

PUBLIC SIDEWALK INVENTORY ANALYSIS REPORT

JANUARY 2018



TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....1

- » 1.1 Project Approach.....1
- » 1.2 Methodology.....2

CHAPTER 2: EXISTING SIDEWALK INVENTORY.....4

- » 2.1 Sidewalk Scoring.....4
- » 2.2 Pedestrian Curb Ramps.....8
- » 2.3 Motor Vehicle Curb Cuts.....12

CHAPTER 3: RECOMMENDED REPAIRS + RECONSTRUCTION.....16

- » 3.1 Prioritization Step One.....16
- » 3.2 Prioritization Step Two.....16

CHAPTER 4: SIDEWALK GAPS.....24

- » 4.1 Prioritization of New Sidewalks.....26

APPENDIX

- » Appendix 1: Sidewalk, Pedestrian Curb Ramp, and Motor Vehicle Curb Cut Measurements
- » Appendix 2: Priority Project Cost Estimate and Unit Cost Table
- » Appendix 3: GA Tech Sidewalk and Ramp Condition Data Collection and Analysis Report
- » Appendix 4: Detailed Condition Maps
- » Appendix 5: Existing Sidewalk Condition Score Tables and Sidewalk Gaps Tables

FIGURES

1.1 - Sidewalk Sentry Wheelchair Photo.....	2
1.2 - Tiered Geographic Area Map.....	3
2.1 - Existing Sidewalk Inventory Map: Citywide.....	5
2.2 - Six Inventory Elements Photos with Captions.....	6
2.3 - Condition Score By Number Of Sidewalks And Tier.....	7
2.4 - Condition Score By Number of Miles And Tier.....	7
2.5 - Non-Compliant Pedestrian Curb Ramp Photo.....	8
2.6 - Pedestrian Curb Ramp Con-Compliance Elements.....	8
2.7 - Top Four Reasons for Ramp Non-Compliance.....	8
2.8 - Compliant Pedestrian Curb Ramp Photo.....	8
2.9 - Pedestrian Curb Ramp Map: Citywide.....	9
2.10 - Pedestrian Curb Ramp Map: Downtown.....	10
2.11 - Pedestrian Curb Ramp Map: Florence.....	11
2.12 - Motor Vehicle Curb Cuts Compliance Bar Chart.....	12
2.13 - Finn St Motor Vehicle Curb Cut Photo.....	12
2.14 - Motor Vehicle Curb Cuts Map: Citywide.....	13
2.15 - Motor Vehicle Curb Cuts Map: Downtown.....	14
2.16 - Motor Vehicle Curb Cuts Map: Florence.....	15
3.1 - Sidewalk Repair Prioritization Map: Tier 1.....	17
3.2 - Sidewalk Repair Prioritization Map: Tier 2.....	18
3.3 - Sidewalk Repair Prioritization Map: Tier 3.....	19
3.4 - Sidewalk Repair Prioritization Map: Tier 4.....	20
3.5 - Prioritized Segments Map: Tier 1.....	21
3.6 - Prioritized Segments Map: Tier 2.....	22
4.1 - Existing Sidewalk Gaps Map: Citywide.....	26
4.2 - Cumulative Sidewalk Miles Chart.....	26
4.3 - Tier A - D Sidewalk Gap Examples.....	26
4.4 - Sidewalk Gaps Map: Tier A.....	27
4.5 - Sidewalk Gaps Map: Tier B.....	28
4.6 - Sidewalk Gaps Map: Tier C.....	29
4.7 - Sidewalk Gaps Map: Tier D.....	30

TABLES

2.1 - Sidewalks by Tier.....	4
2.2 - Condition Score.....	6
3.1 - Tier 1 Sidewalks for Repair.....	21
3.2 - Tier 2 Sidewalks for Repair.....	22
4.1 - Number and Length of Gap by Tier.....	26



CHAPTER ONE: INTRODUCTION

Providing safe and accessible pedestrian routes in Northampton helps to encourage residents to choose walking or public transit as a healthy and sustainable mode of transportation.

From a pedestrian connectivity and Americans with Disabilities Act (ADA) accessibility point of view, Northampton's sidewalk network is relatively complete downtown, in the adjacent historic neighborhoods and along the radial road network extending away from downtown. Most sidewalks on residential streets are buffered from the adjacent roads by grass strips. However, many residential streets lack a sidewalk on one side, with others lacking sidewalks entirely. Downtown, the retail environment and generous sidewalks along Main Street and the adjacent side streets create a strong sense of place, drawing shoppers, diners and music lovers from throughout the region.

1.1 Project Approach

The intent of this study was to document the **public** sidewalk network throughout Northampton, including pedestrian curb ramps and motor vehicle curb cuts. Sidewalks along state-owned and private roadways or within private parking lots were excluded from this project. Alta Planning + Design oversaw the study and retained researchers at the Georgia Institute of Technology (Georgia Tech) to collect sidewalk, pedestrian curb ramp, and motor vehicle curb cut asset inventory

data. Georgia Tech used proprietary data-gathering methods and technology to collect and process condition data using Sidewalk Scout and Sidewalk Sentry smartphone and tablet applications. An extensive and detailed inventory was collected in order to determine the level of need for improved pedestrian connectivity and accessibility for those with disabilities. The project team's work included an inventory of:

- Existing sidewalks
- Gaps in the sidewalk network
- Pedestrian curb ramps
- Motor vehicle curb cuts

The criteria used in the data-gathering process to evaluate sidewalk infrastructure repairs included:

- Width, and slope of sidewalk
 - » Existing sidewalks below 48" wide are more likely to be repaired than wider sidewalks.
 - » Sidewalks with a cross slope of greater than 4% are more likely to be repaired than flatter sidewalks.

- Potholes, obstructions, debris, and unevenness of sidewalk
 - » Sidewalks with rough, bumpy, and/or uneven surfaces are more likely to be repaired than smoother sidewalks.

Priority has been given to Northampton’s business districts and schools for sidewalk reconstruction and repair. This is due to the high pedestrian volumes and demand in Northampton’s two primary business districts and the need to improve safety and accessibility for children and staff at the following public schools:

- Leeds Elementary School
- Jackson Street Elementary School
- RK Finn Ryan Elementary School
- Bridge Street Elementary School
- J.F.K. Middle School
- Northampton High School
- Smith Vocational and Agricultural High School

1.2 Methodology

The following section describes the methodology used to create and evaluate the existing sidewalk, pedestrian curb ramp, and motor vehicle curb cut inventory, and provides a map showing the different tiers used to prioritize existing sidewalks.

The two steps needed to create a pedestrian-friendly and ADA-compliant sidewalk network include:

- Develop a sidewalk infrastructure database to catalog existing conditions.
- Assess the conditions of the sidewalks, pedestrian curb ramps, and motor vehicle curb cuts through field work using proprietary tools and research methods to populate the database and subsequently prioritize improvements.

The data collection process involved two methods developed by Georgia Tech:

- **Sidewalk Scout Application** - Smart phones utilizing the Sidewalk Scout application to photograph and record specific field measurements along sidewalks, pedestrian curb ramps and vehicle curb cuts. This includes parameters such as cross-slope, passing width, and presence of detectable warning surfaces to determine ADA compliance.
- **Sidewalk Sentry** - A tablet computer mounted to a standard wheelchair using the Sidewalk Sentry application to record video, measure vibration/roughness, obstructions, potholes, and identify maintenance issues and other obstructions that included Global Positioning System (GPS) location information. The wheelchair was pushed at regular walking pace down every public sidewalk in Northampton.



Figure 1.1: The Sidewalk Sentry data collection system utilized a tablet which recorded rolling video along with tilt and vibration information.

Using these two methods, a team of researchers were deployed to collect the data. Researchers identified ramp locations throughout Northampton, classified ramps by type, and recorded the features of the ramp. Georgia Tech graduate students then post-processed Sidewalk Sentry video to develop sidewalk problem reports. Each sidewalk problem report identified during the video review process included locational information that was brought into the Geographic Information System* (GIS) maps for display. Following the data collection and processing, planners and graduate students from the Alta / Georgia Tech team implemented a quality assurance/quality control process to review the data, correct any discrepancies, and begin the mapping process. Alta staff then completed the prioritization process. Using GIS map layers provided by the City of Northampton, Alta and Georgia Tech were able to build lines and points into the database to represent different point data including motor vehicle curb cuts, pedestrian curb ramps, and line data, including existing and missing sidewalks.

**GIS is a digital mapping system that allows users to capture, store, manipulate, analyze, and present spatially accurate data. GIS information, maps, and analysis is a common tool used by professionals in planning, engineering, land management, transportation, and the telecommunications industry.*

Sidewalk Segments

The GIS information collected by Georgia Tech included 8,501 segments, each 50 feet in length. Data collectors also inventoried 4,201 sidewalk / width / slope / curb inspection reports. 2,467 of the sidewalk segments have excessive slopes or widths too narrow for a wheelchair to traverse. These data sets were then combined into more user-friendly, block-long length segments of varying lengths by combining each abutting line, and ending each line at an intersection. The resulting 752 individual lines represented existing sidewalks with a variety of existing conditions in the data. There were 2,250 sidewalk defects recorded.

The sidewalk data was then analyzed, scored, and grouped into the following tiered buffers for reconstruction prioritization:

- **TIER 1:** Within 1/4 mile of the 7 public schools
- **TIER 2:** Within 1/4 mile of Downtown Northampton and Florence Center
- **TIER 3:** Between 1/4 - 1/2 mile of the business districts and all schools
- **TIER 4:** All segments falling outside of Tiers 1 - 3

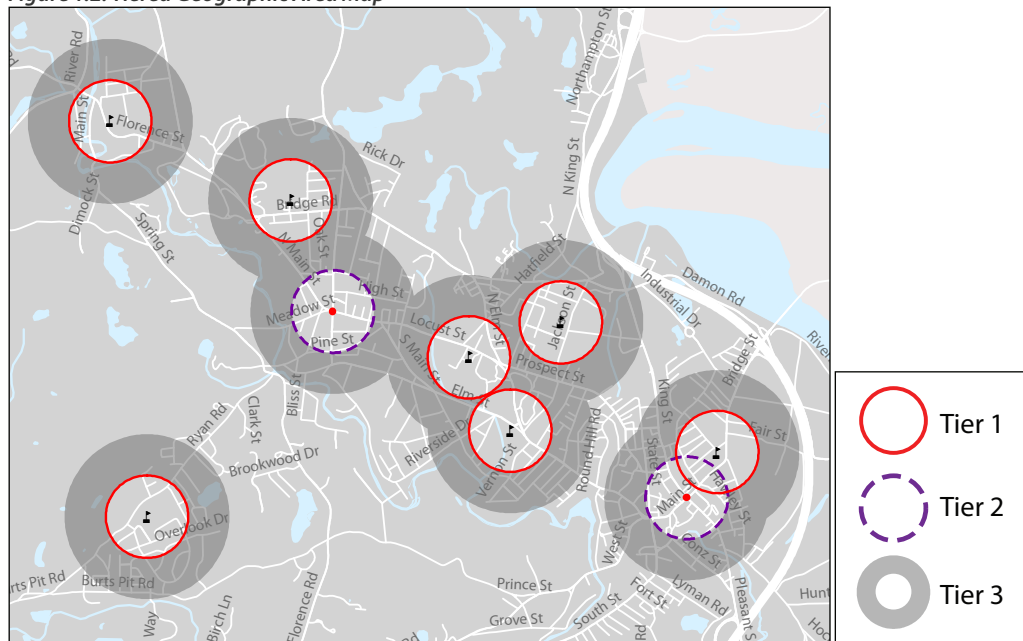
Pedestrian Curb Ramps

Data was collected for 1,042 pedestrian curb ramps in the City. See Map Figures 2.9 through 2.11. There are currently 77 compliant and 797 non-compliant pedestrian curb ramps. 168 locations were recorded as missing pedestrian curb ramps entirely. 505 ramp locations were missing tactile warning strips. The installation of standard tactile warning strips at these locations would very likely bring the pedestrian ramp into ADA compliance.

Motor Vehicle Curb Cuts

Data was collected for 3,041 motor vehicle curb cuts throughout Northampton. Every curb cut that crosses a public pedestrian right of way was measured. This includes both driveways to private residences, retail, and commercial buildings, in addition to driveways to public municipal parking lots and parks. Driveways on gravel roads and driveways that do not cross any public sidewalks were excluded from the data gathering process. 2,990 motor vehicle curb cuts had ADA deficiencies. See Map Figures 2.14 through 2.16.

Figure 1.2: Tiered Geographic Area Map





CHAPTER TWO: EXISTING SIDEWALK INVENTORY

The existing sidewalk inventory was the first step in the sidewalk reconstruction and repair prioritization process. Figure 2.1 shows the existing sidewalk network in Northampton. The Alta / Georgia Tech team mapped and recorded data for every public sidewalk in Northampton. The bar charts in Figures 2.3 and 2.4 provide a summary of the existing sidewalk network in Northampton. The following section describes and displays how each sidewalk segment was scored to determine its eligibility for reconstruction and/or repair. Subsequent sections describe and display the existing pedestrian curb ramp and motor vehicle curb cut conditions throughout Northampton.

2.1 Sidewalk Scoring

The prioritization process included the investigation of sidewalk segments that had Conditional Scores above an acceptable level of disrepair. Upon review of sidewalk scores, Alta concluded that the vast majority of sidewalks that scored a 16 or below were in the range of perfect to acceptable condition. **Therefore, it was determined that prioritizing segments with a score of 17 and above would yield the desired outcome.** The following four Tiers were developed by City staff to organize and prioritize recommended sidewalk repairs.

- » **TIER 1:** Within 1/4 mile of the 7 public schools
- » **TIER 2:** Within 1/4 mile of Downtown Northampton and Florence Center
- » **TIER 3:** Between 1/4 - 1/2 mile of the business districts and all schools
- » **TIER 4:** All segments falling outside of Tiers 1 - 3

Table 2.1 displays the total number of sidewalks by Tier.

Conditional Scoring Process

Table 2.2 describes the process used to calculate the Condition Score of each sidewalk segment before the segments were grouped into each of the geographic Tiers. The condition scoring process included combining data from the Sidewalk Sentry and Sidewalk Scout data recording devices and adding a multiplier to emphasize the more significant defects. Of the dozens of data points collected for each sidewalk segment, the following six inventory elements were chosen to determine the overall sidewalk Condition Score (see Figure 2.2 on pg. 6):

- Cross Slope
- Width
- Potholes
- Obstructions
- Debris
- Uneven Surfaces

Table 2.1: Sidewalks by Tier

TOTAL NUMBER OF NUMBER SIDEWALKS BY TIER		
Tier	Number of Sidewalks Within Tier	Miles Within Tier*
1**	131	17.4
2**	143	13.4
3**	382	45.1
4	199	22.4

*Sidewalk segments were not 'clipped' at the buffer boundary line, therefore a handful of segments may be repeated within this column.

**Tiers 1, 2, and 3 have 102 overlapping or duplicate sidewalk segments. There are 752 total sidewalk segments.

Figure 2.1: Existing Sidewalk Inventory - Citywide

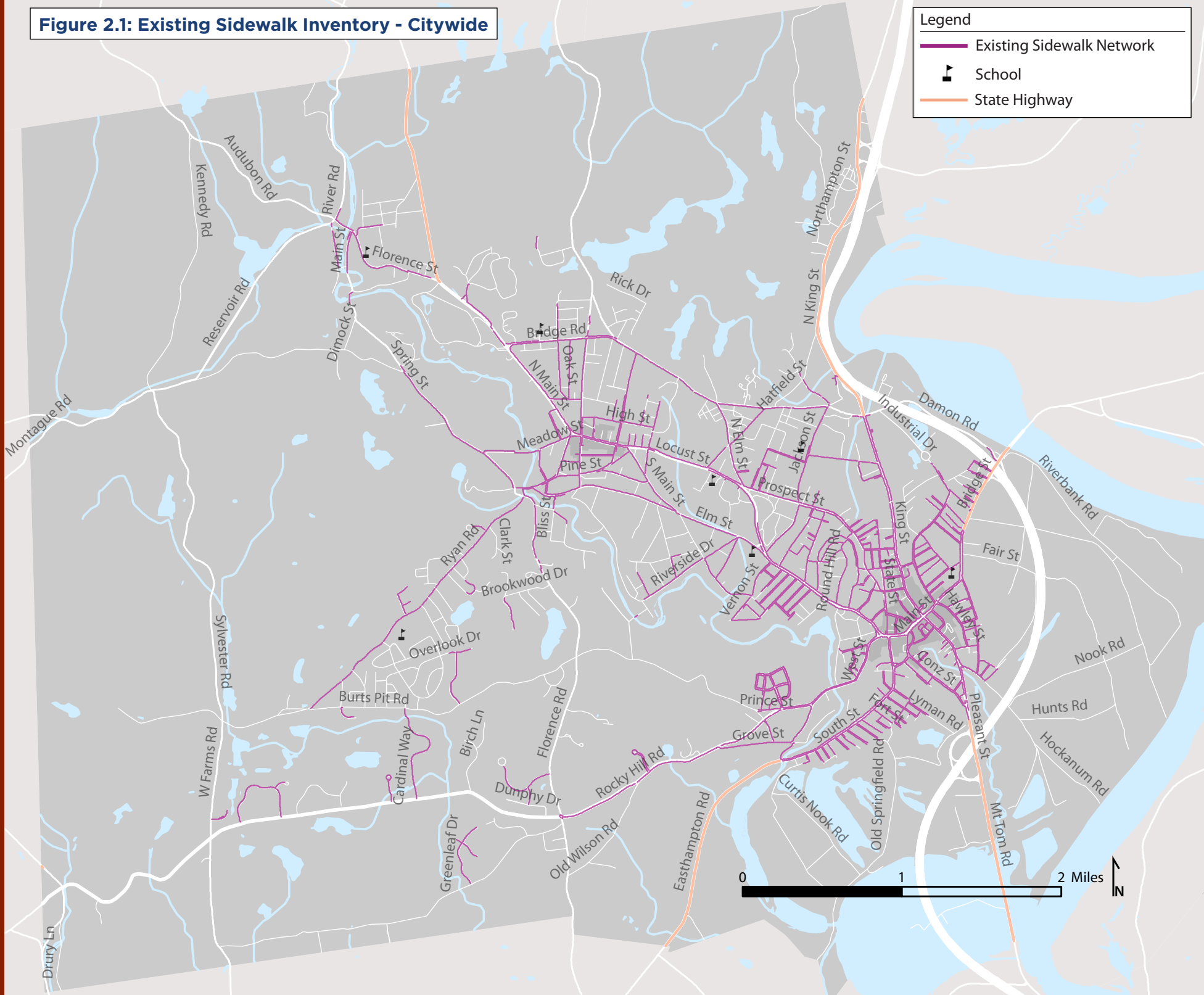


Figure 2.2: Six Inventory Elements used to determine Condition Scores

In addition to the Condition Score, another scoring metric was developed that factored in the length of the sidewalk segment. (Note: the length of the sidewalk segment in question does not alter the Condition Score.) The resulting equation divided the Condition Score by the length of the segment and multiplied the result by 1,000 in order to create a more manageable number (rather than small decimals). See the right-most column labeled 'Pro-Rated' in Tables 3.1 & 3.2. This pro-rated value can be used to compare segments to determine which segments have more defects per foot. However, due to the equation favoring shorter segments, this is a supplementary value to the Condition Score.

In addition to the significant data recorded for each sidewalk, gaps in the sidewalk network (i.e. missing sidewalks) were identified and are discussed in more detail in Chapter 4.

Table 2.2 displays the six Inventory Elements used to generate the Condition Score. The bar charts in Figures 2.3 and 2.4 provide a summary of the existing sidewalks with a Condition Score equal to or above 17 in each Tier.

CROSS SLOPE



A segment of sidewalk that exceeds the ADA-accessible 2% maximum cross slope. Image: Google.

WIDTH



A narrow sidewalk segment on Hinckley Street that does not meet ADA requirements. Image: Google.

POTHOLES



A segment along Prospect Ave that registered the highest pothole count, creating a challenging environment for those with limited mobility. Image: Google.

OBSTRUCTIONS



This segment along Conz Street includes utility pole obstructions that narrow the sidewalk width to less than 3' in places. Image: Google.

DEBRIS



Sidewalk with significant debris in the form of vegetation encroachment, making the sidewalk inaccessible for wheelchairs. Image: screen shot from the rolling wheelchair tablet video.

UNEVEN SURFACES



A sidewalk with significant uneven surfaces on Federal Street, rendering the segment non-compliant with ADA standards. Image: Google.

Table 2.2: Condition Score Inventory Elements

CONDITION SCORE						
	Inventory Element Used to Generate Condition Score					
	Potholes	Obstruction	Debris	Uneven	Width	Cross Slope
No Value	None	None	None	None	>60"	<2%
Score: 1	1-8	1-6	1-3	1-30	>=48" - <60"	>2% - <=3%
Score: 2	9-16	7-12	4-6	31-60	<48"	>3 - <=4%
Score: 3	>16	>12	7-9	>60	n/a	>4%
Weighting*	x 4	x 3	x 1	x 4	x 2	x 4

*Weighting was determined by City of Northampton staff.

Figure 2.3: Condition Score Breakdown By Number Of Sidewalks And Tier

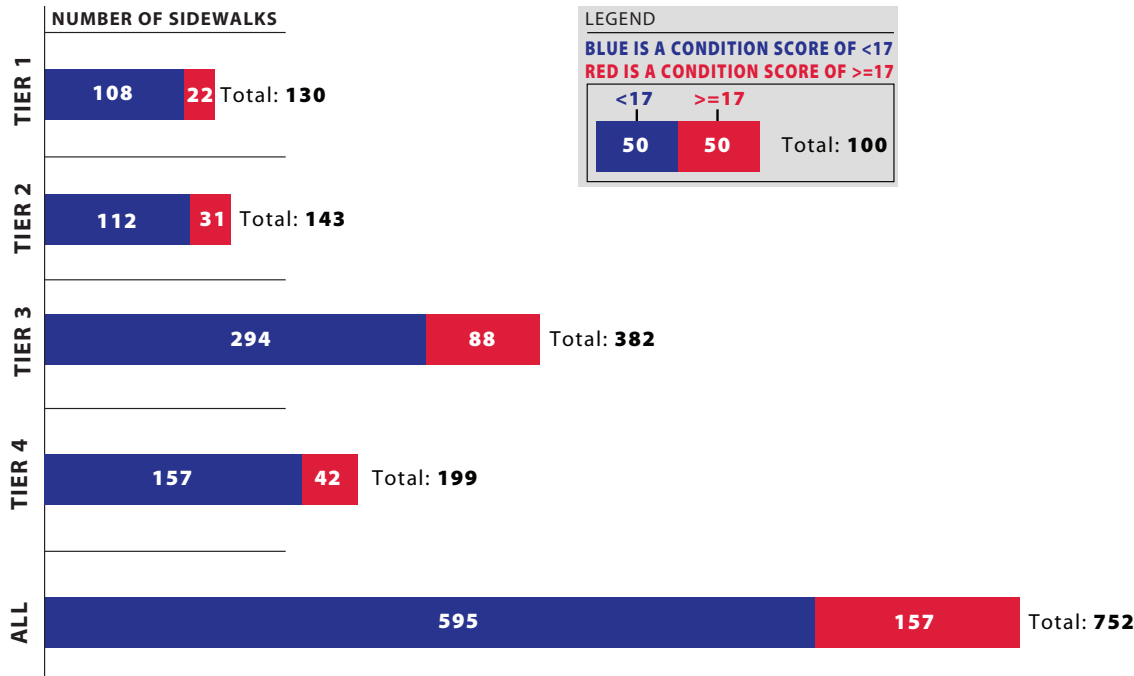
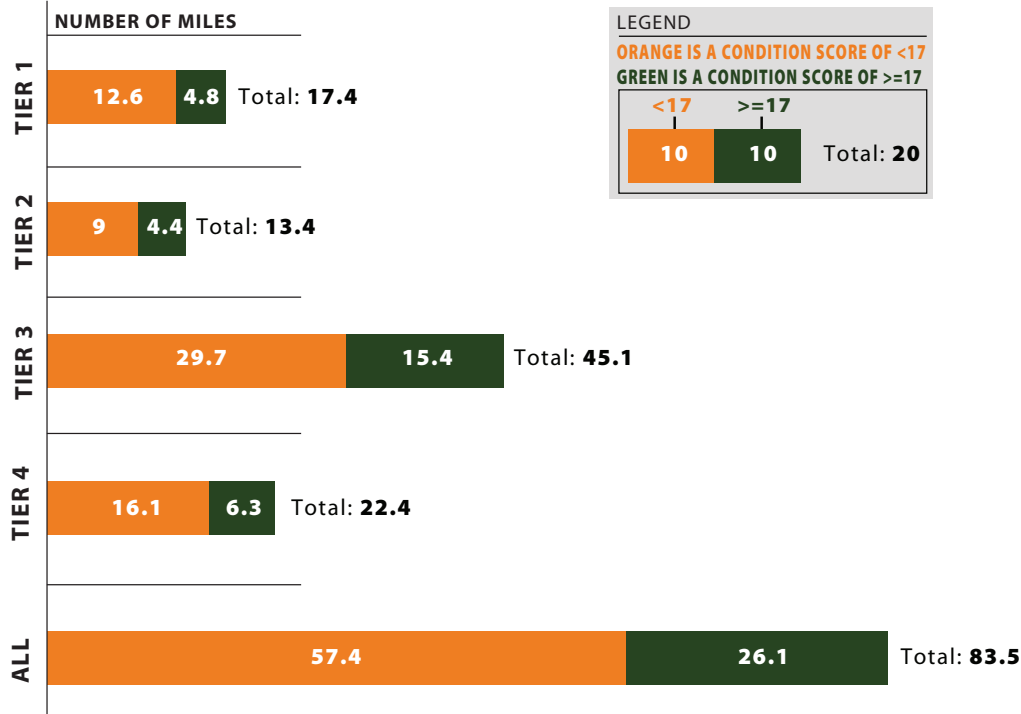


Figure 2.4: Condition Score Breakdown By Sidewalk Miles And Tier



BAR CHART NOTES

- » **TIER 1:** Within 1/4 mile of the seven public schools
- » **TIER 2:** Within 1/4 mile of Downtown Northampton and Florence Center
- » **TIER 3:** Between 1/4 - 1/2 mile of the business districts and all schools
- » **TIER 4:** All segments falling outside of Tiers 1 - 3
- » **A Condition Score below 17 is considered an acceptable level of sidewalk condition**
- » **A Condition Score of 17 and above is flagged for potential reconstruction and repair**
- » **Overlapping segments within some of the Tiers result in a total that is higher than the total number of segments (752) or the total number of miles (83.5)**

2.2 Pedestrian Curb Ramps



Figure 2.5: A missing (and therefore non-compliant) pedestrian curb ramp on Hinckley Street. Image: Google.

Figure 2.6: Pedestrian Ramp Non-Compliance Elements

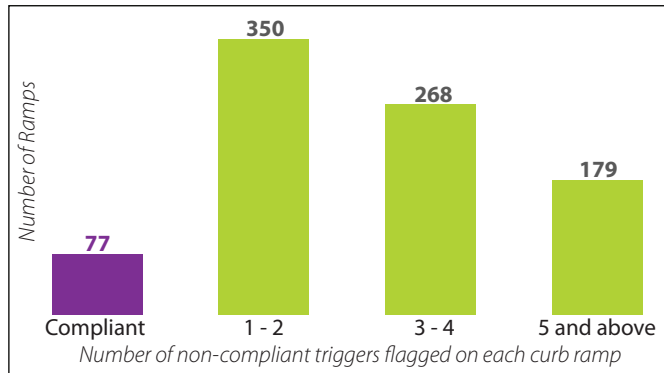
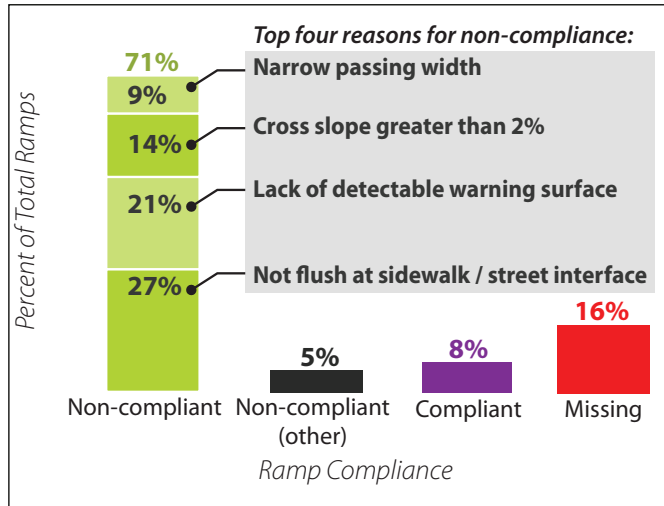


Figure 2.7: Top Four Reasons For Non-Compliance of Curb Ramps



Pedestrian curb ramps are an important part of a complete transportation network. When properly designed and installed, ADA-compliant ramps both warn sight-impaired individuals of the presence of a street crossing via tactile warning strips and provide an accessible landing location for mobility-impaired individuals.

Pedestrian curb ramp information was gathered using the Sidewalk Scout Android application by entering manually-collected data into a smartphone. A total of nine unique detail measurements were recorded at each of the City's 1,042 pedestrian curb ramp locations (see Appendix 1 for measurement types, and Appendix 4 for detailed pedestrian curb ramp condition maps). The four primary factors that trigger curb ramp non-compliance are shown below. Figure 2.7 highlights the number of non-compliant triggers for each curb ramp.

The ADA Accessibility Guidelines (ADAAG) and Public Rights of Way Accessibility Guidelines (PROWAG) were developed to ensure that the built environment would be accessible to people with disabilities. Figure 2.8 shows the top four reasons that are non-compliant for the curb ramps inventoried. When those ramps are reconstructed, the following parameters must be met*:

- **Flush at Sidewalk / Flush at Street:** Transition between sidewalk and ramp or street and ramp with < 1/2" vertical gap
- **Detectable warning surface:** Include a detectable warning surface
- **Cross Slope:** The grade or slope of the ramp perpendicular to the direction of travel is < 2%
- **Passing Width:** The passing width shall be a minimum of 5'-0"

The following pages contain maps that visually display curb ramps throughout the City of Northampton. The three maps display:

- Citywide Curb Ramps
- Downtown Curb Ramps
- Florence Curb Ramps

*Curb cut compliance information summarized from the United States Department of Transportation and Federal Highway Administration's document **Accessible Sidewalks and Street Crossings - an informational guide.* <http://www.bikewalk.org/pdfs/sopada_fhwa.pdf>



Figure 2.8: A compliant pedestrian curb ramp on Prospect Street at N Elm Street. Image: Google.

Figure 2.9: Pedestrian Curb Ramps - Citywide

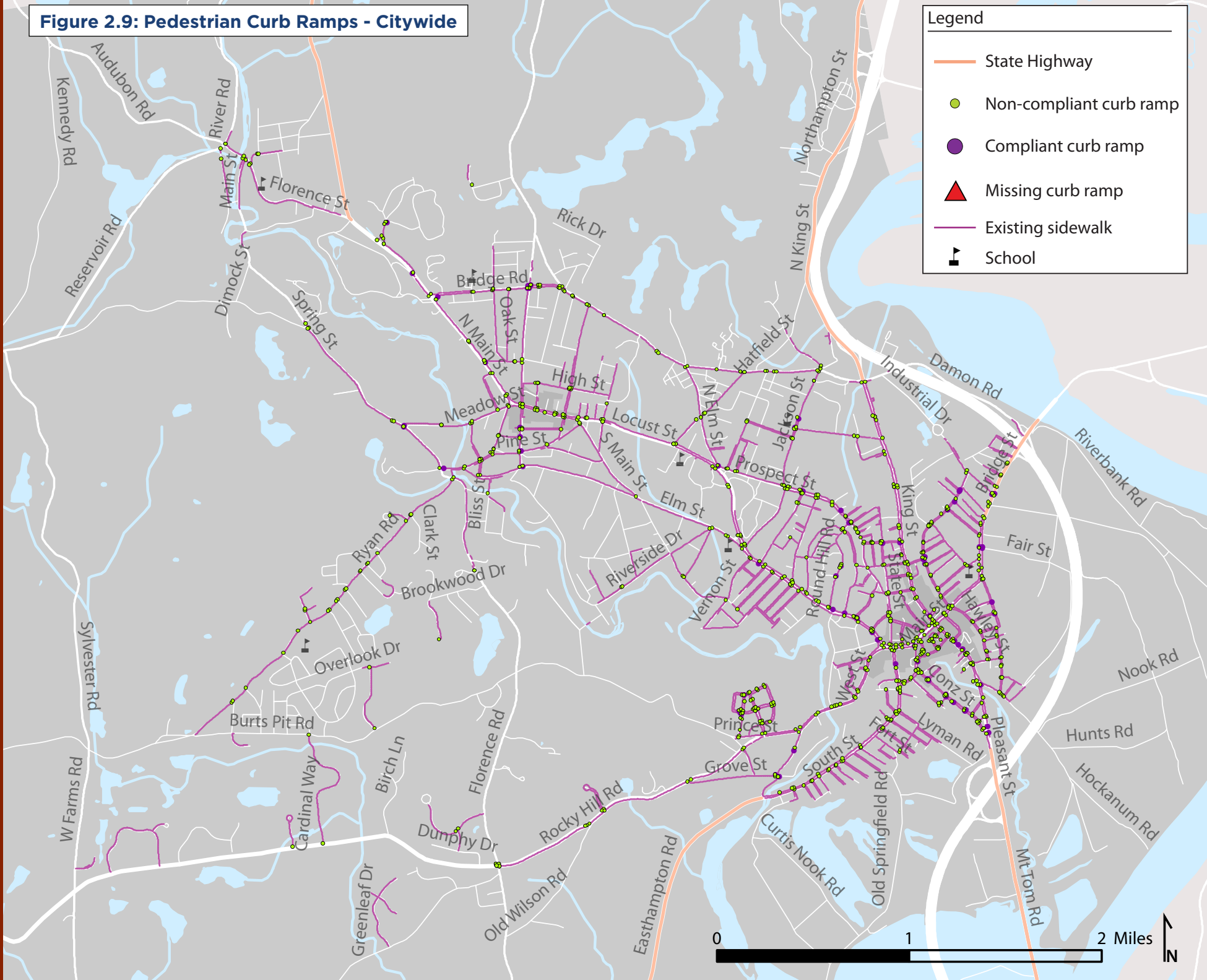


Figure 2.10: Pedestrian Curb Ramps - Downtown

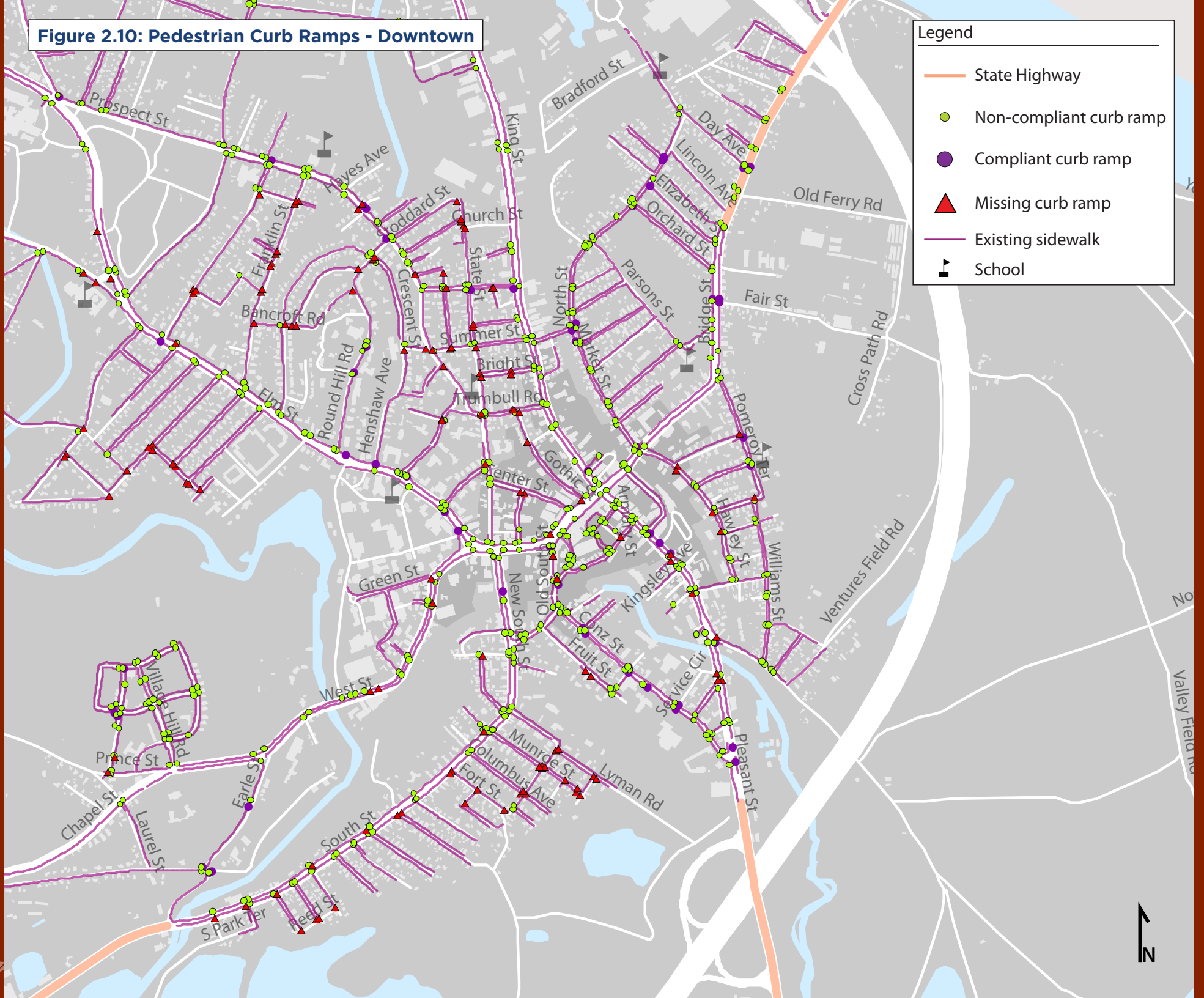
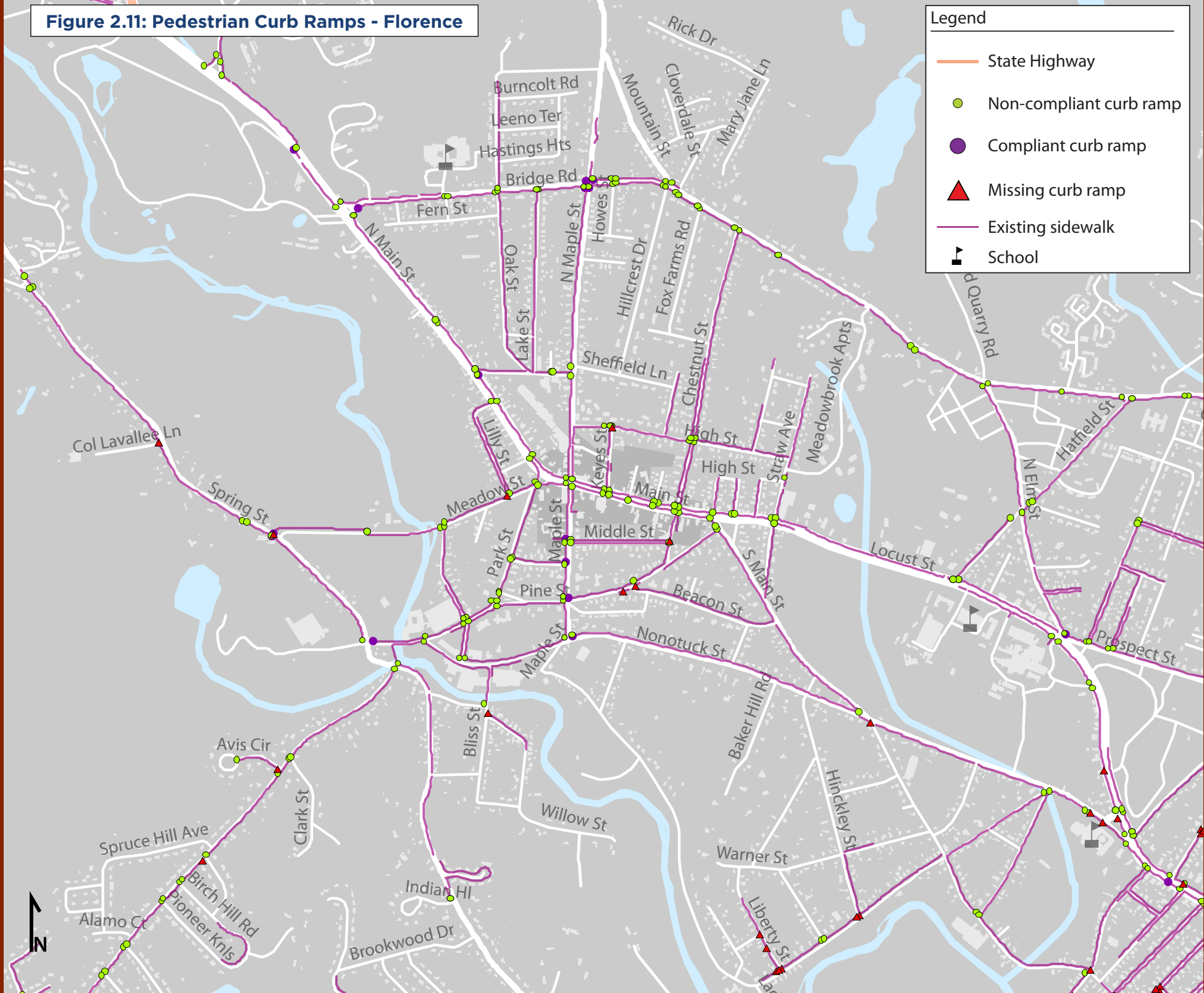
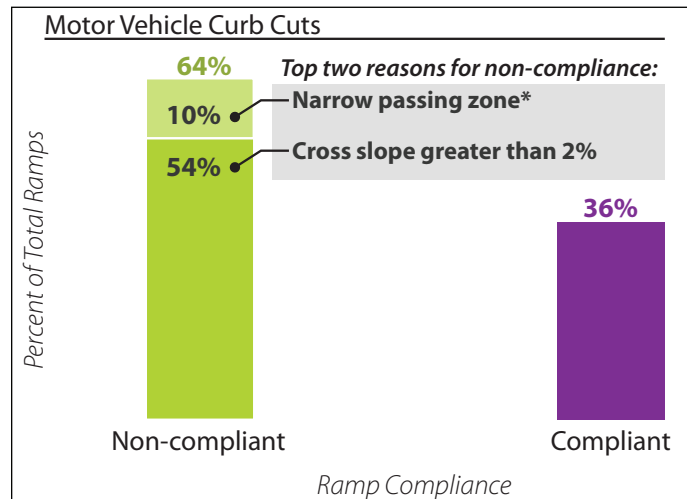


Figure 2.11: Pedestrian Curb Ramps - Florence



2.3 Motor Vehicle Curb Cuts

Figure 2.12: Motor Vehicle Curb Cuts Compliance



*Width of sidewalk between top of the curb cut and back of sidewalk is < 3'-0"



Figure 2.13: An example of a non-compliant (and defunct) curb cut on Finn Street just east of State Street. Image: Google.

Motor vehicle curb cut data was collected using the Sidewalk Scout Android application, taking field measurements at each curb cut location. Information was collected for 3,041 motor vehicle curb cuts. Driveways that do not intersect sidewalks were not included in this report.

A variety of measurements and other specific details were recorded at each pedestrian curb ramp location (see Appendix 1 for types of measurements). Figure 2.12 highlights the two primary factors that triggered curb cut non-compliance: a narrow passing zone and cross slope > 2%.

In order to meet ADA/PROWAG compliance, the following parameters must be met*:

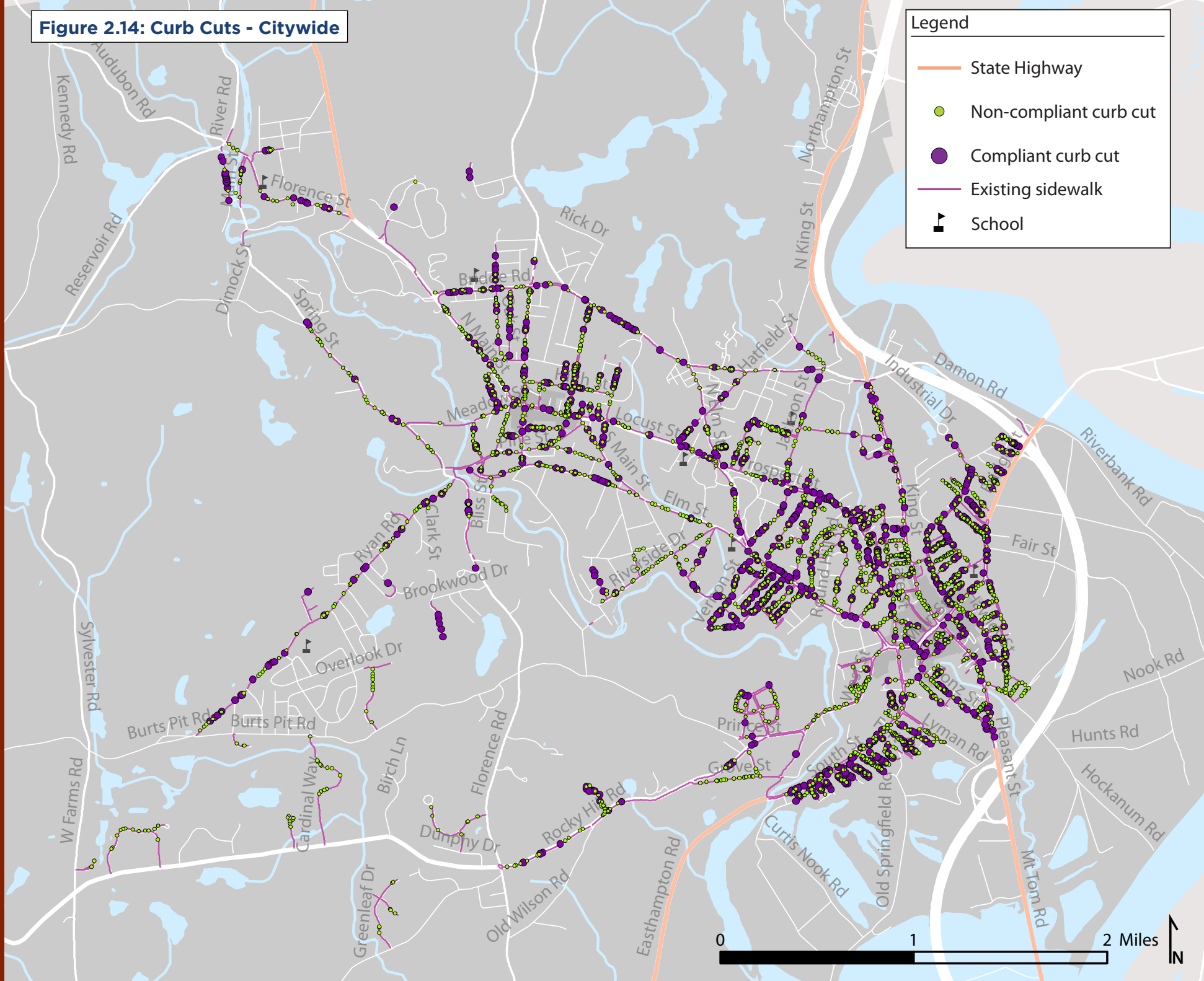
- **Flush at Sidewalk / Flush at Street:** Transition between sidewalk and ramp or street and ramp with < 1/4" differential
- **Flare Slope:** Not to exceed 10%
- **Cross Slope:** The cross slope of the ramp perpendicular to the direction of travel must be < 2%
- **Passing Width:** The passing width shall be a minimum of 4'-0"

The following pages contain maps that visually display curb ramps throughout the City of Northampton. The three maps display:

- Citywide Curb Cuts
- Downtown Curb Cuts
- Florence Curb Cuts

*Curb cut compliance information summarized from the United States Department of Transportation and Federal Highway Administration's document *Accessible Sidewalks and Street Crossings - an informational guide. <http://www.bikewalk.org/pdfs/sopada_fhwa.pdf>

Figure 2.14: Curb Cuts - Citywide



Legend

- State Highway
- Non-compliant curb cut
- Compliant curb cut
- Existing sidewalk
- School

0 1 2 Miles

Figure 2.15: Curb Cuts - Downtown

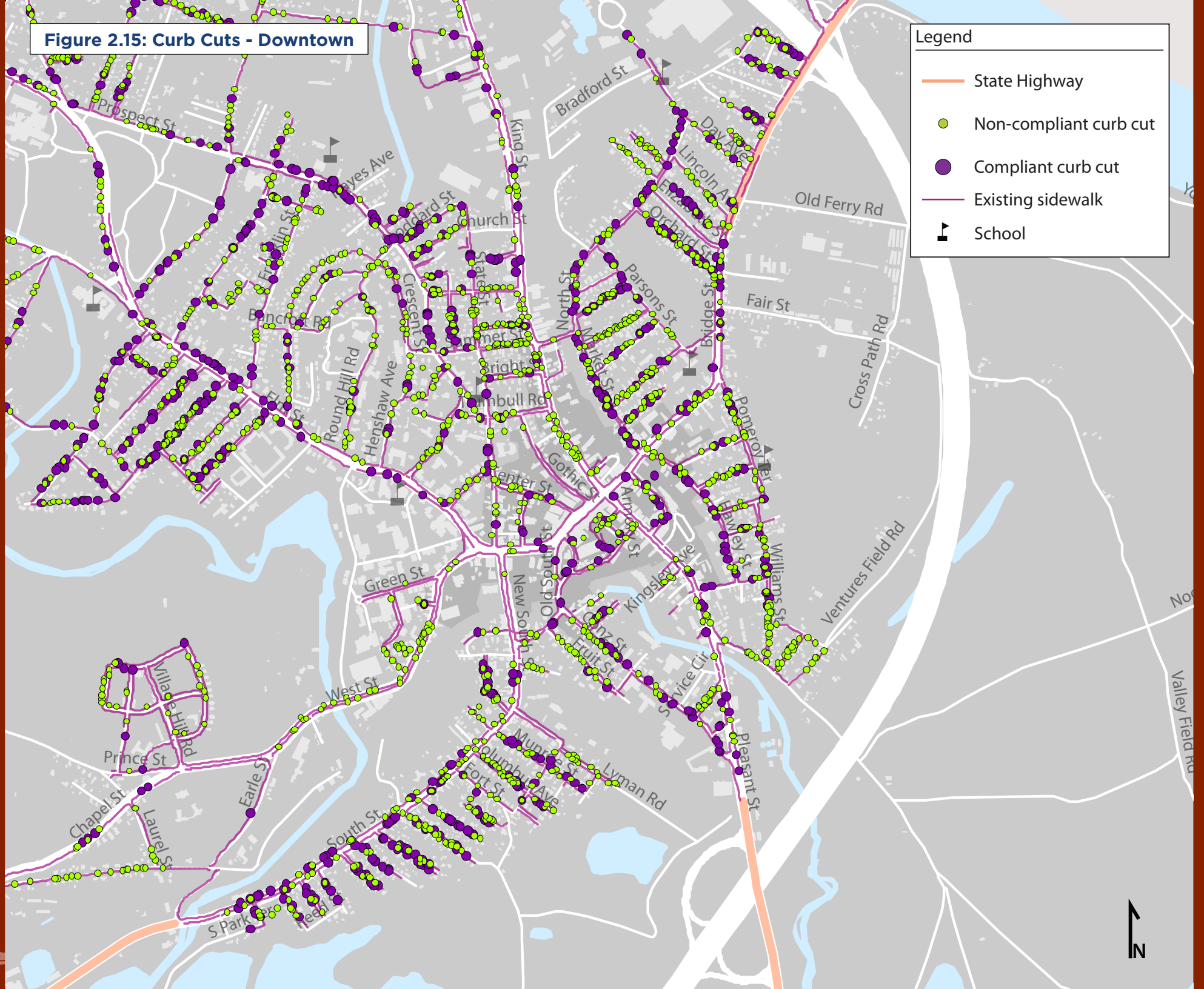
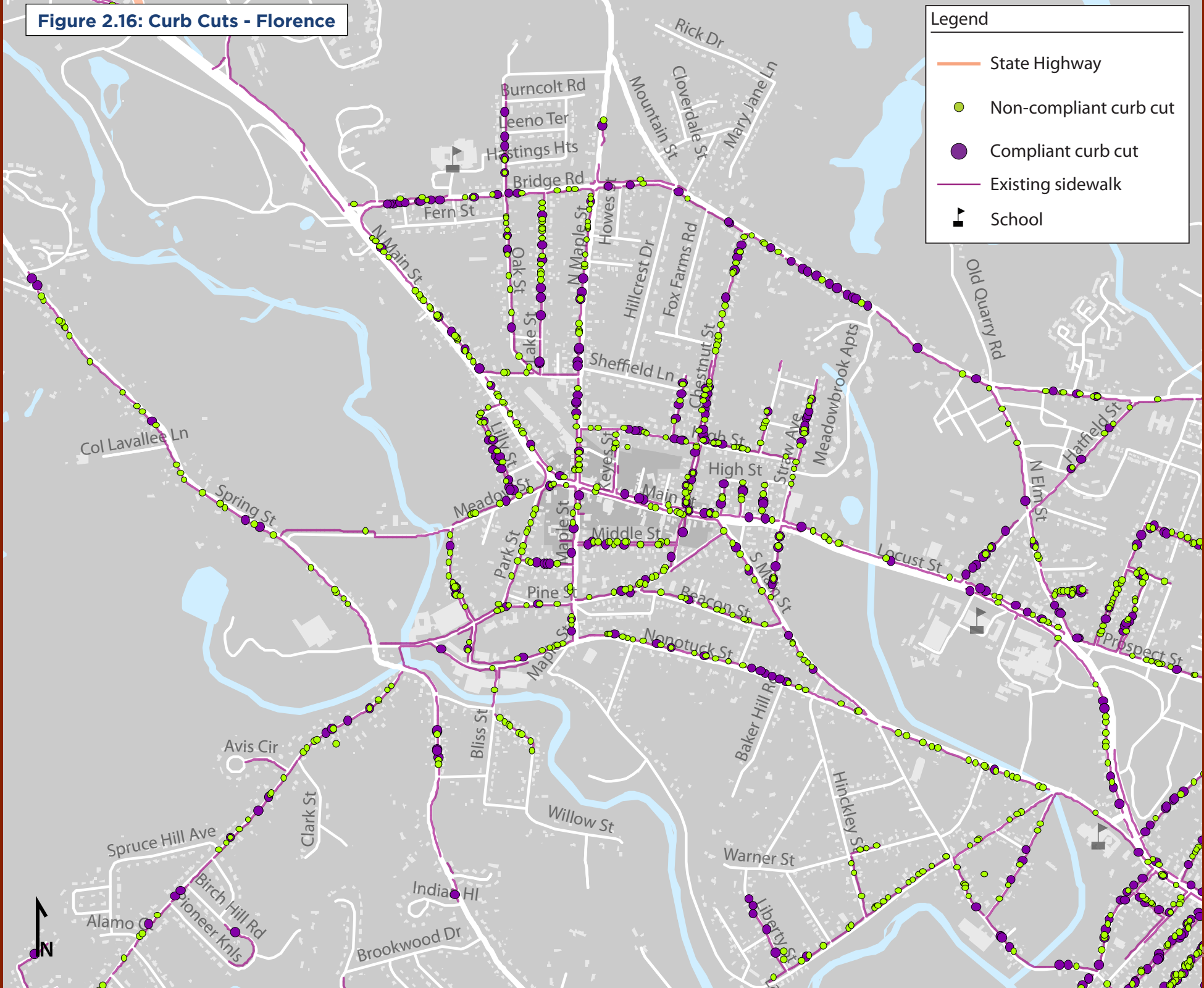


Figure 2.16: Curb Cuts - Florence





CHAPTER THREE: RECOMMENDED REPAIR & RECONSTRUCTION

With sidewalk conditions analyzed and evaluated in the previous chapter, this section articulates a two-step process to reduce the 183 least-compliant sidewalk segments in Tiers 1 through 4 into a more-manageable group of 21 sidewalk segments in greatest need of repair or reconstruction. These 21 segments are within a 1/4 mile of the City's seven public schools or two central business districts, i.e. within Tier 1 or Tier 2.

3.1 Prioritization Step One

Based on the Condition Score analysis method described earlier, dozens of sidewalk segments received a score of 17 or higher. These are considered the "least compliant" segments and are shown in Map Figures 3.1 - 3.4 on the following pages, organized by Tiers.

Tier 1 - 22 sidewalk segments shown in Figure 3.1, totaling 4.8 miles within a 1/4 mile of the 7 public schools in Northampton

Tier 2 - 31 sidewalk segments shown in Figure 3.2, totalling 4.5 miles within a 1/4 mile of Downtown Northampton and Florence Center

Tier 3 - 88 sidewalk segments totalling 15.5 miles between 1/4 and 1/2 mile of the schools and the two central business districts

Tier 4 - 42 sidewalk segments totalling 6.4 miles that reside outside of Tiers 1-3 areas

3.2 Prioritization Step Two

Whereas Step One articulated the 183 least compliant sidewalk segments within Tiers 1 through 4 based on a quantitative analysis, Step Two used a qualitative method to reduce the number down to those in greatest need of repair or reconstruction.

Because of the importance of providing a high quality pedestrian environment close to schools and business districts, only those segments falling within Tiers 1 or 2 were considered. Of the 22 sidewalks segments within Tier 1 and 31 segments within Tier 2, ten and eleven segments, respectively, were considered the most beneficial to repair due to the high Condition Score.

These 21 segments were isolated within each Tier and considered the City's highest priority repair or reconstruction projects. They are shown in Figures 3.5 and 3.6, which includes both maps and corresponding tables. In addition, the 21 segments were narrowed down further to a group of ten projects, which are highlighted in tables 4.1 and 4.2 as well as in Appendix 5. Cost estimates developed for these ten projects are provided in Appendix 1.

Figure 3.1: Least Compliant Sidewalk Segments - Tier 1

SIDEWALKS WITH A SCORE ≥ 17

Tier	# of Sidewalks	Miles
1	22	4.7

Tier 1 Sidewalk: Within 1/4 mile of all schools

Score:

17 25

↑ Borderline Acceptable Worst Condition ↑

Note that sidewalk segments were not 'clipped' at the buffer boundary line, therefore some segments extend beyond the 0.25 mile radius

— State Highway

📍 School

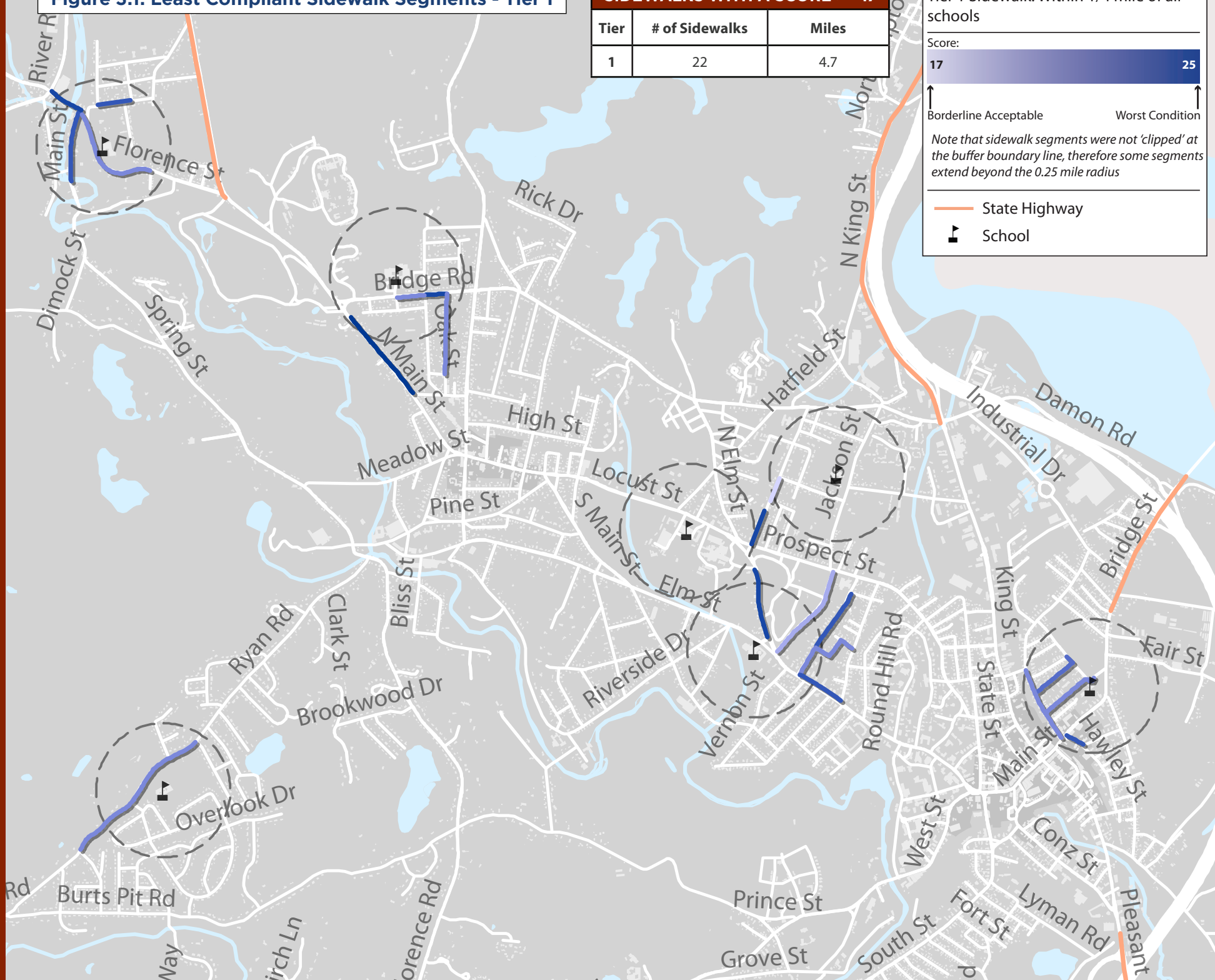


Figure 3.2: Least Compliant Sidewalk Segments - Tier 2

SIDEWALKS WITH A SCORE >= 17		
Tier	# of Sidewalks	Miles
2	31	4.4

Tier 2 Sidewalk: Within 1/4 mile of Northampton and Florence CBDs

Score:

17 25

↑ Borderline Acceptable ↑ Worst Condition

Note that sidewalk segments were not 'clipped' at the buffer boundary line, therefore some segments extend beyond the 0.25 mile radius

- State Highway
- School

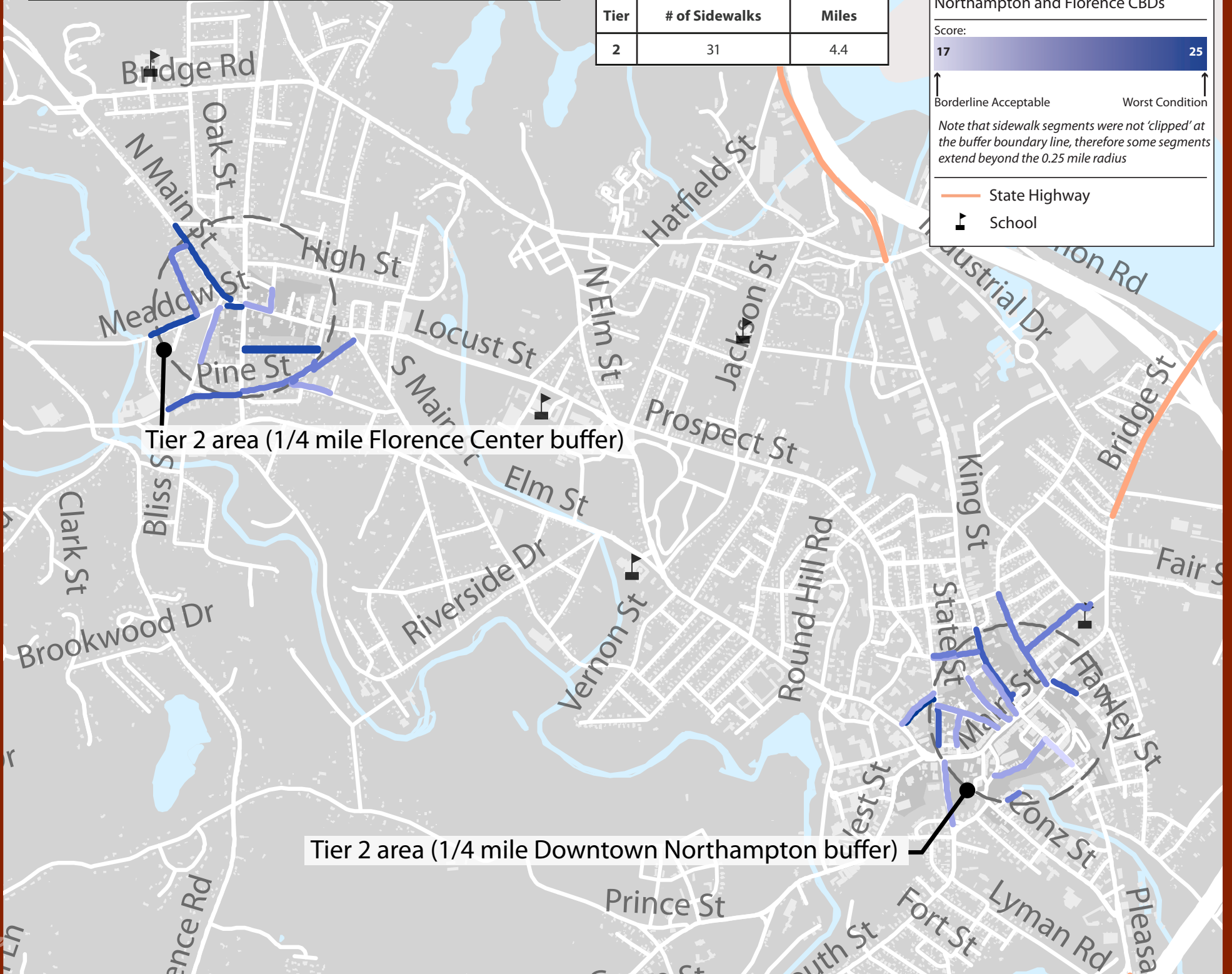


Figure 3.3: Least Compliant Sidewalk Segments - Tier 3

SIDEWALKS WITH A SCORE ≥ 17

Tier	# of Sidewalks	Miles
3	88	15.5

Tier 3 Sidewalk: Between 1/4 and 1/2 mile of CDBs and all schools



Note that sidewalk segments were not 'clipped' at the buffer boundary line, therefore some segments extend beyond the 0.5 mile radius

- State Highway
- School

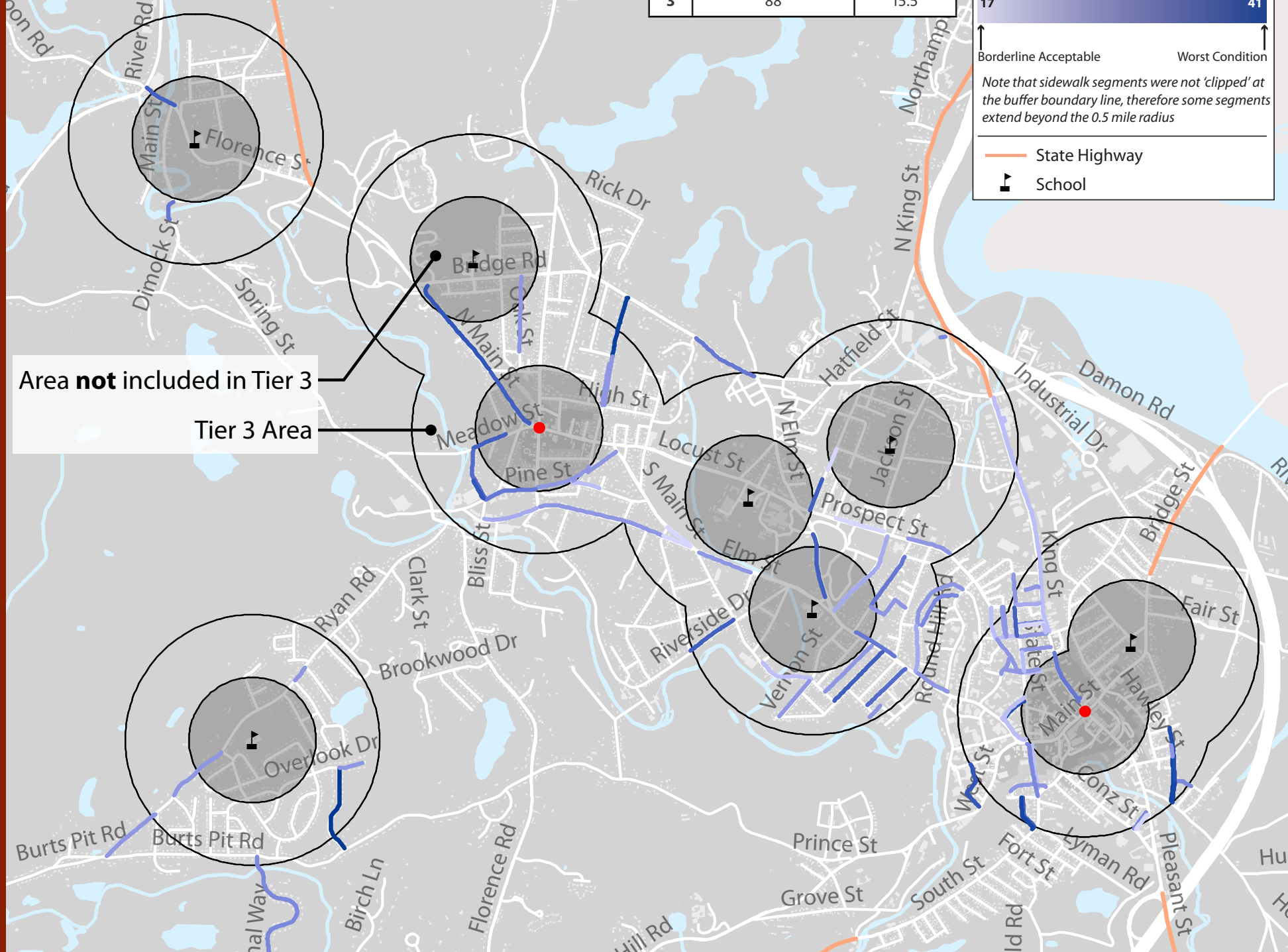


Figure 3.4: Least Compliant Sidewalk Segments - Tier 4

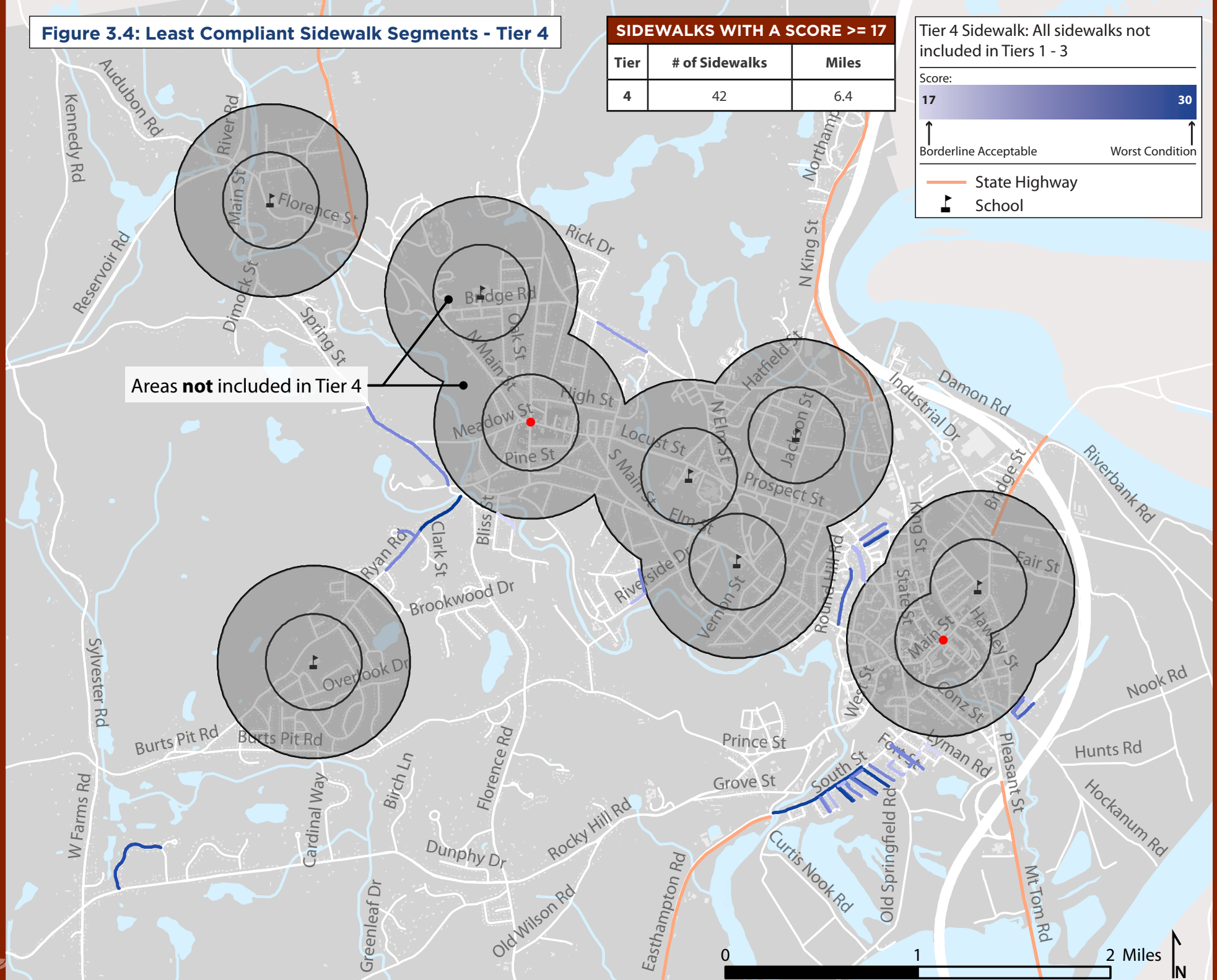
SIDEWALKS WITH A SCORE ≥ 17

Tier	# of Sidewalks	Miles
4	42	6.4

Tier 4 Sidewalk: All sidewalks not included in Tiers 1 - 3



- State Highway
- School



Areas **not** included in Tier 4

Figure 3.5: Prioritized Sidewalk Segments - Tier 1

PRIORITIZED SIDEWALKS	
Number of Sidewalks	Miles
10	1.8

 State Highway
 School

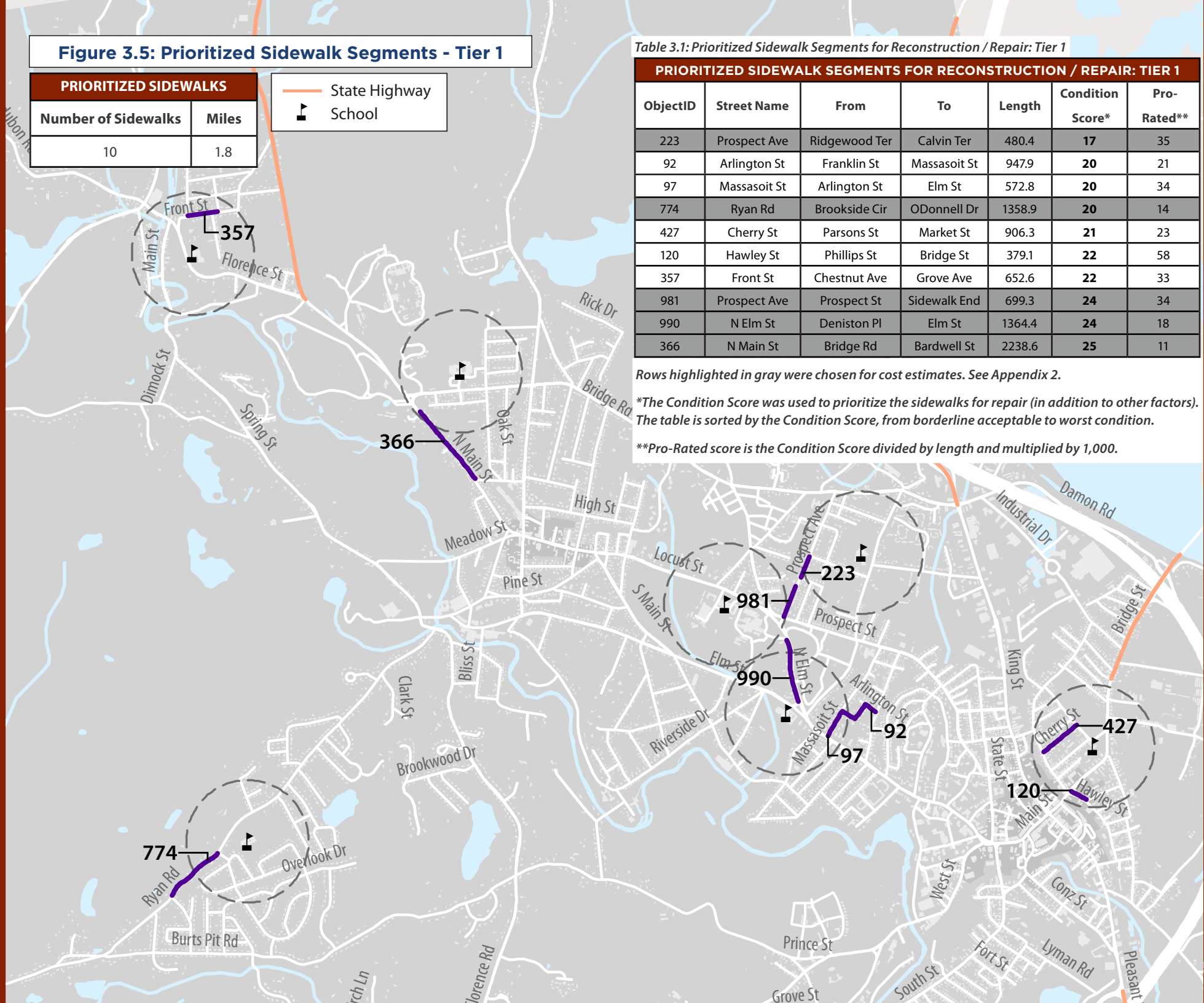


Table 3.1: Prioritized Sidewalk Segments for Reconstruction / Repair: Tier 1

PRIORITIZED SIDEWALK SEGMENTS FOR RECONSTRUCTION / REPAIR: TIER 1						
ObjectID	Street Name	From	To	Length	Condition Score*	Pro-Rated**
223	Prospect Ave	Ridgewood Ter	Calvin Ter	480.4	17	35
92	Arlington St	Franklin St	Massasoit St	947.9	20	21
97	Massasoit St	Arlington St	Elm St	572.8	20	34
774	Ryan Rd	Brookside Cir	O'Donnell Dr	1358.9	20	14
427	Cherry St	Parsons St	Market St	906.3	21	23
120	Hawley St	Phillips St	Bridge St	379.1	22	58
357	Front St	Chestnut Ave	Grove Ave	652.6	22	33
981	Prospect Ave	Prospect St	Sidewalk End	699.3	24	34
990	N Elm St	Deniston Pl	Elm St	1364.4	24	18
366	N Main St	Bridge Rd	Bardwell St	2238.6	25	11

Rows highlighted in gray were chosen for cost estimates. See Appendix 2.

*The Condition Score was used to prioritize the sidewalks for repair (in addition to other factors). The table is sorted by the Condition Score, from borderline acceptable to worst condition.

**Pro-Rated score is the Condition Score divided by length and multiplied by 1,000.

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CHAPTER FOUR: SIDEWALK GAPS

Gaps in the sidewalk network can cause uncomfortable and frustrating conditions for pedestrians, especially for mobility-impaired individuals. Sidewalk gaps often require pedestrians to cross a street twice to reach a destination, frequently without the aid of a crosswalk. Figure 4.1 on the following page displays the existing sidewalk gaps throughout Northampton. The gap analysis in this report is intended to help the City determine the highest priority areas for new sidewalk construction.

An important priority for closing gaps in Northampton's sidewalk network is establishing consistent sidewalks between residential neighborhoods and local schools. Many Northampton students walk to school. Yet, there are many more who would like to walk but rely on the bus, a ride from a parent /guardian, or--for high school students--drive to school, in part because of the incomplete sidewalk network. Providing a more complete sidewalk (and bicycle) network will likely result in more students choosing to walk and has the additional benefit of allowing students more freedom and flexibility in how they choose to commute to school.

The sidewalk gap analysis was prepared using the following process:

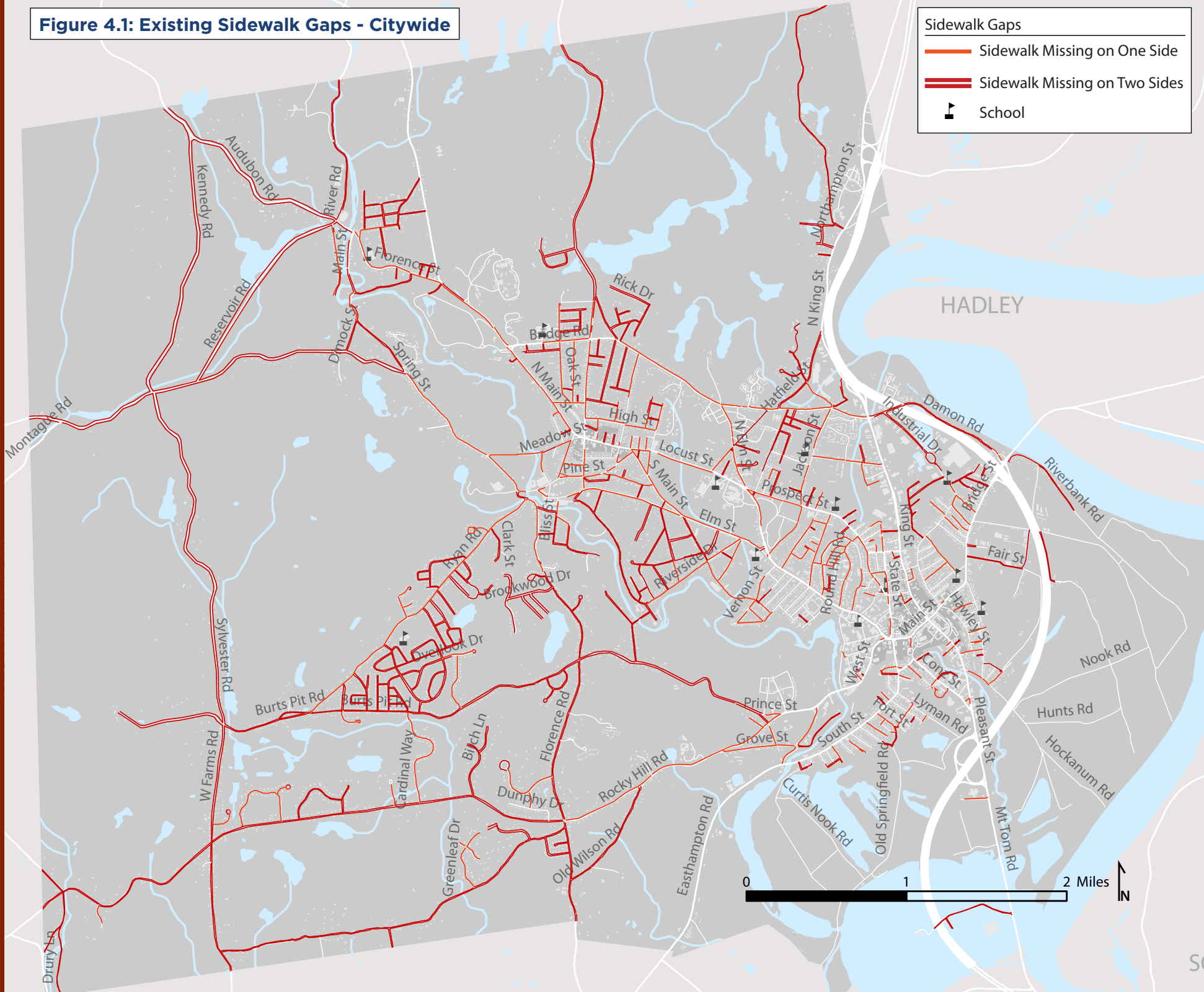
- Mapping the existing sidewalk gaps via GIS mapping, using site visits by Alta and Georgia Tech staff and analyzing Google street view, and other online sources

- Coding the above information to reflect the presence or absence of another sidewalk on the opposite side of the street

Each gap/missing sidewalk was coded in order to display:

- Which side of the street the gap is located on (north, south, east, or west)
- Whether or not the sidewalk gap exists on one or both sides of the street

Figure 4.1: Existing Sidewalk Gaps - Citywide



4.1 Prioritization Of New Sidewalks

Sidewalk gaps have been prioritized based on four Tiers, and are shown in Map Figures 4.3 - 4.6 on the following pages:

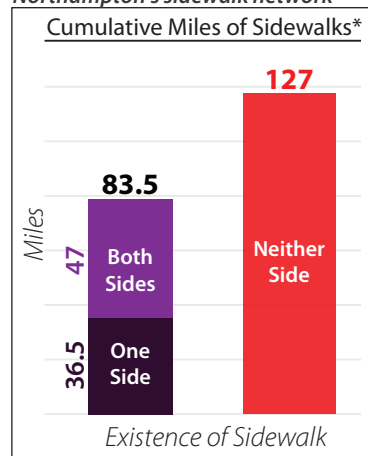
- » **TIER A:** No sidewalk on either side of the street, within 1/2 mile of Downtown Northampton, Florence Center, and all 7 public schools
- » **TIER B:** No sidewalk on either side of the street, between 1/2 mile and 1 mile of Downtown Northampton, Florence Center, and schools
- » **TIER C:** Sidewalk on one side of the street, within 1/2 mile of Downtown Northampton, Florence Center, and schools
- » **TIER D:** Sidewalk on one side of the street, between 1/2 mile and 1 mile of Downtown Northampton, Florence Center, and schools

Table 4.1: Number and length of gap by Tier

NUMBER AND LENGTH OF GAP BY TIER		
Tier	Number of Sidewalk Gaps Within Tier	Miles Within Tier*
A	383	52.2
B	231	54.5
C	216	26.7
D	73	11.5

*Sidewalk segments were not 'clipped' at the buffer boundary line, therefore a handful of segments may be repeated within this column.

Figure 4.3: Total number of miles in Northampton's sidewalk network



*The data displayed in this bar chart is cumulative, representing total miles of linear length of individual sidewalk segments.

Figure 4.2: Tier A - D Sidewalk Gap Examples

TIER A



Both Sheffield Lane and Hillcrest Drive (intersecting from the left) are missing sidewalks on both sides of the street, and are within 1/2 mile of Florence Center, therefore both of these streets fall under the Tier A category. Image: Google.

TIER B



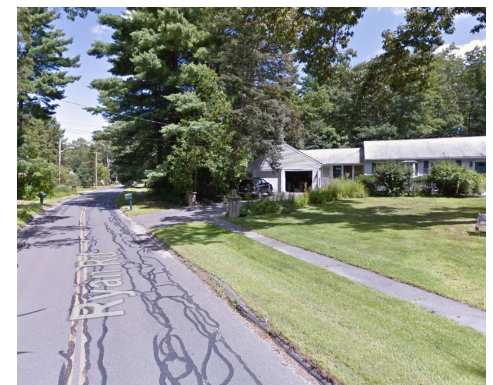
Both Rick Drive and Maryjane Lane (intersecting from the right) are missing sidewalks on both sides of the street, and fall within 1/2 and 1 mile of Florence center, therefore both of these streets fall under the Tier B category. Image: Google.

TIER C



Vernon Street is missing a sidewalk along one side of the street, and falls within 1/2 mile of Northampton High School, therefore this street falls under the Tier C category. Image: Google.

TIER D



Ryan Road near Burts Pit Road is missing a sidewalk on one side of the street, and falls between 1/2 and 1 mile of Ryan Road Elementary School, therefore this street falls under the Tier D category. Image: Google.

Figure 4.4: Sidewalk Gaps - Tier A

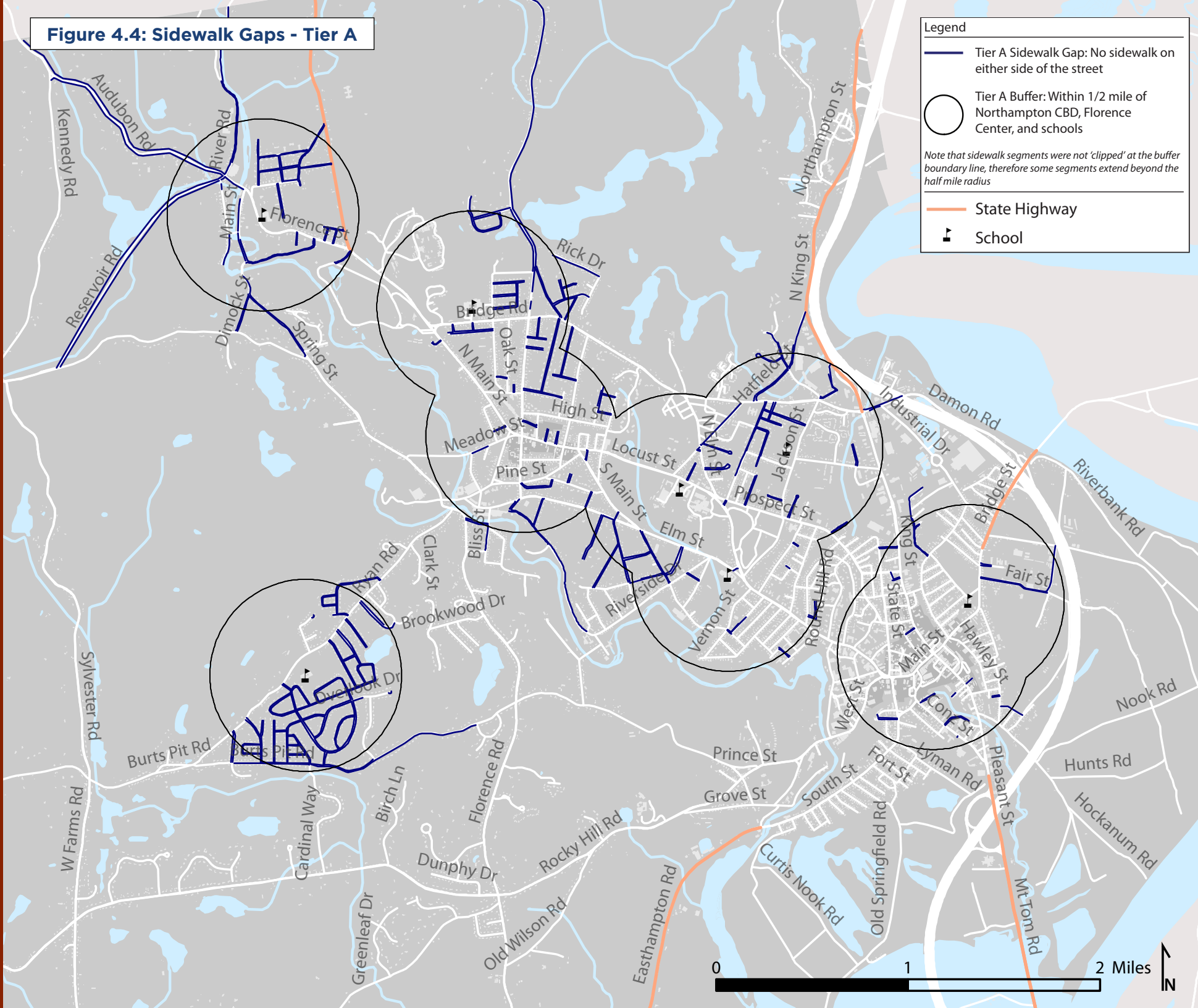
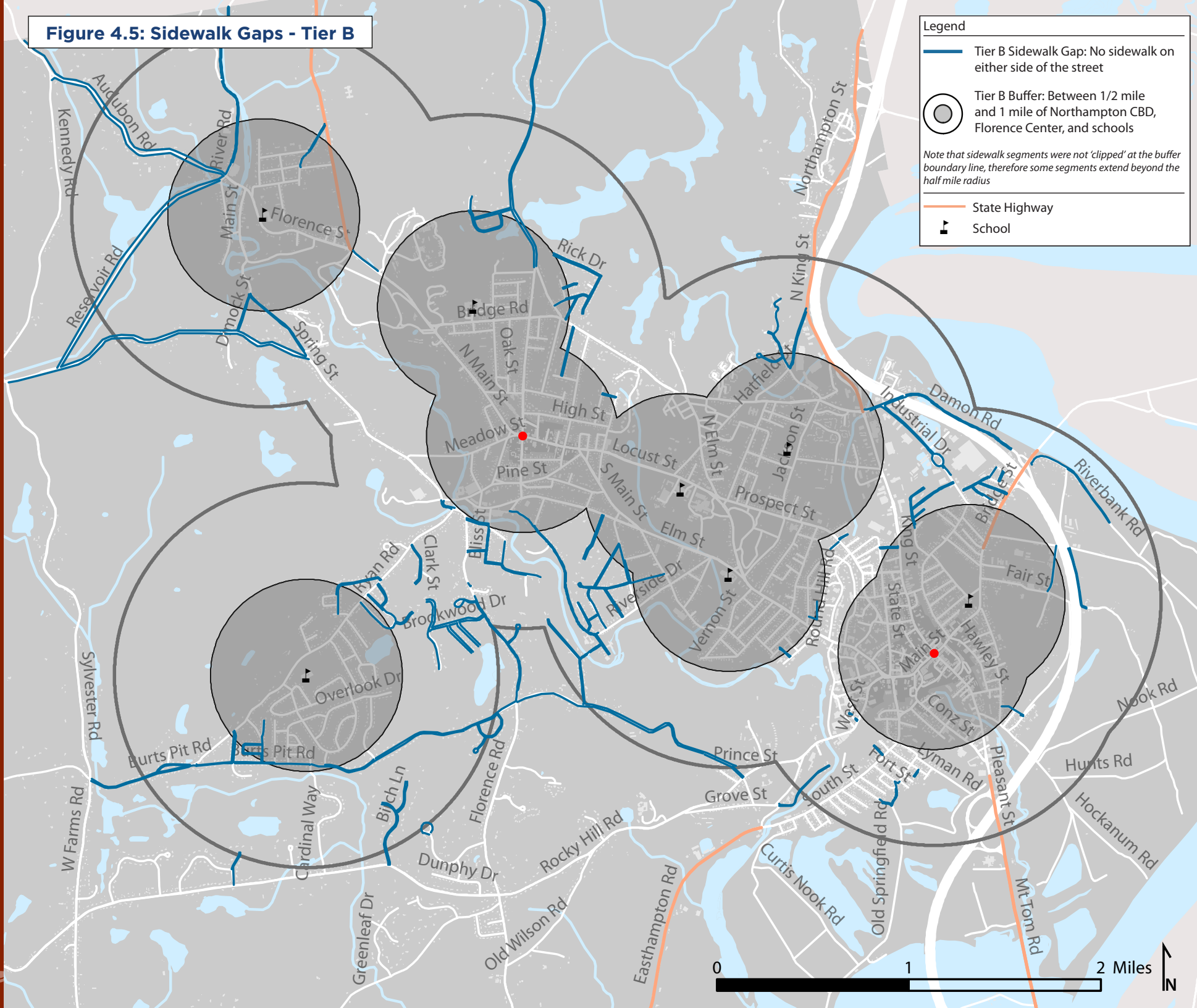


Figure 4.5: Sidewalk Gaps - Tier B



Legend

- Tier B Sidewalk Gap: No sidewalk on either side of the street
- Tier B Buffer: Between 1/2 mile and 1 mile of Northampton CBD, Florence Center, and schools
- State Highway
- ▲ School

Note that sidewalk segments were not 'clipped' at the buffer boundary line, therefore some segments extend beyond the half mile radius

Figure 4.6: Sidewalk Gaps - Tier C

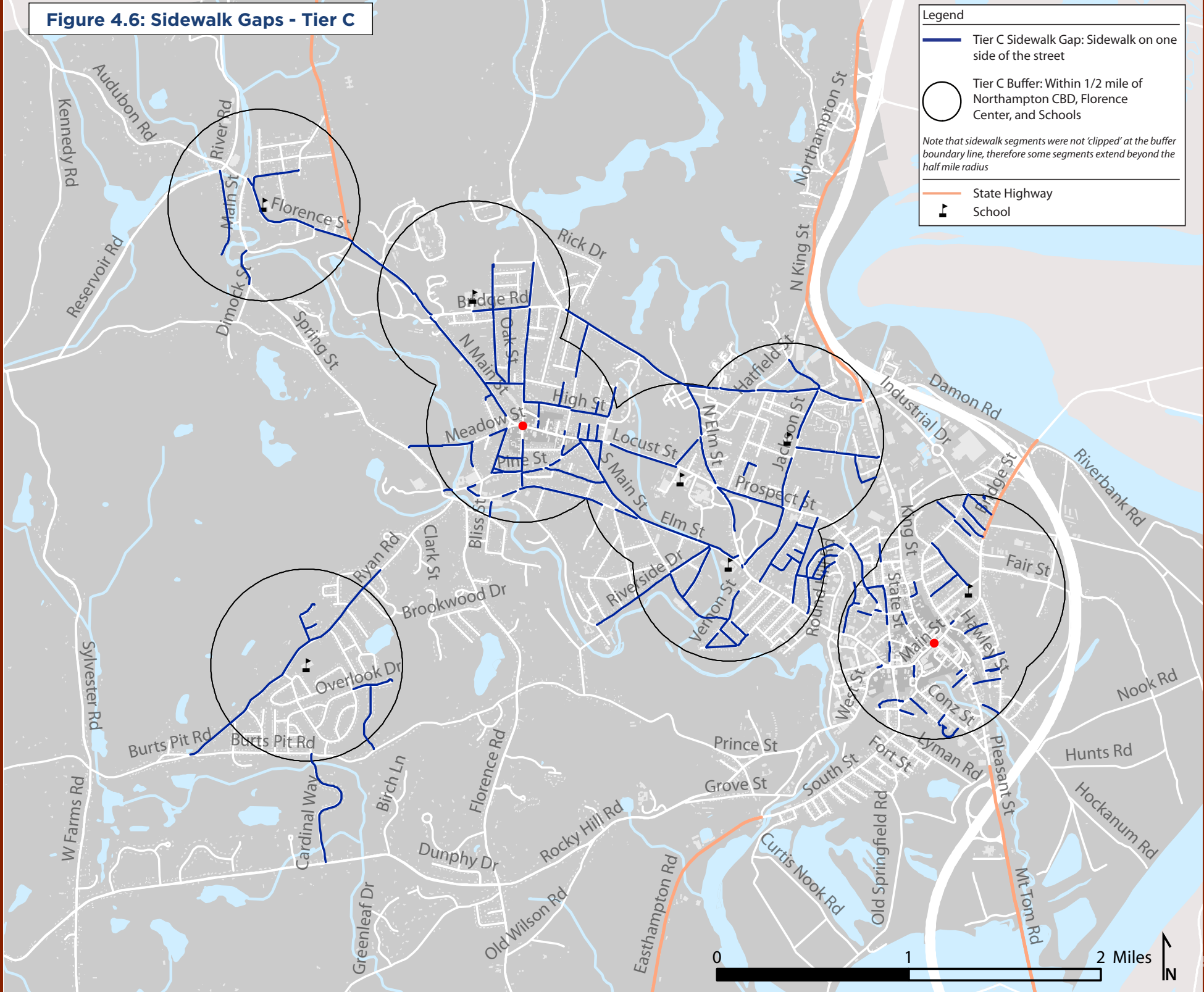
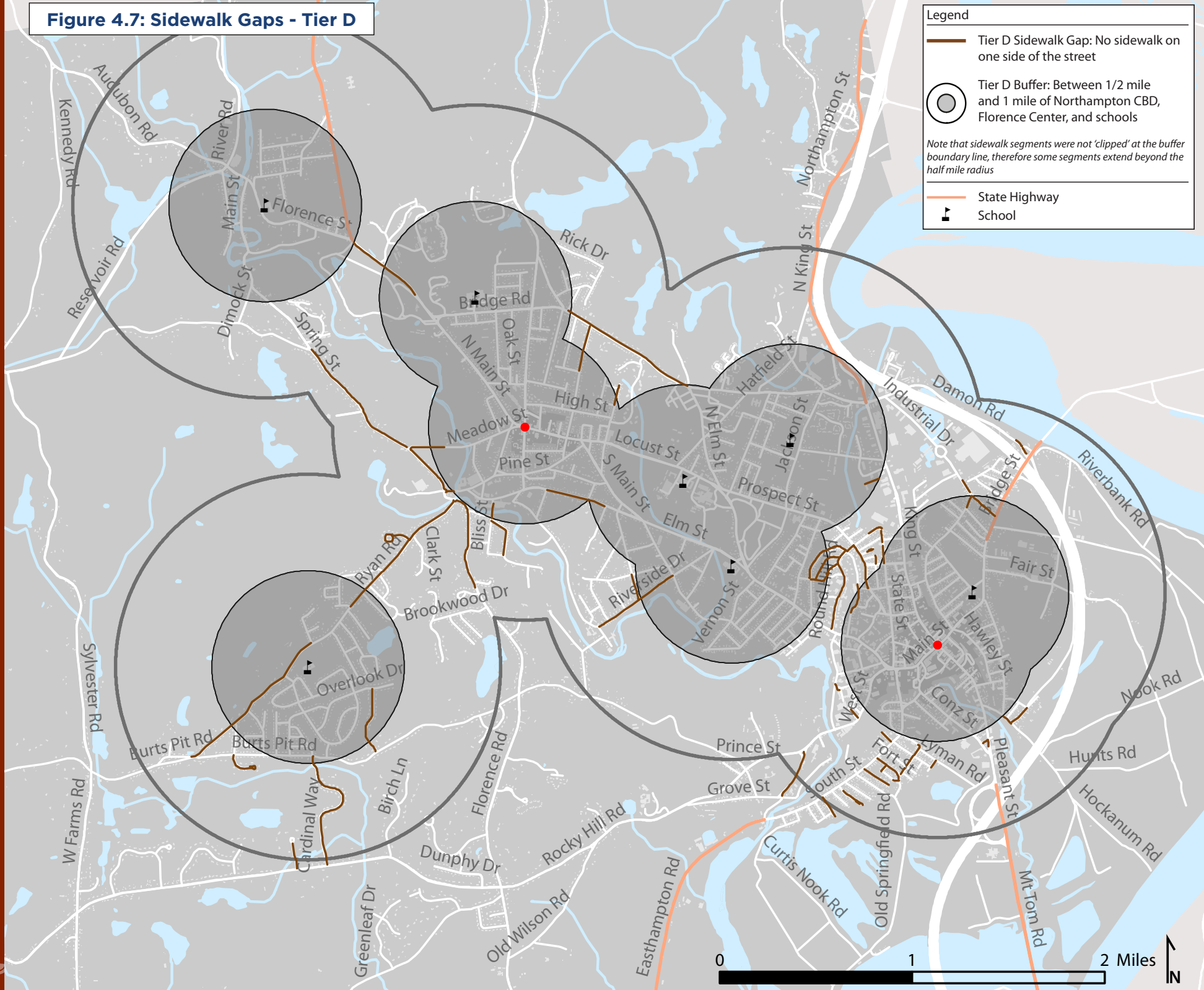


Figure 4.7: Sidewalk Gaps - Tier D



PUBLIC SIDEWALK INVENTORY ANALYSIS REPORT

APPENDIX

Appendix 1

- Sidewalk, Pedestrian Curb Ramp and Motor Vehicle Curb Cut Measurements | 1 Page

Appendix 2

- Priority Project Cost Estimate and Unit Cost Table | 5 Pages

Appendix 3

- Georgia Tech Sidewalk and Ramp Condition Data Collection and Analysis Report | 31 Pages

Appendix 4

- Detailed Condition Maps | 8 Pages

Appendix 5

- Existing Sidewalk Condition Score Tables and Sidewalk Gaps Tables | 43 Pages
 - » Existing Sidewalk Data Tables Organized Alphabetically By Street Name
 - » Existing Sidewalk Data Tables Organized By Condition Score (Best to Worst)
 - » Sidewalk Gaps Data Tables Organized Alphabetically by Street Name