WABASH CANNONBALL TRAIL
PRELIMINARY ENGINEERING STUDY

VILLAGE OF MONTPELIER
WILLIAMS COUNTY
FRIENDS OF THE MONTPELIER PARKS
KLEINFELDER PROJECT #24000041

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ACRONYMS MENTIONED

MVPO – Maumee Valley Planning Organization
NORTA – Northwestern Ohio Rails to Trails Association
ODOT – Ohio Department of Transportation
ODNR – Ohio Department of Natural Resources
OPRA – Ohio Parks and Recreation Association
AASHTO – American Association of Highway and Transportation Officials
LIDAR – Light Detection and Ranging
GIS – Geospatial Information System
GCAT – GIS Crash Analysis Tool
PDO – Property Damage Only
AADT – Annual Average Daily Traffic
MDG – Multi-Modal Design Guide
ADA – Americans with Disabilities Act

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VILLAGE OF MONTPELIER, OHIO
WILLIAMS COUNTY, OHIO

1 INTRODUCTION

The Friends of the Montpelier Parks in conjunction with the Village of Montpelier and Williams County stakeholders wish to investigate the development of a multi-use path along the Wabash Cannonball Trail corridor through a preliminary engineering study. Many organizations have contributed to funding this study including Bryan Area Foundation, Friend of the Montpelier Parks, Holiday City-Jefferson Township Visitors Bureau, Millcreek-West Unity Area Foundation, Montpelier Area Foundation, Montpelier Civic League, NORTA, NW Electric Trust, Village of Holiday City, Village of Montpelier, Village of West Unity, W.S. Clark Family Foundation, and Williams County Park Board.

The study begins at trail property owned by the Village of Montpelier at County Road 13 and continues east to the Williams County and Fulton County line east of County Road 21N. The Village of Montpelier owns approximately four miles of the corridor from County Road 13 to County Road 17. The Williams County Commissioners own approximately six miles of the corridor from County Road 17 to the east county line. The Village of Montpelier and Williams County Commissioners together own ten miles of the total sixty-six miles of the Wabash Cannonball Trail.

This study investigates the proposed route to identify potential design issues including terrain, drainage, utility conflicts, safety concerns, and structure/bridge deficiencies. This study does not include title work or real estate or property owner research, environmental studies, or geotechnical investigations. This study does not include any topographic or boundary survey work. Existing aerial imagery, LIDAR data, and county shapefiles have been utilized for analysis. This study includes a public survey to gain input on usage and improvements to the trail and trailheads.

2 STUDY AREA

2.1 LOCAL CONNECTIONS AND POINTS OF INTEREST

The Wabash Cannonball Trail travels 66 miles through Williams County, Fulton County, Lucas County, and Henry County. The north fork and south fork of Wabash Cannonball Trail intersect in Maumee in Lucas County. The south fork continues southwest to Whitehouse, Neapolis, Colton, and Liberty Center. The north fork continues west to Monclova, Swanton, Delta, Wauseon, Elmira, West Unity, and Montpelier.

The Wabash Cannonball Trail connects many points of interest like Fallen Timbers Memorial, trails along the Maumee River, various municipalities, Cannonball Prairie Metropark, Oak Openings Metropark including a network of trails in the Metropark, Wauseon Schools, Rotary Park and a skate park in Wauseon. This section of the Wabash Cannonball Trail being studied is 10 miles out of the total 66 miles. The key points of interest along this section of trail are the Wabash Park in West Unity, the existing trailhead at County Road 17, and the trailhead in Montpelier at County Road 13. There is also a scenic overlook at the bridge at Beaver Creek that will be an attraction for this section of trail. There is potential to have a connector trail or bike route in Montpelier extend from Wabash Cannonball Trail west through the Village to the Iron Horse River Trail, which is to finish construction in 2025. There are also designated equestrian trails within Oak Openings Metropark. These will serve as connectors for horse traffic along Wabash Cannonball Trail.

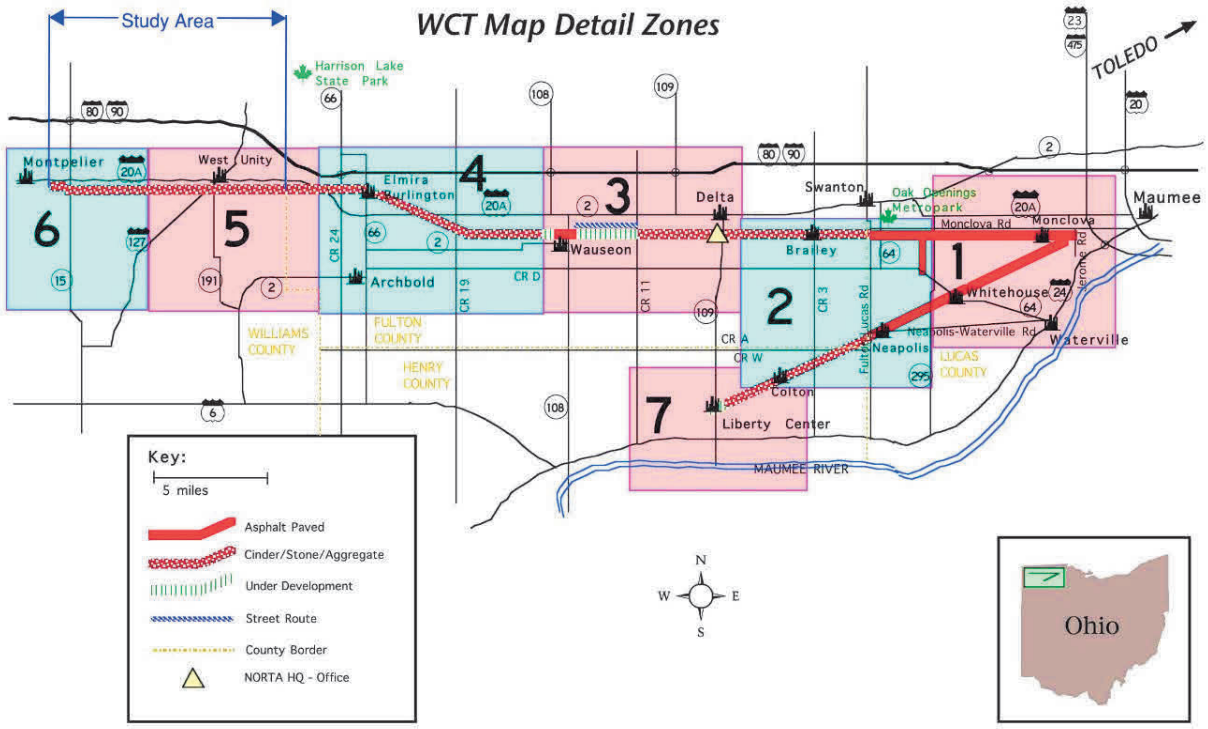

Figure 1 Wabash Cannonball Trail Map

2.2 BICYCLE CONNECTIONS

The Wabash Cannonball Trail is well known in the Northwest Ohio area for the improved sections of trail within Lucas County for both the north fork and south fork. Particularly around the area of Oak Openings, many people bring their bikes to the paved sections to ride the tail.

2.2.1 State Connections

The Wabash Cannonball Trail is part of State Bike Route 90 from Montpelier to Monclova. State Bike Route 90 travels from the western state line to the east where it intersects US Bike Route 25 in Wood County and US Bike Route 30 in Ottawa County. Slippery Elm Trail, a paved path in Wood County, is part of US Bike Route 25 and was found to be used by some of the public who took the feedback survey. Much of US Bike Route 30 is made up of the paved and improved North Coast Inland Trail through Ottawa County, Sandusky County, Huron County, and Lorain County. US Bike Route 25 runs north and south connecting Lucas County, Wood County, Hancock County, and more counties south of the region. If Wabash Cannonball Trail was improved with paving, it could connect to a network of paved and accessible paths.

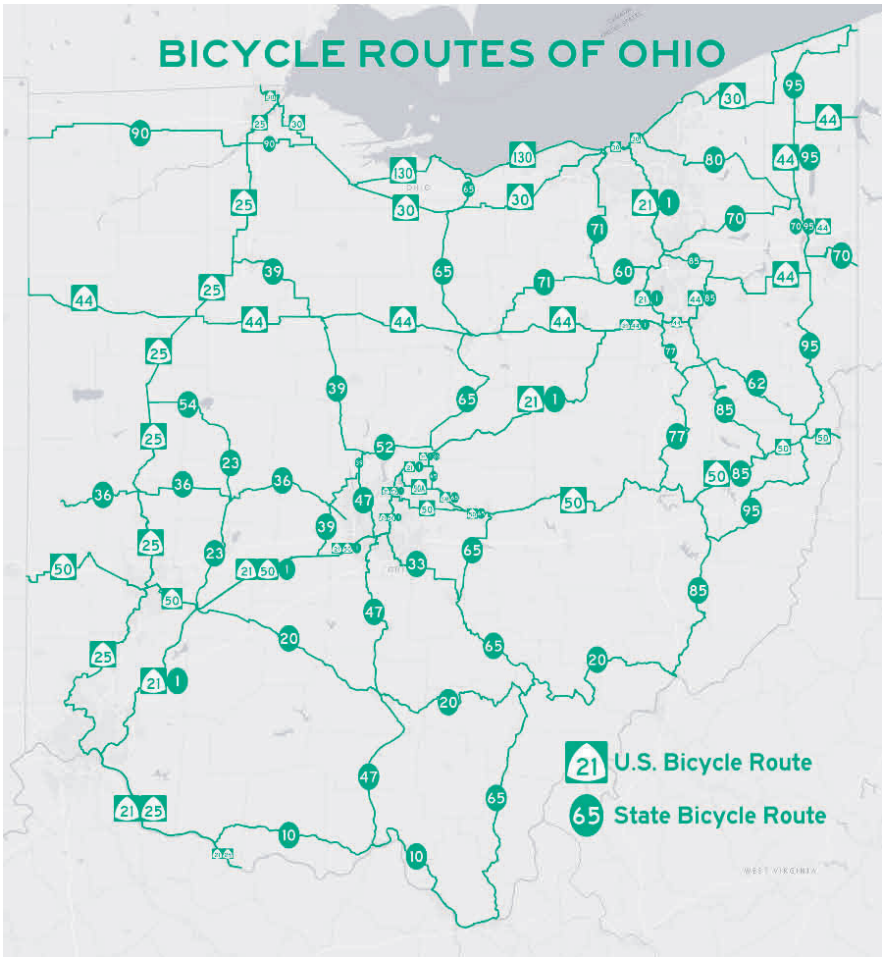

Figure 2 Ohio Bicycle Routes Map

2.2.2 National Connections

The previously mentioned connections from State Bike Route 90 to US Bike Routes 25 and 30 would allow travel across the country through the United States Bicycle Route System (USBRS). AASHTO adds routes to the USBRS as appropriate, so it is also possible for this section to become a US Bike Route one day. The current USBRS plan is shown below.

Figure 3 United States Bicycle Route System as of June 2023

2.3 TRAIL CONNECTIONS

The Wabash Cannonball Trail is part of a network of trails that are used for a variety of travel including bicycling but also hiking and horseback riding.

2.3.1 State Connections

The Wabash Cannonball Trail is part of the North Country Trail. Within Ohio, the North Country Trail travels in a U-shape, as shown below in Figure 4, connecting to large sections of public land in the south and southeast portions of the state including state parks, national parks, state forests, and national forests. The North Country Trail connects Ohio to Pennsylvania and Michigan for the larger trail network.

The Wabash Cannonball Trail from West Unity in Williams County to Oak Openings in Lucas County is part of the North Country Trail. The south fork of the Wabash Cannonball Trail through the Village of Whitehouse is also part of the North Country Trail.

Figure 4 North Country Trail Ohio

The Ohio section of the North Country Trail connects to and primarily coincides with the Buckeye Trail, which is a loop trail around the state of Ohio. The North Country Trail and Buckeye Trail coincide with the American Discovery Trail along the south side of the state.

Figure 5 Buckeye Trail

2.3.2 National Connections

The North Country Trail stretches 4,800 miles from North Dakota to Vermont. Ohio is one of the eight states the North Country Trail passes through. The North Country Trail runs along the Wabash Cannonball Trail from Monclova to West Unity.

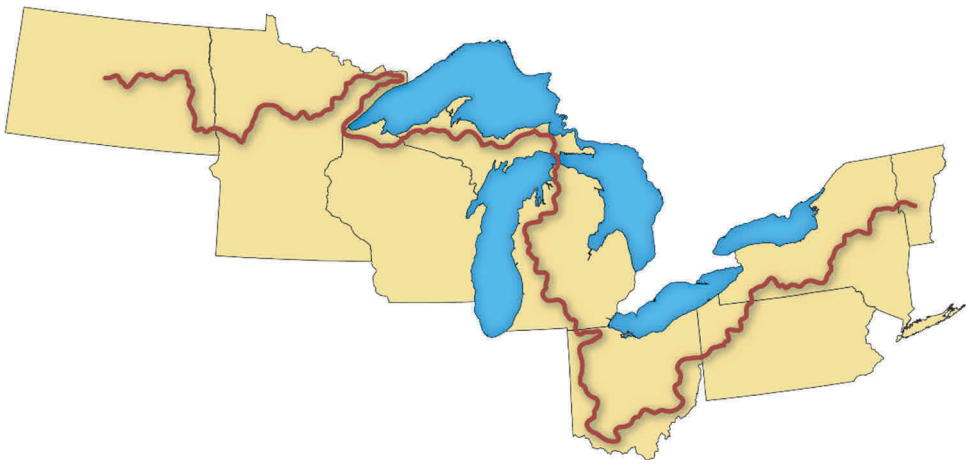

Figure 6 North Country Trail Map

From the North Country Trail, one can travel the American Discovery Trail. This national trail is over 6,800 miles of continuous multi-use trail. The American Discovery Trail and North Country Trail run along the same path along the southern end of Ohio. This is the same portion as the Buckeye Trail.

Figure 7 American Discovery Trail

The trail connections from the Wabash Cannonball Trail to other national trails is an endless web. Making this section of 10-mile trail even more important.

3 EXISTING CONDITIONS

3.1 PROPERTY AND RIGHT OF WAY

This study does not include title work or any real estate or property owner research. The existing property lines shown in any plans are based on the county auditor shapefiles. Based on this information, the section from County Road 17 to County Road 17-75 is the widest section, it is approximately 400 feet wide. This area is referred to by some as Dream Meadows.

3.2 DRAINAGE, GRADING, AND CLEARING

For portions of the trail, the existing drainage is sheet flow into existing swales to keep water off the path. However, there are areas of the trail where water collects and is standing. Upon a field review of the site after some rain, there was little to no saturation observed. Although there were areas upon review there were signs of flooding from previous rain events. All ditch crossings along the trail have existing structures to maintain flow and allow level crossing for travelers.

In order to accommodate a width for both a paved path and an alternate path surface for horse travel, the existing trail will need to be widened in some areas. This widening will require additional embankment to provide sufficient grading in the clearing area and the side slope areas of the path. There are some areas with steep grades that will need the additional embankment and railings for safety. Most areas of the trail will need to have tree limbs trimmed for horse travel alongside a paved trail. There also are some areas with only nine or ten-foot-wide clearings that will need to have additional clearing done for an improved trail regardless of the surface type.

3.3 EXISTING SURFACE

The existing trail is a mixture of cinder and grass surface. Some areas are completely grass trail, some are completely cinder and well cleared and compacted, and some areas are a mixture of vegetation and cinder. The following photos show the variance in surfaces.

Photo 1 Primarily Grass Trail

Photo 2 Primarily Cinder Trail

Photo 3 Mix of Vegetation and Cinder Trail

Photo 4 Primarily Grass Trail

With the variety of trail surfaces, it can be difficult for users to travel the trail in their preferred mode of transportation for a longer length, if at all. With these surfaces, roller blading is not an option and pushing a stroller may be difficult. Children riding tricycles may have difficulty at this trail with the rough surfaces. Bicycles with clincher tires and road bike tires will have difficulty on this trail as is. Heavier duty bike tires will be able to handle traversing this trail. The existing trail surface does limit its use and the variety of users. It is not handicap accessible at any point and is not as friendly for children's use.

3.4 EXISTING UTILITIES

Fiber is buried along the south side of the trail clearing from State Route 15 and continuing east. The fiber extends east beyond the study limits. For most of this corridor, the fiber is between 4 and 6 feet south of the center line of the cleared path and is buried approximately 3 feet deep according to as-built plans. The 6-foot offset is beneficial since the proposed path would have a 10-foot width, with 5 feet of paving on each side of the center line and would avoid the fiber's horizontal location. There are also locations detailed in the as-builts where the fiber is more than 6 feet south from the center line. The path excavation should not be more than a foot deep for constructing the trail, especially considering some drainage concerns and the need raise the path elevation in spots. This will lessen the risk of vertical conflict with the fiber as well. There are locations where, according to the as-builts, the fiber is located less than 3 feet below the surface to cross over the top of storm drains. These areas may have conflicts, but that will remain to be determined once a topographic survey and beginning stages of design are complete. At bridge locations, the fiber was bored under the roadway that the bridge crosses. Therefore, any bridge repairs will not conflict with existing fiber. Any swales that may be added or adjusted in the project area will need to be cognizant of the fiber location. Perhaps swales should primarily be on the north side of the trail or offset far enough south that the excavation of the swale does not conflict with the fiber.

During a field review, Cochin Kender Morgan Pipeline crossing markers were observed approximately 500 feet east of the Beaver Creek bridge. The pipeline likely was bored beneath the path surface to not be a conflict when excavating the path area. The path's elevation is around 829 feet above sea level and the nearby fields have elevations around 808. Once the topographic survey and design begin, the pipeline elevation should be determined by contacting OUPS or the utility owner. Crossing this pipeline may require some permitting to ensure to the owner that there are not conflicts and the design is in accordance with any pipeline right of way regulations.

Within the Village of Montpelier and the Village of West Unity, there are existing utilities for fully functional trailheads, such as electricity, water, and sanitary sewers. These trailheads will be key trailheads for restrooms and drinking fountains, which are amenities the public overwhelmingly wants at trailheads.

3.5 EXISTING STRUCTURES

There are three existing bridges along this trail. There's a covered bridge over County Road 15, a bridge over Beaver Creek, and a covered bridge over County Road 20-40 (Liberty Street). All bridges need minor repairs but overall are in fair to good condition. For all bridges, new decking is recommended. Specifically new composite decking with an anti-slip surface is recommended. Any exposed rebar is recommended to have concrete repairs. There is some vandalism on the steel underside of the bridges. Vandalism on the steel should be painted over for cosmetic improvements. All bridges need additional railing at the approaches to prevent people and horses from traveling off the path to a hazardous area with risk of falling.

Photo 5 Bridge over County Road 15

The covered bridge over County Road 15 is a through girder bridge with wood decking over the ties. The metal roof was added on top of the steel plate girders. There is metal wire fencing placed along the roof framing where there would be voids. The wire fencing provides fall protection to pedestrians along the bridge. The approaches to the bridge, however, do need additional railing to prevent any users from exiting the path area into a hazardous fall zone. The wood decking and joists should be replaced to better support maintenance and emergency vehicle loading. The existing railroad ties appear to have been treated and are recommended to remain in place.

Photo 6 Bridge over Beaver Creek

The bridge over Beaver Creek is an open deck girder bridge. The wood for this bridge is more weathered. The existing railing on the bridge is not well secured. The existing railing should be replaced with a more secure railing that can withstand impact from bicyclists and horses. The existing railroad ties beneath the wood decking and above the steel structure of the bridge are untreated and should be replaced as part of the improvements. The ties tend to rot and become hollow when they are not treated. A short-term fix would be to replace the ties with creosote treated ties. The recommended improvement, and long-term fix, will be to replace the ties with galvanized steel beams. It's also recommended to replace the existing deck with composite anti-slip decking.

Photo 7 Bridge over County Road 20-40 (Liberty Street)

The covered bridge over County Road 20-40, Liberty Street, is very similar to the County Road 15 bridge. It's a through girder bridge with wood decking over the ties. The roof framing was added on top of the steel plate girders. The roof does have some overhangs different from the County Road 15 bridge. This bridge also has wire fencing placed along the sides of the bridge to prevent any users from exiting the bridge area. Similar to the other bridges, additional railing at the approaches is needed to prevent users from exiting the path area and falling off ledges. Railing at the bridge approaches could be extended further where it's steep on the outside edges of the path to prevent a fall. This bridge and its structural members are in fair condition with minor repairs recommended. The wood decking and joists should be replaced to better support maintenance and emergency vehicle loading. The existing railroad ties appear to have been treated and are recommended to remain in place. Additional bridge assessment information is included in Attachment 1.

4 SAFETY ANALYSIS AND RECOMMENDATIONS

4.1 CRASH DATA

The study area was investigated for nearby crashes that may cause concern at the intersection of the trail and roadways. Crashes were analyzed utilizing ODOT's GIS Crash Analysis Tool (GCAT) which generates GIS crash information based on the Ohio Crash Report Form (OH-1). Crash data was limited to a 500-foot radius at the intersection of the trail and roadways in the study area. Crash data within these 500-foot radius points was extracted and analyzed. Crashes were reported at County Roads 13, 15, and 16, and US Route 127. The descriptions of the crashes are below in Table 1 Crash Data Summary. This is an extremely low level of crashes in the study area and does not warrant any reactive safety improvements. It's important to note that the data does not count near misses or crashes that were not reported. *American Association of State Highway and Transportation Officials (AASHTO) Guide for the Planning, Design, and Operation of Pedestrian Facilities* states that "many incidents involving pedestrians may not be included in state crash databases, such as when a minor injury occurs and medical treatment is not sought". It is possible that there have been incidents at the existing trail crossings, and they were not reported.

Table 1 Crash Data Summary

Road	Crashes (2020-2022)	Crash Severity	Crash Description
CR13	1	Minor Injury Possible	Motorcycle turning right off of Magda Drive onto CR13 drove off the road on left side and struck a storm drain
CR15	1	PDO	Deer struck by vehicle
CR16	1	PDO	Deer struck vehicle
US127	1	PDO	Angle crash at the intersection of Defiance St (US127), Lincoln St, and Lynn St approximately 300 ft north of trail.

There is potential for an increase in crashes if there are improved trails and trailheads. The proposed safety countermeasures for the trail crossings and trailhead will aim to proactively address this. However, it is difficult to predict how much traffic and trail usage may increase. Pedestrian safety is becoming more and more of a highlighted issue and has gained attention in the most recent years. The additional pedestrian safety funding programs are proof of this. There are relatively new funding programs detailed later in Section 7 of this report that would be options in the future for any additional safety improvements.

4.2 TRAFFIC DATA

Traffic counts were gathered by utilizing ODOT's Transportation Data Management System and are shown in Table 2 Traffic Data Summary below. The most recent counts along the roadways in the study were used to analyze pedestrian crossings and trailhead safety. There are several county roads that did not have traffic count data recorded in the Transportation Data Management System. Vehicular traffic at the intersections of the trail and roadways in the study area are relatively low.

State Route 15 has the highest AADT at 7,710 but the trail already crosses underneath State Route 15 to avoid conflict and maintain safety. The next highest AADT is along US Route 127, also known as Defiance Street, in West Unity. Due to the traffic at this location, some extra safety countermeasures should be

considered. The relatively higher AADT at State Route 191, also known as Main Street, in West Unity is another crossing location that should cause consideration for extra safety countermeasures.

County Road 13 has a higher AADT relative to the others, but the trail will end at the trailhead at County Road 13 and connect to the existing multi-use path that runs north and south along County Road 13 and terminates at the trailhead. With this arrangement, there won't be a crossing at County Road 13. With the traffic in mind, this trailhead should have a defined drive apron for ingress and egress safety.

County Road 15 has a pedestrian bridge over the roadway to avoid crossing conflicts. However, County Road 15 has a trailhead with a connector trail and parking. The trailhead does not have a defined drive apron, and the area is not striped to define parking. The road has a horizontal curve to the south of the trailhead making it difficult to see oncoming northbound traffic from the trailhead. Some safety countermeasures at this trailhead should be considered.

The other locations are rural roadways with less traffic. This will help with pedestrian safety at the crossings as well as driver safety navigating in and out of trailheads. It will also help maintain safety with all the roadway crossings being two-lane roads.

Table 2 Traffic Data Summary

Road	AADT	Speed Limit (mph)	Bridge or Underpass
SR15	7,710	50	Y
US127 (Defiance St)	3,315	35	N
CR13	1,405	45*	N
SR191 (Main St)	1,207	35	N
CR21N	569	45*	N
CR17	422	45*	N
CR16	340	45*	N
CR15	137	45*	Y
CR17-75	-	45*	N
CR20-40 (Liberty St)	-	35	Y
CR21	-	45*	N
CR22	-	45*	N

*assumed, not posted

4.3 SAFETY RECOMMENDATIONS

At all the bridges, the deck replacement to an anti-slip deck surface will improve safety for users, especially young children, and disabled persons. Additional railing should be considered at all bridge approaches. Currently, either side of the bridge is open at County Road 15 and Beaver Creek. There's some railing at the approach for the County Road 20-40 (Liberty Street) bridge, but it should be extended farther for additional safety improvements. Beaver Creek has a 25-foot drop at the west abutment, as shown below in Photo 8 at a point that's accessible with no barriers. To enhance safety, it's important to install new railings along the Beaver Creek bridge, replacing the current unstable ones that pose a risk to children by potentially causing them to fall. Any new railing should have smaller spacing either vertically, horizontally, or both directions to prevent any children from falling through rails.

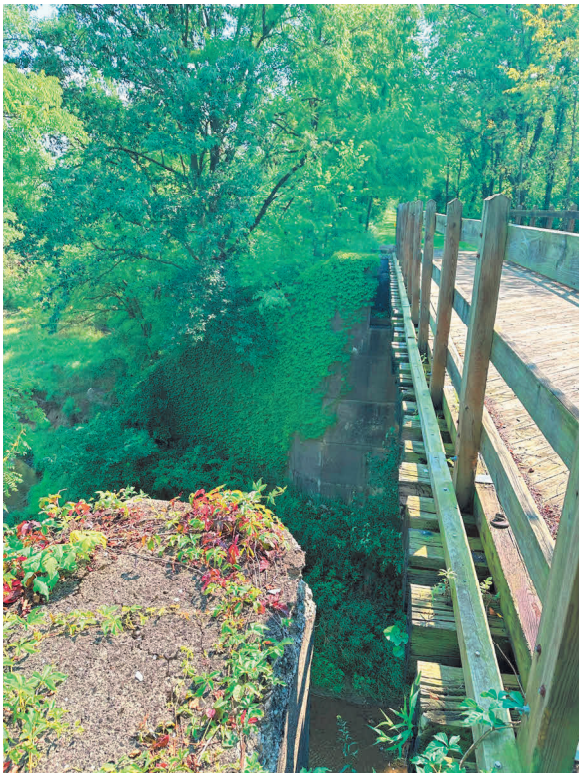

Photo 8 Beaver Creek Railing and Drop Off

Safety considerations at trail heads include defining vehicular and pedestrian areas along with providing extensive visibility for travelers of the trail and travelers along roadways. Where it is feasible and traffic is higher, a defined drive entrance will help to avoid conflicts and incidents between vehicles. If the trailhead is asphalt, pavement markings should be used to define parking areas and pedestrian areas. If the trailhead is stone, parking blocks should be used to define parking areas. Ensuring visibility at the trailheads will help reduce conflicts for vehicles entering and exiting the trailhead, but also for any travelers at the trailheads. Reduced visibility at the trailheads might result in increased mischievous behavior that remains unnoticed, yet it can significantly affect the travelers' sense of safety. More visibility at people's cars and resting points along the road crossings can help make them feel that the trail is safe for them, especially if they are traveling alone. At some trailheads, it may be more appropriate to place flexible delineator posts as traffic dividers alongside the trail where it may run along a trailhead as shown in Photo 9.

Photo 9 Delineators along Trail

At trail access points, bollards should be placed to prevent non-authorized vehicles from accessing the trail. The access points should be configured to have permanent bollards on the outer edges and hinged bollards in the center where emergency or maintenance vehicles may need access. In most cases, there will only need to be three bollards. One hinged bollard on the center line of the trail and two permanent bollards on the outer edges of the trail, each offset one to three feet from the edge of the paved path as shown in Photo 10.

Photo 10 Bollards at Access Points

The recommended safety countermeasures at the road crossings are proposed based on considerations from the ODOT Multi-Modal Design Guide (MDG) Table 4-6 shown below as Table 3. All road crossings will be crossing 2-lane roads. The AADT is less than 9,000 at all crossings. At some of the crossings the speed limit is 35 miles per hour and at other county road crossings it's assumed the speed limit is 45 miles per hour, as detailed in Table 2.

Table 3 ODOT MDG Table 4-6

Table 4-6: Application of Pedestrian Crash Countermeasures by Roadway Speed, Volume, and Configuration[20]

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	● 2 4 5 6	● 5 6 7 9	○ 5 6 ● 9	● 4 5 6	● 5 6 7 9	○ 5 6 ● 9	● 4 5 6 7 9	○ 5 6 7 9	○ 5 6 ● 9
3 lanes with raised median (1 lane in each direction)	● 2 3 4 5	● ○ 5 7 9	○ ○ 5 ● 9	○ 3 4 5	○ ○ 5 7 9	○ ○ 5 ● 9	○ ○ 4 5 7 9	○ ○ 5 ● 9	○ ○ 5 ● 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	● 2 3 4 5 6 7 9	● ○ 5 6 7 9	○ ○ 5 6 ● 9	○ 3 4 5 6 7 9	○ ○ 5 6 ● 9	○ ○ 5 6 ● 9	○ ○ 4 5 6 7 9	○ ○ 5 6 ● 9	○ ○ 5 6 ● 9
4+ lanes with raised median (2 or more lanes in each direction)	● ○ 5 7 8 9	● ○ 5 7 8 9	○ ○ 5 8 ● 9	○ ○ 5 7 8 9	○ ○ 5 ● 8 9	○ ○ 5 8 ● 9	○ ○ 5 ● 8 9	○ ○ 5 8 ● 9	○ ○ 5 8 ● 9
4+ lanes w/o raised median (2 or more lanes in each direction)	● ○ 5 6 7 8 9	○ ○ 5 ● 6 7 8 9	○ ○ 5 ● 6 8 ● 9	○ ○ 5 ● 6 7 8 9	○ ○ 5 ● 6 ● 8 9	○ ○ 5 ● 6 8 ● 9	○ ○ 5 ● 6 ● 8 9	○ ○ 5 ● 6 8 ● 9	○ ○ 5 ● 6 8 ● 9

Given the set of conditions in a cell,

- \# Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Rectangular Rapid-Flashing Beacon (RRFB)**
8 Road Diet
9 Pedestrian Hybrid Beacon (PHB)**

Based on the existing conditions for traffic volumes, speeds, and crash history, the trail crossings will need either standard crosswalk signage with high visibility crosswalk markings or they will need rectangular rapid flashing beacons at the crossings. The following photos show each type of signage.

Photo 11 Standard Crosswalk Warning Sign

Photo 12 RRFB Crossing

A crossing ahead warning sign will be included for each direction of traffic. The distance ahead of the crossing for the advanced warning sign will depend on the speed of vehicles at the crossing locations.

Photo 13 Standard Crossing Ahead Sign

In addition to crossing ahead warning signs, trailhead parking signs should be posted for vehicular traffic. This will help travelers that may be in search of a trailhead know definitively where they can park to use the trail. There are currently no separate equestrian crossings proposed since any equestrian traffic will be along the same corridor as the trail for pedestrians. However, if a separate corridor becomes part of the final design of the improvements, there should be equestrian crossing signs at the designated crossings.

Photo 14 Equestrian Crossing Sign

There are a variety of safety recommendations for an improved trail. Table 4 Safety Recommendation Summary outlines the safety recommendations at trailheads and road crossings. The biggest overall

improvement will be more signage and pavement markings. This will help define spaces at trailheads and warn oncoming traffic of the trail crossings.

At the trail crossings for US Route 127 and State Route 191 in West Unity, rectangular rapid flashing beacons (RRFB) are proposed. This is due to the vertical change south of the crossing at State Route 191 and the amount of vehicular traffic at both crossings. There also is potential for greater pedestrian traffic in this area due to it being in a residential area, near a trailhead with a park, and near a school. Extra safety countermeasures will make the crossings safer for the anticipated users, especially children going to the school and park. Note that these crossings are in the Village's right of way and will need to be approved by the Village of West Unity.

Table 4 Safety Recommendation Summary

Road	Trailhead	Road Crossing	Bridge or Underpass	High-Visibility Crosswalk Markings	Advanced Warning Signs for Crossing	Standard Crossing Signage for Pedestrians and Cyclists	Rectangular Rapid Flashing Beacon (RRFB) Crossing	Define Parking Areas at Trailheads & Add Trailhead Parking Signs for Vehicular Traffic	Define Drive Approach for Trailhead Ingress & Egress	Add railing or delineators to define vehicle and pedestrian areas	Add railing at bridges
CR13	X							X	X	X	
SR15			X								
CR15	X		X					X		X	X
CR16	X	X		X	X	X		X		X	
CR17	X	X		X	X	X		X	X		
Beaver Creek			X								X
CR17-75	X	X		X	X	X		X		X	
US127		X		X	X		X				
SR191 (Main St)		X		X	X		X				
CR20.40 (Liberty St)			X								X
CR21	X	X		X	X	X		X		X	
CR22	X	X		X	X	X		X		X	
CR21N	X	X		X	X	X		X		X	

5 TRAILHEADS

5.1 EXISTING TRAILHEADS AND PROPOSED IMPROVEMENTS

Currently, there are trailheads at County Road 13 in Montpelier, County Road 15, County Road 17, and Wabash Park in West Unity. The existing trailheads are spaced farther than some users may prefer. The County Road 17 to Wabash Park segment is longer than most of the public said they'd prefer in the public survey. Many respondents prefer 1 to 2 miles between trailheads. Other respondents had no preference for spacing.

Table 5 Existing Trailhead Spacing

Existing Trailhead Spacing	Length (miles)
CR13 trailhead to CR15 trailhead	1.96
CR15 trailhead to CR17 trailhead	2.01
CR17 trailhead to West Unity Wabash Park	3.26
West Unity Wabash Park to County Line	2.75

The County Road 13 trailhead in Montpelier is currently a crushed stone, asphalt millings type of surface. The trailhead should be improved to define parking areas and define pedestrian areas. There's an existing asphalt path that terminates at the trailhead on the north side, and the Wabash Cannonball Trail terminates on the east side. It's recommended to pave the trailhead to allow for handicap access and allow for pavement markings to define a connection along the trailhead for pedestrians going from the existing path to the improved Wabash Cannonball Trail. Some benches and picnic tables could be added to the trailhead as well as a bike repair station. This trailhead is in a location with access to utilities for restrooms and drinking fountains. These amenities are in high demand from the public survey, so it would be appropriate for this to be a full functional trailhead.

The County Road 15 trailhead is currently a hard asphalt surface. The connector trail is also an asphalt surface and has a large change in elevation between the trailhead at the road level and the main trail up by the bridge that crosses over the roadway. This trailhead could be improved by paving a new smoother asphalt surface and adding pavement markings. There's a drop off at the culvert on the north side of the trailhead. It is beneficial to add railing along the northern edge of the trailhead. The pavement markings will help to define parking areas and restricted parking areas. Some benches and a bike repair station would be beneficial amenities here.

The County Road 17 trailhead is a large trailhead located at the Dream Meadows area of the trail, between County Road 17 and County Road 17-75, where the property is 400 feet wide. The surface appears to be crushed asphalt millings throughout the trailhead. This trailhead includes a horse mount station, trail kiosk, bike racks, a picnic table, and a few benches. The area has a large open turn around that would accommodate horse trailers. There's an incline lined with railing that connects from the trailhead up to the trail. This trailhead has potential to become a campsite trailhead that would have a grass trail opening east to connect to Beaver Creek or farther within Dream Meadows. Currently, there is no water or sewer at this site to make it a fully functional trailhead. Immediate improvements to the trailhead could involve adding a vault toilet and creating a paved parking area for handicap access. Vault toilets are designed as waterless systems that store waste in an underground tank or vault. Additionally, paving a 10-foot-wide lane up the incline would make the trailhead more user-friendly for everyone. Accessibility at this trailhead would be consistent with the overall trail accessibility improvements proposed. The rest of the

trailhead will remain as is to allow this to be an equestrian friendly trailhead. A few benches and picnic tables could be added to the trailhead as well as a bike repair station. If water and sewer utilities become accessible, additional improvements could be made such as campsites and installation of bathroom facilities.

Photo 15 Country Road 17 Trailhead view from Wabash Cannonball Trail

The Wabash Park trailhead in West Unity currently lacks designated parking areas and the trail adjacent to the park isn't well defined. It's difficult to tell where the trail is if you're beginning your travels at this trailhead. The park has a playground, basketball court and restroom facilities. There is a trail kiosk at the park near State Route 191. The drives and roads within the park area are stone surfaces. Some improvements include additional picnic tables, benches, a bike repair station, and a new drinking fountain that has an ADA pedestal and a pet station. Surface and accessibility improvements would include a paved designated parking area with at least one handicap parking spot, as well as a paved connector trail leading from the parking area to the main trail. Note, the improvements in the park property outside the Williams County trail property would be within the Village of West Unity property. Improvements along the Wabash Cannonball Trail would be within the Williams County property. Any proposed trailhead improvements outside the Williams County property and within the Village's road right of way will need to be approved by the Village of West Unity.

5.2 PROPOSED TRAILHEADS

To provide adequate spacing between trailheads, additional trailheads are proposed. Note that not all trailheads are required, this proposed spacing is based on the public survey responses with many preferring 1 to 2 miles between trailheads. Some extended responses for where trailheads should be noted that people wanted trailheads at each road crossing even if it's just parking at these locations. With this feedback in mind, the new trailheads will be primarily for parking sites, resting spots, and additional sign guidance areas. The new trailheads will help to break up the spacing and reduce the demand on the existing trailheads. The County Road 13, County Road 17, and Wabash Park West Unity trailheads will serve as the more functional, larger trailheads with accessible parking options, more parking spaces, restrooms, water (County Road 13 and West Unity), and more rest areas. The added vault toilet restroom at County Road 17 will provide approximately 4 miles between there and a County Road 13 restroom and approximately 3.3 miles between there and the Wabash Park restroom. There isn't a feasible location east of Wabash Park to add a restroom. Although a vault toilet restroom would be an option, the property and

right of way limits at the eastern trailheads are more limited. The trailhead at County Road 23 in Fulton County is a larger trailhead that will be ideal for a restroom facility, but that is outside of this study area. There's only 2.75 miles from Wabash Park to the county line. The table below shows the proposed locations and the spacing between the new locations with the restroom locations in bold text.

Table 6 Proposed Trailhead Spacing

Proposed Trailhead Spacing	Length (miles)
CR13 trailhead to CR15 trailhead	1.96
CR15 trailhead to CR16 trailhead	0.98
CR16 trailhead to **CR17 trailhead**	1.04
CR17 trailhead to CR17-75 trailhead	0.74
CR17-75 trailhead to Hilltop School	1.37
Hilltop School to **West Unity Wabash Park**	1.16
West Unity Wabash Park to CR21 trailhead	0.75
CR21 trailhead to CR22 trailhead	1.00
CR22 trailhead to CR21N trailhead	0.74
CR21N trailhead to County Line	0.26

The trailheads at Hilltop School and Wabash Park will need to be coordinated and approved by their respective entities. There are improvements at both sites outside of this corridor's right of way. The Hilltop School connection is proposed because of the school's use of the trail and the long span between trailheads at County Road 17-75 and Wabash Park. This is also the longest stretch of trail between roadways with 2.2 miles between County Road 17-75 and US Route 127. The Hilltop School connector will provide faster and easier access for emergency vehicles in that area of the trail. There appears to be a worn path around the school, and this was considered for a connector path. However, given that the trail would be open to the public, it would likely be more comfortable to have the path connect to the high school parking lot rather than meander around the school alongside the elementary school playground. This proposed path would maintain some privacy for users at the playground. This path also would be a shorter, more direct path to the high school parking lot and therefore would be more economical.

5.3 TRAILHEAD AMENITIES

According to the public survey, restroom facilities and drinking fountains are in high demand at trailheads. These are dependent on water and sewer availability as well as maintenance of any facilities. To spread out these amenities, the three previously mentioned trailheads have existing or proposed restrooms. The trailhead in Montpelier at County Road 13 and trailhead in West Unity at Wabash Park are proposed locations for drinking fountain stations.

Benches and trash receptacles are also in high demand by the public and are proposed at every trailhead. Parking at the trailheads is proposed with at least 3 spaces in response to the public's preference for 3-6 spaces at trailheads. Each trailhead shall have a kiosk that will include wayfinding and directional signage on it as well as historical or natural educational pieces related to the area.

Many responses in the other category of survey question 14 mentioned bike repair stations. Bike repair stations are common at longer spanning linear trails and have been found to be extremely helpful. These repair stations will add safety for users, especially in a rural area such as this. Bike repair stations are proposed at each trailhead for consistency and reliability but could be limited to fewer trailheads if desired. Below is an example of a bike repair station that may be utilized.

Photo 16 Bike Repair Station Example

6 PROPOSED IMPROVEMENTS

6.1 PROPOSED TRAIL IMPROVEMENTS

As previously mentioned, the existing trail has a variety of soft surfaces. According to the public survey, most of the public prefer a paved trail that's more accessible. There's a significant amount of the public that also have no preference on the trail surface. With this in mind, an asphalt paved trail is proposed. The standard width of the paved trail will be 10 feet wide to provide 5 feet on each side of the trail. This will accommodate wheelchairs, strollers, and bicycles with one in each direction. The 2 lanes will provide users the ability to pass one another. Many of the extended responses for question 21 were responses advocating for more accessible trails not only for disabled persons but also for young children to ride smaller bikes and parents to push their strollers comfortably. Many responses also noted they travel with their bikes to other paved trails outside of Williams County to ride comfortably.

A single tread of compacted stone is proposed to accommodate equestrian traffic along the trail. This single tread will be offset from the paved path to provide a 5-foot buffer between path edges. Chapter 3 of the Equestrian Design Guidebook, published by the United States Department of Agriculture Forest Service, states that 3 to 4 feet of shy distance between the tread and obstacle should be sufficient for experienced riders and horses. It also explains that riders and horses that are green, or less skilled and experienced should not use public trails due to possible conflicts with other public users. The single tread will be 5 feet wide, in accordance with the Equestrian Design Guidebook, with compacted stone and screenings for equestrian travel. There are areas of the trail where this will require more clearing of brush and tree branches. The single tread as opposed to double tread will allow for sufficient room for drainage improvements without the need for removing too much of the natural area and trees to fit all the improvements in the corridor. The single tread is also proposed based on the public usage feedback in questions 14 and 18 of the public survey. Most of the public respondents want a paved path, and the majority of users will be cycling or walking/jogging/running with a minority of users riding horseback. The final survey results are detailed in Attachment 2. A defined stone area is proposed rather than a grass or soft surface to assist with guiding the horses and riders. If a grass trail was used, there would be potential confusion to the user once a swale begins or drainage structures are encountered.

The proposed improvements are outlined in the cost estimate in Attachment 3. Note this is a preliminary cost estimate based on following the existing cleared path. Also note that the cost estimate does not include project costs such as topographic or right of way survey, design, permitting, bidding, etc. The estimate is only a preliminary construction estimate. For these reasons, it may need to be revised depending on funding pursued and different requirements of various funding programs.

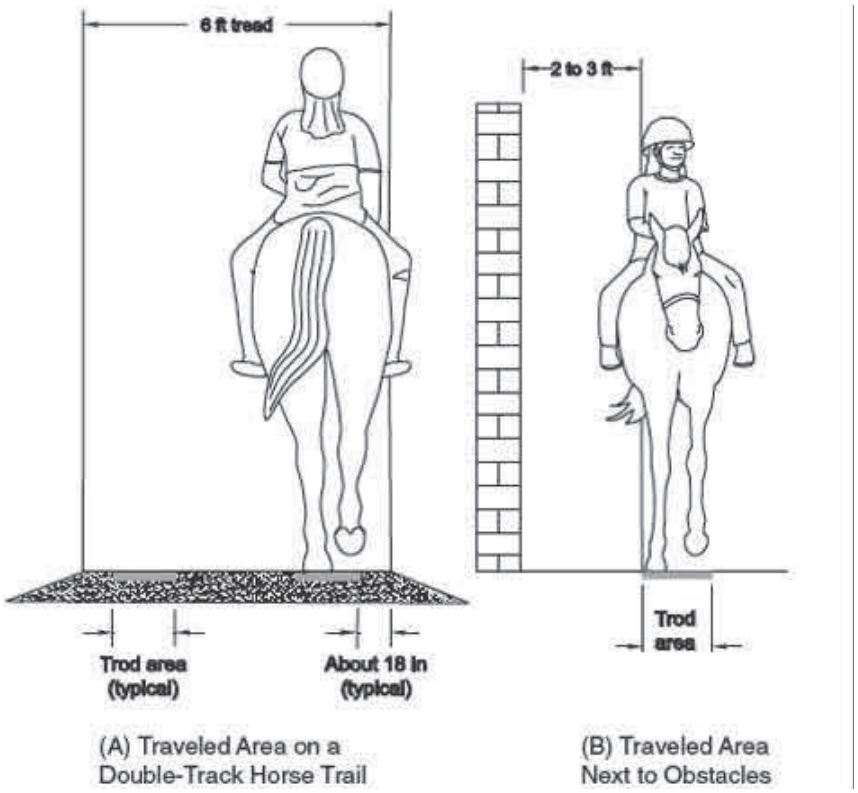

Figure 8 Traveled Area on Horse Trails (from United States Forest Service Equestrian Design Guidebook)

As mentioned in the safety section previously, many improvements to the trail will include additional signage and pavement markings. None of the trail crossings are marked or identified for oncoming traffic. Other improvements along the trail would include drainage improvements to maintain drainage in most areas and improve drainage in areas of concern.

6.2 PROPOSED AMENITIES ALONG THE TRAIL

Much of the public responded that they'd like educational information along the trail. Such as historical plaques or native plant and wilderness information. There were also responses noting story walks should be along the trail for children. Wabash Park would be an ideal location for a story walk since it is near the playground and a residential area to get optimal use from children on the trail. Another section of trail that would be ideal for a story walk is the connector trail from Hilltop Schools to the main trail of the Wabash Cannonball Trail. Hilltop Schools campus includes elementary age children that would be able to enjoy the trail and story walk without leaving the school grounds. These two locations are proposed for young children story walks. Both locations could coordinate with the Hilltop School library to have a variety of stories stored and changed out.

Among the preferred amenities along the trail, the public prefers benches and waste receptacles the most. Bench locations are not called out specifically in the conceptual plan as this will largely depend on where open space is available. Locations with farther distances between trailheads would be ideal for more benches. Small rest areas like Danielle's Crossing shown in the photo below will be more present along the trail with the bench additions.

Photo 17 Danielle's Crossing Picnic Area

7 POTENTIAL FUNDING SOURCES

7.1 FUNDING OF TRAIL

- ODOT Transportation Alternatives Program (TAP)
  - Typically award $250,000 - $2,000,000
  - 95% ODOT, 5% Local until FY2027, then return to 80% ODOT, 20% Local
  - Covers Construction costs only, does not cover design costs or other project costs (covers acquisition of only abandoned rail corridors)
- ODOT Systemic Safety Application (Pedestrian Category)
  - Maximum award $2,000,000
  - 90% ODOT, 10% Local
  - Covers Construction & possibly Acquisition costs only, does not cover design costs or other project costs (new program, funding guidelines continue to get ironed out)
- ODNR Clean Ohio Trails (COT)
  - Maximum award $500,000
  - 75% ODNR, 25% Local Match
  - Covers Construction & Acquisition
- MVPO Dedicated Funds for Surface Transportation Block Grant (STBG)
  - Maximum award $300,000
  - 80% STBG, 20% Local
  - Covers Construction & Design
- US DOT Funding Programs –
  - Note: new funding programs continue to emerge, other programs may arise after completion of this report. These national programs are typically more competitive or want larger projects.
  - Rebuilding American Infrastructure with Sustainability and Equity (RAISE)
    - 80% DOT, 20% Local
    - Covers Construction & Design
  - Safe Streets and Roads for All (SS4A)
    - 80% DOT, 20% Local
    - Must have an approved action plan in place before getting an implementation grant.
  - Active Transportation Infrastructure Investments Program (ATIIP)
    - Funding for this new program is not yet available. USDOT has not issued information on details of the program at this time, but this program focuses on active transportation.

7.2 FUNDING OF AMENITIES AND TRAILHEADS

- ODNR Recreational Trails
  - Maximum award $150,000
  - 80% ODNR, 20% Local Match
  - Covers Construction & Acquisition
- ODNR Land and Water Conservation Fund (LWCF)
  - Award $50,000-$500,000
  - 50% ODNR, 50% Local Match
  - Covers Construction & Acquisition
- ODNR NatureWorks
  - Maximum award $150,000
  - 75% ODNR, 25% Local Match
  - Covers Construction, need property control.
- OPRA/ODOT Metroparks Funding (for parking areas)