PROJECT BACKGROUND
The goals of the study were to look at ways to connect one of the final missing pieces of Cleveland’s Emerald Necklace, a series of parks and greenways existing across the city as well as exploring potential multi-modal safety and experience improvements, and exploring additional connections and corridors in the Chagrin Valley to neighboring communities.

The study area was reduced to focus on connections in and adjacent to Chagrin River Road, in tandem with additional bike signage to alert bicyclists and motorists to the presence of a shared-use roadway. The project timeline identified the installation of bike ‘sharrow’ pavement treatments along Chagrin River Road, primarily on and adjacent to Chagrin River Road, which was determined to be infeasible. Additionally, the installation of bike lanes along Chagrin River Road was determined to be infeasible directly, such as along the banks of the Chagrin River.

At this time, final recommendations are limited to the installation of shared-pavement treatments along Chagrin River Road in taskers with additional bike signage to alert bicyclists to the presence of a shared-use roadway. Additional improvements, independent of this study, include pedestrian widening of Chagrin River Road within the right-of-way in Gates Mills and Hunting Valley to allow for wider travel lanes and shoulders, as well as installing specific areas of improved pedestrian pathways at pinch points and areas of limited sight distances. A potential off-road trail is recommended for further future study per the Chagrin Valley Master Plan. As heard throughout the TLCI study process, the corridor. Natural surface trails were proposed in areas where paved trails would not be feasible to allow the large number of residents in Gates Mills and Hunting Valley to experience the natural environment more directly, as well as along the banks of the Chagrin River.
In the fall of 2016, the Village of Gates Mills was awarded competitive federal funds through NOACA’s Transportation for Livable Communities Initiative (TLCI) program. Planning awards fund studies that can lead to improvements in transportation systems and the neighborhoods those systems support. The funding is made available to communities and public agencies that seek innovative approaches to create livable communities and provide more travel options. The local match for the Chagrin Valley Connectors TLCI Study was provided by Cleveland Metroparks, as a major stakeholder with the North and South Chagrin Reservations along the corridor.

• Develop transportation projects that provide more travel options through complete streets and context sensitive solutions, increasing user safety and supporting positive public health impacts.
• Promote reinvestment in underutilized or vacant/abandoned properties through development concepts supported by multi-modal transportation systems.
• Support economic development through place-based transportation and land use recommendations, and connect these proposals with existing assets and investments.
• Ensure that the benefits and burdens of growth, change and transportation projects are distributed equitably by integrating accessibility and environmental justice into projects.
• Enhance regional cohesion by supporting collaboration between regional and community partners.
• Provide people with safe and reliable transportation choices that enhance their quality of life.

PROJECT GOALS
• Improve bicycle and pedestrian safety and access for the villages and communities along the Chagrin River to each other, to community assets and to Cleveland Metroparks reservations.
• Complete one of few remaining breaks in the Emerald Necklace, a continuous ring of interconnected Cleveland Metroparks parkland.
• Identify and prioritize multi-modal neighborhood connectors to facilitate access from the valley to residential, commercial and civic areas, as well as planned and existing adjacent bicycle facilities.
EXISTING CONDITIONS
In order to create informed recommendations, it was key to understand the unique opportunities and constraints within the Chagrin River Valley. While extensive trail and park facilities exist today, the steep slopes and roadway conditions make correcting some of these amenities a challenge. Within the North and South Chagrin Reservations there are miles of both paved and natural surface trails to accommodate users of all types including hikers, bikers, and equestrians. In between the Reservations the trail network is less continuous, with substantial connectivity gaps, especially in terms of off-road paved trails.

North of Miles Rd. in South Chagrin Reservation, the existing Cleveland Metroparks bridle trail stretches through the river valley, with some portions adjacent to Chagrin River Road, and others closer to the river’s edge. The alignment of the bridle trail is significantly guided by erosion factors along the bank, as well as steep slopes that sometimes force it into tight areas along the road. In many instances, narrow natural surface trails extend outward from the main bridle trail to allow non-equestrian users closer access to the water and undisturbed natural spaces.

In addition to the constraints faced by shared-user spaces off-road, the limited pavement width of Chagrin River Road itself creates safety concerns or the many on-road cyclists in the area. Pavement widths along the road vary between ten and twelve feet, with road shoulders sometimes non-existent. Given the terrain in the valley many portions of the roadway feature guardrails along the edge which, combined with slimmer lanes and limited shoulders, can create treacherous pinch points for cyclists and motorists attempting passing maneuvers.

To best understand the existing conditions, multiple field visits undertaken to walk potential routes and experience firsthand the areas of safety concerns and pinch points. This information was then compiled with a thorough analysis of available data to development potential alignments.
Combined Users
On several stretches of the existing bridle trail, the terrain and right-of-way requires all users to share the path. Additionally, instances of challenging topography and river conditions create pinch points along the corridor. This section, just north of the intersection of N. Chagrin River Rd. and Interstate 77, winds between the pavement edge and a steep drop down to the river.

Existing Under-Bridge Trail
In order for equestrians to connect to the South Chagrin Reservation, the bridle trail travels under the Chagrin River Rd. bridge before crossing the river at a water ford. This crossing condition, while not ideal for all user types, provides a safer option compared to crossing Miles Rd. at grade.

Historic Opportunities
North of the intersection of Miles Rd., a bridge abutment from a former road alignment remains substantially intact. This provides an opportunity to develop an off-road trail that could run north of the intersection and connect to the existing bridle trail in order to serve under Miles Rd.

Chagrin River Rd. Bridge
Immediately south of the Miles Rd. intersection, the two-lane bridge allows for vehicle access into the main entrance of the South Chagrin Reservation. Pedestrians and cyclists currently utilize the bridge, but there is no formal connection on bicycle-pedestrian relinquishment. A dedicated pedestrian and bicycle crossing would make access substantially easier.
As with all rivers, erosion causes the Chagrin River to change its form over time. Here, the eroding bank has already reached the edge of the bridle trail. If left without stabilization, the bank may continue to erode.

**Evolving Riverbank**

**Wetland Areas**

Even the smallest patches along the Chagrin River hold many small pockets of wetlands. Identifying and locating these areas is critical in determining potential routes for trails.

**Existing Pathways**

In addition to the existing bridle trail connecting the Polo Fields to the portion of the South Chagrin Reservation south of Miles Rd., numerous wide pathways criss-cross the meadow areas. These grassy paths provide additional route options for hikers and equestrians, deviating from the designated bridle trail.

**Road Crossings**

At certain points along the corridor, major roadways bisect Chagrin River Rd. Mid-block signals or under-bridge crossings may be needed to promote user safety and connectivity.
The original study area, comprised of the three communities shown to the left, focused on connecting the corridor between the Cleveland Metroparks North and South Chagrin Reservations along Chagrin River Road (in red). Though the study area was reduced later in the project, all the mapping and analysis figures are presented in the scope of the larger, original study area for context.

**Down in the Valley**

The steep terrain surrounding the Chagrin River presents both challenges for planners and opportunities for scenic user experiences. The 10-foot contour interval map to the right displays how close together the lines are in the generally steep terrain surrounding the valley, while also illuminating the generally flat areas adjacent to the river. The closer together the lines are, the steeper the slope.

**Population**

In contrast to surrounding communities, such as Mayfield Heights, the Villages of Gates Mills, Hunting Valley, and Moreland Hills are much less populated. Environmental constraints, community preference, and zoning codes all contribute to the lower number of residents.

**Density**

The corridor is characterized by primarily single-family homes and large lot sizes, which results in a significantly lower population density compared to the other communities.
In order to further investigate areas of safety concern along Chagrin River Rd., a traffic study was conducted at several major intersections along the corridor. From south to north, the intersections at Miles Rd., Chagrin Blvd., S. Woodland Rd., Fairmount Blvd., Mayfield Rd., and Wilson Mills Rd. were studied.

Two time periods were studied for each intersection during May of 2016. On Thursday, May 19th counts were performed from 2pm to 6pm. The second count was conducted on Saturday, May 21st from 6am to 9am. The Thursday count was representative of a typical evening commute rush, while the Saturday morning time was intended to take note of the many cyclists reported to traverse the corridor on weekend mornings.

The Mayfield Rd. and Chagrin River Rd. intersection proved to be the most trafficked in the study area. The main travel flow was on Mayfield Rd., crossing Chagrin River Rd. North-south traffic along Chagrin River Rd. was much lower, as was typical for all intersections in the study area. Over 6,000 vehicles crossed Chagrin River Rd. on Mayfield throughout the traffic study periods. The 22 bicycles counted were traveling north-south along Chagrin River Rd. through the intersection.
The data was collected and analyzed from the police departments of the three regulation communities. Data that was already available in digital form was digitized and geo-referenced to create a consistent dataset throughout the corridor. Of the accident data provided, only one instance of a bicycle-related crash was reported. No pedestrian accidents were recorded in any of the communities along the corridor.

Gates Mills - Vehicle Accidents 2010-2015

Accident locations are shown for the Chagrin River Rd. corridor. Common accident types included deer collisions and snow or ice-related incidents. The only bicycle-related accident occurred in downtown Gates Mills and was a result of a cyclist striking a curb and crashing.

Moreland Hills - Vehicle Accidents 2012-2015

Though accident frequency in Moreland Hills is lower than in Gates Mills or Hunting Valley, clustering does occur at the narrow curves north of Miles Rd., as well as at the intersection of S. Woodland and Chagrin River Rd.

Hunting Valley - Vehicle Accidents 2010-2015

Data provided for accidents throughout the entire Village of Hunting Valley show many clusters of incidents occur on Chagrin River Rd. Turning-movement accidents were the most common at the intersections of Fairmount Blvd., Cedar Rd., and S. Woodland Rd.

Partner Properties

Given the natural beauty of the corridor, much has been done to preserve large areas of forest and natural areas along the bank of the river. Major land owners include Cleveland Metroparks, Western Reserve Land Conservancy, and the three villages along the corridor.

Corridor Parcel Ownership

Data that was not already available in digital form was digitized and geo-referenced to create a consistent dataset throughout the corridor. Of the accident data provided, only one instance of a bicycle-related crash was reported. No pedestrian accidents were recorded in any of the communities along the corridor.
ALIGNMENT OPTIONS
**Off-road Trail**
- 10’ Wide Asphalt Trail
- 2’ Buffer on Either Side of Trail
- American Association of State and Highway Transportation Officials (AASHTO) Standard for Design and Construction

**Natural Surface Trail**
- 3’ to 4’ Wide
- Compacted Earth or Gravel Surface
- Not Typically Intended for Bikes

**On-road Bike Lanes**
- 4’ Wide (Without a Curb Present) Bike-Only Lane
- Typically In Both Directions
- Paint Marking Every 250’
- ‘May Use Full Lane’ Signage Along Roadway
- Added to Existing Road Configuration
- AASHTO Standard for Design and Construction

**On-road Bike Sharrows**
- 3’ to 4’ Wide
- Compacted Earth or Gravel Surface
- Not Typically Intended for Bikes
- Added to Existing Road Configuration
- AASHTO Standard for Design and Construction
At the final public meeting, alignments presented incorporated the revised off-road study area limited to Moreland Hills and the northern portion of South Chagrin Reservation between S. Woodland Rd. and Miles Rd. On-road options proposed included ‘sharrow’ pavement markings along the length of Chagrin River Rd. between Wilson Mills Rd. and Miles Rd. Following feedback received during the public meeting, final study recommendations were limited to on-road ‘sharrow’ markings only. Detailed costs of the on-road ‘sharrows’ and associated signage are included in the Appendix. Additional improvements, independent of this study, include possible widening of Chagrin River Road within the right-of-way in Gates Mills and Hunting Valley to allow for wider travel lanes and shoulders, along with specific areas of improvement at pinch points and areas of limited sight distances.

At the second public meeting on and off-road alignments were presented for the full corridor along Chagrin River Rd. between the Reservations. In this version, bike lanes along Chagrin River Rd. were proposed as the on-road improvement. The Appendix of this document includes a detailed cost opinion for each of the segments shown.
PUBLIC INVOLVEMENT
### Chagrin Valley Connectors TLCI Study

#### Public Engagement Timeline

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOCATION</th>
<th>TYPE</th>
<th>GOALS</th>
<th>OUTCOMES &amp; FEEDBACK</th>
</tr>
</thead>
</table>
| Feb. 22    | GATES MILLS | Stakeholder Meeting #1 | • Project introduction  
• Introduction of user groups and facility types  
• Reviewed basemaps  
• Defined project corridors  
• Draft alignment walkthrough | Specific alignment feedback received to promote into the public meeting  
Develop online public survey  
Set date for Public Meeting #1 |
| March 30   | GATES MILLS | Public Meeting #1     | • Project introduction  
• Surveyed meeting attendees to find their preferred surface material activity  
• Reviewed facility types and user groups  
• Presented online surveys  
• Encouraged attendees to complete the detailed online survey | User group conflicts (i.e. cyclists and horses) should be addressed  
Private property concerns for potential alignment |
| June 23    | GATES MILLS | Stakeholder Meeting #2 | • Renewed results of traffic count study  
• Reviewed attendee survey from Public Meeting #1  
• Reviewed updated alignments and changes  
• Reviewed potential enhancements  
• Presented project path enhancement areas and identified solutions  
• Reviewed potential parking improvements areas  
• Reviewed feedback on potential design solutions for pinch point areas  
• Methodology to be shown at following Public Meeting #3 | Strong feedback from the public to rethink any proposed off-road alignments, given proximity by residents private property concerns  
The 'no-build/existing condition' alternative was overwhelmingly selected by attendees  
Study put on hold until consensus could be reached by stakeholders or path forward |
| July 13    | MORELAND HILLS | Public Meeting #2     | • Traffic count study with red, green dot rating stations  
• Attended at an overall preferred facility type survey  
• Presented results from study evaluation online surveys and implications  
• Reviewed updated alignments and changes  
• Discussed construction access for Gates Mills and Hunting Valley  
• Discussed the outcomes from the Moreland Hills master planning process which highlighted new trails as a priority | Overwhelming meeting response was for no trail to be built within the study area based on equestrian safety and environmental concerns  
Concerns directed toward the sharing of trail space at the pinch point north of Miles Rd. and under the Chagrin Blvd. bridge |
| Dec. 6     | MORELAND HILLS | Public Meeting #3     | • Updated stakeholders on changes in project sponsorship and scope  
• Reviewed initial study areas  
• Reviewed potential off-road routes for Gates Mills  
• Discussed construction access for Gates Mills and Hunting Valley  
• Discussed the outcomes from the Moreland Hills master planning process which highlighted new trails as a priority  
• Clear path forward for engaging an area  
• Determined future vision for Public Meeting #4  
• Set the stage for moving forward the Gates Mills and Hunting Valley in 2018 | Study paused following second public meeting. Resumed in 2017 with Moreland Hills as the new Project Sponsor |
| Dec. 19    | MORELAND HILLS | Public Meeting #3     | • Updated stakeholders on changes in project sponsorship and scope  
• Reviewed initial study areas  
• Reviewed potential off-road routes for Gates Mills  
• Discussed construction access for Gates Mills and Hunting Valley  
• Discussed the outcomes from the Moreland Hills master planning process which highlighted new trails as a priority  
• Clear path forward for engaging an area  
• Determined future vision for Public Meeting #4  
• Set the stage for moving forward the Gates Mills and Hunting Valley in 2018 | Study paused following second public meeting. Resumed in 2017 with Moreland Hills as the new Project Sponsor |

*See report Appendix for all Public Meeting sign-in sheets, comments, and email correspondences*
Online Public Survey Highlights

300

About the Survey

In the spring of 2016, following Public Meeting #1, the online survey was launched that focused on gathering information about the recreational and active transportation needs and desires of the study area. The survey was advertised by the administrations of each community, as well as disseminated through the project stakeholder lists and posted on the project Facebook page.

In total, 300 responses were received during the open survey period. A detailed spreadsheet of all questions and responses can be found in the appendix. Several key pieces of information were gathered from analyzing the survey data. First, it was clear that study area residents, and those in surrounding communities, are highly active in outdoor recreation activities ranging from bicycling and horseback riding to snowshoeing and hiking. Zero respondents said they do not participate in outdoor recreational activities. Second, the most commonly reported primary outdoor activity was bicycling on paved or gravel trails. This key fact is important when considering that no major paved off-road trail facilities exist in the study corridor outside of the North or South Chagrin Reservations.

The apparent need and public support for off-road paved trail infrastructure heavily influenced the decisions for facility types and locations that were presented at the public meetings. In addition to the desire for paved trails, improved natural surface trails and a desire to experience different types of surroundings, such as forests or riverbanks, ranked highly among respondents.

68% male
32% female

244 non-corridor residents
56 corridor residents

Over half of respondents between the ages of 45-64

90% believe outdoor recreation facilities are important for vibrant communities
43% visit the North or South Chagrin Reservations at least once a week
76% ride their bike at least once a week
35% of respondents are not comfortable riding their bike in the same lane as a car

When using trail/path facilities, what is your ideal experience? (Choose One)

- Close to a roadway
- Along a riverbank
- Within a wooded area
- Within an open meadow
- Adjacent to wildlife or scenic overlooks
- Other (please specify)

What is your primary outdoor recreational activity? (Choose One)

- Walking/hiking
- Jogging/running
- Dog walking
- Bicycling on paved or gravel trails
- Mountain biking on dirt paths
- Observe nature/bird watching
- Fishing
- Kayaking/canoeing
- Horseback riding
- Golfing
- League or informal sports
- I do not engage in outdoor recreation
- Other (please specify)

When using trail/path facilities, what is your ideal experience? (Choose One)

- Close to a roadway
- Along a riverbank
- Within a wooded area
- Within an open meadow
- Adjacent to wildlife or scenic overlooks
- Other (please specify)
Wilson Mill Rd. Crossing

Crossing the Chagrin River Reservation presented several challenges, including limited right-of-way and significant grade changes. A new bridge was proposed to allow direct access into the Reservation by crossing underneath Wilson Mills.

Mayfield Rd. Crossing

Current conditions make crossing Mayfield Rd. difficult for pedestrians. Though the intersection is signalized, there are no pedestrian crossing signals or signage.

Chagrin Blvd. Crossing

The traffic along Chagrin Blvd. makes a mid-block crossing potentially hazardous for users. Currently, users travel under the bridge on an often muddy section of trail. Concerns were raised over equestrian conflicts with other users underneath the bridge.

Public Meeting 2: Voting Board Results

Voting boards at Public Meeting #2 displayed major intersections and pinch points, with each alignment type rendered. Attendees were invited to vote on their preferred alignment type on each board using green and red dot stickers. A green dot indicated approval, while the red dot indicated opposition to the option.

Additionally, attendees were asked to identify potential roadway conflict areas with signalized intersections along the corridor. Finally, attendees were asked to select one concept considering environmental, aesthetic, and traffic affects. The results shown and used for the voting exercise are based on the original study areas being considered.
Some topography and limited right-of-way presented challenges along the current shared-use gravel path.

Potential Conflict Areas

Using blue dots, users helped identify areas of concern along Chagrin River Rd. where they felt conditions were hazardous for crossing the road or passing cyclists, as well as line-of-sight constraints.

Alignement Preference

The predominant opinion of those present at the second public meeting was that no improvements to off-road connectivity were desired in the corridor. While some limited support existed for natural surface trails or on-road bike lanes, it was clear that attendees did not support an off-road hard surface trail connection.

Southern Pinch Point

Steep topography and limited right-of-way presented challenges along the current shared-use gravel path leading to the main entrance to the South Chagrin Reservation. Equestrian users outlined concerns over the potential hazard of horses on asphalt, as well as the confined space of the existing trail.
RECOMMENDATIONS
**Connectivity Recommendations**

**On-road sharrows & signage**

**What is a Sharrows?**

Sharrows are marking devices that allow use of on-street bicycle lanes for pedestrian and motor vehicle use. Among other benefits, sharrows reduce the need for bike lanes on the street, increasing proper bicycle positioning, and may be configured to offer directional and wayfinding guidance. The shared lane marking is a pavement marking with a variety of uses to support complete street networks; i.e., on a facility type and should not be considered a substitute for bike lanes, cycle tracks, or other separation treatments where these types of facilities are otherwise warranted or space permits.

**Manual on Uniform Traffic Control Devices (MUTCD)**

**Chagrin River Rd. Safety Improvements**

Additional improvements independent of this study include possible widening of Chagrin River Road within the right-of-way in Gates Mills and Hunting Valley, along with specific areas of improvement to pinch points and areas of limited sight distances.

**Potential future off-road trail**

**South Chagrin Reservation from Miles Rd. to S. Woodland Rd.**

**Shared use path/trail (Future)**

Some improvements not associated with the Chagrin Valley Connectors TLCI Study include possible widening of Chagrin River Road within the right-of-way in Gates Mills and Hunting Valley, as well as specific areas of improvement to pinch points and areas of limited sight distances.

At the third and final public meeting, the majority of the attendees identified themselves as equestrian users. While this study did not propose to change any of the existing bridle trail alignments, there were many concerns brought up about environmental and physical constraints of a shared use path as well as potential and/or perceived user conflicts where the proposed shared use path/trail would cross the existing bridel trail.

At the current time, there are no shared use paths being recommended as part of the Chagrin Valley Connection TLCI study. Optional measures are recommended throughout the length of the study area along Chagrin River Road throughout Gates Mills, Hunting Valley and Moreland Hills.

**On-road sharrows (TLCI Study)**

Sharrows are marking devices that allow use of on-street bicycle lanes for pedestrian and motor vehicle use. Among other benefits, sharrows reduce the need for bike lanes on the street, increasing proper bicycle positioning, and may be configured to offer directional and wayfinding guidance. The shared lane marking is a pavement marking with a variety of uses to support complete street networks; i.e., on a facility type and should not be considered a substitute for bike lanes, cycle tracks, or other separation treatments where these types of facilities are otherwise warranted or space permits.
**On-Road Sharrow Costs**

<table>
<thead>
<tr>
<th>Location</th>
<th>Distance</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gates Mills</td>
<td>4.7 MILES</td>
<td>$73,000</td>
</tr>
<tr>
<td>Hunting Valley</td>
<td>3.1 MILES</td>
<td>$57,000</td>
</tr>
<tr>
<td>Moreland Hills</td>
<td>2.6 MILES</td>
<td>$52,000</td>
</tr>
</tbody>
</table>

*Detailed costs for each community are included in the appendix.*

**Future Pedestrian Safety Enhancement Locations**

At certain locations along the corridor, crossing locations have developed naturally based on user movement patterns, especially at the intersection of Miles Rd. and Chagrin River Rd. On-site observations, as well as the traffic study, provided insight on locations where frequent crossings were occurring. Whether on horseback, foot, or bicycle, these crossing points lack many safety features such as crosswalk striping, signage, or signals. Enhanced trail crossings are not needed everywhere. These locations should be studied in detail once the Cleveland Metroparks/NOACA Emerald Necklace Trail Crossing Improvement Study is completed and finalized.

**Existing Crossings**

- **Mileage and Costs:**
  - Gates Mills: 4.7 MILES, $73,000
  - Hunting Valley: 3.1 MILES, $57,000
  - Moreland Hills: 2.6 MILES, $52,000

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**Alignment Tiles**

1. **Alignment Options**
2. **CHAGRIN VALLEY CONNECTORS**
3. **TLCI STUDY**
4. **Alignment Key**

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