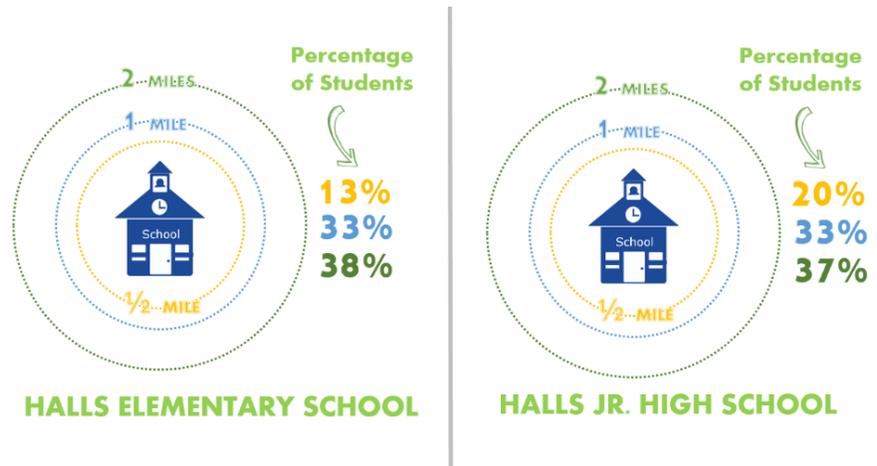
**Table 3 Halls Elementary and Junior High School Student Modes of Travel**

Source: Halls 2016 SRTS Application

				
<b>HALLS ELEMENTARY SCHOOL</b>	 1%	 0%	 55%	 44%
<b>HALLS JR. HIGH SCHOOL</b>	 27%	 1%	 41%	 31%
<b>TOTAL # OF STUDENTS BY MODE OF TRAVEL</b>	<b>70</b>	<b>5</b>	<b>510</b>	<b>405</b>

**Figure 9 Halls Elementary and Junior High School Proximity to Student Residences**

Source: Halls 2016 SRTS Application



## 2.6 Summary of Findings

The existing sidewalk network provides important connections to many community destinations; however, some connections are in need of maintenance improvements, while others lack facilities all together. Recent projects have addressed ADA accessibility in several key locations, however, several segments and curb ramp locations remain inaccessible, a hurdle for walkers or cyclists using the network. Needs aside, the existing sidewalk network’s coverage, especially east-to-west, provides an excellent foundation for improving walkability and bikeability. The network further enhances Halls’ walkable components, which include the town’s historic layout, relatively low traffic volumes, centralization of destinations, topography, and the municipality’s desire to provide reasonable, safe accommodations for all users. Understanding the level of service provided by the existing network, in addition to users’ needs and desires, helps to focus improvement efforts on projects that will provide the greatest benefit to the greatest number of residents.

## 3.0 PUBLIC ENGAGEMENT

### 3.1 Engagement Process

Opportunities for residents and stakeholders to provide input on walking and biking in the community was an important step in the plan's development. A public meeting was held June 24, 2016 at City Hall that included a walkabout exercise to identify common findings from the inventory as well as gather input on key problem areas and general mobility issues. Following the exercise, blank city maps and a *dot vote* exercise were used to gather additional input regarding areas of opportunity, problem locations, and priorities for making needed improvements. A survey was also made available online to gather input from those unable to attend the public meeting. Results from the survey, as well as other materials may be found in Appendix II, while materials from these efforts are found in Appendix III.



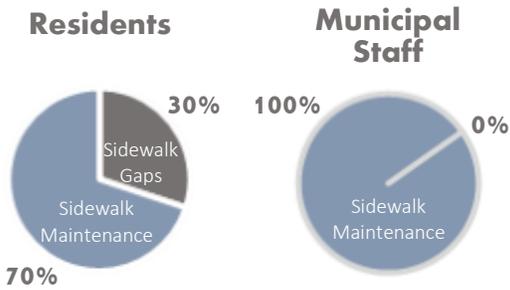
### 3.2 Prioritizing Non-Motorized Improvements

An important outcome of the public engagement process was the development of a prioritization process to guide future investments. Components of the effort that particularly influenced the development of this process are described on the following page in Figure 10. Given the breakdown of participants from each engagement venue, the public meeting results displayed below are referred to as *municipal staff*, while survey results are referred to as *residents*.



*Participants at the public meeting held on June 24, 2016.*

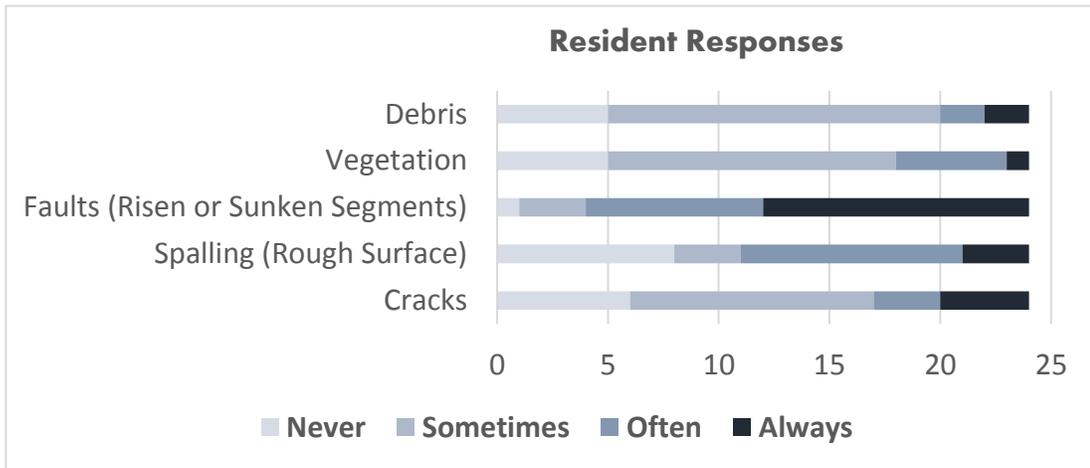
**WHICH IS MORE IMPORTANT TO ADDRESS IN HALLS AS IT RELATES TO WALKING?**



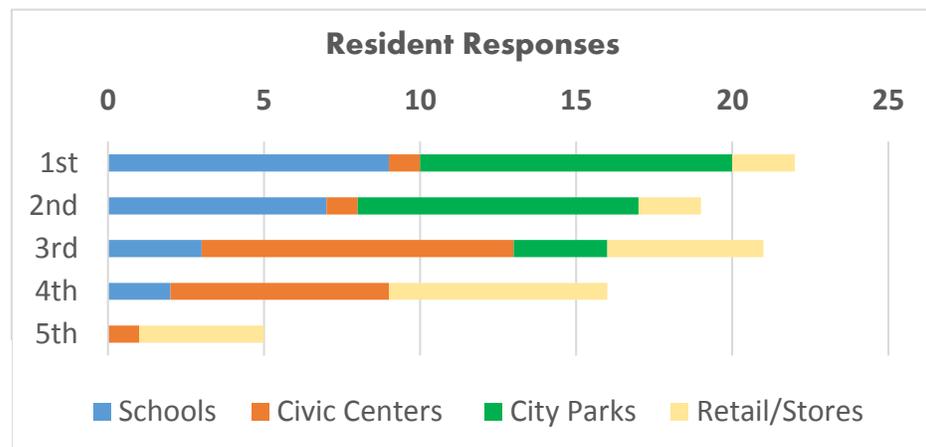
**WHICH ELEMENT INFLUENCES YOUR CHOICE TO WALK A PARTICULAR ROUTE THE MOST?**



**OF THE FOLLOWING MAINTENANCE ISSUES, WHICH IMPACTS YOUR ROUTE CHOICE?**



**WHICH DESTINATION IS YOUR TOP CHOICE FOR IMPROVED PEDESTRIAN AND BICYCLE ACCESS?**



**Figure 10 Public Engagement Responses**

## 4.0 FACILITY TYPES AND DESIGN GUIDANCE

### 4.1 Facility Types

A variety of facilities accommodate walking and bicycling trips. Application depends upon the land use and transportation context, i.e. the needed amount of protection from roadway traffic to safely and comfortably travel, as well as the expected amount of non-motorized traffic to be generated from nearby land uses. Given the context of the community, the most applicable facilities for Halls' non-motorized network include sidewalks, gravel and paved shoulders, wide outside lanes, shared roadways, greenways, and multiuse paths.

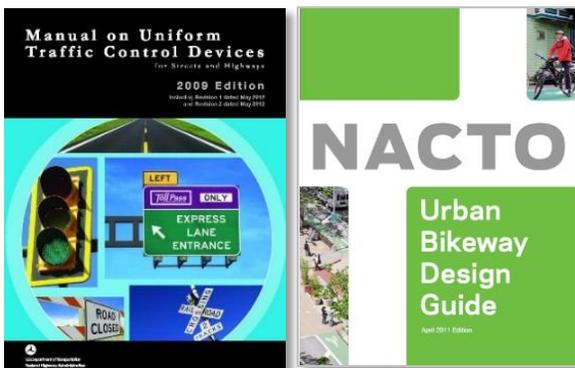


*Downtown Halls, TN*

### 4.2 Design Guidelines

The design of bicycle and pedestrian facilities should be based on current state and national guidelines, including ADA and the most recent editions of the *Manual on Uniform Traffic Control Devices* (MUTCD), the American Association of State Highway and Transportation Officials' (AASHTO) *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, and AASHTO's *Guide for Development of Bicycle Facilities*. Should facilities be located on facilities managed by TDOT (such as Tigrett and Church Streets), State design guidelines apply. Other emerging guidelines such as the National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide*, in addition to those

listed above, may be consulted for more in-depth design guidance relating to unique site-specific conditions. Basic design guidance, including preferred facility widths, general cross-sections, and physical space requirements for various non-motorized users, are provided in Appendix IV.



## 5.0 RECOMMENDATIONS

### 5.1 Areas of Prioritization

Given the constrained fiscal environment, the phased recommendations of this plan are largely at a corridor level. This provides the municipality flexibility in implementing future improvements as opportunities arise, such as securing funding through a grant or taking advantage of nearby capital improvement projects to also make facility upgrades or additions. General implementation timeframes are assigned according to level of need and impact upon safety and/or connectivity. Criteria used to identify areas of focus and timeframes include:

- Proximity to schools
- Proximity to parks
- Proximity to grocery stores
- Routes linking neighborhoods to schools, parks, and other community destinations
- Shortest path connections
- Completion of key gaps in the network's connectivity
- Community input
- Numbers of potential users (serves the most residents)
- Nearby populations more likely to walk and bike including, but not limited to, households with no vehicle, low-income households, seniors, and disabled individuals
- Traffic speed and volume
- Roadway width

Recommendations are broken down into two general categories: maintenance (illustrated in Figure 11 on page 20) and connectivity needs (illustrated in Figure 12) on page 21). While corridors are highlighted, improvements may only be needed in spot locations, such as replacing segments with severe faulting or locating signage that denotes a general area of increased non-motorized activity. Areas of special attention highlight a specific need or identify supportive measures that would further enhance the recommendations and walkability and bikeability in general. The recommendations are intended to assist the municipality in focusing in on the corridors or locations that provide the greatest amount of serviceability (i.e., connections) to the greatest amount of residents.

## 5.2 Maintenance Recommendations



Figure 11 Maintenance Recommendations

### Priority Corridors

Short-Term (0-10 years)

- Carmen St
- E Tigrett St
- E Main St
- W Main St

Long-Term (10+ years)

- Pearl St
- N College St

### Special Attention Areas

Short-Term (0-10 years)

- E Main Street – restripe crosswalks and ensure handicap parking spaces are adjacent to newly installed ramps

### 5.3 Connectivity Recommendations

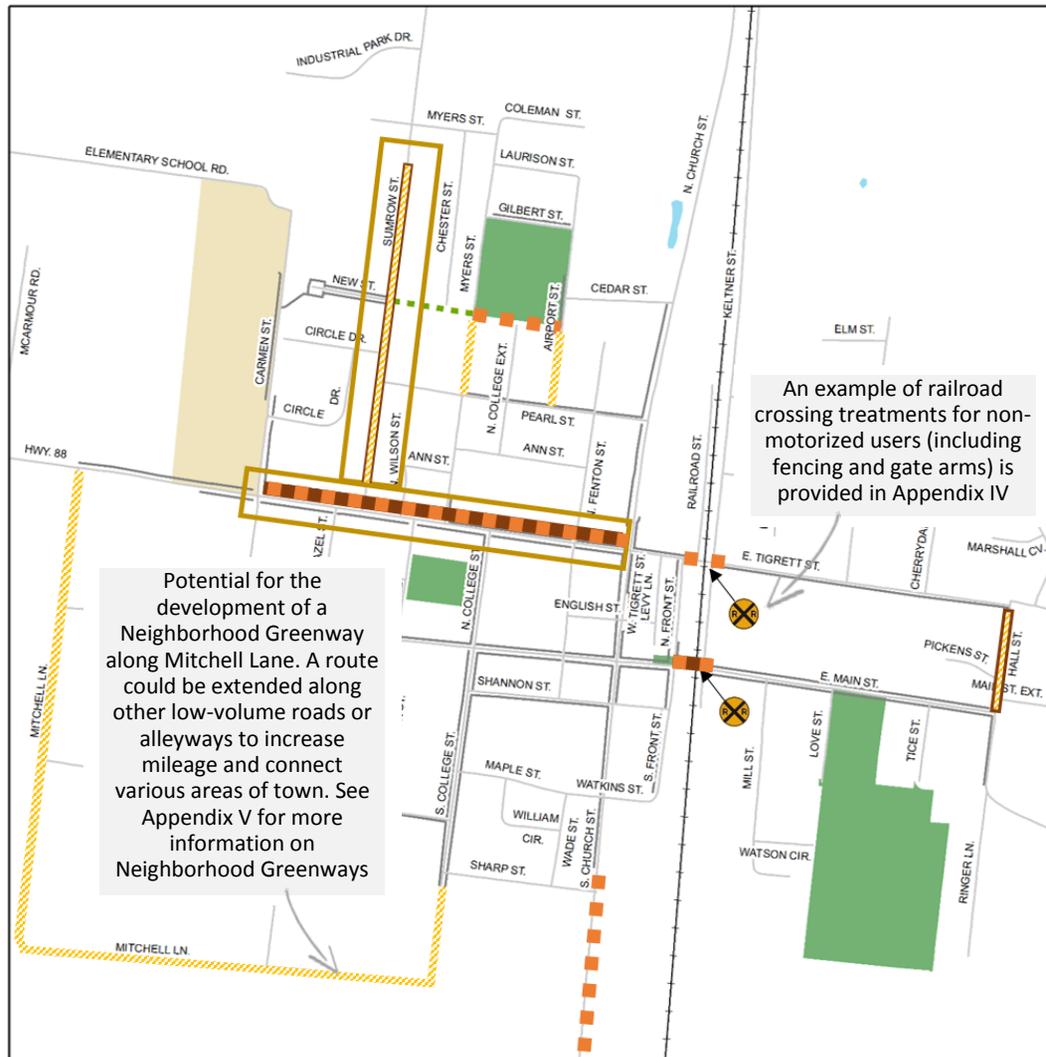


Figure 12 Connectivity Recommendations

#### New Infrastructure

Short-Term (0-10 years) ■ ■

- S Church Street
- Kevan Ward Park
- E Tigrett Street
- E Main Street Railroad Crossing

Long-Term (10+ years) ■ ■ ■

- W Tigrett Street (addition of sidewalk width for navigation around utility poles)
- E Tigrett Street Railroad Crossing

#### Signage & Markings

Short-Term (0-10 years) ■ ■ ■ ■

- Sumrow Street
- Hall Street

Long-Term (10+ years) ■ ■ ■ ■ ■

- Mitchell Lane (in combination with street lighting)
- Myers Street
- Airport Street

#### Special Attention Areas

Short-Term (0-10 years) ■ ■ ■ ■ ■

- Sumrow Street – traffic calming measures such as chicanes or speed tables, lower speed limit, and speed enforcement
- W Tigrett Street – consider striping a shoulder to create space for strollers/wheelchairs to navigate around utility poles until/if additional width added

# 6.0 IMPLEMENTATION

## 6.1 Supportive Strategies, Policies, and Programs

The following general strategies, policies, and programs should be employed to coincide with the recommendations of this plan in order to increase their effectiveness and efficiency.

- **Utilize other capital improvement projects as an opportunity to make non-motorized improvements.** Utility, roadway, drainage, and other capital improvement projects should be utilized to make improvements as a means of minimizing project costs.
- **Adopt a Complete Streets policy.** Such a policy would ensure projects are planned and designed with all transportation users and modes in mind. Adoption of the policy by an elected board of officials further formalizes the municipality’s dedication to walkability and bikeability. Resources exist, such as Smart Growth for America’s *Complete Streets: Local Policy Workbook*, that can assist the community in writing an appropriate policy tailored to Halls’ specific needs.
- **Requirements for new developments.** Consider requiring proposed developments to construct non-motorized facilities or pay a standard impact fee to mitigate impacts of development through improved pedestrian and bicycle facilities. Include this requirement in bylaws to ensure permit granters and developers clearly understand the magnitude of the fee from the start of a project.
- **Consider establishing Safe Routes to School programs or hosting related events.** Consider establishing a SRTS Program or hosting a Walk to School, Bike to School Day, and/or a Walking School Bus event to promote walking and biking, while providing important educational information on traffic laws relating to pedestrians and cyclists. The SRTS and Walk Bike to School websites offer free resources to assist communities in developing these programs/events, including planning and outreach tools.
- **Review and update design guidelines.** Adopt new design guidelines and standards to ensure improvements reflect current best practices in providing non-motorized facilities.
- **Ensure Halls’ existing street sweeping program sweeps roadways with higher volumes of cyclists on a regular schedule.** Debris on roadways, especially shoulders, can negatively impact a cyclist’s ability to travel. Roadways that should be specifically targeted as part of the Halls street sweeping program include Tigrett, Main, and Church Streets.



- **Review and update trash collection rules and regulations to ensure proper placement of trash cans or place emphasis on the education and enforcement of existing procedures.** A number of residences were noted as having trash cans which obstructed the sidewalk's right-of-way causing users to use the roadway or adjacent lawn for navigating around.
- **Place greater emphasis on enforcing posted speed limits and vehicles parking on sidewalks, especially along key corridors.** Both speeding and vehicles parked on sidewalks decrease the walkability and bikeability in Halls by impacting safety and mobility.
- **Establish a vegetation maintenance schedule for sidewalks.** Vertical clearance should be 8 feet for overhanging vegetation to ensure a comfortable operating space for cyclists with a 1 foot horizontal clearance for comfort of all users.
- **Place bicycle amenities at important community destinations.** Sites to be considered for the placement of bicycle racks should include the schools and both parks. Consider placing a bike tool station at a highly visible and centrally-located location, such as the Library.
- **Consider additional supportive strategies employed by bicycle-friendly communities that might further enhance Halls' efforts.** Example strategies might include offering bicycles for rental through the Public Library or schools, working towards a Bicycle Friendly Community (BFC) designation through the League of American Bicyclists, and considering the extension of the three-foot passing law to include the protection of motorized wheelchairs.



**BICYCLE FRIENDLY  
COMMUNITY**

*Winter Park Public Library in Winter Park, FL has a Bicycle Loan Program for full service cardholders and adult guests at a local inn. Cruisers can be checked out for one day.*

## 6.2 Cost Estimates

Planning-level cost estimates are provided for sidewalk improvements in Table 5 on the following page in order to gain a general understanding of recommendations. TDOT's report of average unit prices from their 2015 awarded contracts, which can be accessed on their website, was used as a reference. When provided, prices specific to Halls' TDOT region (Region 4) were used to reflect market prices as accurately as possible. The average unit price for the removal of rigid pavement or sidewalk is approximately \$38.00 per square yard, while the cost for a 6-inch thick sidewalk is approximately \$5.00 per square foot, including materials and labor. For construction of new sidewalks, a value of \$13.00 per square foot was used which includes general grading and drainage needs (although not right-of-way acquisition). A value of 20% was added to all project costs to account for additional project costs, such as engineering efforts. It should be noted that estimates provided for maintenance projects assume the complete removal and replacement of sidewalk facility segments. Given the localized nature of supportive recommendation components, such as signage, average unit prices are provided below in Table 4.

**Table 4 Average Unit Prices for Supportive Recommendation Components**

Source: TDOT's 2015 Average Bid Unit Prices

Material Description	Average Unit of Measure	Average Unit Price	Geographical Unit
Plastic Pavement Marking (Longitudinal Crosswalk)	Linear Foot	\$28.84	Region 4
Painted Pavement Marking (Crosswalk)	Linear Foot	\$3.00	Statewide
Plastic Word Pavement Marking (Ped X-ing)	Each	\$50.00	Region 4
Plastic Pavement Marking (Bicycle Symbol with Rider)	Each	\$321.00	Region 4
Flat Sheet Aluminum Signs (0.080 " Thick)	Square Feet	\$13.09	Region 4
Signs Construction	Square Feet	\$6.89	Region 4
Roadway Sweeping	Linear Mile	\$35.60	Statewide
Roadway-Rail Grade Crossing Renovation Using Polymer Concrete <i>(Example Shown in Appendix IV)</i>	Per Crossing	\$90,000 (without road improvements) – \$170,000 (with road improvements)	National Source
Pedestrian Gate Arm	Per Gate Arm	\$20,000 (arm added to existing assembly) - \$200,000 (for entirely new signal assembly)	National Source
Stock Fence	Linear Feet	\$3.75	Statewide
Stock Fence End, Braced Line, Corner Post ASM (Square Feet)	Each	\$125	Statewide

**Table 5 Planning-Level Cost Estimates for Sidewalk Improvements**

Source: TDOT's 2015 Average Bid Unit Prices

Street Name	From	To	Timeframe	Proposed Facility Width (Feet)	Estimated Cost
<b><i>Sidewalk Maintenance Projects</i></b>					
Carmen Street	Halls Elementary Southern Driveway	W Tigrett Street	Short-Term	6 Ft	\$98,000
E Tigrett Street	Keltner Street	N Hall Street	Short-Term	3.5 Ft	\$196,000 *Includes estimate for Utility Relocation
E Main Street (East of Railroad, South Segment)	Keltner Street	N Hall Street	Short-Term	5 Ft	\$109,000
W Main Street (North Segment)	N Front Street	S Church Street	Short-Term	10 Ft	\$37,000
W Main Street (North Segment)	S Church Street	Fenton Street	Short-Term	8 Ft	\$28,000
W Main Street (North Segment)	Fenton Street	N College Street	Short-Term	4 Ft	\$26,000
Pearl Street	Myers Street	N Church Street	Long-Term	3.5 Ft	\$44,000
N College Street	W Tigrett Street	W Main Street	Long-Term	4 Ft	\$33,000
<b><i>Maintenance Projects Only – Estimated Total</i></b>					<b>\$571,000</b>
<b><i>Construction Projects</i></b>					
S Church Street	Sidewalk End	Dollar General Parking Lot	Short-Term	6 Ft	\$139,000
E/W Main Street	End of Sidewalk at Trolley Park	Keltner Street	Short-Term	4 Ft	\$4,000 *Sidewalk Only
Kevan Ward Park Connector (Utilizing existing trail)	Myers Street	Airport Street	Short-Term	6 Ft	\$27,000
W Tigrett Street	Carmen Street	N College Street	Long-Term	Additional 2 Ft	\$77,000
E/W Tigrett Street	Railroad Street	Keltner Street	Long-Term	4 Ft	\$7,000 *Sidewalk Only
<b><i>Construction Projects Only – Estimated Total</i></b>					<b>\$254,000</b>
<b><i>Recommended Projects – Estimated Total</i></b>					<b>\$825,000</b>

## 6.3 Funding Strategies

Implementation of the plan's recommendations will require a phased approach, as well as creativity and persistence in identifying and securing funding opportunities. The two main strategies include taking advantage of outside funding assistance sources and exploring strategies at the local level for increasing revenues, which are described below.

### **Outside Funding Assistance (Grant Funding)**

The Federal and State Government have a variety of programs that could potentially aid in funding various recommended plan projects. Some of the most popularly used programs in the state for making non-motorized improvements include the Transportation Alternatives Program, Surface Transportation Program (STP), Recreational Trails Program (RTP), TDOT's Multimodal Access Grant, and Safe-Routes-To-School. Other opportunities with potential applicability include TDOT's Shoulder Widening Initiative, Spot Safety Program, and Tennessee Roadscapes. Given the location of the railroad relative to downtown and the importance of east-west non-motorized connections along Main and Tigrett Streets, the Town should specifically consider TDOT's Highway-Railroad Grade Crossing Program for making at-grade crossing improvements. The program includes safety analyses of crossings for all users, including pedestrians and bicyclists, and has potential for providing funding assistance as Halls seeks to improve connections traversing the railroad tracks. Table 6 beginning on page 27 displays some of the most relevant grant programs as it relates to Halls' needs and desires.

TDOT isn't the only state agency that allocates grant dollars which may have applicability to non-motorized improvements. These other agencies (such as the Department of Health, Department of Agriculture, Department of Tourism Development, and the Department of Economic and Community Development) should be consulted for programs that may apply to or encompass the opportunity to make non-motorized improvements as part of a secondary effort. For example, the Tennessee Department of Health's Commissioner places strategic emphasis on preventative healthcare given Tennessee's high rates of preventable diseases. Project Diabetes is an initiative provided by the Health Department that funds primary prevention projects, which may include educating the public, recommending community policies, or making non-motorized infrastructure improvements. Identifying such opportunities will require time and effort, but these agencies and grant programs are one of the top resources for smaller municipalities seeking funding assistance.

**Table 6 Funding Assistance Programs**

Grant/Program	Source	Agency	Purpose/Description	Eligibility	Match	Contact/Link
<b>Spot Safety Improvement Program</b>	Federal	TDOT	Intended to improve the integrity and safety of the state roadway system. The program is targeted towards locales of fewer than 50,000 in population with a special emphasis on those with fewer than 5,000	Funding for projects on state routes or at intersections with state routes only. Work may include signalization, intersection modification without signalization, sight distance modifications, adding turn lanes (with/without signals), school flashing signals, flashing beacons, acquisition of land	80% Federal / 20% Non-Federal  <i>or</i>  100% Federal / 0% Non-Federal depending upon activity	<a href="#">TDOT Project Safety Office</a>
<b>Transportation Alternatives Program</b>	Federal	TDOT	Improving access and providing a better quality of life for people in the state of Tennessee	Eligible projects include pedestrian and bicycle facilities, safe routes for non-drivers, vegetation management, historic preservation, stormwater mitigation, among others. May not be used for spot improvements, repairs or maintenance, and all new construction for multimodal facilities must be a minimum of 10-foot wide	80% Federal / 20% Non-Federal (including all preliminary engineering, design, and right-of-way expenses)	<a href="#">TDOT Local Programs Development Office</a>
<b>Multimodal Access Grant</b>	State	TDOT	To support the transportation needs of transit users, pedestrians and bicyclists through infrastructure projects that address existing gaps along state routes	Eligible projects include, but are not limited to, pedestrian crossing improvements (including signage, signalization, median refuge islands, and crosswalks), shoulders, bicycle lanes, multiuse paths within transportation corridor, road diets or traffic calming measures, and utility relocation (eligible as a project component). These projects must be along a state route or within ¼ mile of a state route <i>and</i> provide a direct connection to a state route	95% Federal / 5% Non-Federal	<a href="#">TDOT Multimodal Transportation Resources Division</a>

<b>Safe Routes to School (SRTS) Program</b>	Federal	TDOT	Focuses on increasing levels of walking and biking to school among elementary and middle school students	Funds the planning, development, and implementation of infrastructure projects, as well as education and outreach activities	100% Federal	<a href="#">TDOT Multimodal Transportation Resources Division</a>
<b>Highway Safety Improvement Program (HSIP)</b>	Federal	TDOT	Reduction in traffic fatalities and serious injuries on public roads	Improvements for pedestrian/bicyclist safety; construction of yellow-green signs at pedestrian/bicycle crossings and in school zones. Correction of hazardous locations include roadside obstacles, railway-highway crossing needs, and poorly marked roads that constitute a danger to bicyclists/pedestrians.	90% Federal / 10% Non-Federal	<a href="#">TDOT Project Safety Office</a>
<b>Highway-Railroad Grade Crossing Program (Section 130 Program)</b>	Federal	TDOT	Improve safety and reduce crash risk at public highway-railroad grade crossings	Funds may be used for, but are not limited to, the installation of warning devices as well as various other safety improvements at existing crossings	Typically 90% Federal / 10% Non-Federal, although certain safety projects can be funded at 100% Federal	<a href="#">TDOT Multimodal Transportation Resources Division</a>
<b>Recreational Trails Program (RTP)</b>	Federal	TDEC	Develop and maintain recreational trails and trail-related facilities for non-motorized/motorized recreation trail uses	Eligible categories include, but are not limited to, non-routine maintenance and restoration of existing trails, new trail construction and trail linkages, development/rehabilitation of trailside and trailhead facilities, purchasing of trail construction or maintenance equipment which is used 100% for trail-related activities, as well as land acquisition	80% Federal / 20% Non-Federal	<a href="#">TDEC Recreation Educational Services Division</a>
<b>Local Parks and Recreation Fund (LPRF)</b>	State	TDEC	To help improve greenspaces while making outdoor activities	For the purchase of lands for parks, natural areas, greenways, and recreation facilities. Funds may also be used for trail development and	50% State / 50% Non-LPRF	<a href="#">TDEC Recreation Educational Services Division</a>

			more accessible for all to enjoy	capital projects in parks, natural areas, or greenways		
<b>Community Development Block Grant (CDBG)</b>	Federal	HUD/TNECD	Provides funding to cities and towns for projects with community-wide benefits. Activities must benefit low to moderate income persons	Sidewalks, greenways, trails, and bicycle facilities that provide increased safety, access, and transportation options	100% Federal	<a href="#">Tennessee Department of Economic and Community Development (TNECD)</a>

### **Local Funding Opportunities**

Given the importance of non-motorized transportation to the residents of Halls, a budgetary set-aside should be considered. Connecting spending to the severity of safety concerns could be a methodology for determining allocation of the new dollars. This set-aside may come from the existing tax structure or may be generated from a slight increase in the property or sales tax. Should this strategy be implemented, it is suggested that new dollars be directed into a specific location, say the Parks budget, instead of the general fund so that citizens are able to more easily identify the improvements made through the additional revenue. An additional method for increasing local funding would be to institute development impact fees or negotiate public improvements as part of the development process.

### **Partnerships**

Partnering with local entities, such as non-profit groups (like Friends of Halls Public Library), neighborhood groups, or corporations, can provide assistance in the implementation of maintenance improvements or, in some cases, construction of non-motorized facilities. These relationships also provide strategic partnerships for increasing walking and biking in the community, especially as it relates to the workplace and/or commuting. These entities may also be helpful in hosting fundraising events or developing community involvement programs (such as Adopt-a-Sidewalk) that support the Town's effort to increase walking and biking opportunities in the community.

## **7.0 CONCLUSION**

The community of Halls is poised to become a leader among rural communities in Tennessee for walkability and bikeability. Over the past decade, the municipality has made great strides at addressing key maintenance and connectivity gaps in the existing sidewalk network. Incorporating observations and conditions of the existing network, as well as input from the public, recommendations were developed that will further the Town's efforts to provide a safe and attractive community. By developing this plan, Halls has formalized their commitment to and strategy for increasing walkability and bikeability in the community, which will ultimately contribute to a higher quality of life for residents and stakeholders today and for years to come.

# APPENDIX I. DATA COLLECTION GIS DICTIONARY

Table A. 1 GIS Data Dictionary

Shapefile: "Halls_Sidewalks"			
Field	Data Type	Codes	Source
FID	Segment ID number	-	GIS Generated
Shape*	Polyline	-	GIS Generated
PER_SIDWLK	Percent sidewalk along roadway block/segment	-	Sidewalk Inventory
SW_BUFF	Width (feet)	-	Sidewalk Inventory
BUFF_COMP	Buffer composition	Parking, Grass, or Gravel	Sidewalk Inventory
SW_COMP	Sidewalk composition	Concrete, Brick, or Asphalt	Sidewalk Inventory
PER_CRK	Percent of sidewalk segment cracked	-	Sidewalk Inventory
Utility	Presence of utility in sidewalk right-of-way causing obstruction	Blank – No "Y" - Yes ( <i>Utilities</i> includes utility poles or fire hydrants)	Sidewalk Inventory
SIDWLK_WID	Width (feet)	-	Sidewalk Inventory
PER_HFAULT	Percent of sidewalk with faulting (horizontal or vertical)	-	Sidewalk Inventory
Comments	Additional sidewalk concerns or notes on surroundings	-	Sidewalk Inventory
Spalling	Includes presence of spalling and/or slope issues	1 – Slope Issues 2 – Spalling 3 – Both	Sidewalk Inventory
Miles	Length of segment in miles	-	Sidewalk Inventory
Feet	Length of segment in feet	-	Sidewalk Inventory
SqFt_	Square feet of segment	-	Sidewalk Inventory

*Continued on Next Page*

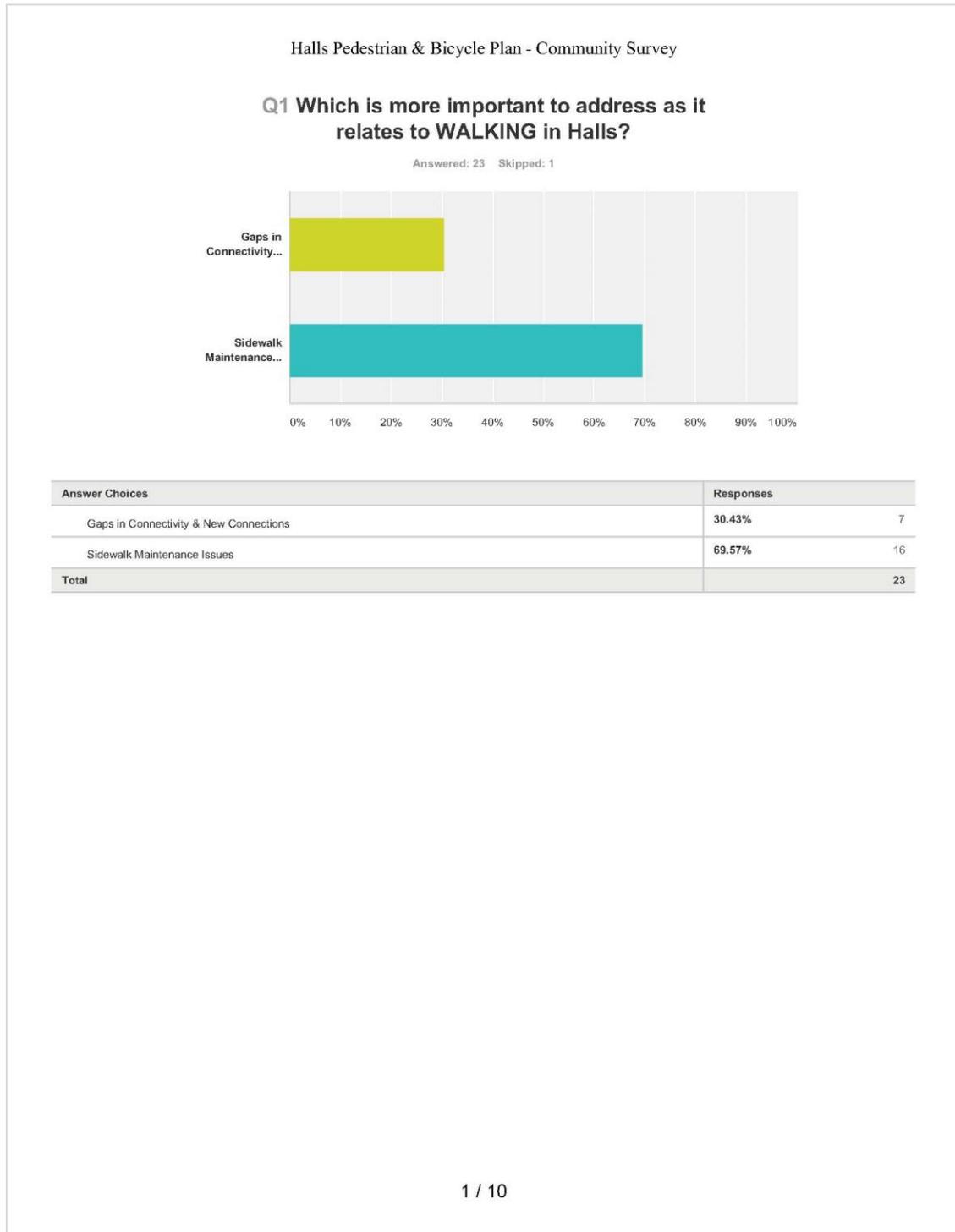
**Shapefile: "SW\_ConditionPoints"**

Field	Data Type	Codes	Source
FID	Segment ID number	-	GIS Generated
Shape*	Polyline, polygon, or point	-	GIS Generated
ADAramp	Presence of non-compliant ramp, bridge, or obstacle	0 – No.; 1 – Yes	Sidewalk Inventory
Fault	Presence of faulting	0 – No.; 1 – Yes	Sidewalk Inventory
Spalling	Presence of spalling	0 – No.; 1 – Yes	Sidewalk Inventory
Cracking	Presence of cracking	0 – No.; 1 – Yes	Sidewalk Inventory
Slope	Presence of slope issue	0 – No.; 1 – Yes	Sidewalk Inventory
Obstruct	Presence of obstruction	0 – No.; 1 – Yes	Sidewalk Inventory

**Shapefile: "BikePed\_Recommendations"**

Field	Data Type	Codes	Source
FID	Segment ID number	-	GIS Generated
Shape*	Polyline, polygon, or point	-	GIS Generated
Maintenanc	Recommended Maintenance Project	Short-term (0-10 years) Long-term (10+ years)	Pedestrian/Bicycle Plan Recommendation
New	Addition of new infrastructure	Short-term (0-10 years) Long-term (10+ years)	Pedestrian/Bicycle Plan Recommendation
S_M	Addition of signage and pavement markings	Short-term (0-10 years) Long-term (10+ years)	Pedestrian/Bicycle Plan Recommendation
SpAtten	Special attention area		Pedestrian/Bicycle Plan Recommendation

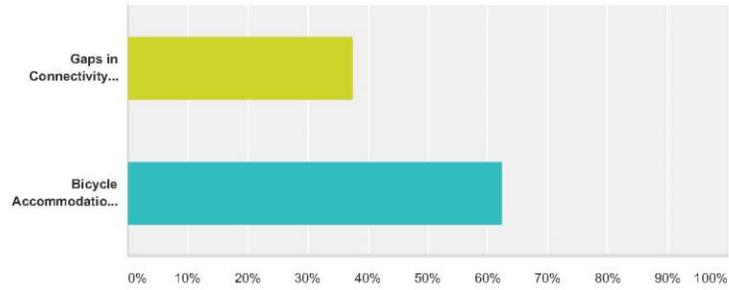
## APPENDIX II. PUBLIC ENGAGEMENT SURVEY



Halls Pedestrian & Bicycle Plan - Community Survey

**Q2 Which is more important to address as it relates to BIKING in Halls?**

Answered: 24 Skipped: 0

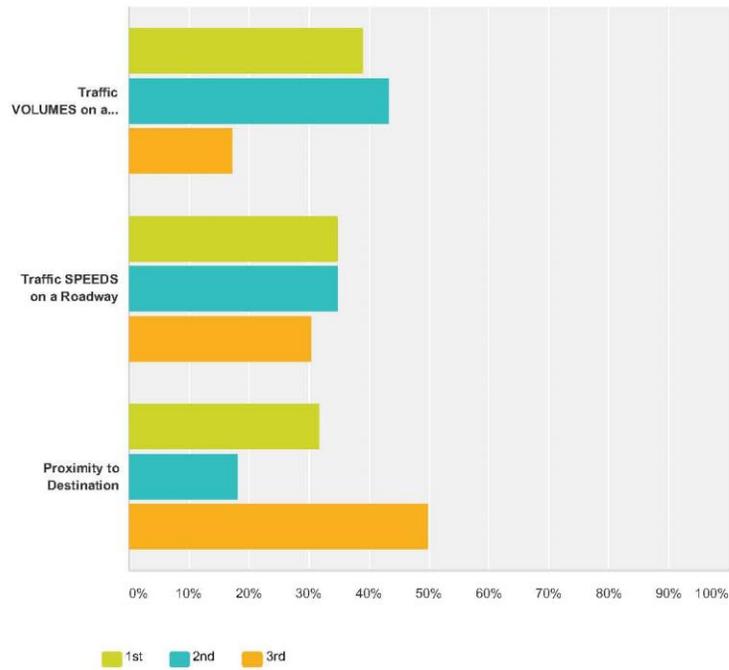


Answer Choices	Responses
Gaps in Connectivity & New Connections	37.50% 9
Bicycle Accommodations (e.g. bike racks at key locations, signed routes, etc.)	62.50% 15
<b>Total</b>	<b>24</b>

Halls Pedestrian & Bicycle Plan - Community Survey

**Q3 Rank order the following factors that influence the routes you select when walking or biking in Halls.**

Answered: 24 Skipped: 0

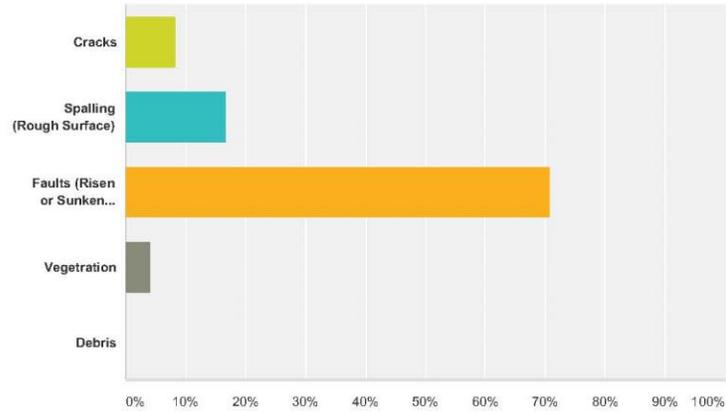


	1st	2nd	3rd	Total
Traffic VOLUMES on a Roadway	39.13% 9	43.48% 10	17.39% 4	23
Traffic SPEEDS on a Roadway	34.78% 8	34.78% 8	30.43% 7	23
Proximity to Destination	31.82% 7	18.18% 4	50.00% 11	22

Halls Pedestrian & Bicycle Plan - Community Survey

**Q4 Below are examples of various sidewalk maintenance issues. Which Maintenance issue do you see the most around Halls?**

Answered: 24 Skipped: 0

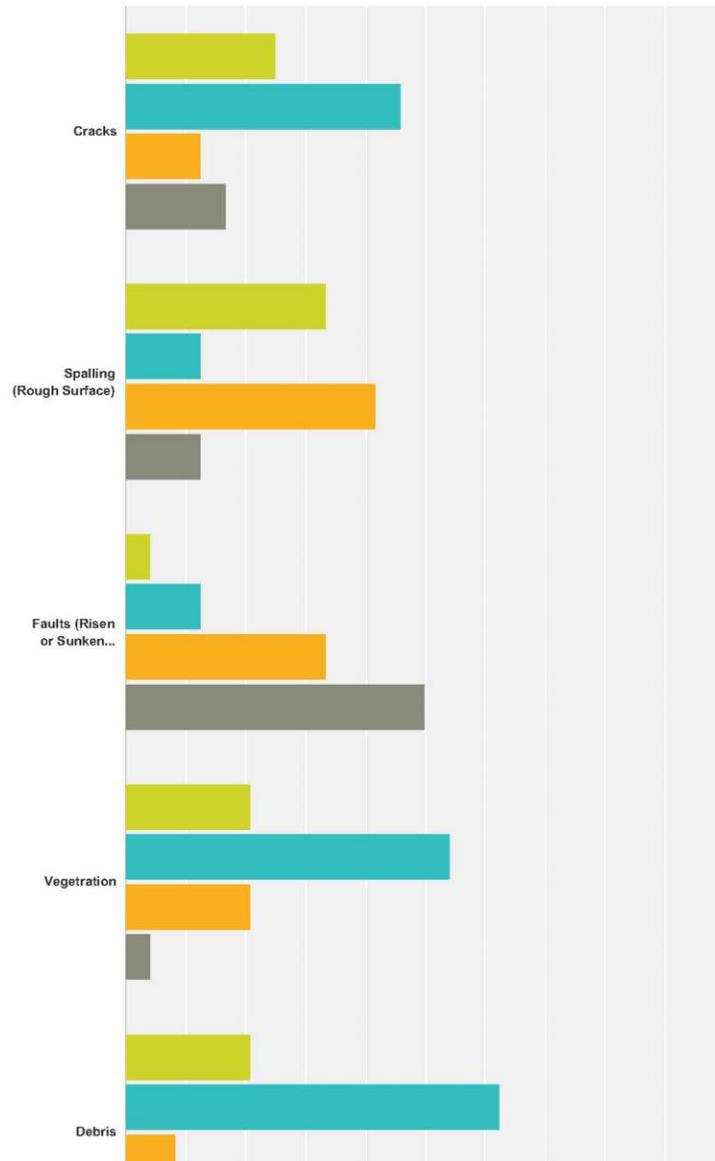


Answer Choices	Responses
Cracks	8.33% 2
Spalling (Rough Surface)	16.67% 4
Faults (Risen or Sunken Segments)	70.83% 17
Vegetation	4.17% 1
Debris	0.00% 0
<b>Total</b>	<b>24</b>

Halls Pedestrian & Bicycle Plan - Community Survey

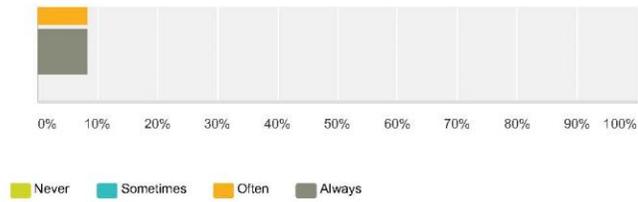
**Q5 Of these Maintenance issues, which impacts your route choice?**

Answered: 24 Skipped: 0



5 / 10

### Halls Pedestrian & Bicycle Plan - Community Survey

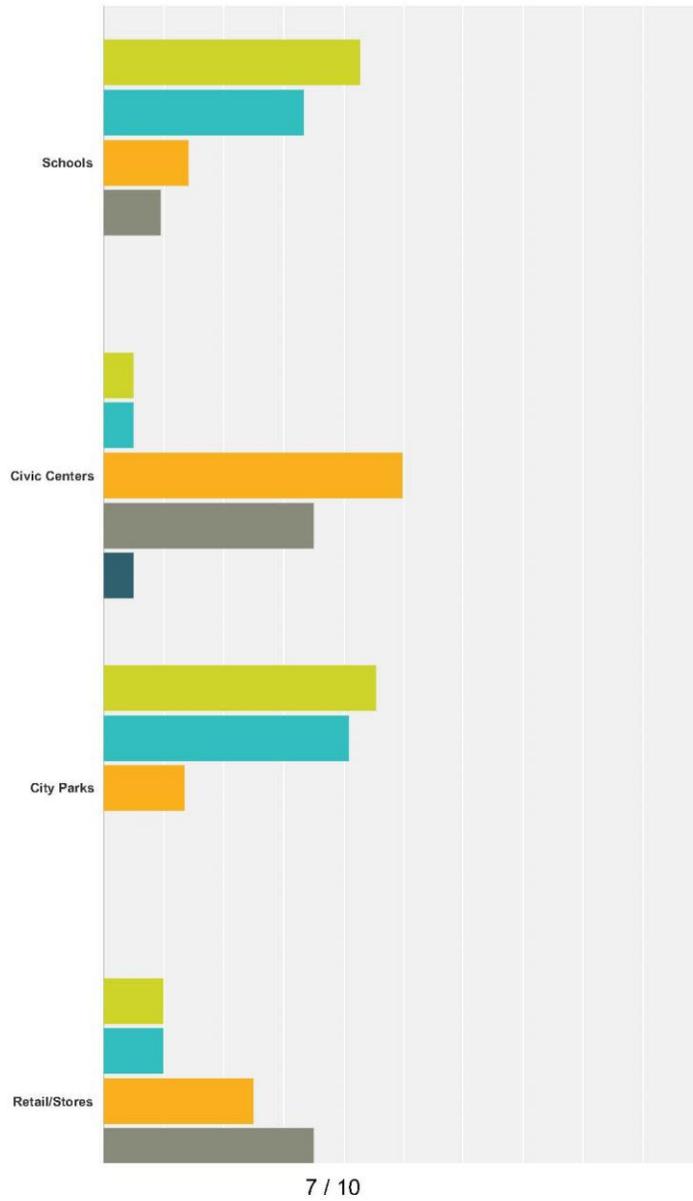


	Never	Sometimes	Often	Always	Total
Cracks	25.00% 6	45.83% 11	12.50% 3	16.67% 4	24
Spalling (Rough Surface)	33.33% 8	12.50% 3	41.67% 10	12.50% 3	24
Faults (Risen or Sunken Segments)	4.17% 1	12.50% 3	33.33% 8	50.00% 12	24
Vegetation	20.83% 5	54.17% 13	20.83% 5	4.17% 1	24
Debris	20.83% 5	62.50% 15	8.33% 2	8.33% 2	24

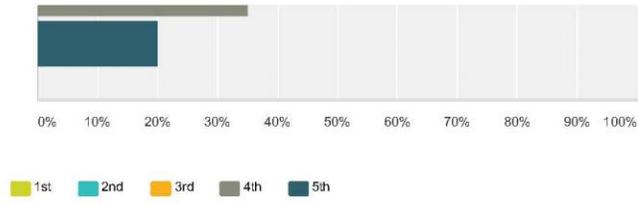
Halls Pedestrian & Bicycle Plan - Community Survey

**Q6 Which destination is your top choice for improved pedestrian and bicycle access?**

Answered: 24 Skipped: 0



### Halls Pedestrian & Bicycle Plan - Community Survey



	1st	2nd	3rd	4th	5th	Total
Schools	42.86% 9	33.33% 7	14.29% 3	9.52% 2	0.00% 0	21
Civic Centers	5.00% 1	5.00% 1	50.00% 10	35.00% 7	5.00% 1	20
City Parks	45.45% 10	40.91% 9	13.64% 3	0.00% 0	0.00% 0	22
Retail/Stores	10.00% 2	10.00% 2	25.00% 5	35.00% 7	20.00% 4	20

Halls Pedestrian & Bicycle Plan - Community Survey

**Q7 If you wish to share any additional comments on walking and biking (safety, facility needs, etc.) in Halls, please do so in the box below.**

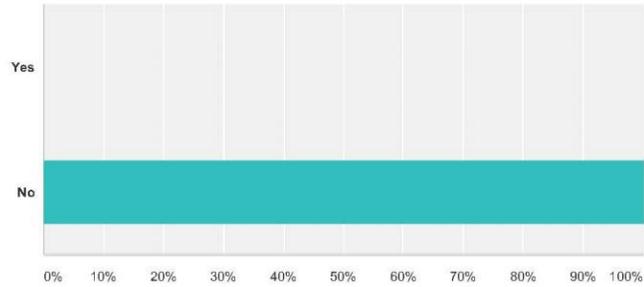
Answered: 7 Skipped: 17

#	Responses	Date
1	I think it would be great idea to improve Halls. We need somewhere to ride bikes. We want to have a safe community	6/27/2016 12:05 AM
2	the sidewalks on the east side of the railroad tracks are the worst in the town. There are even electric poles in the sidewalks that you must actually walk out into the street to go around. This is on East Tigrett. Have you actually walked the sidewalks in the parts of town that are not the best? We all pay taxes, shouldn't all neighborhoods benefit?	6/26/2016 5:30 PM
3	too many streets with out any sidewalk	6/25/2016 8:59 PM
4	Areas need to be well lit with lighting. Vegetation needs to be within a few feet of paths	6/25/2016 8:49 PM
5	Out of town, would have attended the meeting	6/25/2016 7:28 PM
6	Sidewalks on East Tigrett St, very Bad Spalding everywhere!	6/24/2016 6:11 PM
7	sink holes	6/24/2016 2:40 PM

Halls Pedestrian & Bicycle Plan - Community Survey

**Q8 Did you attend the Community Pedestrian and Bicycle Plan Meeting on June 24th?**

Answered: 24 Skipped: 0



Answer Choices	Responses	Count
Yes	0.00%	0
No	100.00%	24
<b>Total</b>		<b>24</b>

# APPENDIX III. PUBLIC ENGAGEMENT MEETING

Meeting Flyer [Mailed to 50+ Organizations, Businesses, and Civic Agencies]



The flyer is a 2x2 grid layout. The top-left quadrant features a blue rounded rectangle with the text 'THE TOWN OF HALLS Invites You to Attend A Community Meeting'. Above this rectangle are four tire tread icons, and below it is a silhouette of a person riding a bicycle. The top-right quadrant is titled 'WHAT:' and contains the text 'Join us for a short walk to identify & discuss:' followed by a bulleted list of three items: 'Needed Sidewalk Improvements', 'Potential Greenway Opportunities', and 'Important Bike/Ped Connections & More Safety Improvements & More'. The bottom-left quadrant is titled 'WHEN:' and contains the text 'Friday, June 24, 2016 8:30 AM - 9:30 AM'. The bottom-right quadrant is titled 'WHERE:' and contains the text 'City Hall Lobby 208 N Church St.'. A green vertical bar at the bottom right contains the text 'Town of Halls • (731) 836-9653 •'. The entire flyer is set against a light green background.

**THE TOWN OF HALLS**  
*Invites You to Attend A*  
**Community Meeting**

**WHAT:** Join us for a short walk to identify & discuss:

- Needed Sidewalk Improvements
- Potential Greenway Opportunities
- Important Bike/Ped Connections & More Safety Improvements & More

**WHEN:** Friday, June 24, 2016  
8:30 AM - 9:30 AM

**WHERE:** City Hall Lobby  
208 N Church St.

**WHY:** Halls' Pedestrian & Bicycle Plan

Town of Halls  
• (731) 836-9653 •



## COMMUNITY MEETING INVITATION & FLYER

**Project Name: Halls' Pedestrian and Bicycle Plan**

**Date: June 24, 2016 (Friday)**

**Time: 8:30 am – 9:30 am**

**Meeting Location: Halls City Hall – 208 N Church Street**

**Dear Neighbor,**

The Town of Halls' Pedestrian and Bicycle Plan Development Team would like to invite you to a community meeting regarding walking and biking in Halls.

As you may be aware, Halls has been proactive over the past decade in securing grant monies to assist the community in completing important sidewalk projects, whether it be needed maintenance or new connections. In 2015, the community was chosen to receive TDOT's Community Transportation Planning Grant (CTPG). This grant is being used by the Town to develop a pedestrian and bicycle plan, with assistance from a TDOT-appointed transportation consultant, to provide an understanding of the Town's existing sidewalk network, safety issues, and resident needs, as well as a roadmap for providing new facilities and maintenance in the future.

A community meeting to gather important resident input for inclusion in the plan will be held Friday, June 24, 2016 from 8:30 am to 9:30 am. All residents and businesses within Halls are encouraged to attend.

Within this mailer you will find the meeting's flyer. Please consider posting the flyer in a highly-visible location to help us advertise this unique opportunity to both residents and employees.

Thank you and we hope to see you there.

Sincerely,

Liesel Goethert,

On behalf of the Halls' Pedestrian and Bicycle Plan Development Team

---

208 North Church Street, Halls, TN, 38040  
[www.town.halls.tn.us](http://www.town.halls.tn.us)

# SIGN-IN SHEET

**Pedestrian & Bicycle Plan  
Community Meeting**

NAME	LIVE INSIDE OR OUTSIDE HALLS CITY LIMITS		HALLS RESIDENT OR ORGANIZATION (If Organization, please identify)
1 Beth Cunningham	<input checked="" type="checkbox"/> Inside	<input type="checkbox"/> Outside	Resident of LCDOA
2 EMILY TAMPAFI	<input type="checkbox"/> Inside	<input checked="" type="checkbox"/> Outside	DOT
3 Phillip Hurt	<input type="checkbox"/> Inside	<input checked="" type="checkbox"/> Outside	HALLS Building Inspector
4 Eugene Fugh	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
5 Phil Meeler	<input checked="" type="checkbox"/> Inside	<input type="checkbox"/> Outside	Town of Halls Park / Rec
6 Alec Cherry	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	Town of Halls Public Worker
7	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
8	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
9	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
10	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
11	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
12	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
13	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
14	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
15	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	
16	<input type="checkbox"/> Inside	<input type="checkbox"/> Outside	

**June 24, 2016**

**Town of Halls**

## TOWN OF HALLS Pedestrian and Bicycle Plan

**What is it?** A planning document that identifies, documents, and analyzes existing needs and opportunities regarding walking and biking in the community of Halls and recommends how the Town can make strategic investments to encourage greater walkability.

**Why?** The Town of Halls understands the importance of providing safe transportation options, as well as recreational opportunities. Over the past decade, the Town has applied for and utilized four (4) grants from the Tennessee Department of Transportation (TDOT) to make sidewalk and crosswalk improvements across the community. While in 2009 a Safe Routes to School grant was unsuccessful, a new application is currently being developed for reapplication. Having a Plan that outlines the community's current and future needs and details a strategy for addressing those needs greatly increases the likelihood for receiving future grant opportunities.



**How is the Plan Development Process Being Funded?**

**What Does it Get Us?**

As previously mentioned, the plan includes important documentation and analysis regarding current walking and biking needs in the community and provides project recommendations that might include:

- facility improvements
- new facilities (including amenities, such as bicycle racks)
- policy and program recommendations

**When?** A prioritization process, which incorporates the input received from stakeholders gathered throughout the plan development process, will guide municipal staff in making improvements as monies become available. Recommendations will be phased based upon the prioritization process and timeframe of implementation.



**FACILITIES STUDIED  
INCLUDE: SIDEWALKS,  
PAVED SHOULDERS,  
BICYCLE ROUTES, &  
GREENWAYS**

**WE NEED YOUR INPUT. COMPLETE OUR ONLINE SURVEY.**  
[www.surveymonkey.com/r/HallsWalks](http://www.surveymonkey.com/r/HallsWalks)

---

## SIDEWALK DISTRESS TYPES

---

*Cracks*



*Crumbling*



*Holes*



*Spalling*



*Lifted/Sunken*



*Ponding*



**Debris**



**Missing**



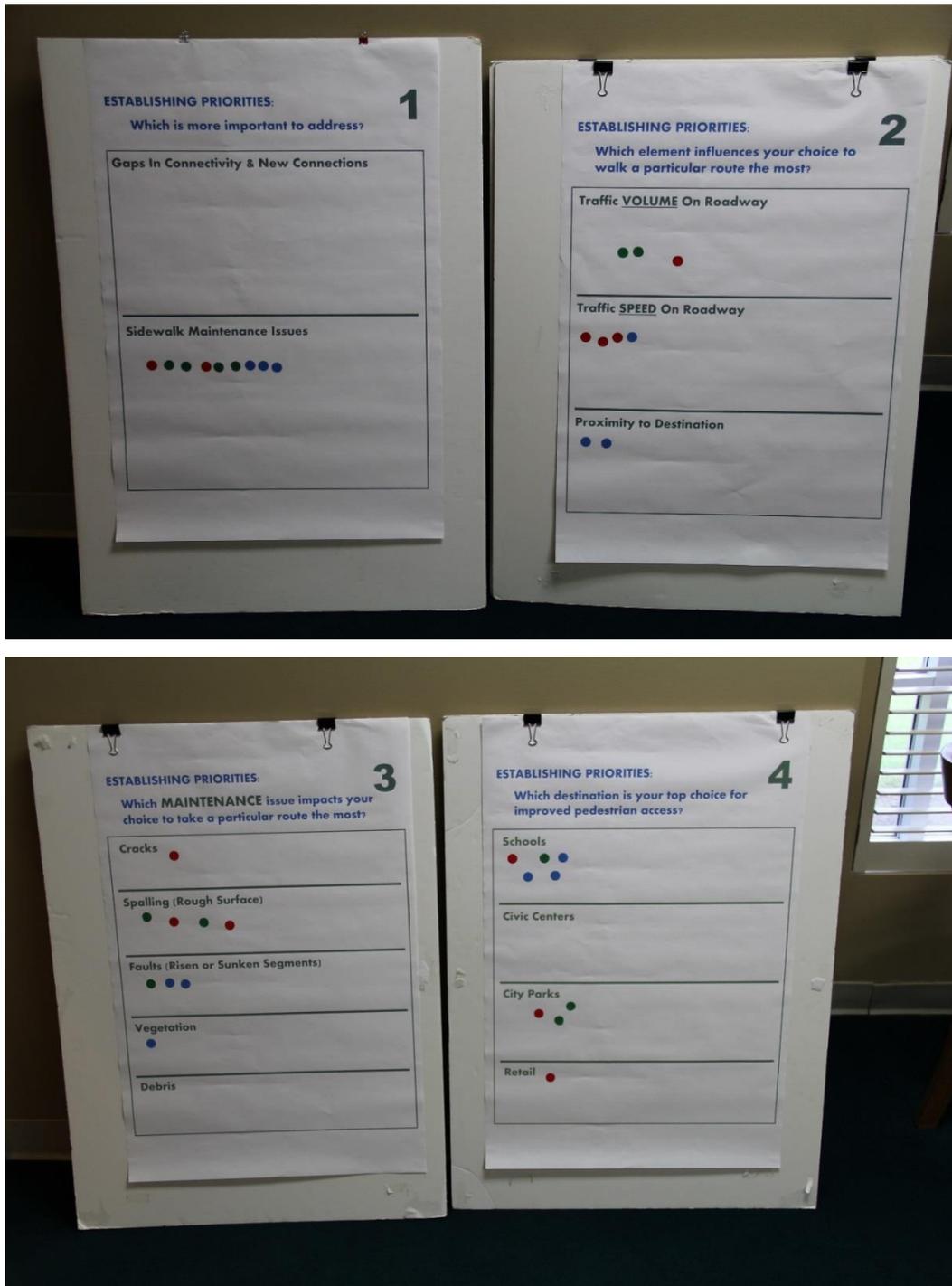
**Obstruction**



**Other**



Dot Vote Results



## APPENDIX IV. DESIGN GUIDELINES

The following guidelines are intended to provide basic design guidance regarding bicycle and pedestrian facilities in various contexts. Cross-sections provided are general in nature and reflect preferred conditions, and therefore may not be applicable in all situations. State and national guidelines mentioned previously (ADA, MUTCD, AASHTO, etc.) should be consulted for more detailed design guidance relating to site-specific conditions. Sources for the following information and graphics include documents from the FHWA and the Vermont Agency of Transportation (VTrans).

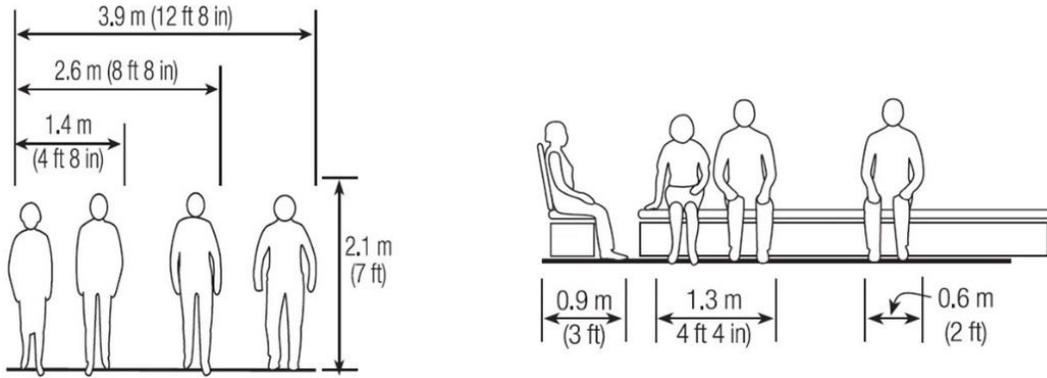
### A. Non-Motorized Travel Speeds and Physical Space Requirements

Travel speeds and physical space requirements of non-motorized users are important design considerations for designing bicycle and pedestrian facilities. Speeds are largely dependent upon age, cognitive ability, reaction time, height, physical ability, visual acuity, and trip purpose. Table A. 2 displays what are considered to be typical speeds for common modes of travel, while Figure A. 1 on the following page illustrates general physical space requirements.

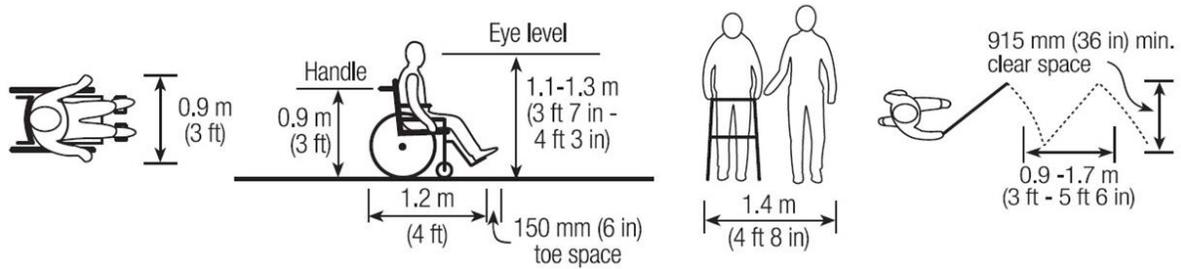
**Table A. 2 Typical Travel Speeds by Mode**  
Source: MUTCD and FHWA

Modal Type	Average Speed
Pedestrian	2.7 mph
Runner	6.2 mph
Wheelchair	3.6 mph
Wheelchair (Motorized)	6.8 mph
Bicyclist	8 – 15 mph ( <i>Average Adult Rider</i> ) 12-24 mph ( <i>Proficient Adult Rider</i> )

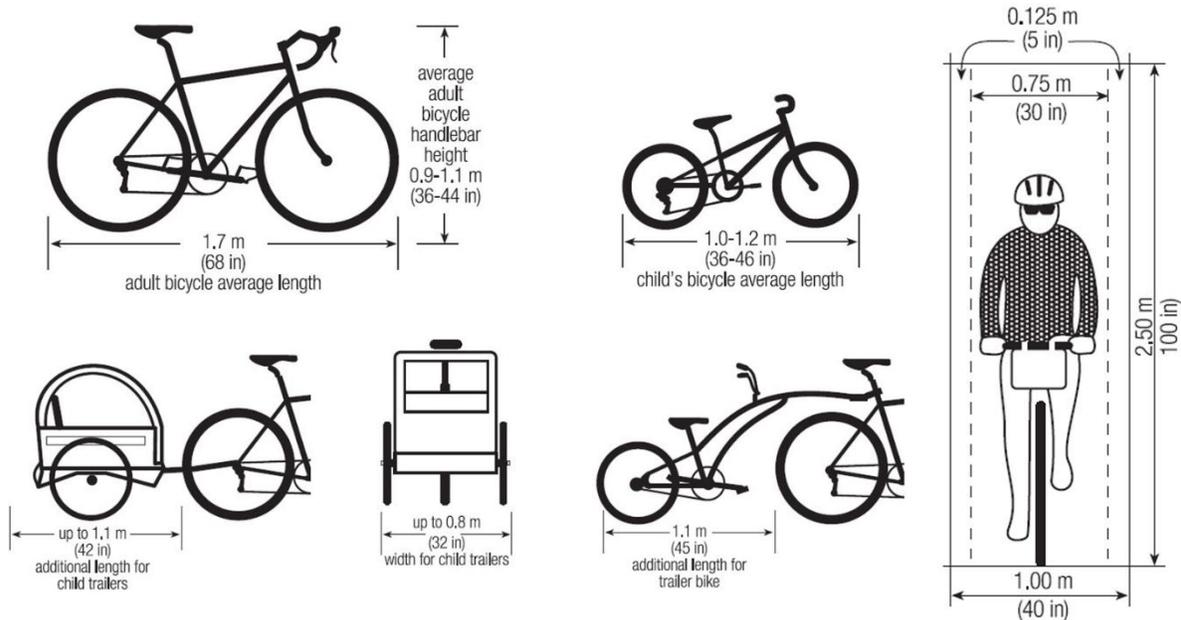
## Pedestrian



## Wheelchair and White Cane



## Bicycle



**Figure A. 1 Typical Physical Space Requirements by Mode**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

## B. Pedestrian Infrastructure Design Guidelines

The following are general standards and recommendations for providing pedestrian infrastructure in various community settings beginning with preferred facility widths.

### Sidewalk Facilities

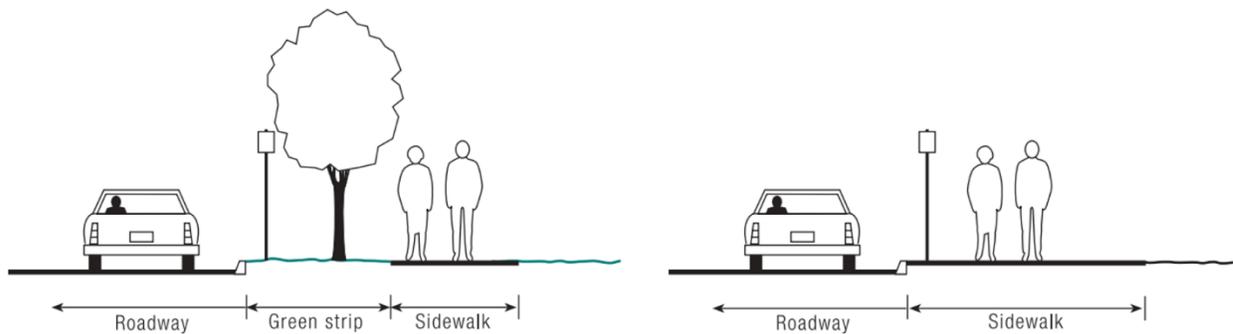
#### Sidewalk Facility Width Recommendations

**Table A. 3 Sidewalk Facility Width Recommendations**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

Land Use Context	Preferred Sidewalk Width
<b>Sidewalks</b>	
Local streets outside the central business district	6 – 8 feet
Commercial areas outside the central business district	6 – 10 feet
Central business areas including downtowns and neighborhood centers	8 – 10 feet
<b>Grass Strip Sidewalk Buffer</b>	
Local or collector streets	2 – 4 feet
Arterial or major streets	4 – 6 feet
Proposed street trees, high vehicle speeds, and high percentages of truck traffic	5 – 8 feet

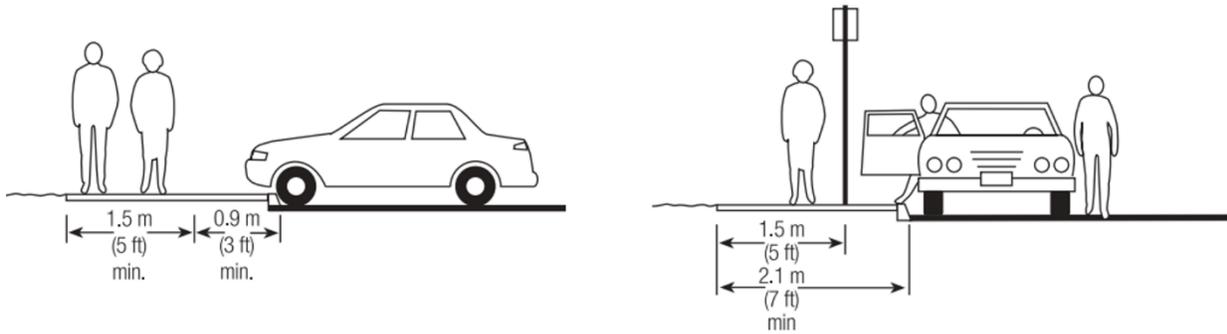
#### Non-Downtown Cross-Section



**Figure A. 2 Non-Downtown Sidewalk Cross-Section**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

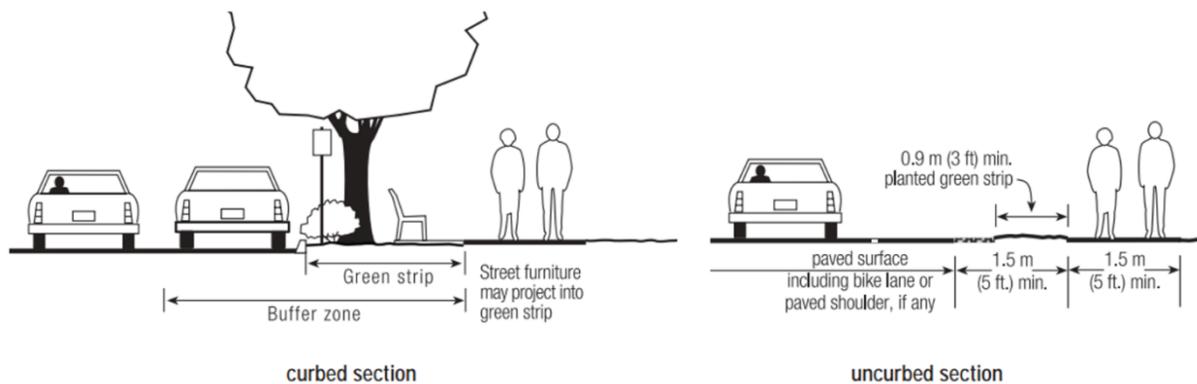
## Downtown Cross-Section



**Figure A. 3 Downtown Sidewalk Cross-Section**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

## Green Strip Buffer Cross-Section

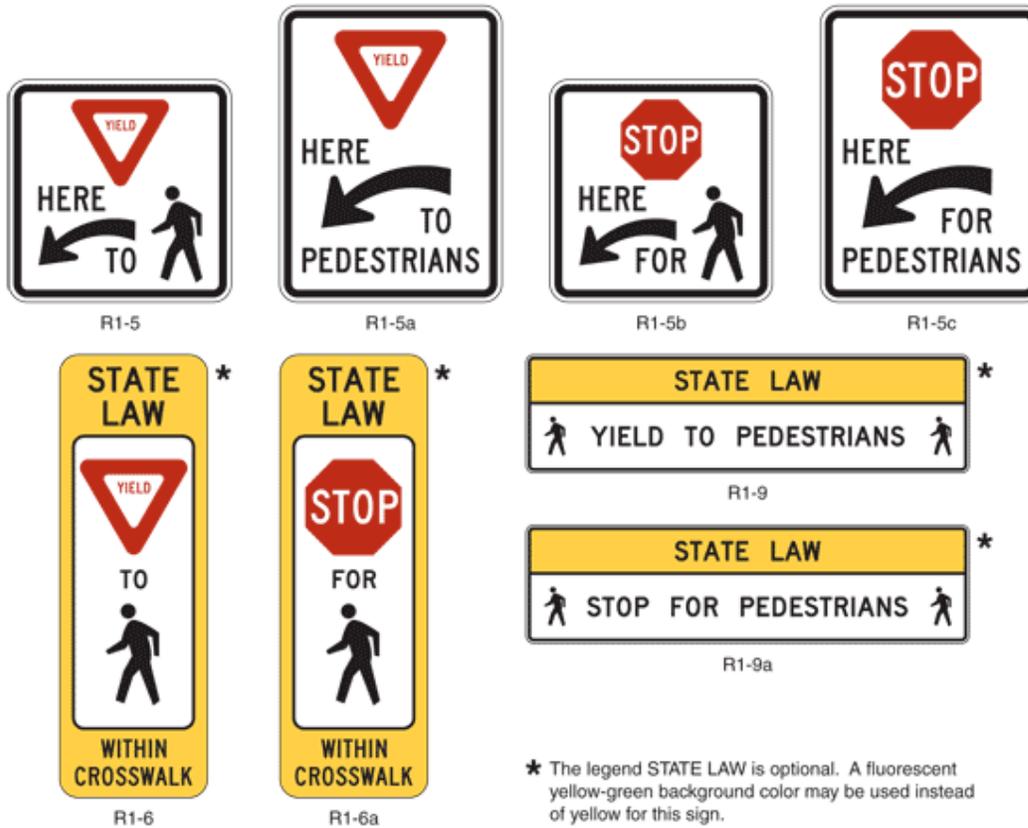


**Figure A. 4 Green Strip Buffer Cross-Section**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

## Sidewalk Facility and Pedestrian Signage

### Unsignalized Pedestrian Crosswalk Signs



**Figure A. 5 Unsignalized Pedestrian Crossing Signage**

Source: MUTCD

### Pedestrian and Vehicular Behavior Signage



**Figure A. 6 Pedestrian and Vehicular Behavior Signage**

Source: MUTCD

## C. Bicycle Infrastructure Design Guidelines

The following are general standards and recommendations for providing pedestrian infrastructure in various community settings beginning with preferred facility widths.

### Paved Shoulder Facilities

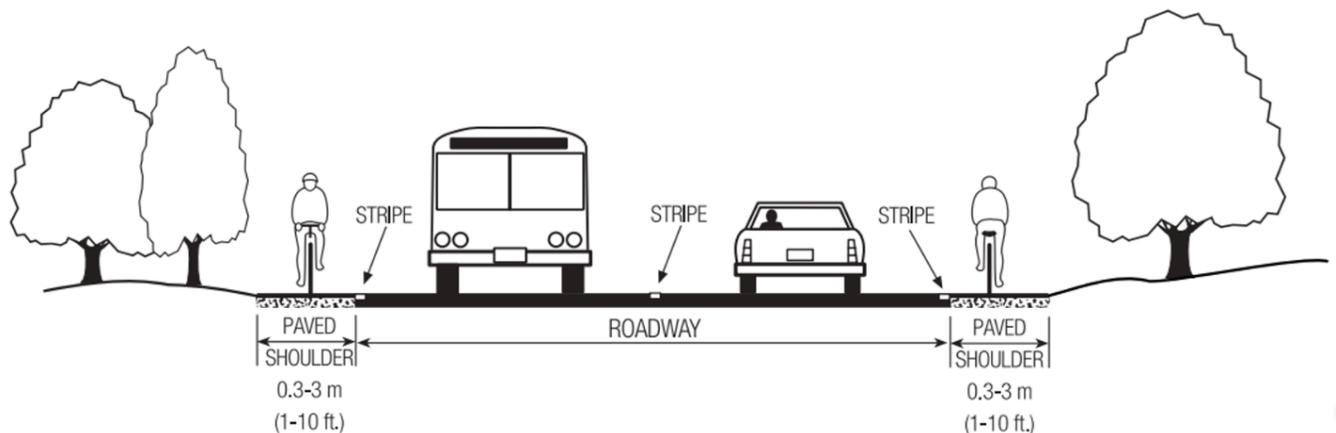
#### Paved Shoulder Facility Width Recommendations

**Table A. 4 Paved Shoulder Width Recommendations**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

Paved Shoulders	
Conditions	Preferred Width
Average Conditions (i.e. where traffic or edge conditions do not dictate additional bicycle lane width)	3 feet
Existence of roadside curb, guardrail, or other barrier adjacent to travel lane. Additional width (measured between the edge of the outside lane to the face of the barrier)	4 feet
Highways with steep up-grades or downgrades that exceed 1:20 (5 percent) for a distance of 0.6 miles or more	5 feet
Highways with 30+ heavy vehicles per hour in outside lane	5 feet

#### Non-Downtown Cross-Section



**Figure A. 7 Paved Shoulder Facility Non-Downtown Cross-Section**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

## Wide Outside Lane Facilities

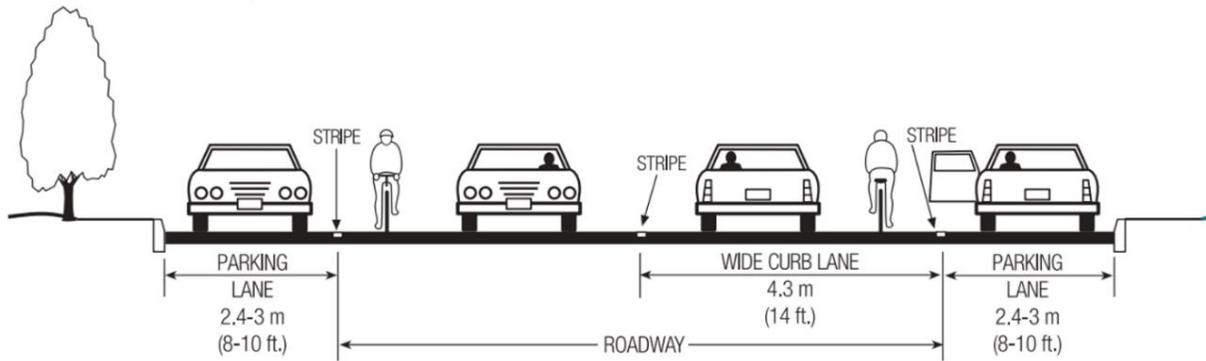
### Wide Outside Lane Facility Width Recommendations

**Table A. 5 Wide Outside Lane Facility Width Recommendations**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

Wide Outside Lane	
Conditions	Preferred
Wide Outside Lane, With On-Street Parking	13 feet
Wide Outside Lane, No On-Street Parking	14 feet

### Wide Outside Lane Cross-Section

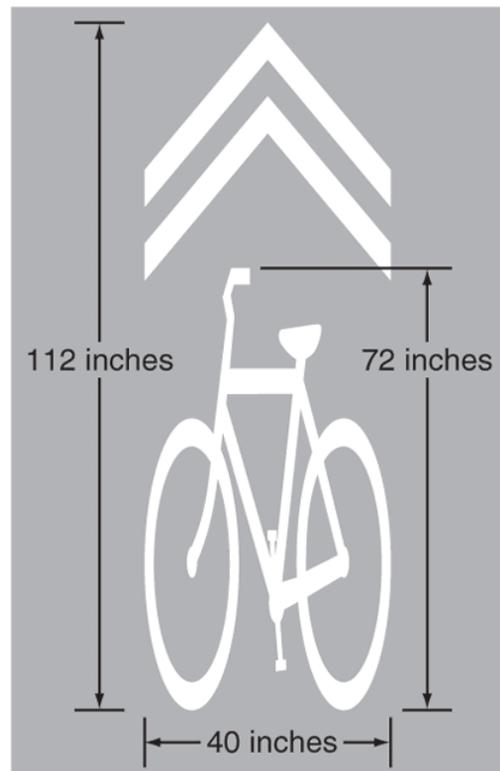
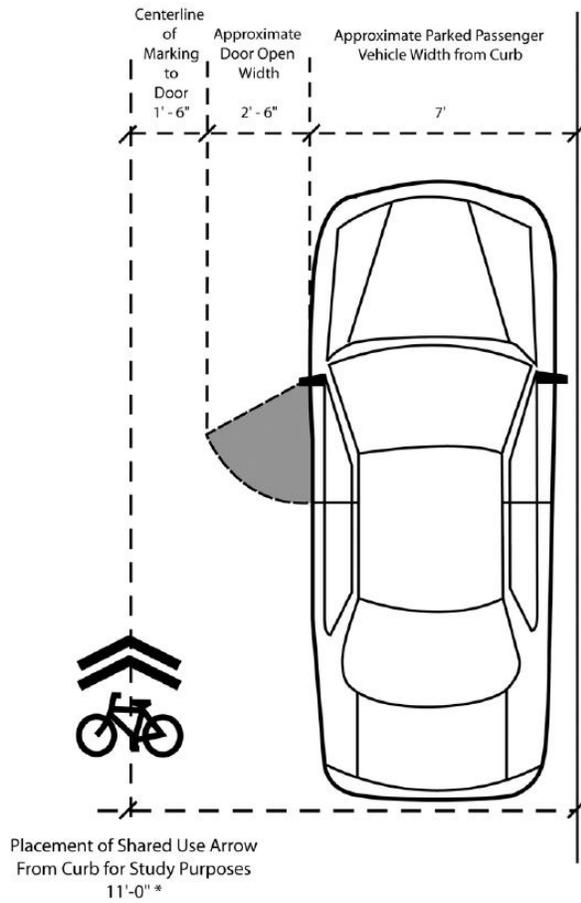


**Figure A. 8 Wide Outside Lane Facility Cross-Section**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual

## Shared Roadway and Bicycle Lane Facility Signage

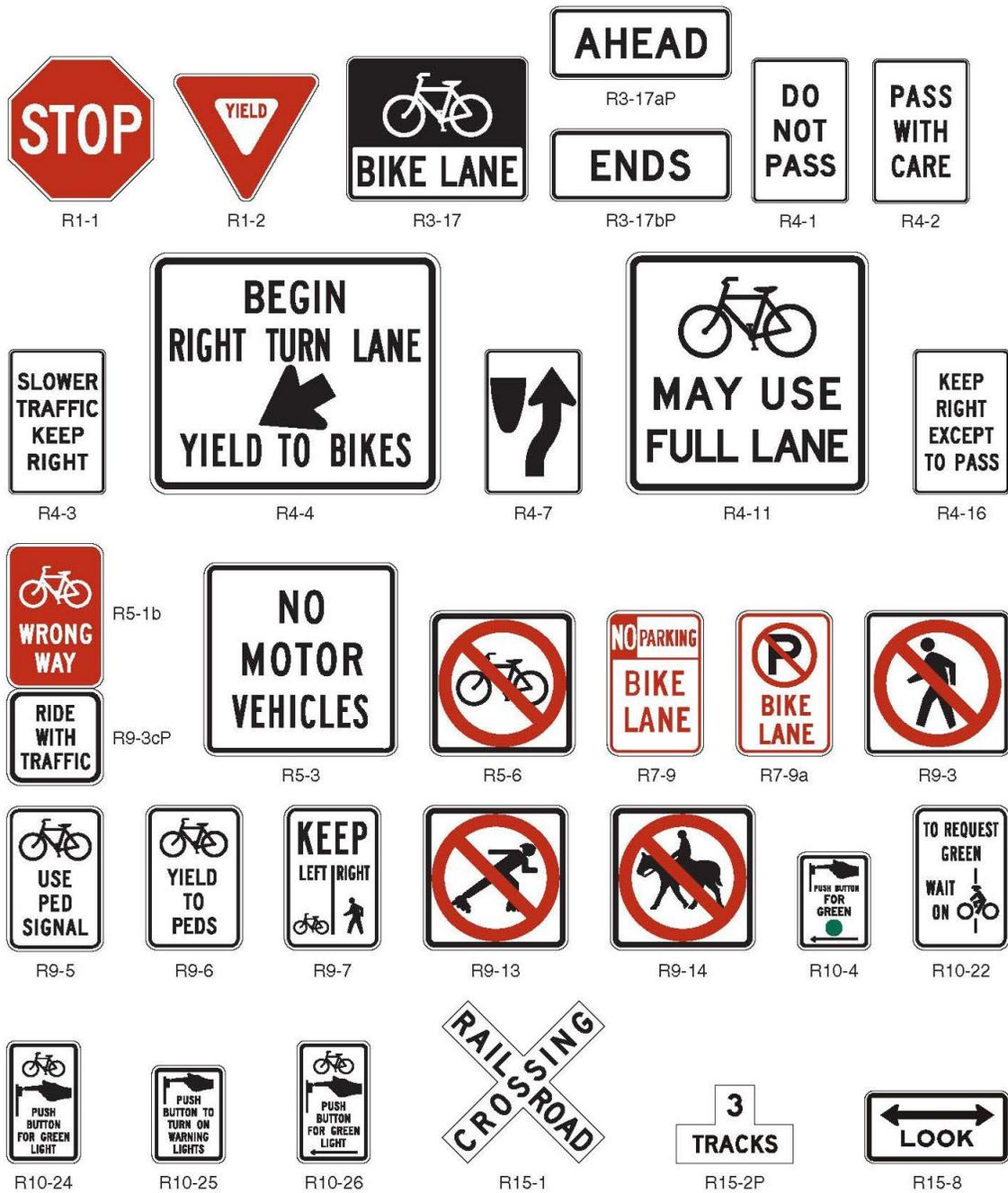
### Shared Roadway and Bicycle Lane Pavement Markings



**Figure A. 9 Sharrow Pavement Marking**

Source: VTRANS-Vermont Pedestrian and Bicycle Facility Planning and Design Manual and MUTCD

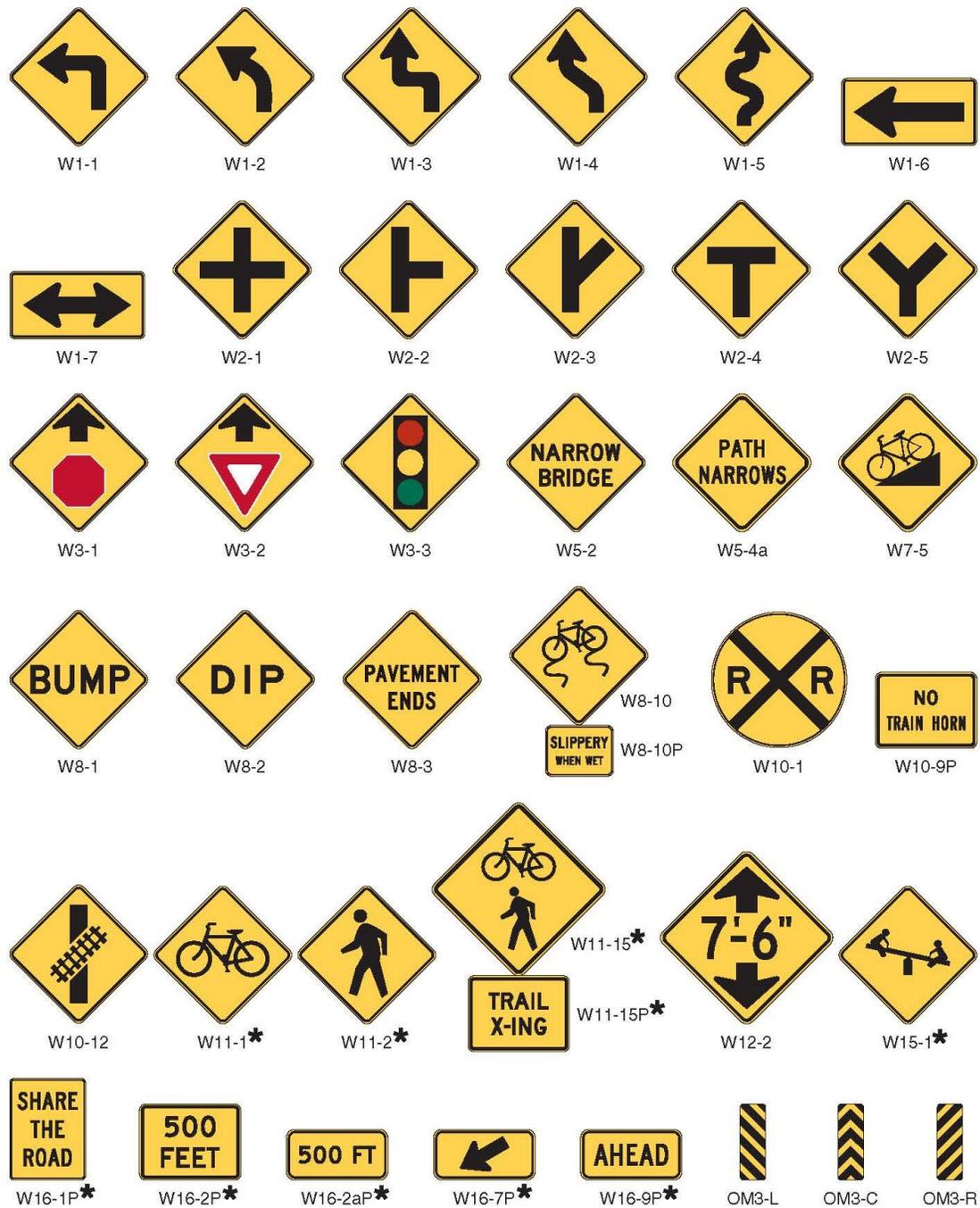
## Bicycle Facility Regulatory Signage



**Figure A. 10 Bicycle Facility Regulatory Signage**

Source: MUTCD

## Bicycle Facility Warning Signage and Object Markers



**Figure A. 11 Bicycle Facility Warning Signage and Object Markers**  
 Source: MUTCD

Bicycle Facility Guide Signs

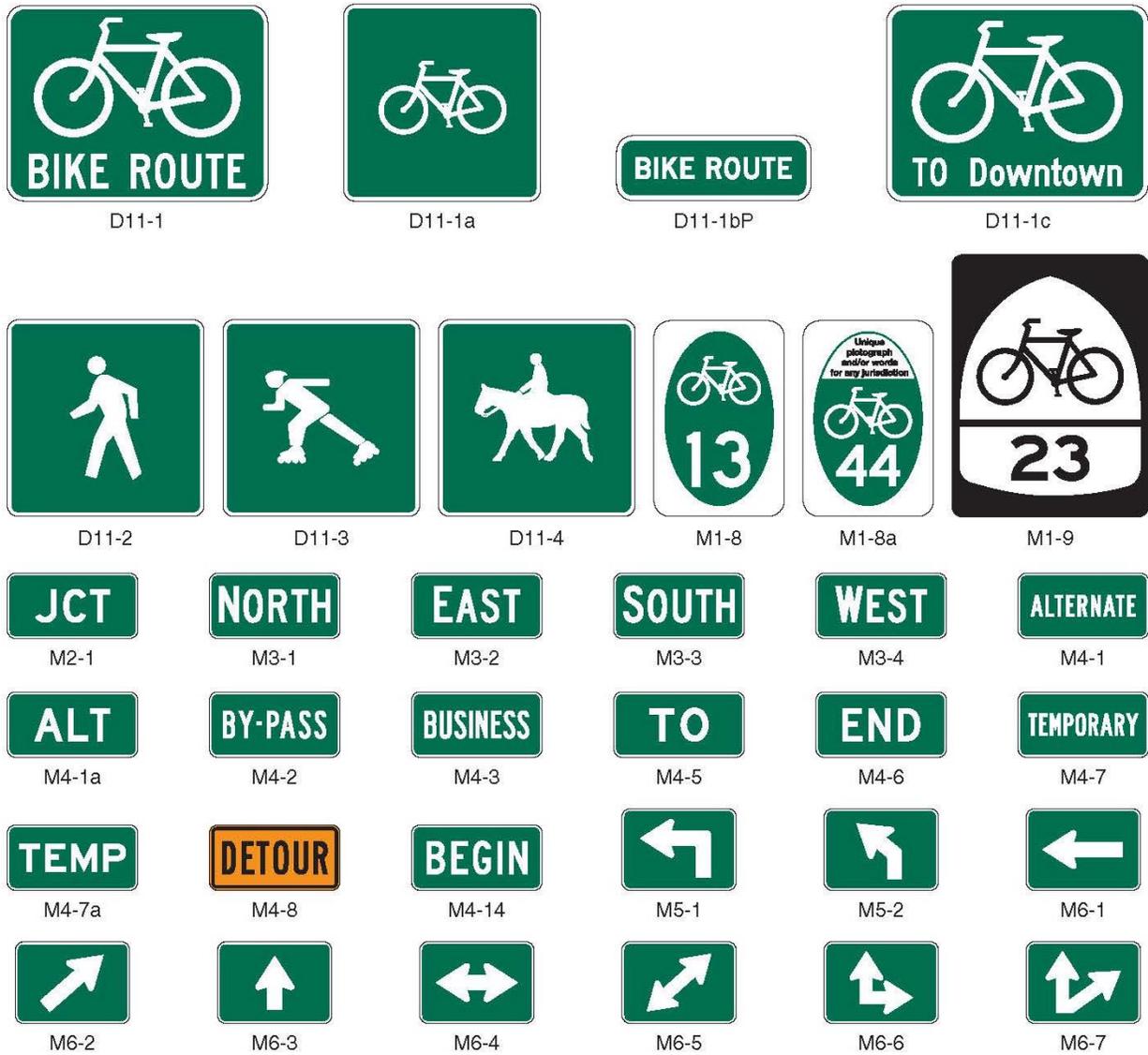


Figure A. 12 Bicycle Facility Guide Signs

Source: MUTCD

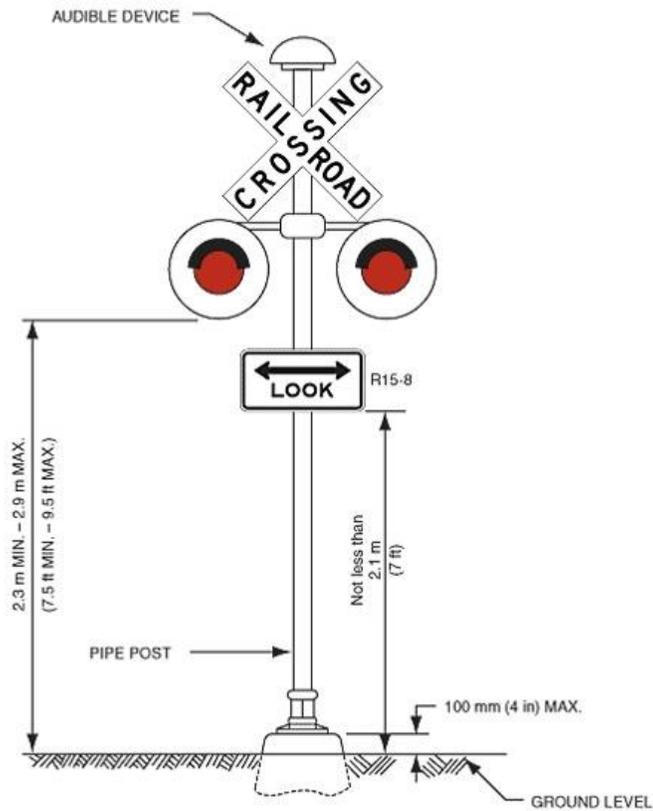
## D. Railroad Crossing Treatment Guidelines

The following are examples of roadway and sidewalk treatments as they relate to railroad crossings and non-motorized users. Proposed treatments for Halls' East Main Street railroad crossing include pedestrian gate control arms, fencing, and the renovation of the roadway-rail grade crossing surface. Updating the crossing's surface would improve travel for both vehicles and non-motorized users.



*Example Roadway-Rail Grade Crossing Treatments*

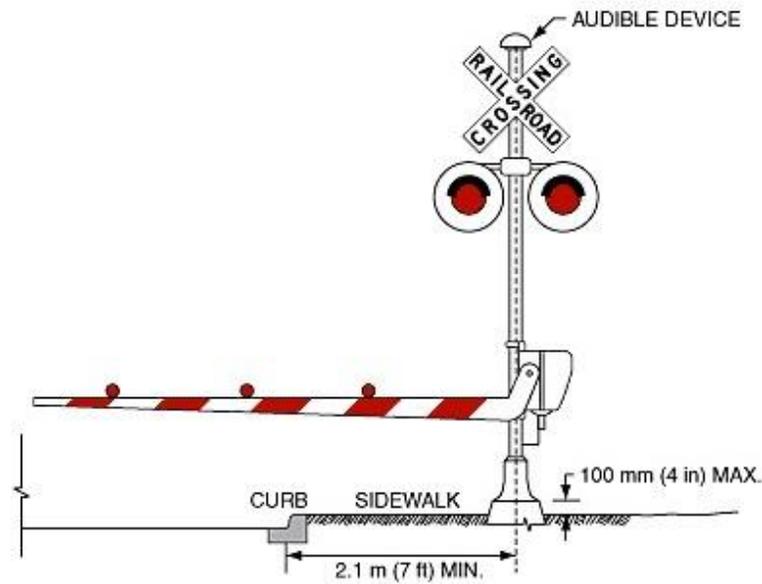
### Non-Motorized Signage



**Figure A. 13 Flashing Light Signal Assembly for Sidewalk Crossings**

Source: MUTCD

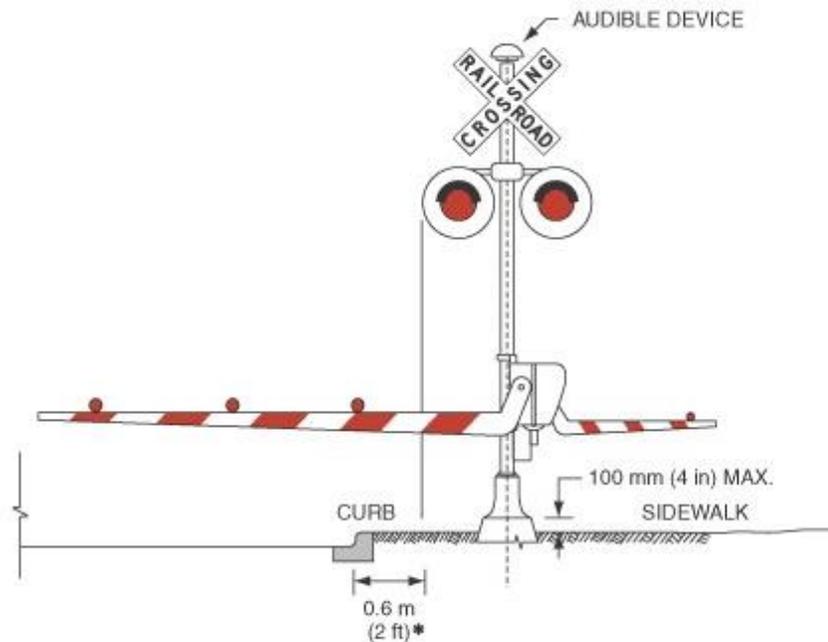
## Pedestrian Gate behind the Sidewalk



**Figure A. 14 Pedestrian Gate Placement behind the Sidewalk**

Source: MUTCD

## Pedestrian Gate Placement with Pedestrian Gate Arm

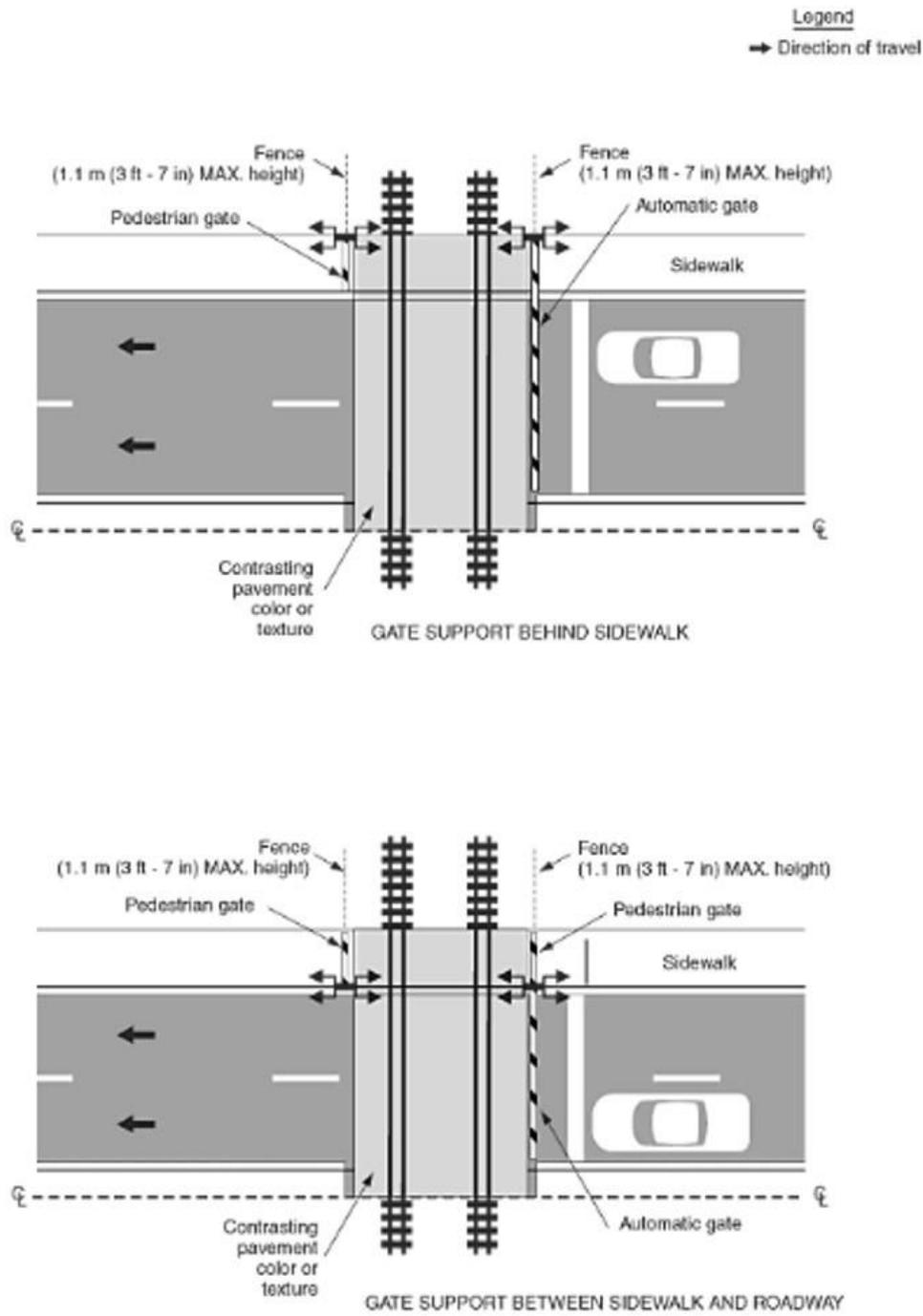


\* For locating this reference line at other than curb section installation, see Section 8D.01.

**Figure A. 15 Pedestrian Gate Placement with Pedestrian Gate Arm**

Source: MUTCD

# Pedestrian Gate and Fencing Placement



**Figure A. 16 Pedestrian Gate and Fencing Placement**  
 Source: MUTCD

## APPENDIX V. NEIGHBORHOOD GREENWAYS

Neighborhood greenways utilize low-volume, low-speed residential streets and give non-motorized users priority. These types of facilities provide additional recreational and mobility options for a relatively low cost (as compared to a newly-constructed traditional greenway facility). Accompanied with a few minor infrastructure changes and/or signage, a community can considerably increase the mileage of safe and comfortable non-motorized facilities for a relatively small amount of effort. Minor infrastructure improvements might include crosswalk treatments or improved curb ramps, while more robust improvements (often associated with larger urban environments) might include speed bumps, reorientation of stop signs or traffic flows to give greenway users the right of way, and use of traffic barriers such as refuge islands for enhanced protection at crossings. Signage or marking treatments often include pavement markings, particularly sharrows, and route signage, such as those illustrated below.



*Examples of neighborhood greenways and associated signage in Portland, OR and Seattle, WA - two U.S. municipalities at the forefront of concept application*