

The Lake Harbor Trail project was a 2.90-mile HMA pathway project along Lake Harbor Road between PJ Hoffmaster State Park and Lake Harbor Park in the City of Norton Shores. The project was funded with both ARPA (American Resue Plan) Funds and matching local funds. The project was constructed in late 2024 & early 2025.

City of Norton Shores, MI
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Construction: 2024 & 2025
Project Cost: \$1,694,000
Project Length: 2.9 miles

The City of Norton Shores constructed an 8-foot wide HMA pathway along Lake Harbor Road between PJ Hoffmaster State Park and Lake Harbor Park, with accompanying ADA ramps, retaining walls, stormwater relocation, stream crossing, and related improvements, within the existing public right-of-way of Lake Harbor Road. Funding for the project was with City and American Rescue Plan Funds (ARPA) funds. The pathway will keep pedestrians away from a busy roadway and provide a more aesthetic pathway through forested lands. Eng. coordinated with the Michigan Department of Natural Resources (DNR) on the best routing of the pathway for all stakeholders through PJ Hoffmaster State Park. Lake Harbor Road has 66 feet of overall roadway right of way width which is restrictive in several locations. The crossing of the legally established Seider County Drain required the extension of the existing 60-inch RCP culvert to allow for an at-grade crossing with the pathway. Eng., Inc. prepared plans, special provisions, and estimates necessary to bid the project in accordance with City of Norton Shores, EGLE, and all other governing agency standards and procedures. The project included pathway design, sidewalk design, ADA ramp upgrades, pavement marking plans, SESC plans, and traffic control plans. Maintaining traffic and phasing were critical elements of the design.

Primary Consultant:

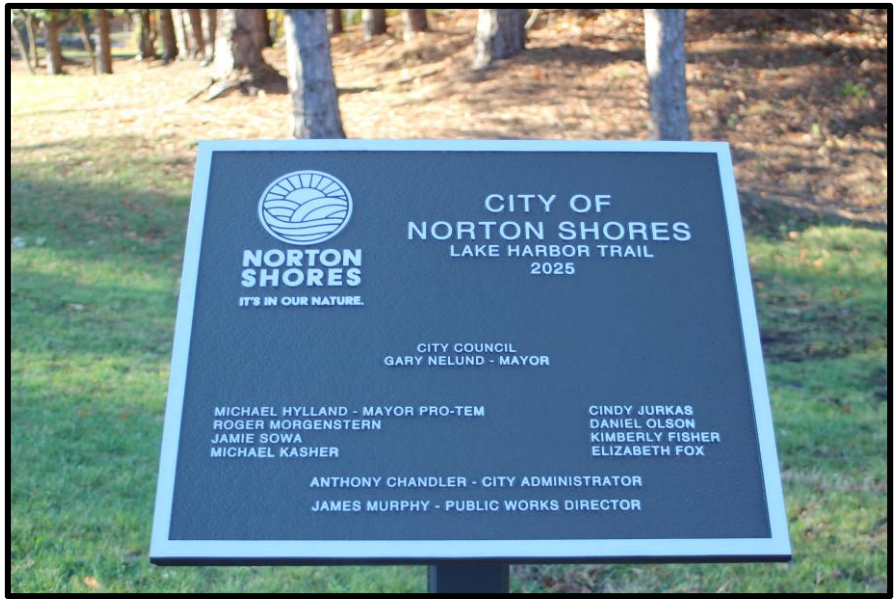


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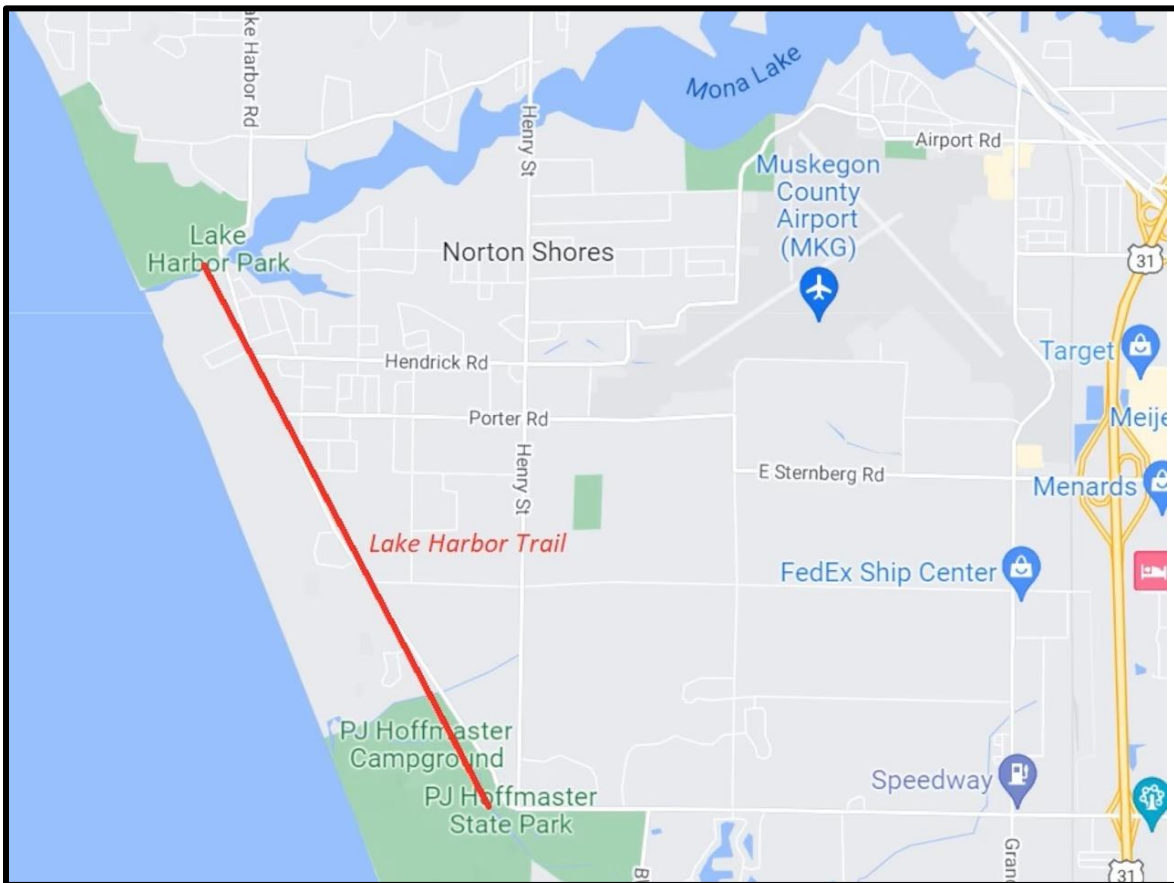


Introduction

The Lake Harbor Road Non-Motorized Pathway represents a transformative investment in public safety, mobility, and recreation for the City of Norton Shores and surrounding Muskegon County region. Stretching approximately 2.9 miles between PJ Hoffmaster State Park and Lake Harbor Park, the pathway creates a critical connection that had long been identified as a community priority in the City’s Bicycle and Pedestrian Plan (2019) and by residents seeking safe access to the area’s abundant natural and recreational assets.

From the earliest planning stages, the city placed a strong emphasis on community involvement. Multiple public meetings were held over the course of the project—beginning with conceptual design discussions and continuing through final construction updates. These sessions allowed residents, nearby park representatives, and stakeholders to voice preferences, review progress, and understand design decisions.

This transparent and inclusive approach not only helped refine the technical aspects of the project but also built long-term public support. By the time construction began, community members were invested in the pathway’s success and proud to see their input reflected in the finished product



Location Map

The Critical Need for the Project

Prior to this project, Lake Harbor Road functioned as a scenic but narrow two-lane roadway with limited paved shoulders and steep roadside slopes in certain areas. Despite the lack of dedicated pedestrian or bicycle facilities, it served as the only corridor connecting the community’s two largest parks—PJ Hoffmaster State Park and Lake Harbor Park—and was heavily traveled by campers, hikers, cyclists, and neighborhood residents.

Visitors to Hoffmaster State Park often attempted to walk or bike to the Mona Lake Channel or the Lake Michigan shoreline using the road itself, sharing space with vehicles traveling at 40–50 mph. Residents routinely expressed safety concerns about the corridor, particularly during summer months when tourism and park activity peaked. The City recognized that without intervention, the corridor would continue to present safety risks for both motorists and non-motorized users.



Safety concerns of heavy bicycle and pedestrian traffic on the roadway shoulder

Community Vision and Connectivity

The City's long-term vision called for a continuous, safe, and accessible non-motorized route connecting key recreational destinations, neighborhoods, and future regional trail systems. The Lake Harbor Pathway was designed not only as a standalone improvement, but as a foundational link in a broader mobility network that could eventually extend north to Dune Harbor Park and south toward Spring Lake Township along Black Lake Road.

The project supports a growing community emphasis on multimodal transportation and outdoor recreation, improving quality of life by encouraging active lifestyles and reducing dependence on vehicle travel for short local trips. It also enhances access for residents and visitors of all ages and abilities, including those with mobility challenges, through ADA-compliant design features.

Public engagement was central to the project's success. The City of Norton Shores hosted several public meetings throughout both the design and construction phases to ensure residents, park users, and nearby property owners were fully informed and had opportunities to share input.

Early design meetings focused on alignment alternatives, potential environmental impacts, and aesthetic preferences. Feedback gathered during these sessions directly influenced the final alignment and helped shape decisions about retaining wall placement, tree preservation, and landscape restoration.

Additional public meetings during construction kept residents informed about progress, detour routes, and anticipated completion milestones. These efforts helped maintain public trust, minimize inconvenience, and foster a sense of community ownership. The result was a project that truly reflects the shared vision and priorities of the people it serves.

Collaborative Funding and Timing

The project was made possible through strategic funding under the American Rescue Plan Act (ARPA), supplemented by City funds and pursued in coordination with future grant opportunities such as the Michigan Spark Grant. The City's proactive approach to leveraging available funding positioned the project for design in early 2023 and construction in the fall of 2024 and spring of 2025—meeting community expectations for timely delivery.

Defining the Project Purpose

The purpose of the Lake Harbor Road Non-Motorized Pathway can be summarized through four key outcomes:

1. **Enhancing Safety:** Provide a protected, off-road facility for pedestrians and cyclists, eliminating conflicts with vehicular traffic along a previously unsafe corridor.

2. Connecting Destinations: Link major parks, campgrounds, and neighborhoods to promote accessibility and community cohesion.
3. Encouraging Active Living: Offer residents and visitors a scenic and functional recreational route that supports health and wellness.
4. Supporting Sustainable Growth: Build infrastructure that aligns with the City's sustainability goals and prepares for future regional trail expansions.



Resulting Impact

The completed pathway now serves as a signature public amenity that is safe, inviting, and aesthetically integrated corridor that celebrates the natural landscape while connecting people to the places they love. What began as a safety-driven infrastructure project has evolved into a model of collaboration and foresight in public works planning, balancing engineering precision with environmental sensitivity and community value.

The Lake Harbor Road Non-Motorized Pathway project exemplifies the power of public works to enhance community safety, accessibility, and quality of life through thoughtful design and interagency collaboration. Completed in 2025, the 2.9-mile pathway connects two of the City of Norton Shores' most treasured public spaces — PJ Hoffmaster State Park and Lake Harbor Park — creating a safe and scenic non-motorized corridor that had been envisioned by residents for over a decade.

A Vision Rooted in Community Need

For years, Lake Harbor Road served as a vital link between popular recreational areas, campgrounds, and residential neighborhoods — yet it posed a daily hazard for pedestrians and cyclists. The two-lane roadway was narrow and uncurbed, with little shoulder and abrupt elevation changes carved into wooded dunes. Despite these conditions, walkers, runners, and families with strollers or bikes frequently used the road to access the parks, beaches, and nature trails that define Norton Shores' coastal character.

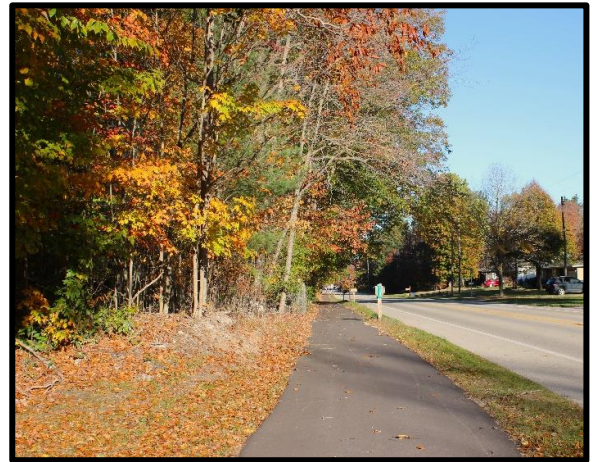
The City of Norton Shores recognized this conflict early. The corridor was identified in the 2019 Bicycle and Pedestrian Master Plan as one of the City's highest-priority routes for non-motorized improvements. Residents, park officials, and visitors consistently expressed the same request during public outreach — *make Lake Harbor Road safer to walk and bike*. The project became a symbol of the City's broader vision: connecting people and nature while promoting health, mobility, and sustainability.

The Lake Harbor Road corridor is uniquely positioned within one of the City's most recreation-rich areas, bordered by PJ Hoffmaster State Park, Lake Harbor Park, Elks Park Campground, and the Maranatha Bible and Mission Conference Grounds. Each of these destinations attracts thousands of visitors annually—hikers, campers, beachgoers, and families—many of whom sought to travel between them on foot or by bicycle long before safe facilities existed.

Despite this concentration of recreation activity, no non-motorized infrastructure connected these parks, leaving users to navigate a narrow, winding roadway with limited visibility and steep roadside slopes. Families walking from the Maranatha campus or Elks Park to PJ Hoffmaster or Lake Harbor often did so inches from live traffic. Residents

and park staff had raised safety concerns for years, especially during peak summer months when pedestrian and cyclist volumes surged.

The new Lake Harbor Road Non-Motorized Pathway directly addresses this long-standing need for safe, interconnected access among these regional destinations. By creating a continuous 2.9-mile route, the pathway now links four major recreational hubs and nearby neighborhoods to the Lake Michigan shoreline—providing both a transportation solution and a recreational amenity. This connection promotes walkability, encourages tourism, and supports the City’s broader vision of an integrated park and trail network that enhances health, mobility, and quality of life for residents and visitors alike.



PJ Hoffmaster Campground Entrance:

Before

After

Turning Vision into Action

The timing of the American Rescue Plan Act (ARPA) presented an opportunity for Norton Shores to act decisively. Recognizing the project’s alignment with federal goals of investing in public health, outdoor recreation, and community infrastructure, the City allocated ARPA funds to initiate design and construction of the pathway.

Eng., Inc. was selected to lead the design, bringing deep local experience in transportation and environmental engineering. From the outset, the team understood that this project would demand a balance of technical precision and environmental stewardship. The corridor passed through residential areas, parklands, wetlands, and steep dune topography, with a narrow 66-foot right-of-way and multiple utility crossings. Achieving continuity while minimizing disruption became the central design challenge.

Through detailed route analysis and field investigations, the design team evaluated both sides of Lake Harbor Road to determine the most feasible alignment. The west side emerged as the preferred option, minimizing the number of roadway crossings and aligning the trail with destinations such as Hoffmaster State Park, Elks Park Campground, and Lake Harbor Park. The result was a route that not only provided safety and efficiency but also offered scenic views of the forested dunes and wetlands that define the region.

Collaborative Design and Stakeholder Engagement

A hallmark of this project was the close coordination among multiple agencies and stakeholders, including:

- City of Norton Shores – project sponsor, funding partner, and managing agency.
- Michigan Department of Natural Resources (DNR) – coordination on grading easements, fencing adjustments, and alignment through the Hoffmaster State Park property.



Lake Harbor Trail After

- Muskegon County Water Resources Commissioner (MCWRC) – review and approval of drainage and culvert design at the Seider County Drain.
- Michigan Department of Environment, Great Lakes, and Energy (EGLE) – permitting under Parts 301 (Inland Lakes & Streams) and 303 (Wetlands Protection).
- Local residents and neighborhood associations, who provided input on alignment, vegetation, and safety concerns.

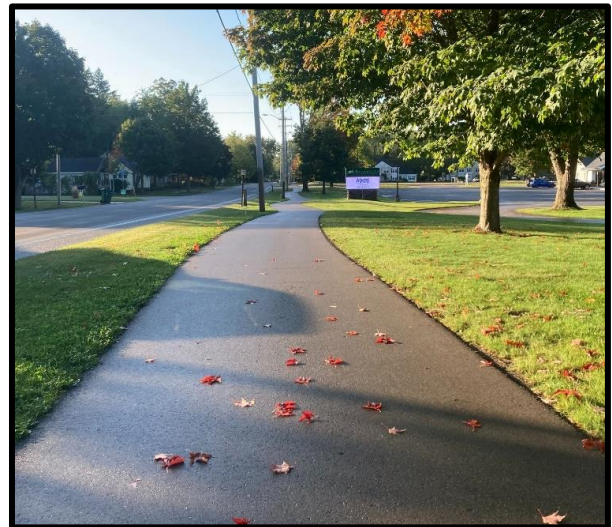
Public engagement occurred throughout design development, including two community information sessions. Residents expressed strong support for the project, particularly for its attention to aesthetics, preservation of trees, and sensitive grading near their properties. These discussions also led to several refinements — including the use of retaining walls to reduce grading impacts and native plantings for slope stabilization.

Notifications and messaging of traffic control directions were accomplished using several different methods of communication, including the following:

- Eng., Inc. corporate website providing project updates on a routine basis.
- Nixle was utilized by the City and provided relevant information to residents directly via email or text message.
- Social Media posts.
- Portable changeable message boards were located throughout the construction influence area.

The communications system kept affected properties aware of potentially changing conditions for traffic control as well as the overall community

Additionally, the City was able to obtain nine (9) grading easements and/or permanent pathway easements by working with City residents and explaining the necessity of the easements and what the finish product of the improvements associated with the project would entail. Ultimately, the acquisition process went smoothly, and all necessary easements were obtained without detriment to the project schedule.



Maranatha Bible & Mission Conference Grounds: Before After

Engineering Challenges and Technical Innovation

Designing within such a constrained corridor required creativity and adaptability. The existing right-of-way varied significantly in slope and soil conditions, particularly near Hoffmaster State Park and the Mona Lake Channel. To overcome these challenges:

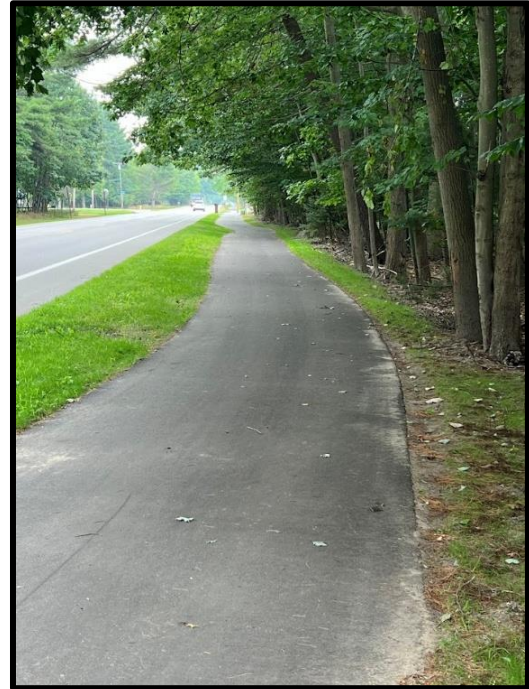
- Adaptive Retaining Wall Systems were used in multiple locations to navigate steep topography without encroaching on private property or sensitive wetlands.
- Stormwater Infrastructure Improvements were incorporated into the design, including an extension of the existing 60-inch RCP culvert at Seider Drain to maintain hydraulic capacity and provide a smooth at-grade crossing for the pathway.

- Utility coordination minimized relocations by adjusting pathway alignment around existing poles and lines.
- Bioengineered slope stabilization and native revegetation were used to restore disturbed areas and blend the new pathway into its natural setting.

The project was designed in accordance with AASHTO's Guide for the Development of Bicycle Facilities, MDOT's 2020 Standard Specifications for Construction, and the City's local design standards. Digital design tools including AutoCAD Civil 3D and MERL software were used to ensure precision, cost tracking, and transparent documentation.



Lake Harbor & Porter Road: Before



After

Construction Excellence

Construction began in summer 2024 and was substantially completed that fall. The contractor, Weick Brothers, Inc., delivered high-quality workmanship under a tight schedule and variable weather conditions. Coordination between the contractor and engineer was seamless, supported by weekly progress meetings, onsite inspections, and real-time field adjustments to address grading, drainage, and access needs.

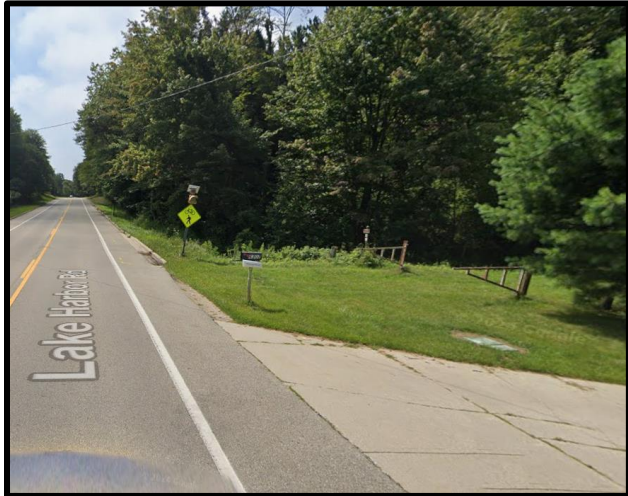
Safety was paramount throughout. Comprehensive traffic control maintained vehicle flow while protecting workers and residents. Daily toolbox talks and regular inspections resulted in zero recordable incidents over the course of the project. Construction documentation followed MDOT QA/QC procedures and utilized Field Manager software for tracking materials, quantities, and pay estimates.

Eng., Inc. provided engineering supervision and full-time construction inspection for the project. The on-site inspector ensured the smooth progression of the project and corresponded with neighboring property owners daily to ensure access was maintained on a daily basis. As part of the on-site duties, SESC inspections were completed on a weekly basis and following every rainfall event and properly documented and relayed to the contractor when correction was to occur. The inspection duties also required the coordination of layout and staking of the pathway, roadway, curb and gutter, storm sewer, and concrete sidewalks. Office personnel prepared all necessary documentation, pay estimates, and contract modifications in accordance with the MDOT Construction Manual and the MDOT Quality Assurance Procedures Manual.

Following completion of construction of each phase, "as-built" record drawings were prepared for future reference at the City.

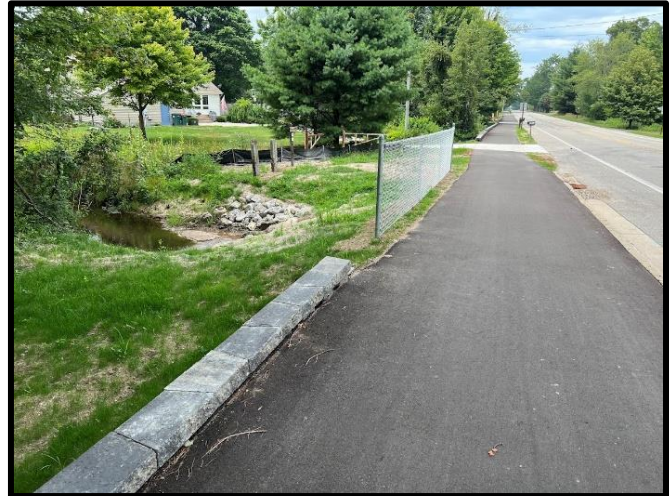
Sustainability, Climate Resilience, and Use of Alternative Materials

Sustainability and environmental stewardship were central to the development of the Lake Harbor Road Non-Motorized Pathway. From material selection to construction practices and long-term resiliency, the project team incorporated a series of intentional strategies that minimized environmental impact, protected sensitive natural resources, and ensured the durability of the infrastructure for decades to come.



Seider Drain Crossing

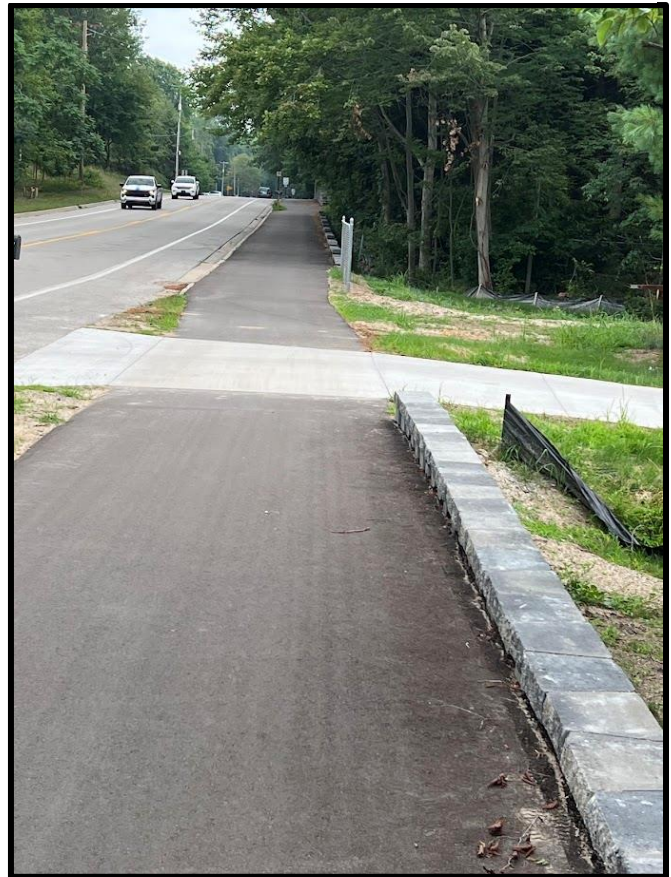
Before



After

A defining sustainability achievement was the project's ability to avoid permanent impacts to the regulated wetlands surrounding the Seider County Drain. Rather than widening the corridor through extensive grading or fill, the design team developed a series of modular block retaining walls that kept the pathway entirely within the existing upland right-of-way. These walls required shallow excavation, reduced material hauling, and eliminated the need for costly wetland mitigation. By preserving the wetlands' natural hydrologic functions, including stormwater detention, filtration, and habitat—the project strengthened the corridor's long-term ecological and climate resilience.

The retaining wall systems also played a vital role in protecting the integrity of the neighboring sand dunes near Hoffmaster State Park. These dunes are highly susceptible to erosion and disturbance, especially during high-intensity rain events that are becoming more common as climate patterns shift. The walls were



Seider Drain Crossing After

strategically positioned to stabilize steep slopes, prevent sand migration, and reduce the risk of roadway washouts. Bioengineered slope stabilization techniques and extensive use of native vegetation were incorporated alongside the walls, improving infiltration, strengthening root structure, and further enhancing long-term stability and resilience.

Sustainable materials and practices were also adopted throughout the pathway's construction. By selecting retaining systems with reduced material footprints and installing them from the upland side, the project

significantly lowered carbon emissions associated with hauling and earthmoving operations. The pathway's HMA pavement section was designed using geotechnical data to ensure long-term performance and reduce lifecycle maintenance needs—an important consideration for long-term sustainability.

Stormwater management played a key role in the project's resiliency strategy. Existing drainage patterns were preserved where feasible, minimizing disturbance to the natural hydrology of the corridor. Native plantings were integrated into restoration areas to increase absorption capacity, reduce erosion, and support a stable, low-maintenance landscape capable of withstanding increased precipitation intensity associated with climate change.

The project also demonstrated a sustainable and forward-thinking approach to funding. The City strategically used American Rescue Plan Act (ARPA) funds to invest in a low-impact transportation asset that advances public health, reduces vehicle dependency, enhances recreation opportunities, and carries a low long-term maintenance burden. This multimodal, multi-benefit use of federal relief funding aligns closely with modern sustainable infrastructure priorities.

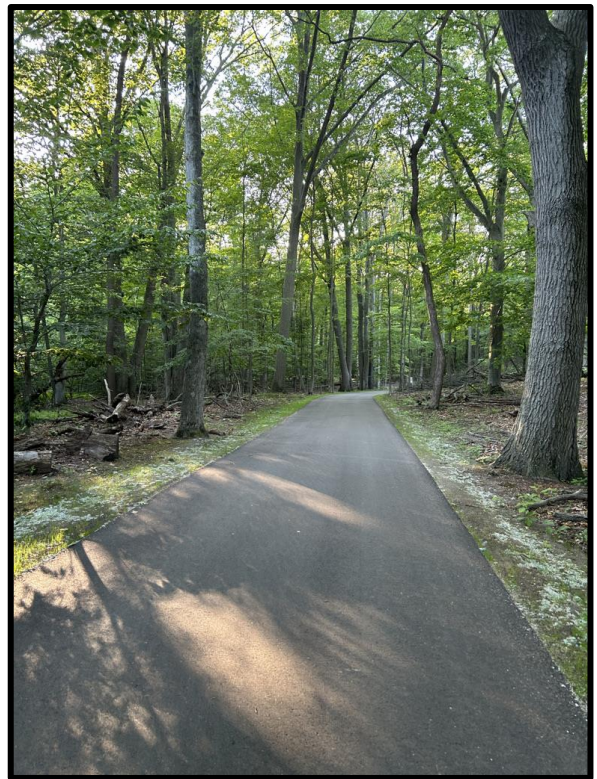
While the project was not formally certified under a sustainable infrastructure rating system, it embodies many of the principles found in frameworks such as the Envision rating system—including habitat preservation, reduced material consumption, community health benefits, context-sensitive design, and long-term resilience. Through these combined efforts, the Lake Harbor Road Non-Motorized Pathway stands as a model of how thoughtful engineering and sustainable practices can create public works infrastructure that protects natural resources, enhances climate resilience, and delivers lasting value to the community

A Model for Sustainable and Community-Centered Infrastructure

Environmental protection guided every design and construction decision. Rather than clear-cutting wide corridors, the team worked to preserve mature trees and natural contours, introducing only minimal grading where necessary. Wetland boundaries were carefully delineated, and retaining walls were positioned to avoid direct impacts. The use of native and bioengineered plantings not only stabilized slopes but also enhanced ecological value and reduced long-term maintenance needs.

The pathway's benefits extend beyond safety and mobility — it serves as a recreational and economic catalyst, attracting residents and visitors to Norton Shores' parks, beaches, and local businesses. It supports the City's goals for sustainability, active living, and climate resiliency by promoting low-impact transportation and outdoor recreation.

A site visit and analysis of the existing landscape conditions located throughout the roadway segment was completed early in the project to provide a first-hand understanding of the tree health, species, and canopy condition. The understanding of the existing conditions allowed the team to pursue the development of a planting layout which protected the mature trees along the corridor. During the preliminary design the team was able to identify the ideal location for the proposed trail to allow for optimal tree planting as well as the preservation of healthy trees.



Hoffmaster State Park Mature Trees Preserved

The proposed improvements to the existing storm water systems along the trail route also considered soil infiltration systems with consideration given to the use of environmentally friendly management practice and ultimately involved the placement of infiltration basins and riprap spillways within the rights-of-way. Due to the project's site location within an MS4 community, the design considered Best Management Practices for water quality including leaching basins and sumps.

A defining engineering challenge of the Lake Harbor Road Non-Motorized Pathway was navigating the corridor's mix of wetlands, steep slopes, and sensitive sand dunes, particularly near Hoffmaster State Park and the Seider County Drain. Traditional grading methods would have required extensive earth disturbance and potential encroachment into protected areas. To avoid these impacts, the design incorporated a series of engineered

retaining walls that allowed the pathway to maintain its intended grade while protecting adjacent wetland habitats and dune systems.

The retaining walls—constructed from modular block and timber-faced systems—were carefully located to fit within the 66-foot right-of-way and minimize excavation. Several wall sections were specifically designed to stabilize dune faces and preserve the natural contours of the landscape, preventing erosion and safeguarding the character of the area. Other wall segments were placed near wetland boundaries to avoid fill within regulated areas, eliminating the need for costly mitigation.



Retaining Wall at Lake Harbor and Hendrick Before

The team also conducted a review of the project location to determine if any federal or state threatened and endangered species (T&E) and habitat were potentially present. The review included an analysis of the U.S. Fish & Wildlife Service Information for Planning and Consultation for any potential known threatened or endangered species in the area. A request was also sent into the Michigan Natural Features Inventory (MNFI) for a rare species review of the site and within 1.5 miles of the site. Aerial photographs were used to determine if the habitat type was potentially appropriate for the threatened and endangered species identified. Ultimately, no T&E species or habitat was identified within the project limits.

Permitting was a critical element of the project. Permits were also obtained from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) in accordance with Part 301/303 for inland lakes and streams and wetland protection, and the Muskegon County Department of Public Works for Soil Erosion and Sedimentation Control compliance.

A Legacy of Connection

Today, the Lake Harbor Road Non-Motorized Pathway stands as a tangible example of what can be achieved when vision, planning, and collaboration align. What was once a narrow and hazardous corridor has been transformed into a safe, accessible, and scenic route that links people with the natural and recreational amenities that define their community.

Since completion, the Lake Harbor Road Non-Motorized Pathway has received overwhelmingly positive feedback from residents, park visitors, and local organizations. What was once considered a dangerous and uncomfortable stretch of roadway has been transformed into one of the community's most appreciated public amenities.

Neighborhood residents frequently comment on how much safer and more enjoyable it is to walk or bike along Lake Harbor Road, and many have made the pathway part of their daily routines for exercise and recreation. Families

Each wall was engineered with shallow foundations to reduce ground disturbance and was integrated with bioengineered slope stabilization and native vegetation to enhance long-term resilience. Together, these measures created a stable, low-impact corridor that protects both the built and natural environments. The result is a pathway that blends seamlessly into its surroundings—preserving the dunes and wetlands that make Lake Harbor Road one of the most scenic corridors in West Michigan.

Retaining Wall at Lake Harbor and Hendrick After



now use the trail to reach nearby parks, and seasonal visitors staying at Maranatha or Elks Park Campground have expressed gratitude for the safe, scenic connection to PJ Hoffmaster State Park and Lake Harbor Park.

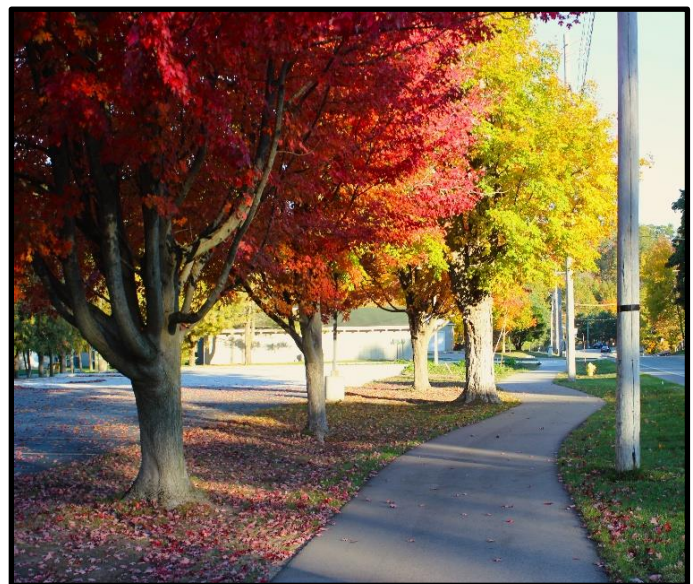
The project has become a point of community pride frequently highlighted on the City's social media and tourism materials. Residents have praised the project's thoughtful design, its sensitivity to the surrounding environment, and its ability to bring people together outdoors. The pathway has quickly become a defining feature of Norton Shores' identity — a lasting example of how public works can strengthen community connections and enhance quality of life.

The project demonstrates the best of public works — a partnership between local government, engineers, contractors, and citizens, all united by a common goal: to make the community safer, healthier, and more connected for generations to come.

Additional After photos



Mona Lake Bridge at Lake Harbor Park



PJ Hoffmaster State Park and Campground

