Prein&Newhof

Proposal

IN MI River Valley Trail Extension
Shared Use Trail Design Engineering & Cost Estimate Services

Prepared for:
Southwest Michigan Planning Commission

Submittal Date:
06/15/2020

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

June 2, 2020

Mr. Kris Martin
Southwest Michigan Planning Commission
376 W Main Street
Benton Harbor, MI 4902

Dear Mr. Martin and Members of the Proposal Review Committee:

Thank you for asking Prein&Newhof to submit a proposal for the preliminary design of the proposed IN MI River Valley Trail Extension in Berrien County.

We are excited about your project and offer the following as to why we believe Prein&Newhof's trail design team has the most expertise and can help you with all the stages of this trail project.

- Prein&Newhof is one of Michigan's leading trail design firms. We have designed and overseen construction for almost 400 miles of trails since designing our first one near Holland in the early 1980s.
- Scott Post, PE, will be the Project Manager, lead designer, and primary contact. He has a broad range of experience and an excellent reputation with trail design. He loves working with his clients and the public in developing their trails and trail systems. People get emotionally involved with trails (he is excited to should share his stories)! He welcomes the challenge of working with your study group and the public and gaining consensus. Unlike most civil engineers, he majority of his professional practice has been related to non-motorized transportation engineering and includes:
  - 25 years of engineering experience—22 being primarily trail design.
  - Significant current projects such as the Spoonville Trail and Grand River Greenway/Explorers Trail in Ottawa County, and helping Plainfield Township in Kent County start a trail system.
  - His projects include $20 million in trail funding programs expertise, including Michigan Department of Transportation (MDOT), Michigan Department of Natural Resources (MDNR) and their grant programs such as the Trust Fund.
  - Design and project management for almost 400 miles of non-motorized trails.
  - Extensive MDOT design experience using American with Disabilities Act Accessibility Guidelines (ADAAG) and the American Association State Highway Transportation Officials (AASHTO) standards.

  - Being an active speaker, moderator, and participant in trail organizations and events, including his role as the Vice Chair of the West Michigan Trails and Greenways Coalition.

- Trails are public assets and the public loves to be involved in the planning for them. We have excellent people skills and significant public engagement experience. Plus, our Landscape Architect, Matt Levandoski's artistic talent produces exceptional exhibits and drawings which our clients use to promote their trail projects to stakeholders and grant agencies.
- Prein&Newhof's trails team has navigated some lesser-known stumbling blocks which can stop a grant-funded project. We have also completed designs on projects where the original engineer was unfamiliar with MDOT's design customs. We have experience with unique design solutions to narrow right-of-ways (ROW), river and road crossings, bats, mussels, historic reviews, and a plethora of other issues that can often derail projects.

The team of Prein&Newhof is eager to work with the Southwest Michigan Planning Commission, your study team, and the public. Please contact me if you have questions about this proposal or project. We look forward to the opportunity of meeting with you to discuss your project in greater depth.

Sincerely,

Prein&Newhof

Scott Post, P.E.
t. 616-364-8491
c. 616-485-0281
spost@preinnewhof.com

Contents

Project Understanding

We understand that Southwest Michigan Regional Commission has $13,000 currently available to begin the process toward final design of this section of the IN MI River Valley trailway. We believe this is a sufficient amount to confirm the preliminary work that has been done, review current trail conditions, and complete a preliminary design, map and cost estimate for the leadership team to review and approve, and present to the public for buy-in.

We feel that $13,000 will essentially bring you through Items A and B of the potential project deliverables outlined in the proposal.

We propose the following scope items:

1. After you accept our proposal, we will convene a kickoff meeting with you and your leadership group. We will confirm your expectations and our understanding of the project. Prein&Newhof's Project Manager Scott Post and Engineer Ryan Russell will attend this meeting. Before we meet, we will drive the proposed route(s), study as much existing background information as we can, including the conceptual routing. This includes geographical information system (GIS) parcel and topographic maps (if available), your concept plan and development guide, as well as any other documents which will help us with preliminary design.

   Kickoff meeting discussion items include:

   - Establishing clear points of contact between our teams
   - Your expectations for effective communication and preferred styles
   - Trail surfaces and design and schedule
   - MDOT and other funding
   - The potential for easements or property acquisition
   - Any other items of importance to you and the project

2. After the kickoff meeting, we recommend walking/driving the proposed route(s) with your study group to talk about specific items related to its location and design. We have learned the best way to design a trail is to look at the proposed route with our client and their stakeholders. A "boots on the ground" group can discuss options, consider unique routing opportunities, and talk about specific points of interest.

Sometimes, there are tradeoffs among preferred locations, costs, practicality, and permitability. They are best identified and talked about in an onsite group setting. An onsite review can be an educational and consensus-building process for your study group. Scott Post and Ryan Russell will join this group for the adventure and offer their advice and input. As indicated earlier, Scott has many years of experience and an eye for making a trail unique by translating his perspective into a valuable user experience. We will talk about areas of interest including the road crossings, wetlands, amenities, structures, interpretive opportunities, and signage.

3. Once we have walked and thoroughly examined the route, we will create a conceptual plan in GIS noting all of the important locations identified. We intend that this plan will be used as an exhibit at leadership and public meetings in the future. Matt Levandoski, our team's Landscape Architect, will use this information to draw a character sketch of a particularly "trademark" location along the proposed trail to show off the project and what can be done. In addition, we have many project photos of similar locations and opportunities, including rail trails through the woods, re-decked trestles , sidepaths along roads, overlooks, etc., that we will provide for you to use when showing off possibilities for you project. We will also use this plan to estimate the costs for National Environmental Protection Act (NEPA) and State Historic Preservation Office (SHPO) clearance, including threatened and endangered species, possible archeological review, wetland determination, and Michigan Environment Great Lakes & Energy (EGLE) permitting. This plan will also give us the information we need to create the estimate for all geotechnical and topographical survey work.

4. Using the information from the walk and the plan, we will create a thorough and accurate construction estimate based on current project costs. We manage our own trail cost database which we use to develop our construction cost estimates. We check our estimates against open-source construction cost data, including MDOT’s Michigan Engineers' Resource Library (MERL) database. Your cost estimate will be compatible with all MDOT grant rules. Estimating project costs is an important facet of the grant application process— the estimate will be thorough and accurate and can be used for grant applications and other fund raising for your project.

5. When the conceptual plan and estimate are ready, we look forward to meeting with your leadership team to review the information. This gives us the opportunity to listen and see your opinions on the preliminary design so we can adjust, as necessary.

6. With the design and estimates approved by you, we will present the information at a public meeting for information and input. Scott and Ryan are respectful professionals with personalities conducive to collaboration and building trust. Trail stakeholders need to know you value their input and will consider their opinions in order to design the trail to meets their needs and eliminate or mitigate their concerns.

7. In our experience, trail projects generate a lot of buzz—some not necessarily good. Effectively dealing with the public and property owners is essential to this project's success. Scott and Ryan will do an excellent job in public settings.

   In Scott's career, he has experienced a lot—including a woman who laid down in front of a bulldozer clearing the way for a new trail! After patient conversations about the project, we were able to reassure her that we would protect her flowerbed, and she eventually warmed up to the project. The majority of his professional practice has been related to non-motorized transportation engineering and in his experience issues similar to this are a common occurrence. We are confident in our ability to work with all types of people.

Upon acceptance of our proposal, we will set this process in motion to have these phases of the project complete by September 30, 2020. See Pages 33-34 for a fee table and schedule.

Per the Request for Qualifications (RFQ), we were asked to provide a fee to complete Phases C through G. While we would like to provide a fee for this work, we believe it would be advantageous to your process to complete the first phase first to ensure the scope of project is on point so that you have an accurate estimate of what will be required in the following phase. Based upon what we already know about the project, we feel it is important to gather background research and preliminary design information from Phases A and B to better make decisions moving forward into final design. This work will determine many significant design features, including wetland mitigation, boardwalk, culverts, etc. It will be upon completion of these phases that we will then be able to accurately design the trail and determine what permitting will be necessary, including the NEPA and SHPO requirements. We will be happy to provide a fee to you once there is a better understanding of what will be best for you and this project.

Please read through our experience and the depth of our team. We are the leaders and visionaries with trails and pathways design. Your project is a unique and an important connection for the Berrien County region. We want to be on your team moving this project forward!

Firm Information & Project Team

At Prein&Newhof, our goal is to serve our clients wisely – meeting their infrastructure needs with a combination of experience, integrity, creativity, and common sense.

For over 50 years, Prein&Newhof has been serving township, municipal, and private clients across Michigan. Because every situation is different, we put a high value on personal attention. Our main goal is to see farther. We are dedicated to crafting flexible, long-term solutions rather than quick fixes, because we want the best for our clients and for Michigan.

History

Begun by Tom Newhof and Ed Prein in 1969, Prein&Newhof was founded on the belief that each engineer should take personal responsibility for meeting his or her clients' needs – building long-term relationships and managing each project from start to finish, from preliminary design to final construction. Today, we are the engineer of choice for over 50 communities across Michigan.

Employees

Prein&Newhof is 100 percent employee-owned with 150 full-time personnel, including engineers, surveyors, drafters, geologists, chemists, communication specialists, and support staff.

Professional Services

At Prein&Newhof, we are constantly developing our skills to serve our clients better. Our primary services include the following:

- Municipal Engineering
- Water & Wastewater
- Stormwater Management
- Roads & Trails
- Airports
- Private Development
- Asset Management
- Landscape Architecture
- Environmental Consulting
- Laboratory Testing
- Structural Engineering
- Geotechnical Engineering
- Surveying
- GIS & Mapping

Locations

Our Values

Invest Wisely
Develop Relationships
Take Responsibility
Build Expertise
Support Community

Our strength lies in our dedication to thinking ahead, building lasting relationships, and crafting long-term solutions.

Project Team

Project Manager

Scott Post, PE, will be your Project Manager and your single-point of contact. He is a veteran non-motorized trail designer who will direct all professional team members and support staff including surveying, drafting, and clerical assistants. He will manage all deliverables including reports, billing summaries, meeting minutes, mapping, and design.

Scott has almost 400 miles of non-motorized trail design and construction experience.

Scott has almost 400 miles of non-motorized trail design and construction experience. Saving trees, dodging obstructions, and minimizing construction-related resource destruction are second nature to him. His experience negotiating easements and a keen understanding of costs, design standards, permitting, and funding agency rules is a decided advantage.

Scott is a popular engineer known for his ability to work with people, and he excels in public meetings. He has the ability to understand people's needs and to meet them with elegant, well-designed, and cost-effective solutions. He is a hands-on engineer with an eye for beauty. Scott understands construction and its challenges and thinks through constructability issues before designing projects. Scott's experience with many types of non-motorized trail projects all over Michigan gives him an exceptional big-picture perspective on his work.

Engineer

Ryan Russell, PE, will help Scott route this trail, focusing on making it a place and space where people will enjoy memorable experiences. Ryan will join Scott at leader group and public meetings. He will work alongside Scott to develop the program

Landscape Architect

Matt Levandoski, PLA, joined Prein&Newhof's team in 2015 from the Ottawa County Parks and Recreation Commission where he worked on their award-winning parks and trail systems. Besides landscape architecture, Matt's expertise includes graphic design, virtual renderings, and interpretive and directional signage. He also understands the environmental impacts and challenges of routing and building non-motorized trails.

Matt's expertise also includes graphic design, virtual renderings, and interpretive and directional signage. He also understands the environmental impacts and challenges of routing and building non-motorized trails.

Environmental Review/NEPA/SHPO

Katie Monroe, PE, has significant engineering experience working on rehabilitation and reconstruction projects for roadway agencies. She has performed numerous hydrologic and hydraulic analyses and designs including drainage studies and developing recommendations for improvements on public properties, culvert designs, and storm sewers, as well as for bridge hydraulics and scour analysis.

Traffic Engineer

Scott Tezak, PE, has over 13 years of experience as a transportation engineer. He has extensive experience with traffic engineering studies, impact analyses, design traffic signals, street lighting, maintenance-of-traffic (MOTs) plans and permanent pavement signs and markings.

Structural Engineer

Devin Brown, PE, designs trail structures to include resting decks, boardwalks and retaining walls. He understands AASHTO's unique design standards and his designs meet AADAAG and all other building code rules.

Team Leader

Thomas Wheat, PE, is the Team Leader of the Prein&Newhof Kalamazoo office, and has a wide-range of experience and expertise on a variety of projects. Tom will be available for project oversight.

Technical Advisor

Brian Vilmont, PE, is a team leader for Prein&Newhof who ensures correct execution of the project scope and timely delivery of project documents. Brian has over 25 years of experience in civil engineering and has worked on multiple projects throughout West Michigan.

Surveying, GIS, Mapping, and Drafting

Prein&Newhof has in-house surveying, GIS, mapping, and drafting resources available for this project.

Scott T. Post, PE

Project Manager

Scott is recognized as one of Michigan's premier multi–use non–motorized pathway designers. He has designed or managed over 150 miles of trails for many communities throughout West Michigan. Scott excels at finding solutions that satisfy both residents and community leaders.

Scott has experience with both private and municipal clients, and has worked extensively with MDOT on Local Agency Projects, as well as with the MDTMB, the MDNR and other state agencies. He is very familiar with MDOT trail specifications, knowledgeable about current AASHTO & ADA requirements, and experienced with the administration and testing required for grant–funded projects.

He also has extensive experience with acquisition and administration of grants, such as MDOT's Transportation Alternatives Program (TAP), Transportation Enhancement Program, the Congestion Mitigation and Air Quality (CMAQ) program, and the MDNR's Natural Resources Trust Fund. Scott has also successfully combined these grants on several projects to maximize grant funding used.

While his primary emphasis is trail design, Scott serves as a Project Manager and Project Engineer for other types of projects, including water, wastewater, and stormwater systems, site design and development projects, and site condominium projects.

Education

Bachelor of Science, Civil Engineering

Calvin University, 2000

Registrations

Engineering Michigan, 2000

Certifications & Training

AASHTO Bicycle Facility Design Training: Training Wheels, MDOT

Designing Pedestrian Facilities for Accessibility, APBP & ACEC

Introduction to Pedestrians & Bicycle Safety, Planning & Design, MSU

PSMJ Project Managers Bootcamp I

Professional Activities

American Society of Civil Engineers

West Michigan Trails & Greenways Coalition

Rails to Trails Conservancy

Professional History

Prein&Newhof, 1995-Present

25 years in Industry

Representative Projects

- **Grand Traverse County/City of Traverse City:** West Boardman Lake Trail Loop: Preliminary Design and Final Design
- **Village of Elk Rapids:** Preliminary Design Acme to Elk Rapids segment of the TC to CHX Trail
- **Ottawa County Parks and Recreation:** Grand River Greenway, Musketawa Trail Extension, Holland State Park Path Extension and Boardwalk, Spoonville Trail Phases I and II
- **City of Ionia:** Grand River Valley Rail Trail, Saranac to Ionia and Bridge over M–66
- **Cannon Township:** Townsend Park Trail, Cannon Trail

- **Comstock Park Downtown Development Authority:** White Pine Trailhead and Trail Extension
- **Jamestown Charter Township:** 24th Avenue Non–Motorized Pathway, Riley Street Pathway and Bridge
- **Laketown Township:** Beeline Trail, Holland to Saugatuck
- **Port Sheldon Township:** West Olive Road Path & Bridge, Croswell Street Path
- **Saugatuck Township:** Blue Star Trail, Blue Star Trail TAP Grant Update
- **City of Greenville:** Fred Meijer Flat River Trail
- **Holland Charter Township:** Adams Street Path Bridge over I–196, 104th Avenue and Mason Street Path
- **Clinton Ionia Shiawassee (CIS) Rail Trail, Ionia to Owosso (Michigan DTMB / Michigan DNR)**
- **Zeeland Charter Township:** 64th Avenue Non–Motorized Pathway, Adams Street Path
- **Macatawa Greenway Project:** Zuidema Farm Trail

Presentations

"Renovate your Road" Michigan Transportation Planning Association (MTPA) Conference, July 2019

"The Three Amigos of Trails" Institute of Transportation Engineers (ITE) Great Lakes Conference, April 2019

"Trails as Green Infrastructure." Michigan Recreation and Parks Association (mParks) Trail Summit, February 2018

"If you build it, they will come." Michigan Society of Professional Engineers (MSPE), October 2017

"Trails, Rivers, and Roads, Oh my!" American Public Works Association (APWA) Great Lakes Expo, May 2017

"Why did the engineer cross the road?" Institute of Transportation Engineers (ITE) Conference, June 2016

Awards

Fred Meijer Trail Champion

Champion Trail Professional, 2018

West Michigan Trails & Greenways Coalition

Fred Meijer Grand River Valley Trail & Bridge over M-66, City of Ionia

Quality of Life Award, 2016

American Society of Civil Engineers, Michigan Section

Project of the Year- Quality of Life, 2016

American Public Works Association, Michigan Chapter

Fred Meijer Grand River Valley Trail, City of Ionia

2013 Project of the Year

American Public Works Association, Michigan Chapter

Education

Bachelor of Science, Civil Engineering
Western Michigan University, 2010

License

PE Michigan, 2019

Certifications

Soil Erosion and Sedimentation Control

MDOT Computerized Office Technician

FAA Drone Pilot License

Professional History

Prein&Newhof, 2017-present

City of Kalamazoo, 2012-2017

MDOT, 2010

Ryan Russell, PE

Engineer

Ryan joined Prein&Newhof in 2017 with five years of experience in civil engineering. He began his career as a survey intern for MDOT, and then joined the City of Kalamazoo working in traffic engineering, then expanded his role to site design and transportation design projects.

Ryan's experience working directly for the City and now on the consultant side gives him a unique and valuable perspective, giving him insight into the needs and challenges our clients face.

At Prein&Newhof, Ryan has become an important team member on transportation and non-motorized projects. Ryan has experience working with various local and state agencies, such as Friends of the Kalamazoo River Valley Trail, City of Kalamazoo Parks and Recreation, MDOT, MDNR and EAGLE. His experience includes administering projects with these agencies utilizing Federal funding such as MDOT TAP and Safe Routes to School programs, and state funding with the Trust Fund. He has designed and inspected numerous non-motorized projects and has extensive knowledge of AASHTO and ADA requirements.

Representative Projects

- **Kalamazoo Charter Township:** Non-Motorized Improvements
- **City of Kalamazoo:** Portage Creek Trail, 2020 KRVT Extension, KRVT Downtown Trail North & South Extension, Gull/Ransom 2-Lane Roundabout, Downtown Kalamazoo River Valley Trail Extension, Bank Street Reconstruction, Kalamazoo Farmers Market Site Improvements
- **Village of Lawrence:** CMAQ Trail-St. Joseph To Corwin
- **Texas Charter Township:** Texas Corners DDA Sidewalks
- **Oshtemo Charter Township:** Stadium Drive One Way Path
- **City of Charlotte:** State and Lincoln Streets Reconstruction
- **Kalamazoo Public Schools:** KPS Transportation Facility-Ravine Road

Matt Levandoski, PLA

Landscape Architect

Matt joined Prein&Newhof in 2015 with over 15 years of experience working on a variety of public and private sector projects. He has the ability to listen to the unique needs and challenges of each project and blend them with a keen eye for quality, aesthetics, and user experience that make for successful site design.

Matt has experience managing all aspects of planning, design and construction administration of new and renovated K-12 and collegiate athletic fields, parks, bike paths, playgrounds, drives, and parking lots. For private and municipal sector clients he worked on green roofs, rain gardens, streetscapes, fountains, splash pads, native prairie plantings, entry landscaping, healing gardens, and storm water detention and retention systems.

Matt has also worked as a County parks planner and learned to appreciate the needs, challenges, and hard work involved with being a public servant. His responsibilities included project management and design, managing park GIS and map databases, writing and acquiring State and local grants, working on the 5-year Parks and Recreation Plan, coordinating with volunteers and operations staff, and designing numerous maps and signs.

In addition to project experience, Matt has a talent and love for drawing, illustration, and graphic communication in both 2D and 3D. Through a combination of hand and digital techniques, Matt can graphically bring a design to life, helping clients and their stakeholders make informed decisions earlier in the process.

Representative Projects

- **Charter Township of Garfield:** Dendrinos Drive & Cass Street Pathway (west Boardman Lake Trail Loop
- **City of Hastings:** Non-Motorized Trail & Sidewalk Master Plan
- **City of Hudsonville:** 22nd Avenue MDOT Tap Application & Non-motorized Pathway Design Engineering
- **City of Traverse City:** West Boardman Lake Trail Final Design & Construction Engineering-

Education

Bachelor of Landscape Architecture

Michigan State University, 2004

Registrations

Landscape Architecture Michigan, 2008

Certifications & Training

'The Disney Way' Customer Service Training – Bill Capodagli

Accessibility Awareness Training Disability Network Lakeshore

Cultural Intelligence Training Lakeshore Ethnic Diversity Alliance

Gold Standard Leaders Certification Conflict Resolution, Performance Evaluations, Etc.

PSMJ Project Managers Bootcamp

Professional Activities

American Society of Landscape Architects

Professional History

Prein&Newhof, 2015-Present

16 years in Industry

- **Grand Haven Charter Township:** Buchanan Street & Sleeper Street Non-motorized Pathway
- **Grand Traverse County Parks & Recreation:** Medalie Park Improvements & Bridge Over Boardman River
- **Grand Traverse County:** West Boardman Lake Trail
- **Jamestown Charter Township:** 24th Avenue Non-motorized Pathway, Riley St. to Outback Dr.
- **Michigan Department of Technology, Management and Budget:** Grand River Greenway, Bass Lake Recreation Area
- **Ottawa County Parks & Recreation:** Grand River Greenway
- **Ottawa County Planning and Performance Improvement:** Spoonville Trail Phase I & II
- **Park Township:** Greenly Street Non-Motorized Pathway
- **Plainfield Charter Township:** Township Hall Trail Access
- **Village of Elk Rapids:** Preliminary Design Services, TC to CHX Trail: Acme Twp to Elk Rapids

Katherine Monroe, PE

Engineer

Katie has worked on many Road Commission and MDOT projects prior to joining Prein&Newhof in 2013. She is experienced in roadway design, bridge design, preparation of plan and profile sheets, project quantity calculations and estimates, environmental and project-specific permits, hydraulic engineering, and coordination of easements and grading permits. Katie was previously with Wilcox Professional Services and Rowe Inc., and gained experience in civil engineering in transportation and bridge projects. In addition, she is well-versed with MDOT funding programs.

Education

Bachelor of Science, Civil Engineering

Michigan Technological University, 2006

Registrations

Engineering Michigan, 2010

Certifications & Training

Compliance Plan Training 2019

Advanced Culvert Hydraulics with HEC-RAS

Advanced GeoPak Training

Advanced Roadsoft Training

American Disabilities Act Training

Roadsoft User Conference (RUCUS)

Roadsoft: Culverts

Soil Erosion and Sedimentation Control

Professional History

Prein&Newhof, 2013-Present

14 years in Industry

Representative Projects

- **Spring Lake Township:** Cleveland Street (M-104) Non-Motorized Path-Krueger to Fruitport Rd
- **Michigan Department of Technology, Management and Budget:** Clinton, Ionia & Shiawassee Multi-use Trail
- **Newaygo County Road Commission:** Feasibility Study for Development of County-wide Pathway System
- **Ottawa County Parks & Recreation:** Grand River Explorers Trail Eastmanville Connector Trail
- **City of Harrison:** Harrison Pedestrian/Bicycle Master Plan
- **Grand Haven Charter Township:** Mid-Block Crosswalk Study
- **City of Ionia:** Non-Motorized Bridge over M-66

Education

Bachelor of Science, Civil Engineering

Michigan Technological University, 2006

Registrations

Engineering Michigan, 2018

Certifications & Training

Highway Capacity Software (HCS)

Michigan Traffic Sign Inventory System Training (MTSIS)

Synchro/Sim Traffic

Professional Activities

Institute of Transportation Engineers

American Society of Civil Engineers

Professional History

Prein&Newhof, 2018-Present

13 years in Industry

Scott Tezak, PE

Engineer

Scott is experienced as a Transportation Engineer and has extensive experience with traffic engineering studies, impact analyses, design of traffic signals, ITS systems, roadway lighting, maintenance-of-traffic plans, signage plans, and pavement marking plans.

Scott's experience encompasses a wide-range of projects in the civil engineering field specializing in traffic and transportation engineering at both the state and local levels. He also has significant experience in land development and construction management. He has worked with teams on full-phase site development, due diligence, traffic studies and design, utility layout, grading, and drainage plans. Scott has experience in project permitting, construction documents, opinions of probable cost, project schedules, reports, and coordination with the client, city officials and architects.

Scott has designed projects involving signing and pavement markings design, traffic control and construction phasing design, traffic signal, ITS/interconnect, High Intensity Activated Crosswalks (HAWK), bicycle and pedestrian crossings, and roadway lighting. He has also been involved with access control analysis and signing and striping rehabilitation projects, and is well-versed in resolving circulation issues for public schools and private developments.

Representative Projects

- **City of Rockford:** CDBG Courtland Drive Sidewalk Phase 2
- **Grand Haven Charter Township:** Mid-Block Crosswalk Study
- **Caledonia Charter Township:** Non-Motorized Pathway, Phase 1b
- **Holland Charter Township:** Quincy Street Non-Motorized Pathway CMAQ
- **City of Grand Rapids:** Sidewalk Improvements In Plainfield I-96 To 390' N of Salerno Dr
- **Oshtemo Charter Township:** Stadium Drive One Way Path

Devin Brown, PE

Structural Engineer

Devin joined Prein&Newhof in 2014 from a firm in California where he directed and performed structural project engineering, project and office management, and client relations. His structural design experience consists of wood, masonry, steel, and concrete structures for projects spanning a range of architectural building structures and water/ wastewater civil structures for public and private clients.

Education

Master of Civil Engineering

University of Notre Dame, 2004

Bachelor of Science, Civil Engineering

New Mexico State University, 2001

Registrations

Engineering Michigan, 2014

Certifications & Training

Professional Activities

Structural Engineers Association of Michigan

Professional History

Prein&Newhof, 2014-Present

17 years in Industry

Representative Projects

- **Caledonia Charter Township:** Non-Motorized Pathway, Phase 1b
- **Cannon Township:** Townsend Park to Cannonsburg Trail
- **City of Hudsonville:** 22nd Avenue MDOT Tap Application & Non-motorized Pathway Design Engineering
- **City of Ionia:** Non-Motorized Bridge over M-66
- **City of Kalamazoo:** Portage Creek Trail
- **City of Montague:** Old Channel Trail Pedestrian Bridge Assessment
- **City of Otsego:** Courtland Drive Sidewalk Phase I
- **City of Traverse City:** West Boardman Lake Trail Final Design & Construction Engineering-
- **Georgetown Charter Township:** Rush Creek Pathway
- **Grand Haven Charter Township:** Buchanan Street & Sleeper Street Non-motorized Pathway, Non-Motorized Path Retaining Walls Condition Assessment
- **Grand Traverse County Parks & Recreation:** Medalie Park Improvements & Bridge Over Boardman River
- **Grand Traverse County:** West Boardman Lake Trail
- **Holland Charter Township:** Quincy Street Non-Motorized Pathway CMAQ
- **Kalamazoo Charter Township:** Non-Motorized Improvements
- **Kent County Fiscal Services:** City of Walker CDBG Hillside Sidewalk
- **Meijer, Inc.:** Fitness Trail Network
- **O'Boyle Cowell Blalock & Assoc.:** Grand River Ravines Site Development, South Central Portage Bikeway

Education

B.S. Engineering
University of Michigan, 1988

License

PE Michigan, 1995

Certification & Training

Certified Storm Water Operator

Soil Erosion and Sedimentation Control

Designing and Managing Wastewater Pumping Facilities

Design and Construction Aspects of Trenchless Technology

Project Managers Boot Camp

Professional Liability Seminar for Design Professionals

Professional Activities

National Society of Professional Engineers

Michigan Society of Professional Engineers

Professional History

Prein&Newhof, 1997–present

Wilkins & Wheaton, 1992–1997

City of Los Angeles, Engineering Dept., 1989–1990

Thomas C. Wheat, PE

Senior Project Manager

Tom is involved in many aspects of municipal engineering, including water and wastewater systems, roadways, stormwater systems, and construction management. His duties include acting as Township or Village Engineer for several Kalamazoo area municipalities.

Tom has also worked extensively with two Sewer & Water Authorities in Kalamazoo County, as well as the Kalamazoo Regional Water and Wastewater Commission and serves on its joint administration and technical committee. This group is comprised of the area's water and wastewater customers (townships and cities). These duties require Tom to act in a leadership role, as it relates to proper municipal infrastructure planning and development.

Tom works on many private projects such as plats, site condominiums, and planned unit developments that require the design of water, wastewater, stormwater, and road systems. This private work also includes site plans for commercial projects that include parking lot layout, stormwater treatment and retention, and compliance with local codes.

Representative Projects

- **Kalamazoo Community Mental Health Services:** Parking Lot Renovation
- **Eliason Nature Preserve:** South Central Bikeway Non-Motorized Trail
- **City of Galesburg:** Downtown Improvement Project
- **Visser Construction:** West Port Village Condominiums
- **City of Portage:** 2011 Major Road Reconstruction Program
- **City of Parchment:** River Reach Development
- **Kalamazoo Township:** Lorand Prairie Sidewalk and Westwood Intersection Infills
- **Kalamazoo County Road Commission:** Sprinkle Road Reconstruction, Texas Drive Realignment
- **City of Parchment:** G Avenue Reconstruction

Brian Vilmont, PE

Senior Project Manager

Brian has worked in the consulting industry for over 30 years providing planning, design, construction, and project management services for both governmental and private sector clients. He has developed long-term relationships with many of his clients and enjoys being part of their long-range planning and development. In his role at Prein&Newhof, he serves as a Senior Project Manager, Team Leader, is on the Board of Directors, Executive Committee, as well as the Business Development Committee.

In addition to serving his client base, he was also responsible for developing and implementing Prein&Newhof's Asset Management program and instrumental in the implementation of the SAW Grant program for our clients.

Education

Bachelor of Science, Civil Engineering

Michigan Technological University, 1990

Registrations

Engineering Michigan, 1995

Certifications & Training

Professional Activities

Utility Consumer Participation Board by appointment of the Governor of the State of Michigan

ASCE Speakers Bureau

American Society of Civil Engineers

Michigan Water Environment Association

Michigan Municipal League

Michigan Municipal Executives

Professional History

Prein&Newhof, 2013-Present

30 years in Industry

Representative Projects

- **City of Bronson:** SAW Asset Management Plan
- **City of Buchanan:** SAW Asset Management Plan
- **City of Kalamazoo:** 2018 DWRF Water System Improvements, SAW Asset Management Plan, 2019 Remediation Grant, 2018 DWRF Project Plan, WAMP, 2018 Water System Modeling/Hydraulics Inquiries
- **City of Otsego:** SAW Asset Management Plan
- **Gull Lake Sewer & Water Authority:** SAW Asset Management Plan
- **Niles Charter Township:** SAW Asset Management Plan
- **TowerPinkster:** Alumni Center, Northwood University North Housing
- **Village of Ravenna:** SAW Asset Management Plan
- **Western Michigan University:** SAW Asset Management Plan, WMU Soccer Field

Presentations

State of the State's Stormwater and Wastewater Assets. Michigan Municipal Executives, Michigan Municipal Executives Winter Conference January 31, 2018

Similar Project Experience

You will see recent Prein&Newhof trail team projects highlighted in the case histories on the following pages. We encourage you to contact our references for each of them. We think they will provide good (or better) feedback about their experience with us on their project.

Year Completed

2015

Project Team

Scott Post, PE, Project Manager

Henry Diemer, PE

Gerald Morton

Professional Fees

$102,000

Construction Bid & Cost

$1.5 Million

Client Reference

Doug LaFave, Interim City Manager
(616) 949-2110

East Grand Rapids' Reeds Lake Boulevard Boardwalk

Reeds Lake Boulevard crosses over what used to be an aging 108-inch-diameter corrugated steel pipe culvert, which conveyed water in the channel between Reeds Lake and Fisk Lake. The culvert needed replacing with a sturdy bridge.

An adjacent boardwalk and walking bridge were also in poor condition, so the City of East Grand Rapids had the contractors build the boardwalk at the same time as a new bridge. They chose a 14-foot-wide wooden boardwalk supported by steel pilings that are up to 80 feet long. This boardwalk is an integral part of East Grand Rapids trail system and makes non-motorized passage over the channel much safer. While another firm designed most of the boardwalk, Prein&Newhof designed the pile foundation and the adjacent bridge. **Prein&Newhof also administered the MDOT TAP-funded construction contract.**

Portage Creek Trail
City of Kalamazoo

The City of Kalamazoo, in partnership with Kalamazoo Valley Community College (KVCC), hired Prein&Newhof to design and prepare plans for the Portage Creek Trail. This new non-motorized trail was the last portion of the KVCC Healthy Living Campus project, running between KVCC's Food Innovation Center and the Culinary/Allied Health Building. Users of the trail include Bronson Hospital employees and visitors, Upjohn playground visitors, KVCC students and faculty, local small business owners, and shoppers.

Portage Creek Trail (PCT) is 0.5 mile long and 12 feet wide with hot mix asphalt (HMA) paved path and a boardwalk that charts along Portage Creek. From the trail, users can view the city skyline and the creek's wildlife in one glance. The trail connects KVCC, Bronson Hospital, Upjohn playground, and Nicholas Kik pool.

Construction was divided into two phases:

- Phase I – The middle section, extending from Lake Street to Walnut Street. This phase incorporated a 275 feet long boardwalk made of composite decking and wood railing.
- Phase II – Will extend the PCT north to Pitcher Street to connect to an additional extension currently under construction in a business park. This will allow the trail to connect to the 35-mile-long Kalamazoo River Valley Trail on Harrison Street completing the north extension. The trail will also extend south, splitting both east and west of Portage Creek. The west side extension will be a direct route

Completion Year
2017

Project Team
Tom Wheat, PE

Ryan Russell, PE

O'Boyle Cowell Blalock & Associates (OCBA)

Funding Sources
MDNR Trust Fund

Local Funds

Professional Fees
$40,000

Construction Cost
$490,000

Client Contact
Sean Fletcher, Director of Parks & Recreation Department
(269) 337-8568

south, while the east path The trail that extends south will take travelers to the Farmers Market on Bank Street. The trail will continue south down Reed Court and end at Reed Avenue. The master plan is to continue the trail two miles south to Kilgore Road and connect to Portage Creek Bicentennial Park Trail.

Construction was originally scheduled to begin in the summer of 2019; however, the project scope was expanded to include the renovation of the Kalamazoo Farmer's Market site after the Parks and Recreation Department received a$100,000 grant from the Consumers Energy Foundation for market expansion and improvements.

Prein&Newhof provided the site design for the first phase of improvements that will include renovating the existing vendor sheds and a new vendor shed on the market's west edge, expanded restrooms and the realignment of Bank Street including sidewalk and the KRVT along the market's eastern edge. Future plans will include paved parking, an indoor event shed with a demonstration kitchen, and a playground. Prein&Newhof worked in association with OCBA on project design.

The trail project is now being coordinated with the Bank Street re-alignment and the Kalamazoo Farmers Market renovations. Construction of all three of these will begin in August and September 2020.

- Phase I construction began in March 2017 and was completed ahead of schedule in June 2017. This portion of the project was funding by a $157,000 grant from the MDNR Trust Fund. The Phase II extension also received a grant from the MDNR, in addition to the Consumers Energy Foundation grant.

South Central Portage Bikeway
City of Portage

The City of Portage began a bikeway system in 1989–a combination of off-road trail and designated bike lanes that add up to over 55 miles throughout the City. This project added 1.5 miles from Portage Industrial Drive to West Osterhout to the 17.5 miles of off-road trail.

Prein&Newhof joined with OCBA for this project, providing topographical survey, geotechnical investigation, structural verification, MDOT programming, and base plan design.

Because of concern over the habitat of the Indiana long-eared bat and the spread of Oak wilt disease, the timing of the project made it necessary to coordinate the tree removal as a separate project. Prein&Newhof worked with OCBA and the City to contract for and successfully remove the affected trees during the ideal season.

Prein&Newhof's construction observation crew worked alongside the contractor, Hoffman Bros., during the project and initiated several improvements to the project that enhanced the path's aesthetic.

Completion Year
2016

Project Team
Tom Wheat, PE

O'Boyle Cowell Blalock & Associates (OCBA)

Funding Source
Transportation Alternatives Program

Professional Fees
$93,500

Construction Cost
$486,000

Client Contact
Kendall Klingelsmith, Parks Director

Spoonville Trail, Ottawa County

Ottawa County secured a MDOT TAP grant to build a non-motorized pathway along 120th Avenue in Crockery Township. This trail section is part of the Spoonville Trail which will connect the north end of the North Bank Trail to the south end of the Grand River Greenway Trail. It adds to a network of non-motorized trails that will connect Grand Rapids to Lake Michigan. This two-mile-long trail stretches from North Cedar Drive in Robinson Township to Leonard Road in Crockery Township.

Ottawa County hired Prein&Newhof for the site analysis and investigation, design development and cost estimating, permitting, construction document preparation, and construction administration.

Ottawa County split the project into two phases to make the most of its funding. Prein&Newhof designed both phases of the Spoonville Trail and incorporates local landmarks and monuments such as the Sgt. Henry E. Plant pathway on M-231 over the Grand River and the Crockery Creek Natural Area.

Phase I opened in 2016. Phase II will opened in 2019, expanding the path another two miles from Leonard Road and 120th Avenue through beautiful wooded ravines, and across I-96 along a protected bike lane to Nunica.

The MDOT TAP program paid for 70 percent of the project. Ottawa County, local donors, and partners made smaller donations to make this trail a reality.

Completion Year

Phase I 2016

Phase II 2019

Project Team

Scott Post, PE, Project Manager

Matt Levandoski, PLA

Funding

MDOT TAP

Professional Fees

Phase I $122,000

Phase II $192,661

Construction Cost

Phase I: $968,000

Phase II: $1.794 Million

Client Reference

Paul Sachs, Director of
Ottawa County Planning and
Performance Improvement
(616) 738-4000

Completion year
2015 and 2016

Professional Fees
$679,000

Construction Cost
$3,507,601

Project Team
Scott Post, PE, Project Manager

Jim Morgan, PLA (RJM Design)

Funding Sources
MDNR, MDOT, MNRTF

Awards
Project of the Year: Quality of Life, $1 Million to $5 Million, 2016

American Public Works Association Michigan Chapter

Client Reference
Jason Eppler, Manager, City of Ionia
(616) 527-5776

Annamarie Bauer, MDNR Trail Planning Specialist
(231) 775-9727

Grand River Valley Rail Trail and Bridge

The City of Ionia, in partnership with MDBR, hired Prein&Newhof to design Phase I of the Grand River Valley Rail Trail (GRVRT) between Saranac and Ionia. **The GRVRT is the Lowell to Ionia section of the 130-mile-long Fred Meijer Trail network** stretching from Alma to Owosso via Lowell and Greenville.

The GRVRT is an AASHTO-compliant, non-motorized trail on an abandoned rail bed. It features seven rehabilitated trestles over various watercourses. One 466-foot-long trestle over the Grand River provides exceptional views of the river in the Ionia State Recreation Area. Between the destination communities of Ionia and Saranac, the trail flows through the arboreal wilderness of the recreation area. The sections of the trail in Saranac and Ionia have an asphalt surface. The remaining part of the trail through the countryside has a limestone aggregate surface designed for non-motorized use.

A significant challenge was crossing M-66 in Ionia. A Prein&Newhof traffic study recommended a new bridge over M-66, as traffic there is too heavy for a safe crossing by trail users. The study showed too few traffic gaps at the proposed M-66 crossing location to allow a safe crossing during normal trail use hours. This convinced MDOT to pay for most of the cost of a new trail bridge. It was expensive, but the right approach to crossing M-66. The new "Bulldog Blue" bridge (Ionia High School's colors) is an iconic arch/truss bridge welcoming people to Ionia. To showcase the bridge, Ionia chose multi-colored LED lights to illuminate and accent the bridge at night.

Prein&Newhof engaged landscape architect Jim Morgan of RJM Design Inc. to consult on the trail, bridges, and other amenities.

The City of Ionia managed the project with help from the MDNR. **MDNRTF and a MDOT TAP grant funded the project** along with local and private money.

Grand River Explorers Trail, Ottawa County

Completion Year
2017, Ongoing

Project Team
Scott Post, PE, Project Manager

Matt Levandoski, PLA

Funding Sources
MDOT TAP, Private Donations

Construction Cost
$1.1 Million

Client Reference
Curt TerHaar, Director of Park Planning
(616) 738-4810

The Ottawa County Parks and Recreation Commission (OCPRC) plans to create a regional, non-motorized trail on the south side of the Grand River connecting the Grand Haven pier at Lake Michigan with Kent County's Millennium Park near downtown Grand Rapids. The OCPRC refers to this as the Grand River Explorers Trail (GRET).

This is a large project, and OCPRC plans to build it one section at a time as funds allow. The first GRET section built is the "Robinson segment" and was designed by Prein&Newhof. This segment is a 5.6 mile long, 10-foot-wide asphalt paved non-motorized trail. It extends from 144th Avenue to Riverside Park and from 128th Avenue to North Cedar Drive with **a bridge over Stearns Bayou and a boardwalk over wetlands at 128th Avenue.**

In 2016, Prein&Newhof designed and then managed the 2017-2018 construction of the first 3.9 miles of the trail between Connor Bayou and Riverside Park including the trailhead. The trailhead is an attractive, lighted and landscaped rest and staging area serving users of both the GRET and the Spoonville Trail. It features a parking lot with bike racks and a bike repair station.

Prein&Newhof's design team worked with the OCPRC to route the trail. The design preserved trees as the trail ventured into the woods away from the road in several places where OCPRC obtained easements.

The design and construction meets MDOT, AASHTO, and ADA standards. An **MDOT TAP grant partially funded this segment.**

The Robinson segment of the GRET connects with Ottawa County's Spoonville Trail (another Prein&Newhof design) which includes a landscaped parking lot and trailhead where the Spoonville Trail and the GRET intersect.

This project's success underscores how important it is to engage the design team with stakeholders. Throughout the design, Prein&Newhof worked with OCPRC to route and engineer the trail as easements were obtained and adjusted the design several times with a new easement. Extensive communication with OCPRC and their stakeholders created the best project for all.

Completion Year
2015

Project Team
Scott Post, PE, Project Manager

Professional Fees
$99,085

Construction Bid
$777,777

Funding
$280,000 Michigan TAP Grant

$497,777 Trails Millage

Client Contact
Bonnie Blackledge, Former Cannon Township Clerk
(616) 874-6966

Cannonsburg Trail in Cannon Township

Cannon Township hired Prein&Newhof to design a 0.4-mile-long, 10-foot-wide ADA-compliant trail curving between Townsend Park and downtown Cannonsburg. The paved trail includes a 40-foot-long prefabricated bridge over Bear Creek with 100 feet of wooden boardwalk over the floodplain and a wetland.

Cannon Township funded the project with money from their trails millage combined with an MDOT TAP grant. Users now can walk or bike three miles from Cannon Township's Hall to the Honey Creek Inn in downtown Cannonsburg.

The design of the bridge and boardwalk meet MDOT H-10 loading criteria (10-ton vehicles). Though they can handle a 20,000 pound vehicle, the bridge and boardwalks have pedestrian-scale, park-like character. Prein&Newhof designed the trail to keep and enhance the unique character of Townsend Park. During construction, Cannon Township restored an old gravel parking lot for Townsend Park with topsoil, steps, and several trees to create a more natural scene along the trail.

Prein&Newhof helped Cannon Township obtain several easements for the trail and coordinated construction with the Kent County Parks Department. **Prein&Newhof engaged the owner of many of the commercial properties in Cannonsburg and coordinated the trail and restoration work with them.** The owner invested in the simultaneous beautification of his properties resulting in seamless improvements to downtown Cannonsburg.

To meet ADA guidelines, the trail's steepest grade must be less than 5 percent. To meet this grade, some sections of the trail cut into wooded hillsides. These cuts could have destroyed the character of the park. **The design, combining retaining walls, grassy slopes, and new tree plantings produced not only a functional trail, but a beautiful experience for trail users.** The retaining walls minimized the environmental impact of the trail in hilly areas, but the steep slopes above them could have caused runoff and erosion. A special, fast-growing seed/restoration mix on the steepest slopes, minimizing potential erosion.

Completion Year

2016

Project Team

Jason Washler, PE, Project Manager

Dan Sorek, PE

Professional Fees

$268,000

Construction Bid

$2.765 Million

Funding

$1.9 Million MDOT TAP Grant

City of Walker

Private Donations

Client Contact

Scott Conners, PE, City of Walker Engineer
(616) 791-6861

Awards Won

Project of the Year-Transportation Category, 2018

American Public Works Association-Michigan Chapter

Fred Meijer Trail Tunnel Under M-45 in Walker

The Fred Meijer Standale Trail runs 6.5 miles between Walker and Grand Rapids which had one problem spot. Commuters, GVSU students, walkers, bicyclists, and residents using the trail had to cross Lake Michigan Drive (M-45) at the nearest signaled intersection a half-mile away. Many took the risk of waiting for a large enough traffic gap to cross five lanes of traffic.

The Fred Meijer Standale Trail now has a more convenient crossing and a key connection since the City of Walker completed a $3.3 million pedestrian tunnel under the five-lane M-45/Lake Michigan Drive near downtown Standale. A $1.9 million MDOT TAP grant and a significant contribution from the City's budget paid for the project.

The City hired Prein&Newhof to do the topographic survey, soil borings, utility relocation coordination, easement acquisition, design, construction administration for a 14-foot by 10-foot tunnel, pedestrian plaza, stacked stone retaining wall, security cameras, lighting and landscaping; construction staking, material testing, public relations, utility coordination and construction observation.

Engaging MDOT, Consumers Energy, AT&T, DTE, the City of Grand Rapids, and METC early in the preliminary design stage made this project easier. Each had key assets affected by this project and it was important to seek accommodations from each of them to make this project work. It was equally important to engage the project's neighbors. The City spent years working with them and invited them to attend every construction progress meeting. Prein&Newhof worked with a local contractor to find existing utilities in the project area during preliminary design. The information provided by this effort had significant implications to the later design of the tunnel.

Finding adequate funding for the project was a challenge. The amount needed increased over the final 12-18 months due to the construction market tightening since the original estimate and a change in tunnel location due to utilities and constructability concerns. The new tunnel location made it much easier to build, but required more concrete construction on the approaches.

The tunnel design and vision came from the City of Greenville's tunnel under M-57 and Meijer's tunnel under Three Mile Road, both Prein&Newhof designs. Using these successful examples helped Walker gain public support and funding to build the tunnel.

Construction Cost Control & Maintenance

Construction Cost Control

We have learned a detailed set of construction plans and good specifications are the key to controlling construction costs and minimizing requests for extras.

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While controlling construction costs is important, it is also critical to develop a reliable cost estimate. We will use our proprietary, non-motorized trail cost database and open-source (regional) construction cost data to help us develop reliable construction cost estimates. This is important for two reasons:

- Construction costs have escalated, and it is important to understand the construction marketplace. We have seen significantly higher construction costs recently.
- You have not secured funding for the project. It is important to have an accurate cost estimate so you can ask for enough funds to build the project.

Our goal is to produce a preliminary design with enough detail to develop a reliable cost estimate so you can apply for MDOT and other grant funding.

Maintenance

We have worked with Park Township and Holland Township to develop maintenance and asset management programs for their trails.

Since Prein&Newhof started designing non-motorized trails—long before they gained widespread popularity—we have seen the effect a trail's design has on its longevity and maintenance needs. In the last 30-plus years, and over 400 miles of trails, there are a few things we have learned in the process.

- The most underrated aspects of a trail design are drainage and soil erosion. Not accounting for them in design will reveal two obvious "mistakes" to users and neighbors. We will find critical drainage and erosion areas and take the time to design measures to accommodate and convey storm drainage and keep soil in place.

Our trails team has a proven history of designing non-motorized trails which last. Good trail designs consider maintenance and life cycle ownership costs. We developed our most recent trail design cross-sections to deliver long-lasting trails with minimal maintenance. For example, we know the best and most durable trails have two layers of asphalt instead of one thick layer. Two asphalt layers allow for

better compaction and a smoother, longer lasting surface. Using the right aggregate base is important, too. We will design the aggregate base for the existing environmental conditions.

In addition, we have developed maintenance and asset management programs with several clients including Park Township and Holland Township for their trail networks and park systems.

Following is a blog post by Scott Post about maintaining trails.

Thirteen Maintenance-Minimizing Trail Design Tips

By Scott Post, PE

1. For a paved trail, use two courses of asphalt. The second course minimizes cracking and provides a much smoother surface for minimal extra up-front cost. Contractors may ask if they can pave the same thickness in one course, because it saves them a little money. Do NOT allow it!
2. Extend your gravel sub-base at least one foot beyond the paved trail edge. Any less and the edges can crack and eventually fail.
3. Test the gravel gradation and compaction during construction. The wrong mix or sloppy compaction will cause early cracks in the pavement.
4. If it is necessary to clear vegetation to build your trail, be careful to remove all roots–especially willow trees and yucca plants. They will grow back and come right through the pavement!
5. If filling to build your trail, make sure the downhill side-slope is no steeper than 1-foot of rise over 3 feet width. If this is too steep, the slope often settles and takes the pavement edge with it.
6. Remove all dead and dying trees within 10 feet each side of the trail. Falling branches can be dangerous and the debris clutters trails.
7. If your trail parallels a road, as often as possible, maintain a grass strip between the pavement edges. This protects both the trail and the road shoulder. It also minimizes road gravel washing all over your trail after it rains.

8. If your trail includes a bridge or boardwalks, include concrete approach ramps. This minimizes the inevitable settlement and “bump” at the transition point.
9. If your trail goes downhill for longer than 300 feet, find a way to drain water off the trail surface into a swale, ditch, gutter, or catch basin. Otherwise, the edge of the path, shoulders or the grass along the trail could wash out.
10. Keep your trail away from trees, if possible. Roots and debris are two of a trail’s most common maintenance headaches.
11. If you cannot dodge trees and you are worried about roots wrecking the trail surface, consider installing a product similar to bio-barrier. Products like this do not injure the trees, but when installed correctly, they prevent the roots from growing under the trail.
12. If you are building a trail above native clay soil, consider placing a filter fabric between the clay and the sand/aggregate sub-grade. It will help produce a uniform stress on the clay and prevent uneven settlement and pavement cracks.
13. In wet areas, make sure drainage goes under the trail, not over it. Build the trail higher, if necessary. Use a culvert to convey flow or equalize ponding on both sides of the trail. Otherwise the trail becomes frequently wet and potentially dangerously slippery.

Experience with State/Federal Funding

MDOT Trail Funding Experience

Most of the grants to build this trail will come through MDOT. Prein&Newhof's trails team has significant MDOT trail funding experience. The following is a list of MDOT-funded projects for which Scott Post was or is Prein&Newhof's Project Manager. (*Denotes current project, **denotes within the past 5 years.)

MDOT TAP

- Grand Traverse County/TART Trails/City of Traverse City West Boardman Lake Trail*
- Ottawa County Spoonville Trail Phase II*
- Park Township 160th Avenue Pathway*
- Caledonia Township Paul Henry Thornapple River Connector Trail Phase 1B*
- Ottawa County Parks Grand River Greenway*
- Ottawa County Parks Grand River Explorers Trail*
- Michigan DTMB/DNR Grand River Greenway, Bass River Segment*
- Ottawa County Spoonville Trail Phase I**
- Georgetown and Jamestown Townships, City of Hudsonville 22nd Avenue and Barry Street Pathway**
- Zeeland Township's 64th Avenue Connector Trail*
- City of Ionia Fred Meijer Grand River Valley Rail Trail Phase II (City Trail and Bridge over M-66)*
- City of Ionia Fred Meijer Grand River Valley Rail Trail Phase I (Saranac to Ionia)
- Michigan DNR's Fred Meijer Clinton Ionia and Shiawassee Trail
- Cannon Township Cannonsburg Trail
- East Grand Rapids Reeds Lake Boulevard Boardwalk

MDOT CMAQ

- Village of Douglas Blue Star Trail**
- Saugatuck Township Blue Star Trail
- Holland Township Adams Street Pathway and Bridge over I-196
- Port Sheldon Township Croswell Street Pathway

MDOT Surface Transportation Program (STP)

- Holland Township 96th Avenue Connector Trail

- Holland Township Adams Street Pathway and Bridge over I-196

MDOT Safe Routes to School

- Farwell Safe Routes to School Project
- City of Harrison Safe Routes to School Project

MDOT Local Bridge Fund

- Muir-Lyons Connector Bridge and Trail to the CIS Trail

Other Trail Funding Experience

We also have worked on projects funded by non-MDOT sources, and you will see a list of several below. Since MDOT will fund no more than 80 percent of any project, and possibly less of this one, it will be important to find other funds. We have included Prein&Newhof's Trails Funding Guide in Appendix A so you can read about other ways our clients have funded their trail systems.

Michigan Natural Resources Trust Fund

- City of Ionia Fred Meijer Grand River Valley Rail Trail Phase II (City Trail and Bridge over M-66)**
- Muir-Lyons connector bridge to the CIS Trail
- City of Ionia Fred Meijer Grand River Valley Rail Trail Phase I (Saranac to Ionia)
- Michigan DNR's Fred Meijer Clinton Ionia and Shiawassee Trail
- Cannon Township Trail

MDNR RTP

- City of Ionia Fred Meijer Grand River Valley Rail Trail Phase II (City Trail and Bridge over M-66)**
- City of Ionia Fred Meijer Grand River Valley Rail Trail Phase I (Saranac to Ionia)
- Michigan DNR's Fred Meijer Clinton Ionia and Shiawassee Trail

MDEQ Coastal Zone Management Program

- Saugatuck Township Park Master Plan
- Montague Parking Lot (Hart-Montague Trail)

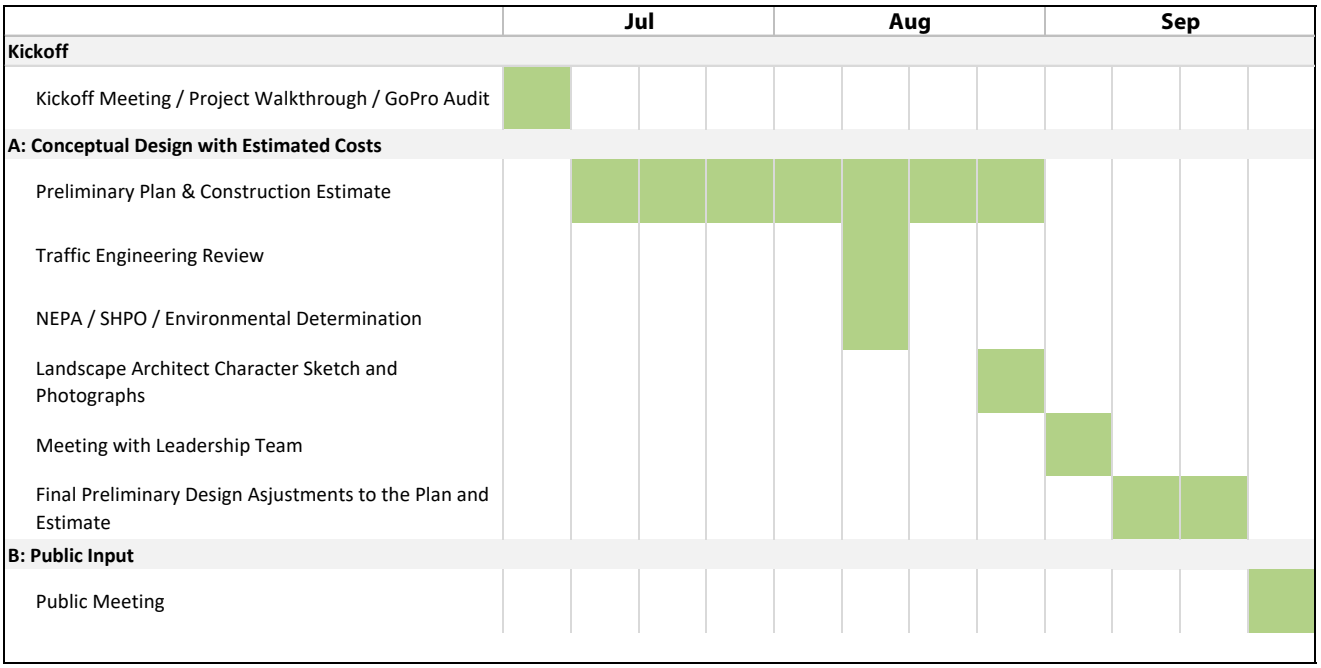
Local Recreational and Non-motorized Trail Millages

- Park Township's Trail Network, 50 Miles
- Holland Township's Trail Network, 60 Miles
- Zeeland Township's Trail Network, 15 miles
- City of Whitehall's White Lake Pathway
- Cannon Township's Trails
- Plainfield Township's Trails
- DALMAC
- Muir-Lyons Connector Bridge to the CIS Trail
- Great Lakes Fishery Trust
- Spring Lake Township Boardwalk
- Big Rapids Riverwalk

Cost

Staff member	TechAdv BV	PrMan SP	DesEngr RR	LandArch ML	GIS ED	EnvirEng KM	TraffEngr ST	Mileage	Total Cost
Phases A and B									
Kick off Meeting and Project Site Visit/Walk		10	10					370	$ 2,482.00
Preliminary Plan		4	8		12				$ 3,132.00
Construction Estimate		4	8						$ 1,296.00
Traffic Engineering Review							2		$ 226.00
NEPA/SHPO/Environmental Determination						2			$ 256.00
Landscape Architect Trail Character Sketch and Photographs				8					$ 1,024.00
Meeting with Leadership Team		6	6					370	$ 1,578.00
Final Design Adjustments to Plan and Estimate		2	4		4				$ 1,260.00
Public Meeting		6	6					370	$ 1,578.00
QAQC	1								$ 153.00
Total Estimated Engineering Fees f	**1**	**32**	**42**	**8**	**16**	**2**	**2**	**1,110**	**$ 12,985.00**

Timeline


Jul
Aug
Sep
Kickoff
Kickoff Meeting / Project Walkthrough / GoPro Audit
A: Conceptual Design with Estimated Costs
Preliminary Plan & Construction Estimate
Traffic Engineering Review
NEPA / SHPO / Environmental Determination
Landscape Architect Character Sketch and Photographs
Meeting with Leadership Team
Final Preliminary Design Asjustments to the Plan and Estimate
B: Public Input
Public Meeting