

NILES CORTLAND ROAD ALTERNATIVE TRANSPORTATION PLAN



**Pedestrian and Bicycle Feasibility Study of
Niles Cortland Road, Howland Township, June 2019**

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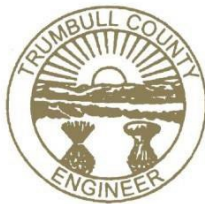
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PROJECT SUMMARY

This study aims to enhance mobility options along a 2.40-mile stretch of Niles Cortland Road (aka State Route 46) from State Route 82 to North River Road. This segment of Niles Cortland Road is located in the northeast quadrant of Howland Township, where nearly half of all housing and many township destinations are found. The lack of pedestrian and bicycle infrastructure drastically reduces alternative mobility options in connecting neighborhoods or getting to school, parks, or shopping. The Niles Cortland Road Alternative Transportation Plan introduces recommendations that improve mobility options so people can move about the Township comfortably and safely, regardless of age, ability, or chosen mode of travel.

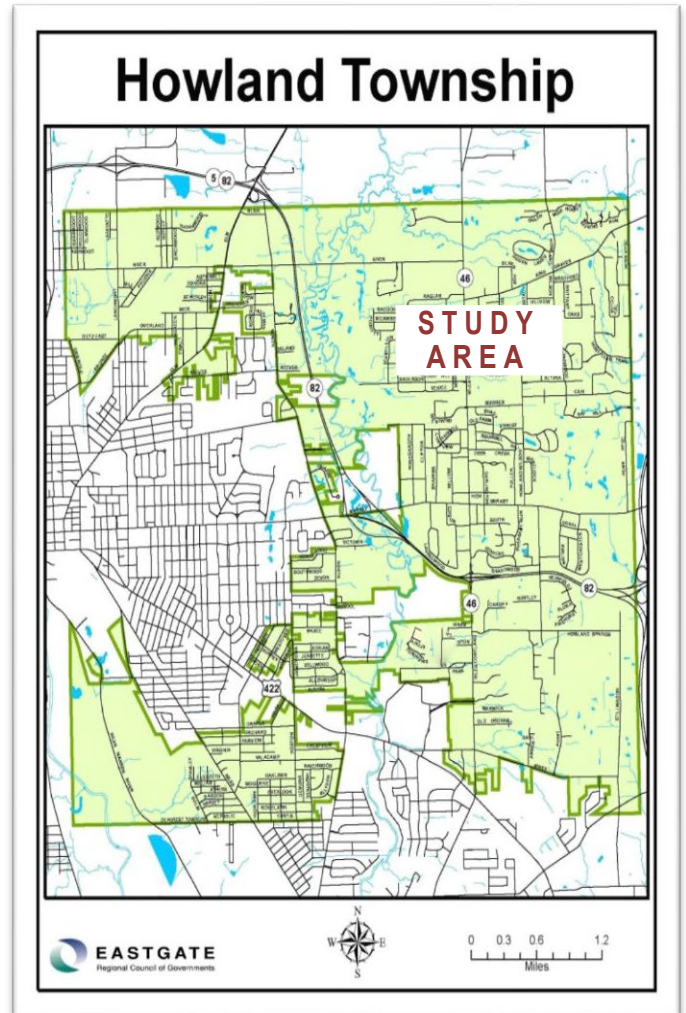


Figure 1 Project Study Area

PLANNING GOALS

1. Improve pedestrian and bicycle level of service within the project area.
2. Create direct sidewalk and bicycle connections between Howland neighborhoods, schools, parks, and activity nodes.
3. Close gaps in the existing sidewalk network along corridors.
4. Provide for safe pedestrian crosswalks.
5. Identify potential projects that would improve access to local destinations.



Figure 2 Pedestrians Crossing Niles Cortland Road

PROJECT BACKGROUND

Howland Township, the Trumbull County Engineers Office, and the GPD Group collaborated on a study to identify recommendations for improving accessibility and safety for pedestrians and bicyclists along a 2.40-mile portion of Niles Cortland Road (State Route 46). The study was funded by a 2018 Eastgate Regional Council of Governments *Moving the Community Forward* grant. The study area runs along Niles Cortland Road from State Route 82 north to North River Road.

Howland Township is a community of 18,529 people and 8,729 households¹. Homes are situated in well-established, attractive, and diverse neighborhoods. Fifty (50) percent of Howland's housing units, and fifty-two (52) percent of Howland's population can be found in the northeast quadrant of the Township, defined as north and east of SR 82, as shown in Figure 3.

The section of Niles Cortland Road divides the northeast quadrant of the Township into east and west sides. The neighborhoods east of Niles Cortland Road lack the conduit to connect with neighborhoods, parks, schools, shopping, and employment centers west of Niles Cortland Road and vice versa. The lack of sidewalks, crosswalks, and bicycle facilities in the study area is a barrier to safe pedestrian and bicycle movement.

As a suburban community mainly built after 1950, sidewalks were not given ample consideration. Howland Township only began to invest in sidewalks in the late nineties with the Warren Sharon Road sidewalk project. Then, in 2015, via an Eastgate Regional Council of Governments *Transportation Alternative* grant awarded

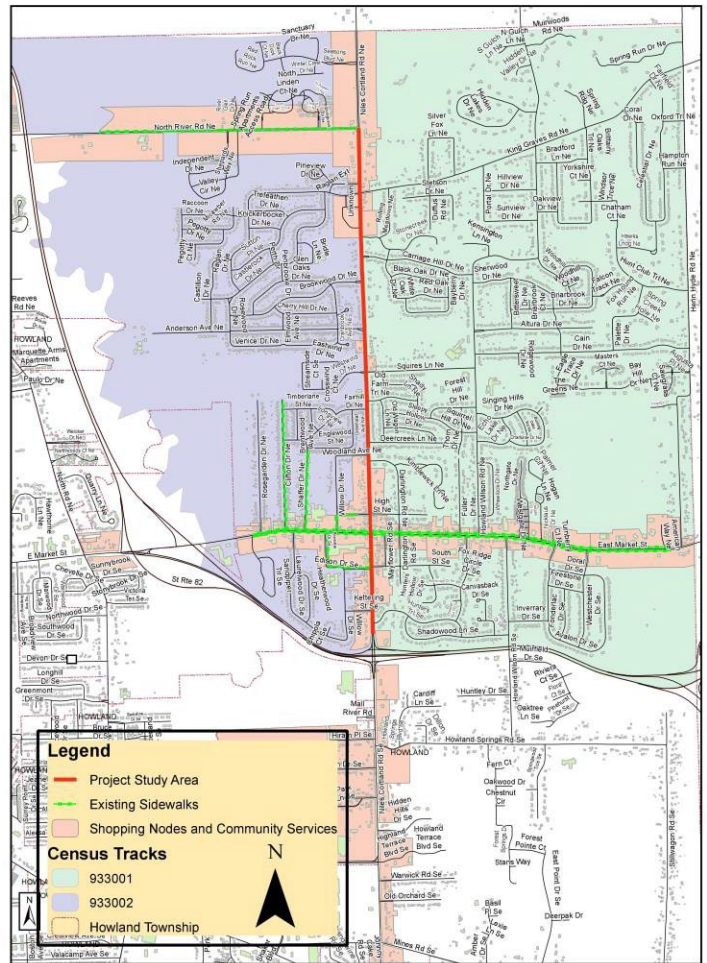


Figure 3 Effected Area and Activity Nodes

to Trumbull County, almost two miles of sidewalk were installed along North River Road, together with street trees and furniture. Pedestrian accommodations within the study area would connect these two important sidewalk networks and make a big difference to the community.

The study area was extended south of Warren Sharon Road to SR82 to link up with the Ohio Department of Transportation's planned improvements to the interchange at State Route 82 and State Route 46 which will include pedestrian accommodations.

¹ US Census, ACS Demographic and Housing Estimates 2013-2017, 5-Year Estimates.

CHARACTERIZATION OF THE AREA

Niles Cortland Road is classified as a two-lane minor arterial roadway. Nearly all the roadways that intersect Niles Cortland Road within the study area are considered local roads except Warren Sharon Road (East Market Street), King Graves Road, and North River Road; they are minor arterials. As a state route, the entirety of Niles Cortland Road is federal aid eligible.

Of all the miles of roadway in Howland Township, only 4.25 miles currently have sidewalks, and there are no dedicated bicycle facilities. Warren Sharon Road from Henn Hyde to west of Rosegarden Drive has sidewalks. Sidewalks on Clifton Avenue and Shaffer Drive connect to Warren Sharon Road. The sidewalks on Brewster Drive and South Street connect to Warren Sharon Road and Niles Cortland Road. Sidewalks along High Street and Willow Drive have gaps that need to be addressed in the future. While no dedicated bicycle lanes exist in the Township, except for the loop in Howland Township Park, sharrows do appear on Henn Hyde Road at the eastern edge of the Township. Bicycle racks are intermittent.

There are 19 intersections in the study area, four of which are fully signalized, including the intersection of Niles Cortland Road and State Route 82. According to the Trumbull County Engineer's Office, the annual average daily traffic volume changes from 16,551 average daily traffic (ADT) in the section between State Route 82 and Warren Sharon Road to 13,910 ADT north of Warren Sharon Road.

According to an Eastgate Regional Council of Governments' *Streetlight InSight* analysis, 96.6% of trips tracked in the study area are relatively short at less than ten minutes. The number of trips peak between 10am and 3pm

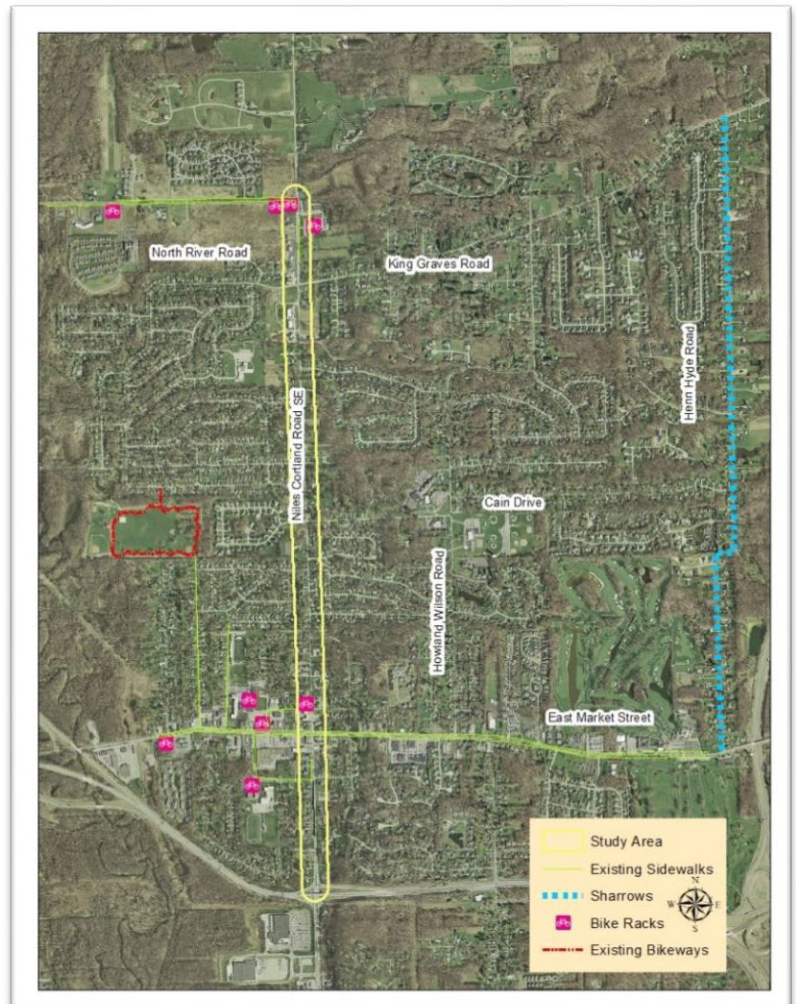


Figure 4 Existing Pedestrian and Bicycle Infrastructure in the Township

(35.9%) and then again between 3pm and 7pm (32.7%). Additional examination revealed that 12.7% of trips terminated in the commercial area of Niles Cortland Road south of State Route 82, which is outside this study area. Almost nine (9) percent of trips, however, landed in the Howland Corners activity node, which include many destinations. Howland Corners is the commercial area around the intersection of Niles Cortland Road and Warren Sharon Road.

The southern stretch of the project area beginning at State Route 82 is predominately commercial. There are parcels that are vacant

or being used as residences indicating that there is potential for growth. Commercial buildings are relatively small at less than 10,000 square feet and are located at least 60 feet from the edge of pavement. Parking lots are generally located in the front or side yards of the building site. Trees are sporadic, mainly seen in conjunction with residential uses. Storm water infrastructure can be seen in the front yards of commercial sites along with other facilities that are part of the property.

The intersection of Niles Cortland Road and Warren Sharon Road, or Howland Corners, is the primary activity node in the study area. Grocery, banking, personal services like salons and dry cleaning, as well as dining, retail, schools, parks, medical facilities and professional offices can all be found there.

Niles Cortland Road north of Howland Corners is primarily residential for approximately one mile beginning at Woodland Avenue and extending to Stonecreek Road. There are three secondary activity nodes and they are identified in Figure 4 as the purple areas:

1. Howland Township Park west of the project study area.
2. Area east of the project site near Howland Wilson Road. H.C. Mines School, Howland Athletic Club ball fields, places of worship, daycare, and medical services are located in this area.
3. The area around of Niles Cortland Road and North River Road. Glen Elementary School, medical facilities, retail, dining and professional offices can be found in this area.

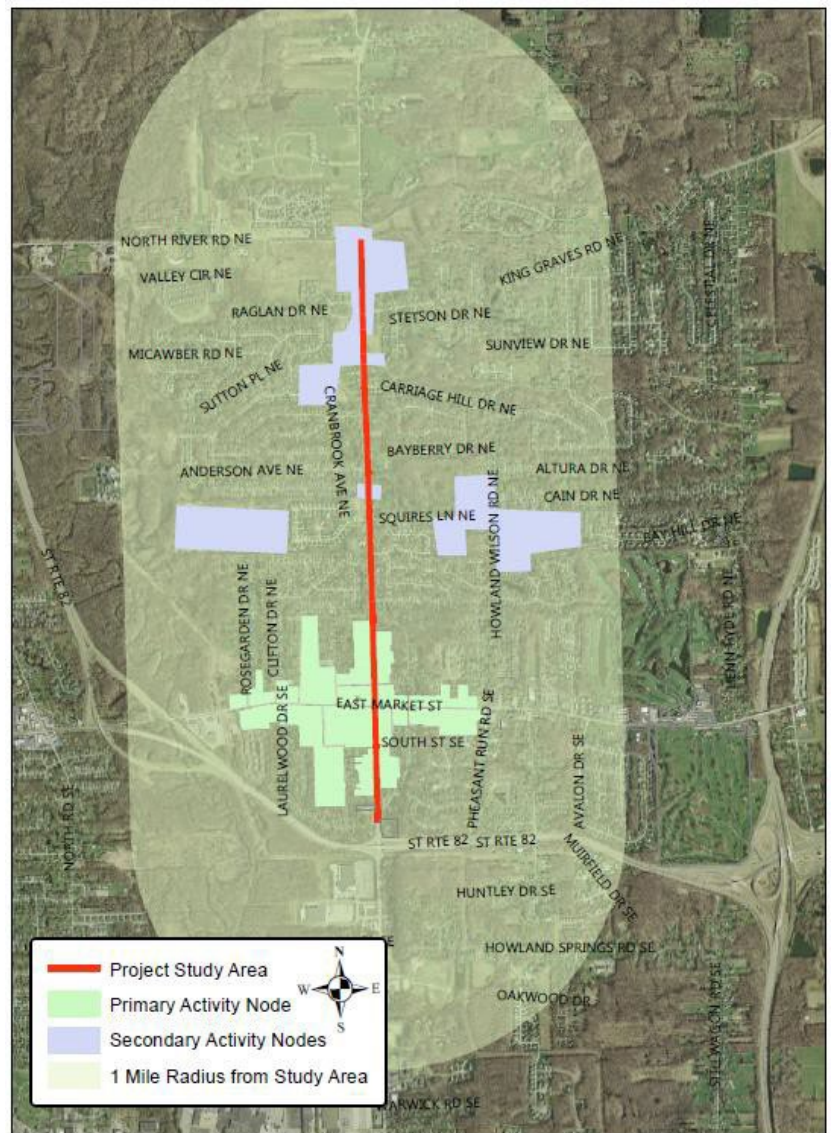


Figure 5 One Mile Radius from Study Area in Relation to Activity Nodes.

A minor activity node exists near Niles Cortland Road and Squires Lane. Dining, professional office, and a barber shop are located there.

Worthy of noting is the majority of northeast quadrant neighborhoods fall within a one-mile radius of the Niles Cortland Road project study area.

HISTORIC, CULTURAL, AND NATURAL RESOURCES

A desktop review of the Ohio National Register Searchable Database for historic and cultural resources revealed no sites of concerns in the study area. However, it should be noted that the Howland Township Cemetery is located about one mile north of Howland Corners on the east side of Niles Cortland Road. Originally designed in July 1926, this cemetery has expanded twice; the last was in 2008, to its current size of eight acres. Some burials predate 1926 as evidenced by the burial of a Revolutionary War soldier, pictured in Figure 8. Work within the right of way is not expected to impact the cemetery.

Two homes located along Niles Cortland Road in study area should be noted. The structure at 1064 Niles Cortland Road was built in 1872 (Figure 6) and was part of the original Squires Farm. The original Brown homestead (Figure 7) can be found at 617 Niles Cortland Road. Work within the right-of-way will not negatively impact these structures.



Figure 8 Revolutionary War Headstone. Photo courtesy of K. Dillon.



Figure 6 Squires House. Photo courtesy Trumbull County Auditor Website.

The project study area falls outside of the FEMA 100-Year Floodplain Boundary. There is some historical evidence of potential wetlands in isolated areas of the study limits. Detailed design will need to be completed following appropriate environmental clearance standards. Five small stream crossings will need consideration as well.



Figure 7 Brown House. Photo courtesy of the Trumbull County Auditor Website.

STUDIES, PLANS, POLICIES CONSISTENT WITH THE STUDY

Comprehensive Plan

Howland Township underwent a comprehensive planning process that resulted in the **2010 Comprehensive Community Plan**. The community identified several transportation-related goals that centered on connecting people and places in a safe and convenient way. This plan is central to the selection of Township projects and policymaking. Figure 9 lists planning goals and objectives that directly support the creation of safe and complete streets in the Township. Below are relevant excerpts from pages 152-153 of the plan.

“Opportunities that link Howland Township should be pursued when and where the resources provide for doing so. There are currently limited opportunities for non-vehicular movement within the Township”

Pathways and sidewalks provide an additional mode of transportation for residents on short trips. They provide recreation opportunities, improve connections throughout the Township, help reduce a sense of isolation for many, and can even help reduce traffic volumes to some degree when connections are short and attractive.

The Township may consider formally designating pedestrian and bike lanes along key routes when and where feasible. “

“These options [sidewalks] should be pursued for all new developments and redevelopment areas. Other areas that should be pursued for sidewalks would be areas of the Township that connect the most people to the greatest number of amenities for the least amount of capital. “

“A broader attempt to promote pedestrian connectivity throughout the eastern portion of the Township, in the near future, could come from incorporating bike lanes on certain Township roads.”

Transportation Goal #1: Provide greater choice, accessibility, and flexibility for all people to move about the Township.

Objectives:

1. Require multiple modes of transportation as part of new developments;
2. Incorporate multiple modes of transportation into road construction projects, and work on cooperative maintenance agreements;
3. Encourage pedestrian networks in local business districts to allow a friendly built environment for living, shopping, visiting, or passive enjoyment;
4. Encourage the connectivity of open spaces, greenways, and recreational areas with public multi-purpose trails;
5. Retro-fit existing neighborhoods with sidewalks and bike trails, where applicable;

Transportation Goal #2: Promote safe and efficient flow of vehicular, bicycle, and pedestrian traffic.

Objectives:

1. Increase traffic calming measures;
2. Improve and expand alternative transportation systems;

Public Health Goal #2: Improve air quality and subsequent respiratory health.

Objectives:

1. Decrease dependence on motor vehicles through affordable, safe, and sustainable transportation options;
2. Maximize investments made in infrastructure; and

Public Health Goal #3: Improve the built environment to encourage active lifestyles.

Objectives:

1. Ensure street, sidewalk, and bike path safety and accessibility for all users;
2. Ensure accessibility, safety, beauty, and cleanliness of public spaces.

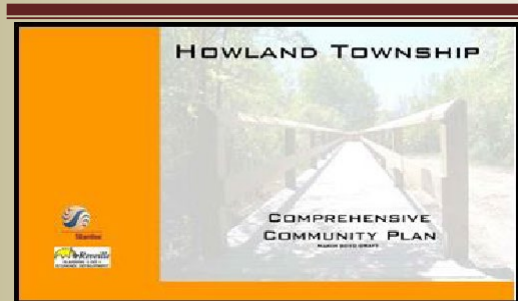


Figure 9 Howland Township Comprehensive Community Plan. View it in its entirety at www.howlandtownship.org.

Priority Pedestrian Corridors

In 2015, guided by the Comprehensive Community Plan, Howland Township recognized its chief commercial corridors as priority pedestrian corridors and adopted new requirements for sidewalks in its zoning resolution. This policy requires every new development within these corridors to install a sidewalk as part of the project. To date, nearly 1,000 feet of new sidewalk have been installed. The entirety of the project study area is identified as a priority pedestrian corridor.

Bicycle Racks

Also in 2015, the Township added language to its zoning requiring that new development projects install a bicycle rack on location. Since the law's adoption, eight new bicycle racks have been installed in conjunction with new development projects, four of which can be found in the study area. Howland Middle School received one as part of a 2015 Safe Routes to School Grant, and Howland Township installed one in the Richard E. Orwig Park on the corner of Warren Sharon Road and Willow Drive. There is another bike rack at the Howland Administration Building.

Niles Cortland Road Sidewalk Project TRU-SR46-731

The desire to install sidewalks on Niles Cortland Road dates back to 2003 when Howland was awarded funds through Eastgate's Transportation Enhancement Program to install 5,830 feet of sidewalk from State Route 82 to the intersection of Fairhill Drive. Thomas Fok and Associates prepared the plans (TRU-SR46-7.31), but due to

local financial constraints at the time, the project was never built.

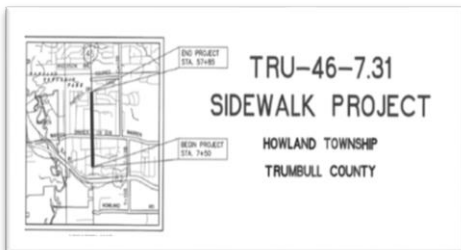


Figure 11 Tru-46-7.31 Sidewalk Project



Figure 10 Bike Racks; Howland Middle School (SRTS Grant), Dollar General, Howland Township Park

Bike the Valley! 2012

Bike the Valley! 2012 was a project of the Eastgate Regional Council of Governments and funded in part by the Federal Highway Administration and the Ohio Department of Transportation. The project set out to determine the suitability of the region's roadway system for different skill levels of cyclists.

The primary commercial corridors, including Warren Sharon Road, North River Road, and Niles Cortland Road, are categorized as suitable for advanced cyclists only. See commercial corridors in red in Figure 12 below.

According to Bike the Valley! 2012 map, green roads are suitable for novice cyclists who know the rules of the road and have basic braking and shifting skills. Orange roads are best suited to intermediate cyclists who can scan over their shoulder while riding in a straight line. They comfortably take left turns and can stop and start quickly. They also are comfortable in navigating around hazards. Red roads are suitable for advanced cyclists who can easily make left turns using left lane of traffic, are comfortable with busier roads with higher speeds and can confidently negotiate with motorists in the travel lane.

Future improvements to Niles Cortland Road may lead to the re-categorization of Niles Cortland Road as suitable for intermediate cyclists.

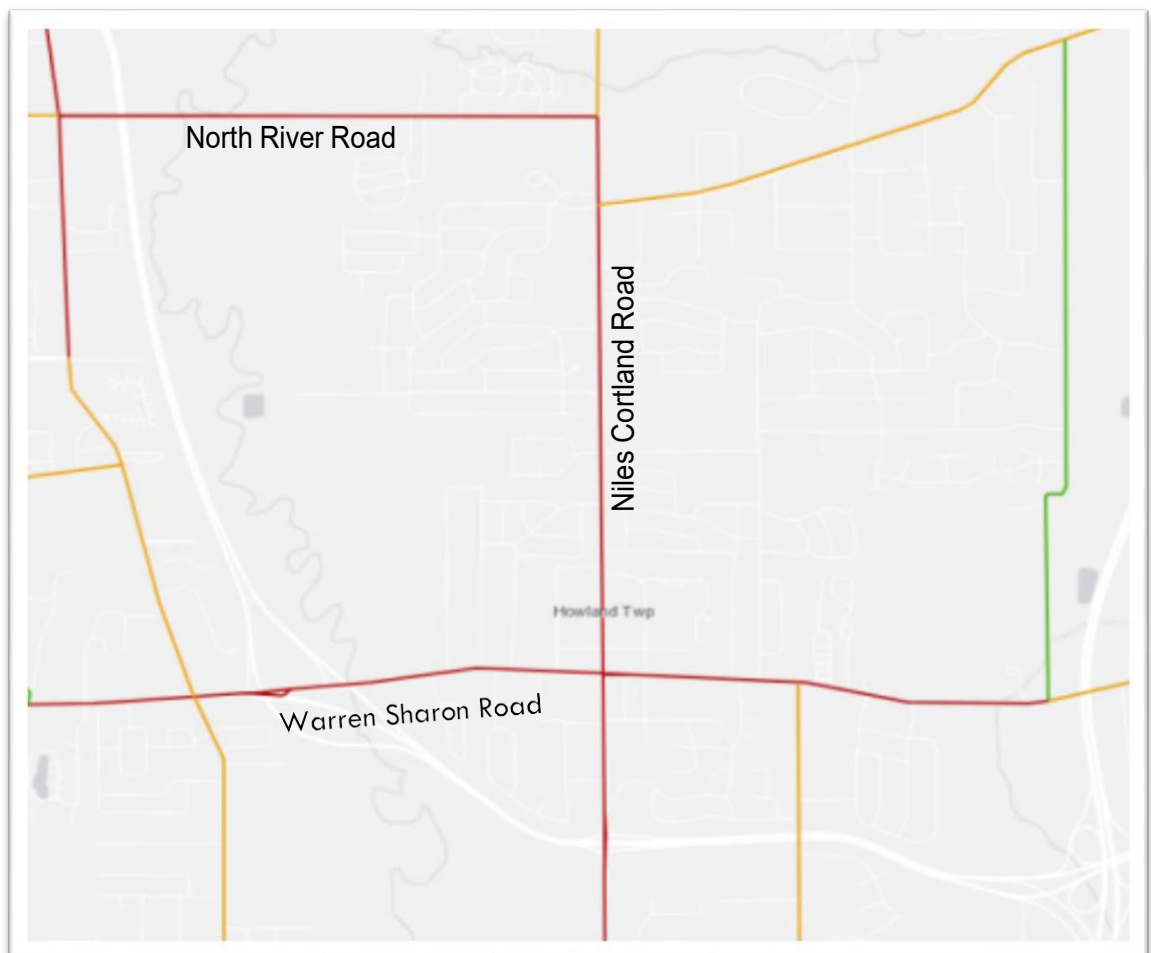


Figure 12 Bike the Valley! 2012 Map

ANALYSIS

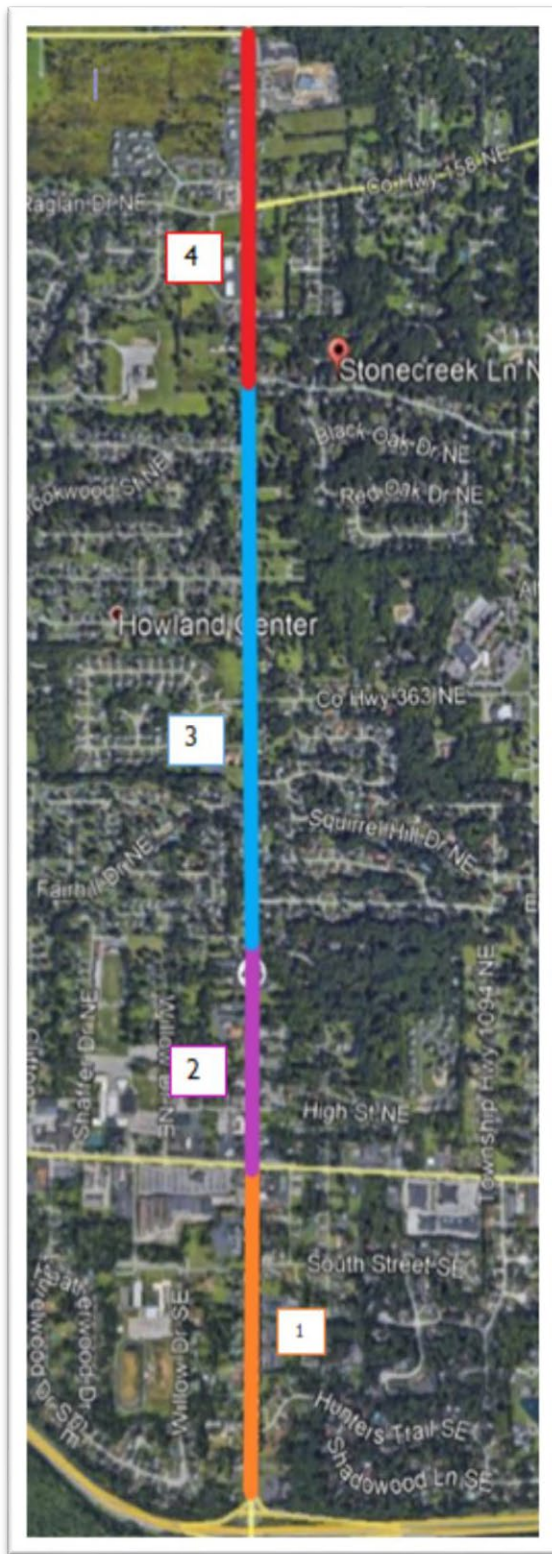


Figure 13 Project Study Area Segments

The 2.40-mile study area is divided into four segments as shown in Figure 13. The limits of each segment were determined by a character change in land use or by a major intersection. Below is a summary by segment.

Summary by Segment

Segment 1: State Route 82 to Warren Sharon Road

- Segment Length: 2,800 feet
- Two lanes, bidirectional traffic
- Speed: 40 mph

Segment 2: Warren Sharon Road to Woodland

- Segment Length: 1,900 feet
- Two lanes, bidirectional traffic
- Speed: 40 mph

Segment 3: Woodland to Stonecreek

- Segment Length: 5,330 feet
- Two lanes, bidirectional traffic
- Speed: 45 mph

Segment 4: Stonecreek to North River Road

- Segment Length: 2,675 feet
- Two lanes, bidirectional traffic
- Speed: 45 mph

Conduct Walk/Bike Audit

On October 18, 2018, Howland Township, the Trumbull County Engineer's Office and GPD staff walked the entire length of Niles Cortland Road in the study area to conduct a pedestrian and bicycle audit. The team documented roadway conditions, and driver behavior from the perspective of the pedestrian and bicyclist. Stream crossings were noted along with cultural resources.



Figure 14 Walk/Bike Audit

Pedestrians are seen crossing Niles Cortland Road NE at mid-block near the intersection of North River Road apparently coming from the new Dollar General Store on North River Road with groceries in hand.



Pedestrian is walking on paved shoulder northbound on Niles Cortland Road NE near Anderson Avenue.



Roadway Conditions

Trumbull County Engineer's Office transformed the data collected from the audit, subsequent site visits, and from the ODOT TRU SR46-7.31 plans, into aerial overlays (Figure 15). These new maps show existing right-of-way conditions including: edge of pavement, right-of-way widths, utility pole locations, culverts, storm water inlets, and possible right-of-way encroachments. All aerials for the project study area can be found in Appendix A.



Figure 15 Aerial of Right-of-Way Conditions

General Constraints

The following are general constraints that were identified during the walk and bike audit and review of right-of-way conditions:

1. Lack of sidewalks
2. Moderate speed, high volume traffic
3. No crosswalks except at the intersection of Niles Cortland Road and Warren Sharon Road
4. Lack of designated bicycle lanes
5. Variable paved shoulder widths
6. Driver behavior unpredictable
7. Missing or continual curb cuts
8. Numerous curb cuts
9. Poor connectivity. (Niles Cortland Road serves as barrier to east/west travel)
10. Location of utility infrastructure may be obstacle.
11. Variable right-of-way widths
12. Lack of shade in areas
13. Open ditches, culverts, and numerous storm water inlets



Figure 16 Utility Apparatus



Figure 17 Open Ditches and Culverts



Figure 18 Curb Cuts

ANALYSIS BY SEGMENT

Segment 1 – State Route 82 to Warren Sharon Road/East Market

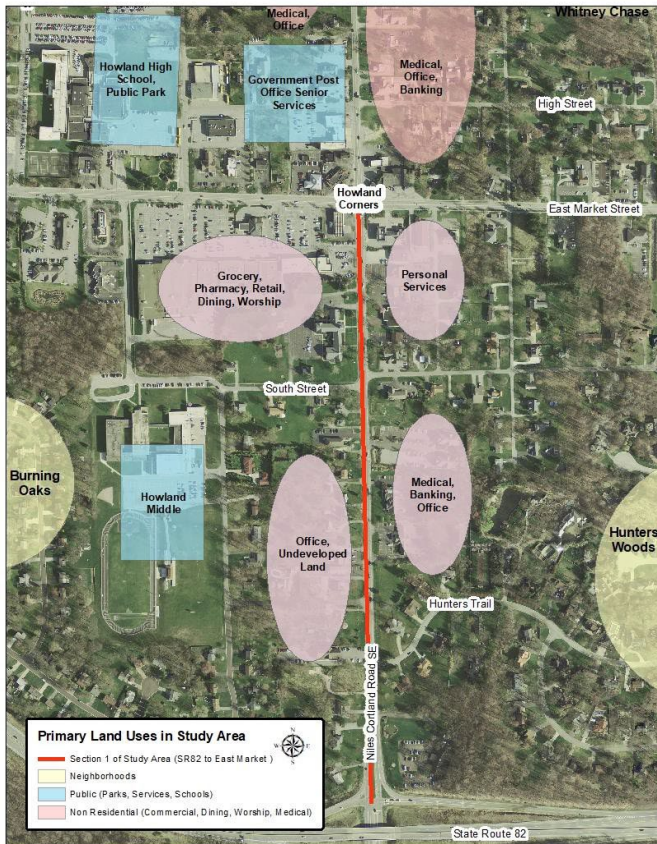


Figure 19 Land Uses in Segment 1

Segment 1 of the study extends along Niles Cortland Road from State Route 82 north to and including Warren Sharon Road. This entire segment, except for a small area at the intersection of Niles Cortland Road SE and Hunters Trail is zoned for business use. The east side of Niles Cortland Road is developed with medical and professional office uses. North towards Warren Sharon Road land uses expand to include retail and personal services.

The west side of Niles Cortland Road is underutilized commercial land. Single-family homes still exist as well as vacant land. Over time the remaining residences will give way to

business uses. Howland Community Church and professional office space represent the primary uses along the west side. Howland Middle School sits just outside the corridor on the west side of Niles Cortland Road. Two fueling stations and associated convenience stores are located at the corner of Warren Sharon Road and Niles Cortland.

Warren Sharon Road has sidewalks but no paved shoulder or bike lanes. Future sidewalks along Niles Cortland Road will make an important connection with the Warren Sharon Road sidewalk network.

Neighborhoods directly benefiting from future sidewalks and bicycle facilities are Burning Oaks and Hunters Woods. All one hundred and twelve homes (112) in the Burning Oaks neighborhood and one hundred and seventy (170) in Hunters Woods would be within a 10 to 15-minute walk of the Niles Cortland Road sidewalk.

Howland Middle School is located west of Niles Cortland Road. Parents surveyed as part of a 2013 Safe Route to School Planning initiative said that lack of sidewalks and crosswalks along with high volume and high speed traffic were barriers to walking or biking to school. Approximately twenty-two (22) percent of the Howland Middle School student body lived within one (1) mile of the school and sixty-two (62) percent within two (2) miles.

The Hunter Woods neighborhood is located east of Niles Cortland Road. Students living there are within one (1) mile of the middle school but must navigate across Niles Cortland Road.

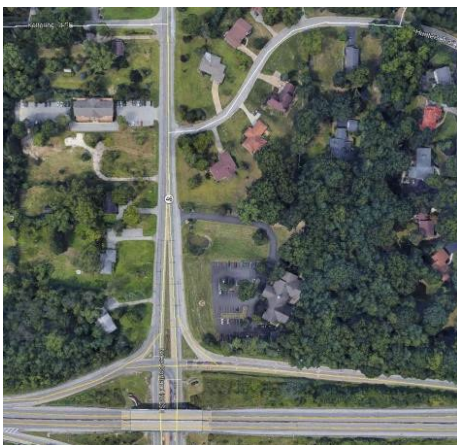
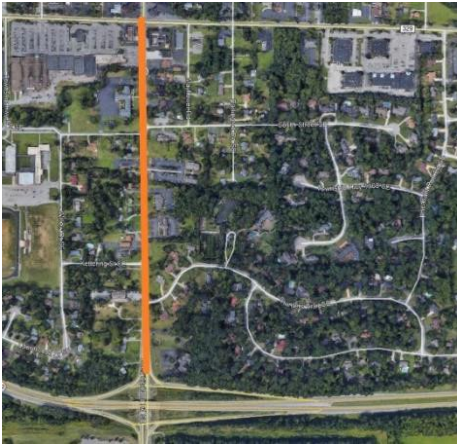
The Eastgate 2016 Regional Safety Study ranks the Niles Cortland Road/Warren Sharon Road and the Niles Cortland Road/State Route 82 intersections 5th and 6th respectively in the overall Trumbull County safety rankings. These two intersections also made the ODOT Highway Safety Improvement Program Priority List, making them high-priority locations for future safety improvements.



Figure 20 Niles Cortland Road view north through Warren Sharon Road Intersection.



Figure 21 Niles Cortland Road view south to SR82 Interchange.



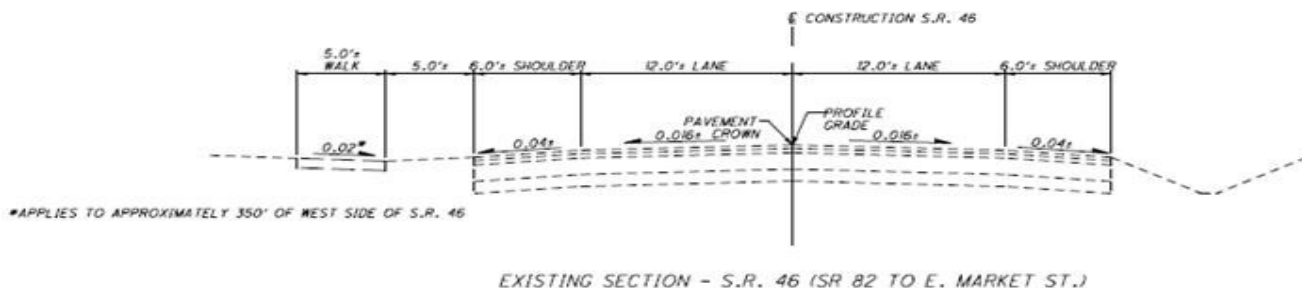
Segment 1: ST RT 82 to Warren Sharon Road

Inventory

- Right of Way: 66 feet
- Shoulder Width: Greater than 6 feet
- Traffic: 16,551 ADT (Trumbull County Engineer)
- Heavy Vehicle (Truck) Percentage: Estimated less than 4%
- Crashes: 26 crashes, 9 injuries, 0 pedestrian/cyclist crashes, according to ODOT TIMS 2015-2017 crash data
- Curb Cuts: 29 curb cuts (21 commercial, and 8 residential)
- Storm Drainage: Swales, sporadic catch basins, no curbs, six culverts.
- Intersections: Hunters Trail, Kettering Street, South Street (offset), Warren Sharron Road (fully signalized)
- No on-street parking
- No transit stops
- Existing Pedestrian/Bicycle Infrastructure: approximately 340 feet of 5-foot wide sidewalk along the west side of Niles Cortland Road in front of Howland Community Church. A 4-foot buffer exists. Bike rack is located at Howland Middle School.
- Utilities: Utility poles throughout; standard lighting at intersections.

Baseline Analysis

- Walkability Level of Service Score: 4.99 (4.51-5.50) E – Very Low
- Bikeability Level of Service Score: 2.54 (2.51-3.50) C – Moderately High



Segment 2 – Warren Sharon Road to Woodland Avenue

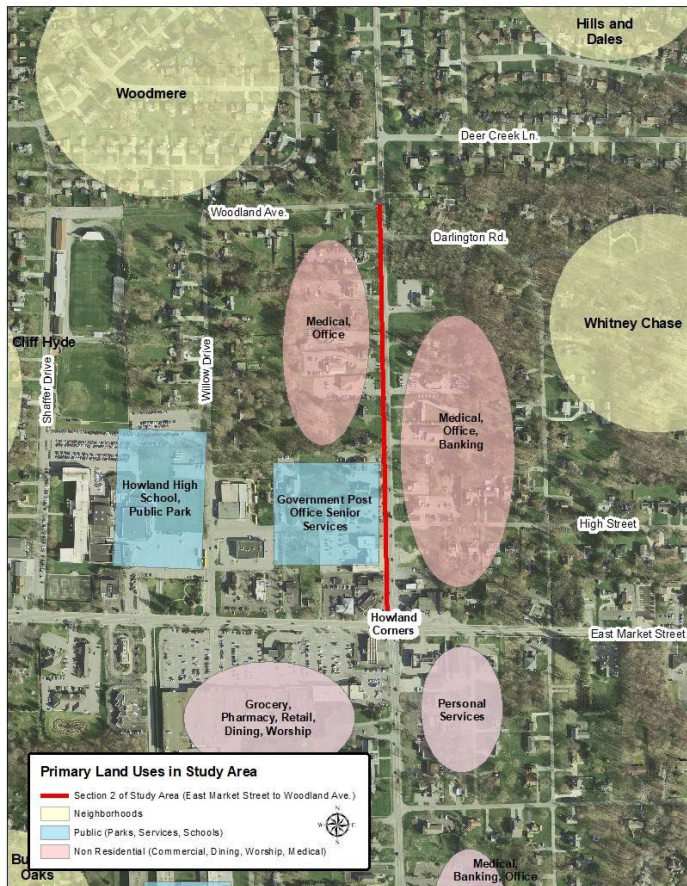


Figure 22 Land Uses in Segment 2

Segment 2 in the study area extends north from the intersection of Warren Sharon Road and Niles Cortland Road to Woodland Avenue. Medical offices comprise the majority of land uses in this segment, followed by public uses like the post office, government and safety services, and the senior center.

This segment has easy access to the commercial district along Warren Sharon Road as well as Howland High School and

Richard E. Orwig park which are about 800 feet west of Niles Cortland Road.

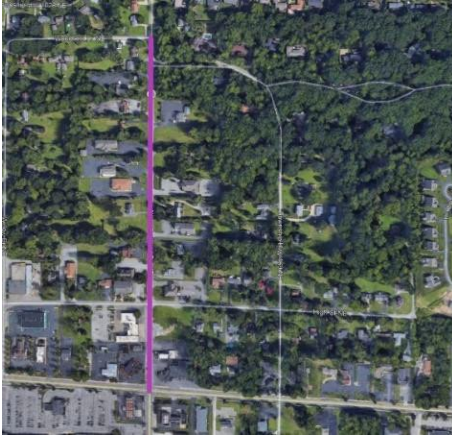
Future sidewalks in this segment would connect to the Warren Sharon Road sidewalk network making every day stops more accessible by pedestrians and bicyclists.

The Whitney Chase, and to a lesser extent the Cliff Hyde neighborhood, flank this segment. The approximately 80 homes in and around the Whitney Chase neighborhood east of the study are within a ten (10) minute walk of Howland Corners. Currently, pedestrians must make their way to the intersection at Warren Sharon Road to access the commercial or public uses on the west side of Niles Cortland Road.

The approximately 135 homes that comprise the Cliff Hyde neighborhood have direct access to the Warren Sharon Road sidewalk network and the commercial services there. However, they cannot safely access any uses along Niles Cortland Road north or south of Howland Corners.



Figure 23 Niles Cortland Road view south from Fairhill Drive.



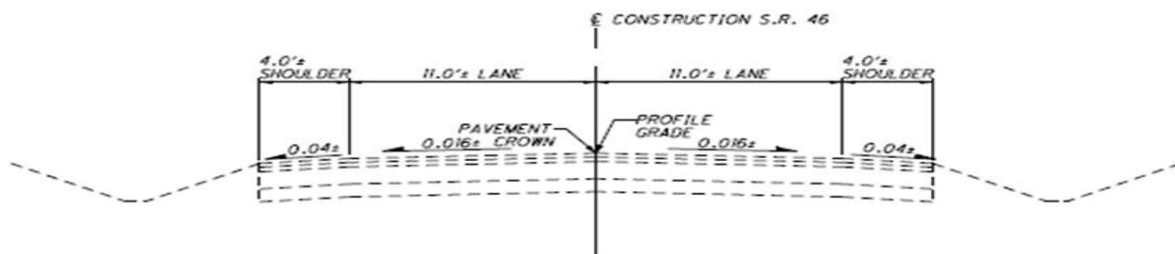
Segment 2: Warren Sharon Road to Woodland

Inventory

- Right of Way: 66 feet
- Shoulder Width: Generally less than 6 feet
- Traffic: 13,910 ADT (Trumbull County Engineer)
- Heavy Vehicle (Truck) Percentage: Estimated less than 2%
- Crashes: 20 crashes, 4 injuries, 0 pedestrian/cyclist crashes according to ODOT TIMS 2015-2017 crash data
- Curb Cuts: 19 curb cuts (14 commercial, and 5 residential)
- Intersections: High Street, Darlington Road, Woodland Avenue
- No on-street parking
- No transit stops
- Storm Drainage: Swales, sporadic catch basins, five culverts, no curbs
- Existing Pedestrian/Bicycle Infrastructure: A bike rack is located at the Howland Township Administration Building and at the Richard E. Orwig Park.
- Utilities: Utility poles throughout

Baseline Site Analysis

- Walkability Level of Service Score: 4.97 (4.51-5.50) E – Very Low
- Bikeability Level of Service Score: 3.26 (2.51-3.50) C – Moderately High



EXISTING SECTION – S.R. 46 (E. MARKET ST. TO N. OF STONECREEK LN.)

Segment 3 – Woodland Avenue to Stonecreek Drive

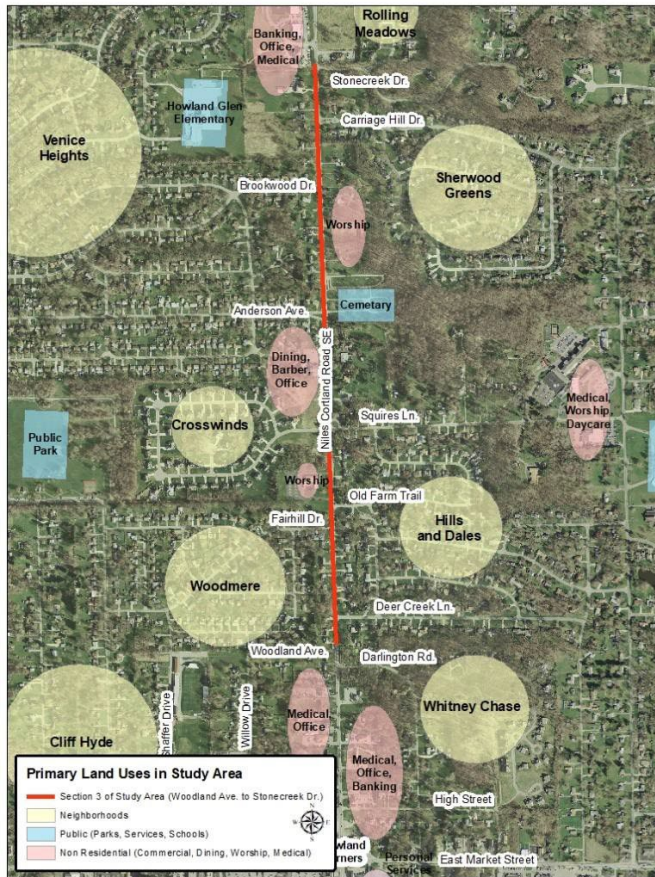


Figure 24 Land Uses in Segment 3

Segment 3 in the study area extends north from Woodland Avenue to Stonecreek Drive. This segment is the longest at 5,330 feet. The right-of-way narrows and the width become inconsistent in this segment. The speed limit increases from 40 to 45 mph.

The character is predominantly residential. Near Squires Lane is a small commercially-zoned area that supports a barber shop, professional office, and a restaurant/bar. The intention of the Township is to maintain residential zoning

and residential character throughout this section except for the existing commercial area at Squires Lane. North towards Stonecreek Drive, the land uses turn to medical and professional offices.

The nearly 150 households in the Woodmere neighborhood border the study area but have little access to the commercial areas to the north or south. Almost 60 households make up the Crosswinds neighborhood and there are 800 in Venice Heights. All three neighborhoods are located west of Niles Cortland Road. Currently, it is difficult for anyone in these neighborhoods to walk to the barber shop or to the restaurant located nearby.

Woodmere, Crosswinds, and the Venice Heights neighborhood border Howland Township Park. They each have direct access. In Crosswinds, access is located at the south west corner of the development. The sizable Venice Heights neighborhood accesses the park via a vacated road off of Venice Drive. Access could be improved and protected via easements.

However, these residents have limited access to any uses east of Niles Cortland Road, like H.C. Mines Intermediate School and the Howland Athletic Club (HAC) ball fields.

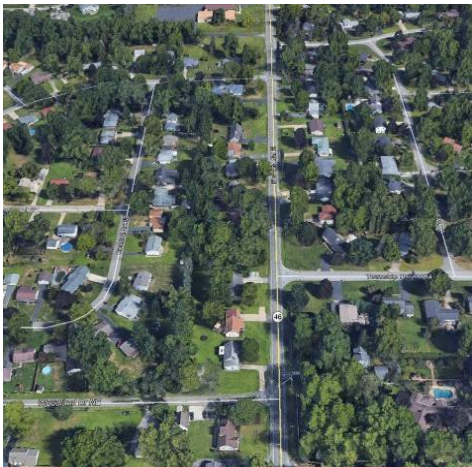
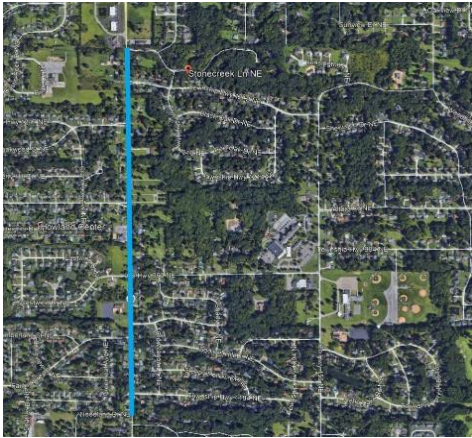
Similarly, Niles Cortland Road serves as a barrier to almost 270 families in the Hills and Dales neighborhood and 150 in Sherwood Greens in accessing Howland Township Park or Howland Glen Elementary School located west of Niles Cortland Road. And all households east of Niles Cortland Road cannot safely access Howland Township Park due to the inability to safely cross Niles Cortland Road..



Figure 26 Niles Cortland Road view north from Westwind Drive.



Figure 25 Niles Cortland Road view north from Fairhill Drive



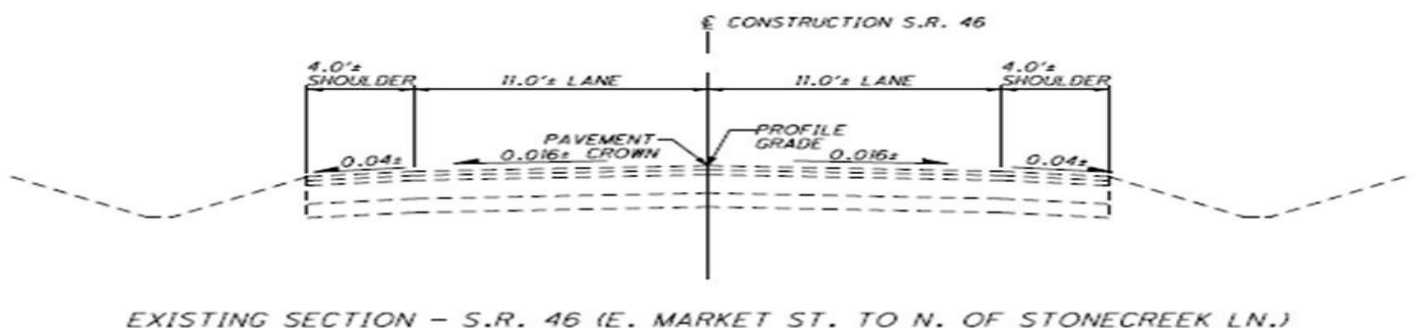
Segment 3: Woodland to Stonecreek

Inventory

- Right of Way: Variable 50-60 feet
- Shoulder Width: Approximately 3 feet
- Traffic: 13,910 ADT (Trumbull County Engineer)
- Heavy Vehicle (Truck) Percentage: Estimated less than 2%
- Crashes: 22 crashes, 7 injuries, 0 pedestrian/cyclist crashes according to ODOT TIMS 2015-2017 crash data.
- Curb Cuts: 61 curb cuts (10 non-residential, and 51 residential). Approximately 250 feet of continuous curb cut at commercial establishments along west side of road.
- Intersections: Deer Creek Lane., Fairhill Drive., Old Farm Trail, Squires/Westwind, Anderson Avenue, Brookwood Drive, Carriage Hill Drive.
- No on-street parking
- No transit stops
- Storm Drainage: Swales, sporadic catch basins, several ditch and creek crossings, notes of flooding, no curbs
- Existing Pedestrian/Bicycle Infrastructure: None
- Utilities: Utility poles throughout

Baseline Site Analysis

- Walkability Level of Service Score: 5.14 (4.51-5.50) E – Very Low
- Bikeability Level of Service Score: 2.93 (2.51-3.50) C – Moderately High



Segment 4 – Stonecreek Drive to North River Road

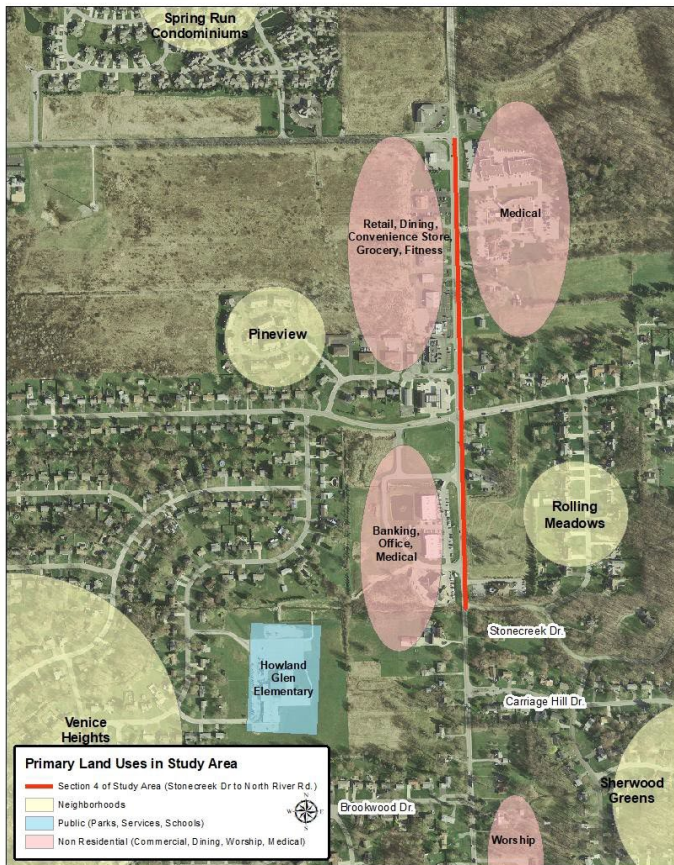


Figure 28 Land Uses in Segment 4

The final segment of the study area extends from Stonecreek Drive to North River Road. All adjacent land within this segment is zoned for business uses. There is a mix of non-residential destinations, namely medical, professional office, fueling station, convenient store, retail, restaurants, and personal services.

This area of the Township has experienced growth in recent years. Mercy Health invested over \$10 million in a new medical facility while smaller retail establishments have been built as well. The more recent development projects were subject to the Township's sidewalk and bike rack policy.

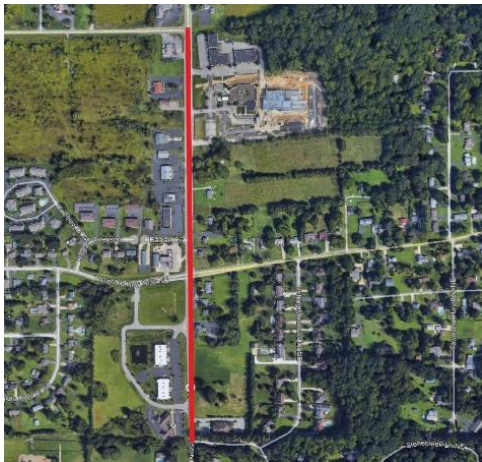
In 2015, Trumbull County installed sidewalks along North River Road from Mosquito Creek to Niles Cortland Road. Pedestrian improvements in this segment will join the North River Road sidewalk network optimizing access to the destinations along both North River Road and Niles Cortland Roads.

Most of the Township's multi-family housing can be found near Niles Cortland Road and North River Road. One hundred thirty two units (132), mainly 6-plexes, are being built just north of the project area. Pineview Condominiums and nearby town homes total 82 units border Niles Cortland Road. Nearly two hundred twenty five (225) Spring Run Condominiums located off of North River Road are within a quarter of a mile.

This area captures the largest potential for growth in Howland Township. Over 100 acres are available for development, much of which is slated for business uses, the balance for multi-family housing.



Figure 27 Niles Cortland Road view north through North River Road intersection.



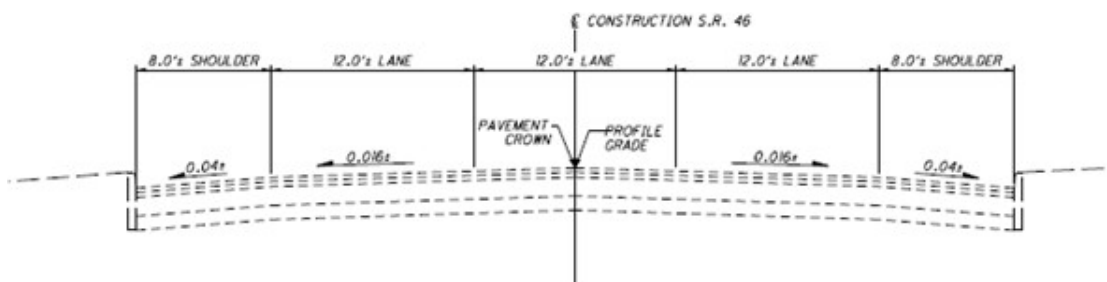
Segment 4: Stonecreek to North River Road

Inventory

- Right of Way: 50 feet
- Shoulder Width: Variable, 6 feet or less
- Traffic: 13,910 ADT (Trumbull County Engineer)
- Heavy Vehicle (Truck) Percentage: Estimated less than 2%
- Crashes: 8 crashes, 4 injuries, 0 pedestrian/cyclist crashes, according to ODOT TIMS 2015-2017 crash data.
- Curb Cuts: 24 curb cuts, 20 non-residential, and 4 residential)
- Intersections: Stonecreek Drive, King Graves Road/Raglan Drive (fully signalized), Raglan Circle, North River Road (fully signalized)
- No on-street parking
- No transit stops
- Storm Drainage: All but approximately 350 feet of this section have curbs and catch basins
- Existing Pedestrian/Bicycle Infrastructure: There are approximately 690 feet of sidewalk existing. This portion of the study area connects with the North River Road sidewalk network. Three bike racks are available (Mercy Health, Dollar General, and at the new plaza at the corner of Niles Cortland Road and North River Road).
- Utilities: Utility poles throughout

Baseline Site Analysis

- Walkability Level of Service Score: 4.79 (4.51-5.50) E – Very Low
- Bikeability Level of Service Score: 2.07 (1.51-2.50) C – VeryHigh



EXISTING SECTION - S.R. 46 (N. OF STONECREEK LN. TO N. RIVER ROAD)

Roadway Functionality (Level of Service or LOS)

The Bicycle Level of Service (BLOS) is a measure of road functionality, including traffic conditions and roadway geometry, from the perspective of a bicyclist. Similarly the Pedestrian Level of Service or PLOS measures roadway functionality from the perspective of a pedestrian. Eastgate Regional Council of Governments provided rating criteria examples from several agencies and organizations including one from Federal Highway Administration.

The [League of Illinois Bicyclists \(LIB\)](http://rideillinois.org/blos/losform.htm) created a BLOS/PLOS calculator using many of the same rating criteria used by the Federal Highway Administration model. Criteria include outside lane width, paved shoulder width, average annual daily traffic, speed limit, percentage of

heavy vehicle traffic, pavement ratings, the presence of on-street parking and sidewalks, sidewalk and buffer width, and the density of street trees. The calculator was used to determine baseline and post-implementation LOS scores for each segment.

(<http://rideillinois.org/blos/losform.htm>). An example output can be seen in Figure 33.

BLOS and PLOS for the following road segment			
Lanes per direction:	1		
Outside lane width:	12 ft		
Paved shoulder/bike lane/marked parking width:	6 ft		
Bidirectional ADT traffic volume:	16551 (veh/day)		
Posted speed limit:	40 mph		
Heavy vehicle percentage:	4%		
FHWA's pavement condition rating:	5		
% of segment with occupied parking:	0%		
% of segment with sidewalks:	6%		
Sidewalk width:	5 ft		
Sidewalk buffer/parkway width:	4 ft		
	Score	Level-of-service	Compatibility Level
BLOS:	2.54	C (2.51-3.50)	Moderately High
PLOS:	4.99	E (4.51-5.50)	Very Low

Figure 29 Baseline BLOS and PLOS Segment 1

Level of service scores were evaluated after improvements like sidewalks or a wider shoulder was added to the model. Table 1 below shows the changes in LOS from baseline.

The post-implementation LOS scores were based on five modifications being made to Niles Cortland Road:

1. 5-foot sidewalk added to both sides of the street.
2. 5-foot vegetated buffer installed between edge of pavement and sidewalk
3. 8 foot paved shoulder added
4. 40 MPH speed limit
5. Street tree every 80 feet

	Baseline Score		Post Implementation Score	
	PLOS	BLOS	PLOS	BLOS
Segment 1	4.99 (E)Very Low	2.54(C) Moderately High	3.73 (D) Moderately Low	1.50 (A) Extremely High
Segment 2	4.97 (E)Very Low	3.26 (C) Moderately High	3.42 (C)Moderately High	0.96 (A) Extremely High
Segment 3	5.14 (E)Very Low	2.93 (C)Moderately High	3.42 (C)Moderately High	0.96 (A) Extremely High
Segment 4	4.79 (E)Very Low	2.07 (B) Very High	3.42 (C)Moderately High	0.96 (A) Extremely High

TABLE 1 – BASELINE AND POST IMPLEMENTATION PLOS/BLOS

Baseline PLOS scores for all segments were Very Low “E” (range 4.79 – 5.14). Adding sidewalk, buffer and trees elevated the scores in all segments to Moderately High or “C” (range 2.51-3.50), except for segment 1 (SR82 to Warren Sharon Road). Its score improved from Very Low “E” to only Moderately Low “D”. It is only when the bi-directional traffic volume drops from 16,551 to 14,500 ADT, combined with the sidewalk, buffer, and trees that the PLOS score improved to Moderately High “C” in segment 1. Because traffic volumes are already less than 14,500 ADT in segments 2-4, adding sidewalk, buffer, and trees result in a PLOS score of “C” Moderately High.

Lowering the speed limit from 40 to 35mph in segment 1 did little to increase the PLOS score.

However, reducing the speed limit from 45 to 40mph in segments 3 and 4, improved PLOS scores from “D” Moderately Low to “C” Moderately High. Installing sidewalks on one side of the roadway dropped the score from “C” Moderately High to “D” Moderately Low, even if installed with a 5-foot buffer and street trees.

Width of paved shoulder was the principal variable in improvements in the BLOS scores across all segments. Maintaining a constant 8-foot paved shoulder increased BLOS scores to “A” Extremely High in all segments. Reducing paved shoulder width to 6 feet dropped BLOS score to “B” Very High. Adjusting the speed limit in segments 3 and 4 from 45 to 40 mph improved the BLOS score from 1.03 to 0.96, both considered “A” or Extremely High.

Evaluation Matrix

The team developed an evaluation matrix to assess each segment against selected criteria. The process of completing the matrix served as a valuable exercise that promoted a unified understanding of the planning effort among team members. The resultant scoring was not intended to be a comparison between the four segments or a preference ranking. Rather, the scores express segment strengths and deficiencies as measured against an ideal pedestrian and bicycle-friendly scenario. An explanation of each criterion follows.

EVALUATION MATRIX		Segment 1 Score	Segment 2 Score	Segment 3 Score	Segment 4 Score
Evaluation Criteria	Weighted Factor	1-5 score (1 being worst) * weighted factor	1-5 score (1 being worst) * weighted factor	1-5 score (1 being worst) * weighted factor	1-5 score (1 being worst) * weighted factor
ROW Availability	4	16	12	8	16
Constructability	6	18	12	12	18
Safety	10	30	30	20	20
Environmental	2	6	6	4	8
Trip Generators	8	16	24	24	16
Destinations	8	24	32	8	16
Existing Assets	6	12	6	6	18
BLOS	6	24	18	18	24
PLOS	6	12	6	6	18
TOTAL SCORE		158	146	106	154

TABLE 2 – EVALUATION MATRIX

ROW Availability – The existing right-of-way (ROW) has sufficient width to construct pedestrian facilities without the need for expansion. A higher score in this category is desirable since ROW acquisition can be costly and time-consuming, resulting in additional environmental documentation for federally funded projects.

Constructability – The corridor segment with a higher score presents topography and existing conditions that will be less restrictive in design and construction of proposed pedestrian/bicycle facilities. Some considerations are existing side slope grades,

ROW encumbrances such as landscaping, detention ponds or other obstructions that will need to be altered or cause the sidewalks to vary from typical longitudinal or vertical grading.

Safety – Several aspects were evaluated for this criteria, they include: number of drive crossings, type of drive crossing (commercial or residential), sight distance for motorist and pedestrians, vertical separation from the road grade (higher or lower than the road surface), intersections. A higher score reflects the sense of pedestrian/bicycle safety in a segment if improved.

Environmental – As part of federally-funded project, an assessment of ecological impacts and mitigation of issues will be required. Since the construction of sidewalk is typically a shallow excavation with limited impact, the concerns associated with the assessment are less of an overall project matter. Environmental considerations include: gas stations, wetlands, streams, and floodplain impacts. Cultural resources were considered as well including possible historic structures and cemeteries.

Trip Generation – In segments with higher scores, there are more individuals residing in close proximity to the project area that could use the sidewalk or bicycle facility.

Destinations – Segments with a higher score have a variety of destinations where individuals could walk or bike to. This would indicate the likelihood that the facilities would be used to fulfill necessary trips rather than for recreation or exercise alone.

Existing Assets – Are there any sidewalks or bicycle facilities in the section? Higher scores indicate that some infrastructure exists in the segment.

BLOS/PLOS – Using the methodology described in the prior section and applying them to the project segments, a baseline level of service (LOS) was obtained for the study sections. Typically a higher score would indicate the likelihood that pedestrians or cyclists would feel comfortable and be encouraged to walk or bike through the section prior to improvements.

RECOMMENDATIONS

Sidewalks and Connections

1. Install sidewalks on both sides of Niles Cortland Road in the project study area.
2. Sidewalk widths should be at least 5 feet unless it is curbed, then the sidewalk width should be at least 7 feet in width.
3. Install a vegetative buffer between edge of the pavement and the sidewalk that is at least 5 feet in width.
4. Howland Township and ODOT should consider entering into a long-term maintenance agreement.
5. Howland Township to develop policy that clearly identifies responsible party for maintenance, snow removal, cleaning, repair, and replacement scenarios.
6. Howland Township will continue working with partners to identify gaps in the sidewalk network.
7. Establish a permanent pedestrian and bicycle connection between the Crosswinds neighborhood, Howland Township Park, and Venice Drive and Howland Township Park.

Paved Shoulder

Widen paved shoulder to the ODOT Location and Design minimum standard, which is 8 feet on both sides of Niles Cortland Road.

Crosswalks (see stars in Figure 30)

1. Install crosswalks at recommended locations
 - ❖ SR82/SR46 DDI Interchange
 - ❖ South Street (signage & pavement markings)
 - ❖ Warren Sharon Road (signalized crossing)

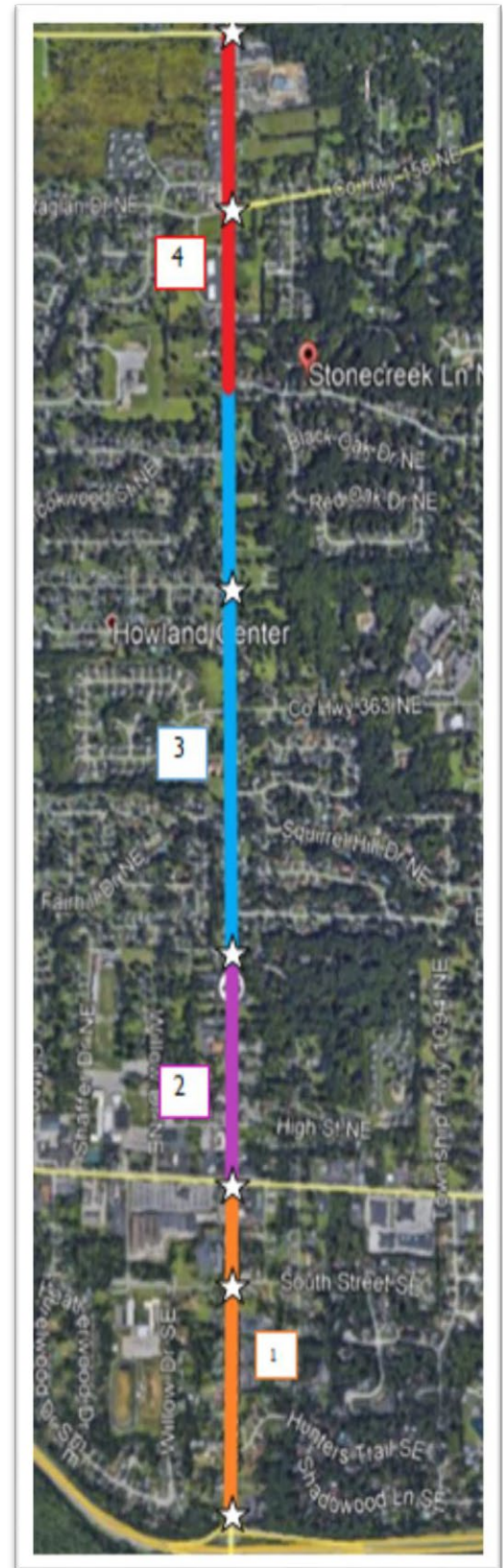


Figure 30 Recommended Crosswalk Locations by Segment

- ❖ Woodland Ave. (signage & pavement markings)
 - ❖ Anderson Ave. (signage & pavement markings)
 - ❖ Raglan/King Graves Rd. (signalized crossing)
 - ❖ North River Road (signalized crossing)
2. Advanced Warnings needed at Ragland, Kings Grave and Warren Sharon Road.
 3. Crosswalks should be given special attention so that pedestrians waiting to cross are visible to drivers

Signage and Pavement Markings.

1. Install appropriate signs to instruct pedestrians, bicyclists, and vehicles. These signs include instructional, warning, and “state law” type signs.
2. Consider developing a coordinated and themed wayfinding sign program for the entire study area.



Street Trees/ Landscaping/ Lighting

1. Install street trees in areas where long segments of sidewalk would be exposed to direct sunlight and where trees would not interfere with overhead utilities.
2. Install street furniture like benches and trash receptacles where appropriate.
3. Evaluate the need for additional lighting which can help establish a

pedestrian friendly environment especially in business districts.

Coordination

1. Coordinate with the Ohio Department of Transportation (ODOT) and Eastgate Regional Council of Governments when implementing projects recommended in this plan.
2. Coordinate with ODOT on resurfacing program in order to identify opportunities to expand paved shoulder.
3. Coordinate with the private development community to ensure conformance with these recommendations when installing new sidewalks.
4. Coordinate with ODOT to conduct speed study within the study area. Lowering the speed improves BLOS.
5. Collaborate with ODOT during Diverging Diamond Interchange design to include desired pedestrian and bicycle infrastructure upgrades.
6. Coordinate with ODOT on future improvements to Niles Cortland Road and Warren Sharon Road intersection.
7. Conduct signalization study at South Street in accordance with the recommendation of the 2013 Howland Middle School Safe Routes to School Plan.
8. Work with Trumbull County to investigate right-sizing Warren Sharon Road to accommodate bicycle lanes.
9. Collaborate with Trumbull County to determine the feasibility of extending sidewalks along Squires Lane and King Graves.
10. Howland Township to consider a Township-wide comprehensive bicycle plan.
11. Howland Township to consider Complete Streets Policy.

Cross Section Recommendations

The cross sections presented in Figure 31 are based on Ohio Department of Transportation's Location and Design Manual (ODOT L&D). There are two main starting points for the cross-section design. The first is the existing right-of-way (ROW or R/W) width, as illustrated in each segment analysis of this report. The second is the design speed for the roadway. The design speed is typically 10 mph higher than the posted speed limit. In the case of the study section for SR46 the posted speed limit is 40 mph to 45 mph, resulting in a design speed of at least 50 mph. In the ODOT L&D the required minimum lane, shoulder and sided slopes are the same for any facility with a 50 or 55 mph design speed. The implications of a 50 mph design speed are as follows:

- 12 foot lane widths
- 8-foot paved shoulder
- Either a 4 foot graded shoulder or a barrier curb section with a 6" minimum curb height

The above pavement and shoulder treatments result in a minimum offset from the edge of the pavement for the sidewalk. As illustrated the sidewalk can be located beyond the ditch line where sufficient ROW exists to allow the drainage facility, road and sidewalk to be constructed. With less available ROW sections, the curb is necessary to reduce the sidewalk offset and control roadway drainage with a closed storm sewersystem. The closer the sidewalk is to the back of the curb, the wider the sidewalk should be to allow pedestrians to shy away from the motor vehicles and provide adequate width as dictated by standard design practices.

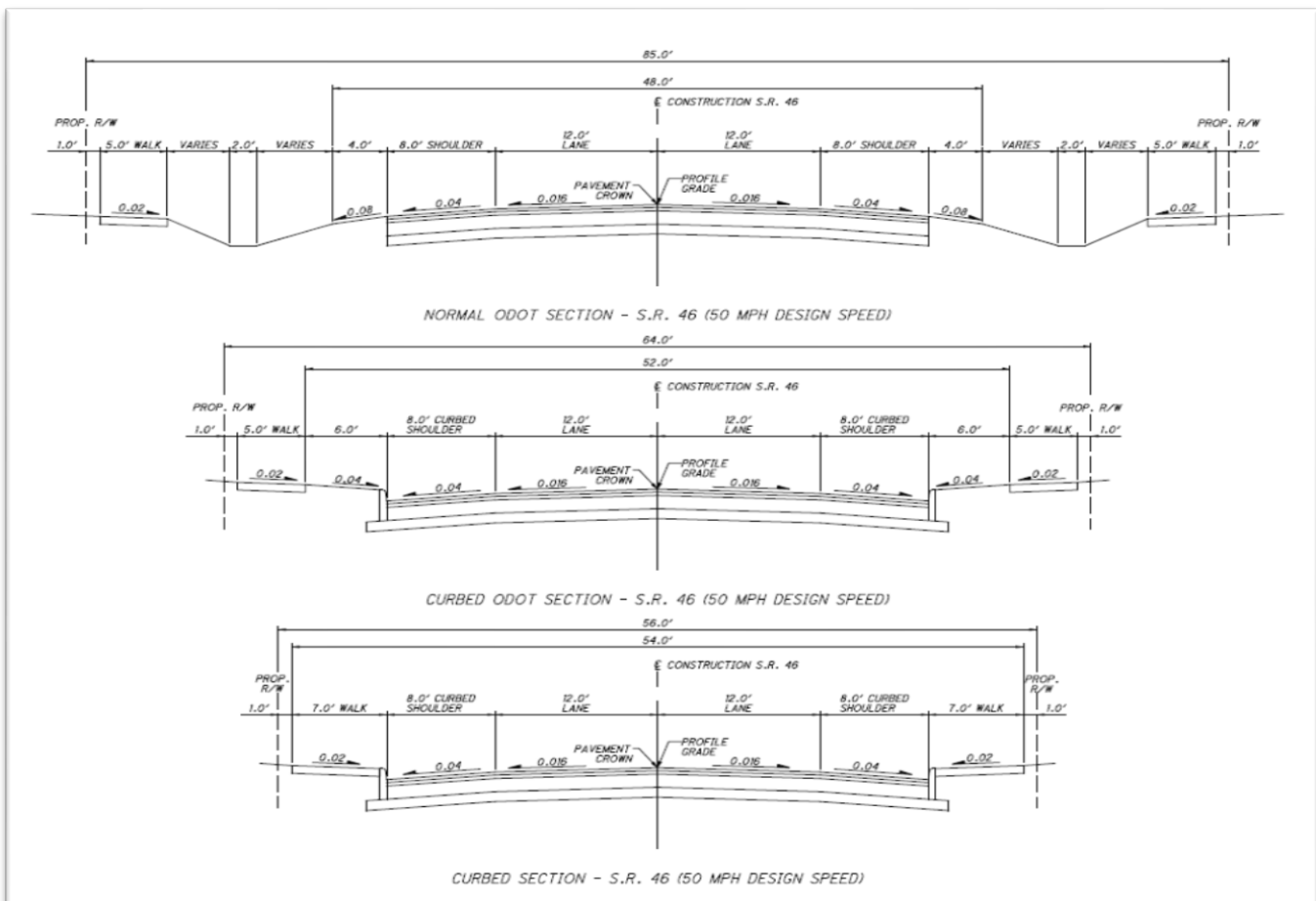


Figure 31 Typical ODOT Cross Sections

A design speed equal to or greater than 50 mph implies that the necessary roadway section is much wider than typically used to provide safety for motorists, cyclists, and pedestrians. Using a curbed section will reduce the overall required width, but additional funding for both the curb and closed storm sewer system will be necessary to control the roadway drainage. To integrate these features with the surrounding topography, the project scope will need to be broadened. This will most certainly drive-up project costs.

One recommendation of this plan is to request a speed study to potentially reduce the posted speed limit of the study area. If the posted speed limit were to reduce the design speed to less than 50 mph, the typical section width would be reduced. In particular, the recommended eight-foot (8') shoulder width could be reduced to one (1) or two (2) feet, and the lane width could drop to eleven (11) feet from twelve (12). This could potentially narrow the roadway section by sixteen (16) feet leading to fewer impacts to adjacent properties and fewer design concerns throughout the corridor. However, providing adequate accommodations for the bicyclist would be difficult with this scenario.

FUNDING FOR PEDESTRIAN AND BICYCLE FACILITIES

Funding Source	Granting Agency	Local Match Requirement	Eligible Projects	Eligible Applicants
Transportation Alternative (Includes Safe Routes to School (SRTS) Program) *SRTS 100% ODOT funding	ODOT Eastgate	20%	<ul style="list-style-type: none"> • Sidewalk • Crosswalks • Bicycle Lanes on Roadway • Bicycle Parking • Paved Shoulders • Signed Bike Routes • Traffic Calming Strategies 	Trumbull County Howland Twp
Safety Program	ODOT	10 – 20%	<ul style="list-style-type: none"> • Pedestrian and Bicycle Facilities in Bike/Ped high crash areas. • Pedestrian and Bicycle Facilities that are part of a roadway project. 	ODOT Trumbull County Howland Twp.
Surface Transportation Program (STP)	ODOT Eastgate Trumbull County	20%	<ul style="list-style-type: none"> • Sidewalk • Crosswalks • Bicycle Lanes on Roadway • Bicycle Parking • Paved Shoulders • Signed Bike Routes • Traffic Calming Strategies • Signal improvements • Curb cuts and ramps 	ODOT Trumbull County Howland Twp.
Congestion Mitigation Air Quality (CMAQ)	Eastgate	20%	<ul style="list-style-type: none"> • Sidewalk • Crosswalks • Bicycle Lanes on Roadway • Bicycle Parking • Paved Shoulders • Signed Bike Routes • Signal improvements • Curb cuts and ramps • Non-construction outreach related to bicycle safety. 	ODOT Trumbull County Howland Twp
Local Transportation Improvement Program	OPWC	Varies, but typically 60% is needed for successful project.	Pedestrian and Bicycle Facilities that are part of a roadway project	Trumbull County Howland Twp

Chart adapted from: <http://www.dot.state.oh.us/Divisions/Planning/SPR/bicycle/Funding/FundingChart.pdf>

APPENDIX A Aerials of Right-of-Way Conditions



