

Oil Creek Water Trail Feasibility Study



Titusville Redevelopment Authority

For



By



On

December
2015



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Acknowledgements

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Table of Contents

Project Overview	p. 1
Trail Usage Analysis	p. 9
Public Outreach	p. 12
Physical Inventory and Assessment	p. 13
Environmental Assessment	p. 25
Management and Operations	p. 35
Recommendations	p.37
Conclusions	p. 45
Action Plan	p. 47
Appendices	p. 57

Public Outreach Summaries

A River Town Program Strategy

Cost Estimates for Priority Launch Sites

Oil Creek Pennsylvania Natural Diversity Inventory Report

PA Water Trail Application

PA Recreational Use of Land and Water Act

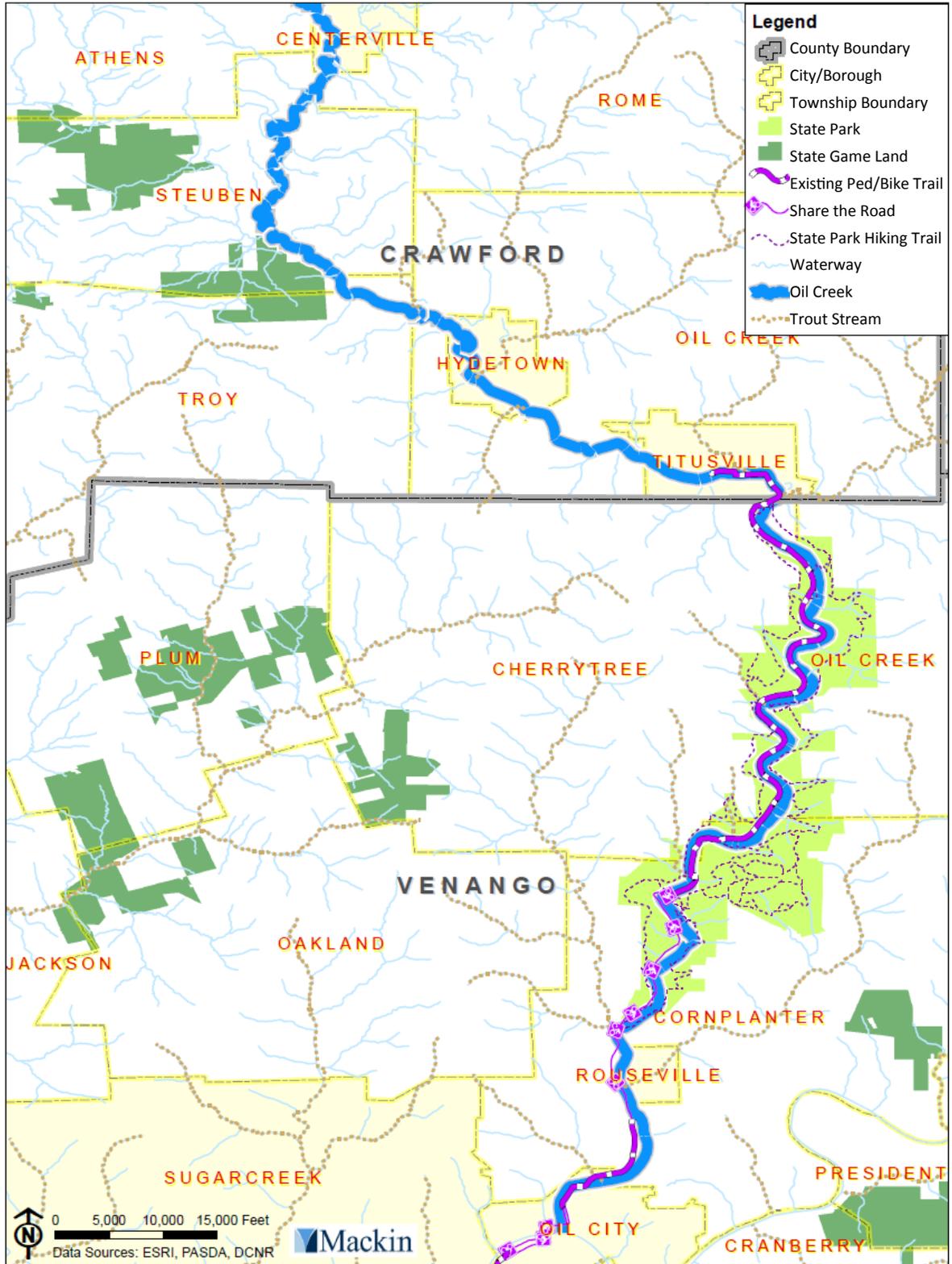
Water Trail Liability Considerations

PFBC Landowner Public Rights—Frequently Asked Questions

Water Trail Maps—Centerville to Titusville and Titusville to Oil City



Project Area Map





Project Overview

The Titusville Redevelopment Authority hired Mackin Engineering Company to determine whether developing Oil Creek as a water trail is financially, physically, and practically feasible. If appropriate, study results will be used to seek official designation as a PA Water Trail. The project started in February of 2015 and was completed in November of 2015. The study looked at Oil Creek, beginning at Centerville in Crawford County, through Hydettown, Titusville, Oil Creek State Park, Rouseville, and Oil City and ending at the confluence with the Allegheny River in Venango County; approximately 34 miles in length.

The concept of developing Oil Creek as a water trail is not a new one. In fact, a large portion of Oil Creek lies within Oil Creek State Park and functions as a water trail, with three canoe launches within its boundaries. The State Park includes the following on its website and brochures “Oil Creek offers a scenic float and is classified as a beginner’s creek under normal conditions. Water levels can change rapidly and canoeists should call the park office for current water conditions. Generally, the canoeing season is from March to early June. To launch in a state park, a non-motorized vessel needs a state park or PA Fish and Boat Commission launch permit.”

Oil Creek is best known for its bass and trout. The main stem of Oil Creek, from the source to Cherrytree Run is classified as a cold water fishery by the Pennsylvania Department of Environmental Protection (DEP) while the main stem from Cherrytree Run to the mouth is classified as a warm water fishery. Two “delayed harvest, artificial lures only areas” cover 2.5 miles of Oil Creek within the state park. 2015 marked the second annual Oil Creek Classic fly fishing tournament.

Even outside of the state park, locals are already using the creek for angling and paddling. So why do a feasibility study? The study will provide an inventory and assessment of the features and amenities found within the Oil Creek corridor and provide recommendations on how to formally establish a water trail. **The goal of developing a formal water trail is to encourage more usage of the creek and spur economic development.**

“There is likely no greater resource more readily available for enjoyment in the Titusville area than the great outdoors found along the Oil Creek Valley.”

- From the article “A ‘gem’ in fly fishing world: Registration open for second annual Oil Creek Classic” in the Titusville Herald on April 6, 2015



Oil Creek Classic 2014 (source: Joshua Sterling, Titusville Herald Article 2015)



What is a Water Trail?

Similar to the land trails, water trails connect people to places. They provide public access for river-based recreational activities, such as paddling and fishing and as a community resource, and can also help stimulate the local economy.

“Water trails are recreational and educational corridors between specific locations that can be used for both single day and multiple day trips. They are comprised of access points, boat launches, day use sites, and — in some cases — overnight camping areas. They provide safe access to and information about Pennsylvania’s waterways while also providing connections to our diverse history, ecology, geology, heritage and wildlife.” Source: PA Water Trails Program (www.pawatertrails.org)

Per the Pennsylvania Water Trails Program, every water trail MUST have the following:

- ◆ A local managing organization
- ◆ A part in the statewide water trail system with state designation by the Pennsylvania Fish and Boat Commission
- ◆ A map providing information for using the trail
- ◆ Free information available online and/or printed materials
- ◆ Public involvement by the local community
- ◆ Active volunteers to participate in the management of the trail
- ◆ Signage to direct users, interpret resources and provide safety and orientation information
- ◆ Maintenance of existing and new amenities
- ◆ A water trail feasibility study

At this time, there are 25 designated water trails by Pennsylvania Fish and Boat Commission. In Crawford and Venango Counties, there is the Middle Allegheny River Water Trail and the French Creek Water Trail (<http://fishandboat.com/watertrails/trailindex.htm>).



Oil Creek History

Along Oil Creek, just south of Titusville, Colonel Edwin Drake struck oil at a depth of 69.5 feet in August 1859. Three words-“They’ve struck oil!” thundered triumphantly throughout the valley. This statement changed the world forever and marks the birth of the world’s oil industry. The New York Tribune stated, “The excitement attendant on the discovery of this vast source of oil was fully equal to what I saw in California when a large lump of gold was accidentally turned out. When California 49ers came into the valley they claimed conditions here were crazier than any they’d ever seen.”

Drake’s discovery caused thousands of people to pour into the valley in search of liquid gold. Boomtowns sprang up instantly as derricks replaced trees and the valley filled with people. “The boomtowns spring up as of from the touch of a magician’s wand, are swept away by fire, or disappear only to reappear miles in advance of their last location.”

Oil and mud soon mixed together throughout the valley. Roads were impassable. When J.H.A. Bone got off the train at Petroleum Centre he wrote: “...pull up your legs when they disappear from sight, remembering that if you descend deep enough, you may strike oil.” Others wrote: “The creek was covered with oil, the air was full of oil...we could see, hear, smell, nothing but oil.” “Mud divided our attention with oil, wagons, men and animals were submerged in mud.”

By 1871, production in most boomtowns was dwindling. Drillers, speculators and others went to other areas in their endless search for oil as “black as a stack of ebony cats,” and the valley was allowed to return slowly to the state it is today. Scattered ruins dot the landscape of Oil Creek valley. Remnants of old refineries can still be





seen, old wells abound, and crumbling stone walls that once protected wells still stick up in the middle of Oil Creek.

The wooded hills of Oil Creek Gorge look almost as they did before the boom. A few wells are still active in the park, pulling the last bits of oil and natural gas from the earth which nature laid down millions of years ago.

“The oil rush changed the pace of the world, and greased the wheels of the machine age. It lit up the future, fueled wars, speeded peace and is still flowing strong.”

(Source: <http://dcur.state.pa.us/stateparks/findapark/oilcreek/index.htm>

Unless stated otherwise, the above quotes are from Paul Giddon's book "Early Days of Oil.")



Oil Creek itself played a very important role in the history of the Oil Region and as such, a historical marker was installed at Smock Boulevard (PA Route 8) in Titusville on September 30, 1954 to commemorate its historic role. ExplorePAhistory.com provides the following information on the marker:

“Oil Creek most often extends 25 to 50 yards from shore to shore, but it is 75 yards wide in some spots. Many runs or small streams feed the creek seasonally. At the far north, Clear Lake, near Spartansburg, runs into the creek from an elevation of about 1400 feet. A narrow Oil Creek then winds 35 to 40 miles to the Allegheny River at Oil City. Without giving much up to tributaries, Oil Creek then joins Thompson Creek and Church Run before draining into Pine Creek near Titusville.

Though oil is found in many places around the globe, this network of streams in Pennsylvania introduced it to America. As Oil Creek wended through this area of odd geological fissures, oil seeped from below the surface of the earth and pooled along the waterway's edge. The river valley became a place where petroleum could be found. Therefore, the waterway was given the name Oil Creek.

Native Americans of the Seneca nation skimmed the surface of Oil Creek to gather the pooling oil for various uses. Once American entrepreneurs had struck the first well in 1859, the creek became a commercial thoroughfare. During the 1860s, much of the oil was moved in long boats, known as skiffs, on Oil Creek. For much of the year, however, the creek's water level was too shallow to float the loaded skiffs. Enterprising oil barons decided to employ the same method of pond freshets (overflows) used to move lumber to transport their fuel. Once all the skiffs in the valley were loaded, mill owners were paid to breach their dams in sequence from north to south. The level of Oil Creek would rise and carry the loaded skiffs toward the Allegheny.

The use of pond freshet gave credence to Oil Creek's name. Three out of five oil skiffs were crushed en route and their contents were dumped into the creek. After particularly destructive freshets, leases were taken out to sponge off the creek, which had literally become a creek of oil.”

(Source: <http://explorepahistory.com/hmarker.php?markerId=1-A-A2>)



Private Waterway

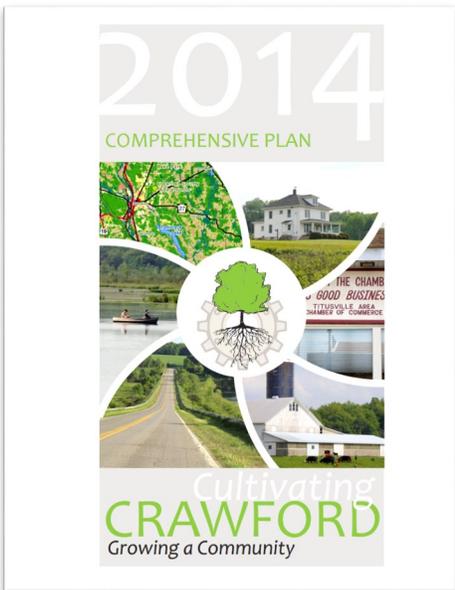
Oil Creek is considered a private waterway. Title to the stream beds is held by adjacent riparian landowners; if the landowner only owns property on one side of the non-navigable waterway, he or she owns to the middle. Private waterways are open to the public for boating or floating, due to “navigation servitude” which gives the public the right to use the water for purposes of navigation only. However, this servitude does not extend to fishing or swimming / wading.

The only way to become a public waterway is to be designated by the courts; no agency (including Fish and Boat Commission) is authorized to determine navigability. The test for navigability is a historic test that looks at the waterway’s use during the late 18th and early 19th centuries.

Previous Studies

Many different plans and studies have been completed within the region over the last ten to fifteen years. These plans were reviewed for recommendations pertinent and related to the water trail feasibility study.

[Crawford County Comprehensive Plan \(2014\)](#)

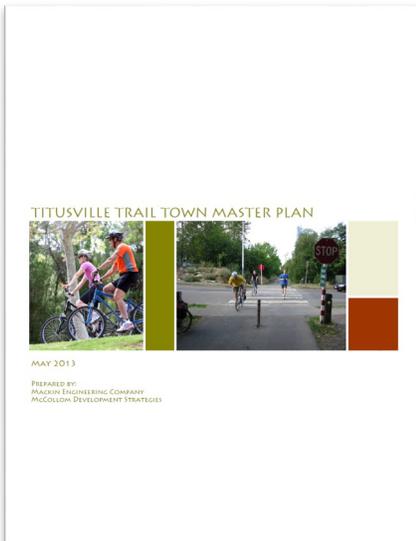


The Crawford County Comprehensive Plan is a document that, in a variety of topics, describes a series of goals and visions for the future of the county and its municipalities as well as the means to achieve them.

The plan recommends that the County hire a Park and Trail Manager, whose primary responsibilities would include assisting with the local implementation issues of trail planning and development and coordinating the dissemination of information related to major recreation opportunities in the County. If implemented, such a staff person would be of great value to the local municipalities to assist with implementing the recommendations to establish a water trail along Oil Creek.



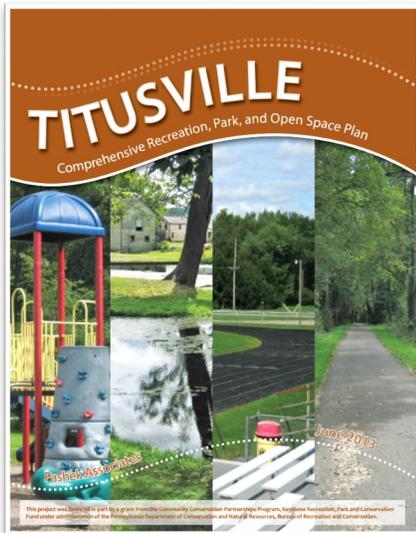
Titusville Trail Town Master Plan (2013)



Titusville is the first master-planned Trail Town along the Erie to Pittsburgh Trail System. The trail town master plan provides a guiding document to capitalize on economic development stemming from the region's trail systems and the growing outdoor recreation, heritage-tourism and bicycling markets. Completed by Mackin and McCollom Development Strategies, it included an Action Team to promote Titusville's Trail Town by partnering and forming alliances and submitting grant applications to foundations and agencies for project implementation. The master plan presented an economic Gap Analysis of local businesses and services and a strategic business plan to fill the gap and expand existing businesses. Priority projects include marketing improvements; business attraction and retention programs; wayfinding signage; bike lane installations; safe routes and pedestrian crossing projects; and community events to promote the trail, bicycling in the community and outdoor activities. The Titusville Trail Town Master Plan

includes similar economic and business improvements that can be used for both a land trail and a water trail.

Titusville Comprehensive Recreation, Park & Open Space Plan (2013)



This Plan lays the groundwork for the continued successful planning and development of recreation, parks, facilities, and programs in the Titusville Area. The importance of recreational waterways was a theme throughout the plan. Public input revealed the desire to improve recreational access to Oil Creek from downtown Titusville; promote Oil Creek as an economic benefit; develop parklets and access areas along Oil Creek; and protect linear corridors of open space (greenways) along trails and streams.

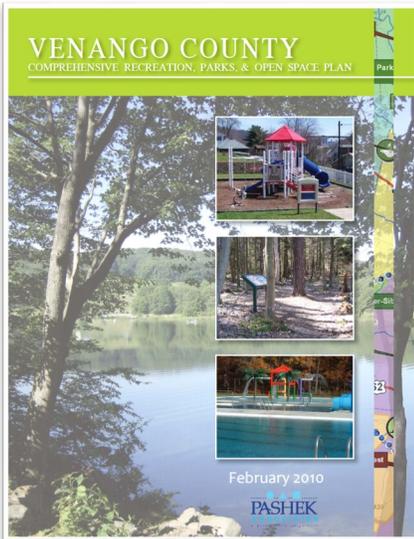
Pertinent recommendations related to this study include the completion of a feasibility study for a non-motorized water trail along Oil Creek, creating appropriate trailheads for the Queen City Trail (multi-use land trail in Titusville) and the Oil Creek Water Trail and to establish Titusville as a Trail Town.



[Oil City Comprehensive Waterways Plan \(2011\)](#)

Oil City completed a comprehensive waterways plan focused on identifying opportunities and developing strategies to enhance the waterfront along the Allegheny River and Oil Creek. The plan recommended a number of strategies related to improving access to the waterways, appearance of buildings along the waterways and encouraging redevelopment of vacant and/or underutilized sites.

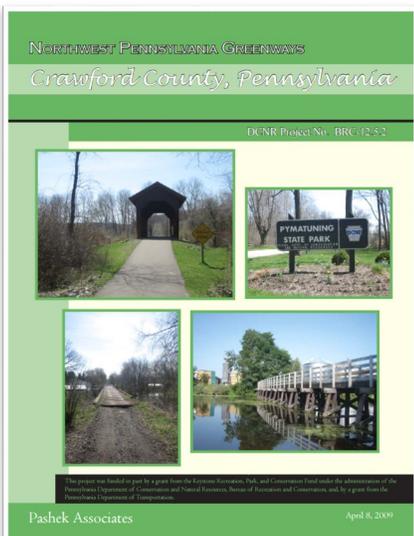
[Venango County Comprehensive Recreation, Parks & Open Space Plan \(2010\)](#)



Venango County's vision for parks and recreation follows three principles: continue to preserve, support and develop the recreational, natural and cultural resources; promote them to residents and tourists; and to cultivate the opportunities needed to enhance recreational experiences. Within the plan, the trail network, rivers and streams and Oil Creek State Park were identified as major recreational strengths and assets. One of the weaknesses identified was the lack of public access to and canoe/kayak launch sites the various rivers and streams within the County.

Overall, the plan recommends that the County feature the various waterways and greenways as recreation facilities and increase public access to them. It also recommends that the County hire a parks and trails director/planner to oversee implementation of the plan and to assist municipalities with their recreation efforts.

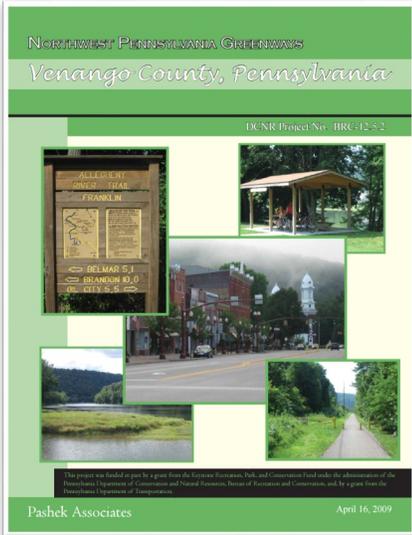
[Northwest Pennsylvania Greenways Plan \(2009\)](#)



The Northwest Pennsylvania Greenways Plan, undertaken by the Northwest Regional Planning and Development Commission, is a multi-county planning effort for the Northwest Commission's eight counties, including Crawford and Venango Counties. The Northwest Pennsylvania Greenways effort included the preparation of individual county greenway plans for the Commission's six counties (Erie, Clarion, Crawford, Forest, Venango, and Warren Counties) and two prior plans (Mercer and Lawrence Counties), were synthesized into the Northwest Pennsylvania Greenways Plan.

[Crawford County Greenways Plan \(2009\)](#)

The plan recommended a number of water trails, including along Oil Creek. The Oil Creek Water Trail was identified as an Exceptional Priority Water

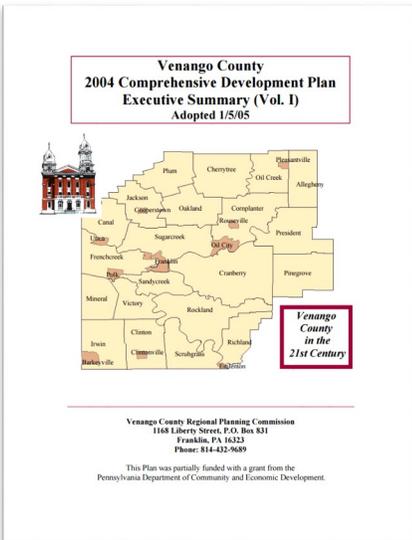


Trail, from Centerville to Rouseville (24 miles). A feasibility study was recommended for the Oil Creek Water Trail to determine the feasibility to establish an official Fish and Boat Commission Water Trail and associated access points and support facilities along Oil Creek.

[Venango County Greenways Plan \(2009\)](#)

The plan identified recommended improvements to the existing Allegheny River Water Trail and the French Creek Water Trail along with the completion of a Oil Creek Water Trail Feasibility Study. The Feasibility Study should identify put in / take out opportunities and secure public access to locations for the proposed water trail.

[Venango County Comprehensive Plan \(2004\)](#)



Venango County Regional Planning Commission is currently updating it's Comprehensive Plan. They launched a public online survey to gather input related to policies on issues including community development, resource management, growth, transportation, housing and facilities.

The 2004 plan identified the preservation of the rural and scenic areas of the County in an economically sound manner as a major theme. In addition, the promotion of the various trail systems and waterways as designated growth areas for recreation and tourism was identified as an immediate priority.

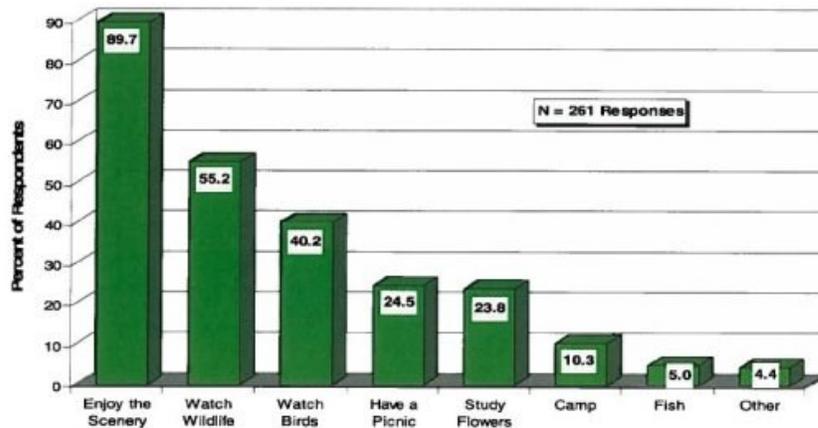


Trail Usage Analysis

Erie to Pittsburgh Trail User Survey and Economic Impact Analysis

A trail utilization study was conducted in the Oil Heritage Region of Venango County and the southern portion of Crawford County in Pennsylvania from July 2006 to December of 2006. The waterway trail system was analyzed on a limited basis in the study. As such, not much information is available regarding water trail usage. Five percent (5%) of survey respondents noted that they use the trails for fishing; however, a number of people noted (write-in responses) that they use the trails for canoeing and kayaking.

Figure 8. Recreational attributes/leisure activities enjoyed throughout a trail visit



Note: Other = Canoe, Hunt, Kayak

Source: AVTA 2006 Trail Utilization Study

In 2013, this study was updated for six trail segments along the Erie to Pittsburgh Trail in the Oil Region Area (Queen City Trail, Oil Creek State Park Trail, McClintock Trail, Samuel Justus Trail, Allegheny River Trail and Sandy Creek Trail). The study found the following:

- ◆ 158,507 annual users along multi-use trails (water trails were not studied)
 - ◇ 2006 study identified 138,281 annual multi-use trail users and 22,510 hiking/water trail users
- ◆ \$7,479,348 economic impact including hard goods (bikes, racks, helmets, etc.)
 - ◇ 2006 study identified \$4,310,000 economic impact



- ◆ \$6,928,620 directly to the local economy
- ◆ 89.8% of trail users from Pennsylvania; 10.2% from outside of Pennsylvania
- ◆ 56-65 years of age predominantly

The Rails to Trails Conservancy is conducting the “Industrial Heartland Trails Coalition Trail Traffic Count Research Project” in 2015 to create an analytical tool that segregates trails into “typology’s,” to identify trails that share similar traits (urban, suburban, rural, destination rural, etc.) and to create trail traffic models to provide accurate annual trail traffic counts. To collect the data, the RTC is installing infrared automated trail counters at 36 random locations throughout the trail network in 50 counties in four (4) states. Two of those counters will be installed along the trail system in Oil Creek State Park. While this information won’t provide information on water trail usage, it will provide more information as to annual land trail users in the area.

Oil Creek Water Level

One of the biggest questions and concerns regarding the development of Oil Creek as a water trail is the water level. The “Canoeing Guide to Western Pennsylvania and Northern Western Virginia”, published in 1991 by Weil and Shaw, recommends that the creek be at least three (3) but less than five (5) feet high for optimal floating conditions. When the water level is below three (3) feet, the water trail user should expect to walk some sections.

The United States Geological Survey (USGS) maintains a gage in Oil Creek at Rouseville; on the right bank 100 feet downstream from the bridge on State Route 8, approximately one mile north of Rouseville. The Rouseville gage includes a webcam and records water levels daily.

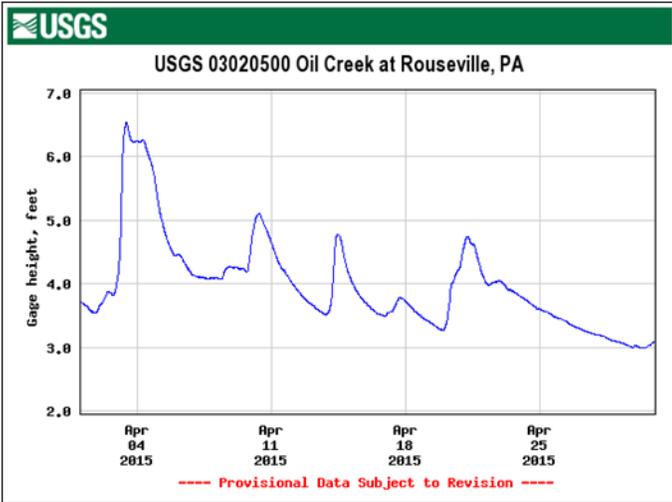
According to the gage, using the recommended water levels above, the creek was floatable 28/30 days in April, 13/31 days in May, 25/30 days in June and 15/31 days in July of 2015.



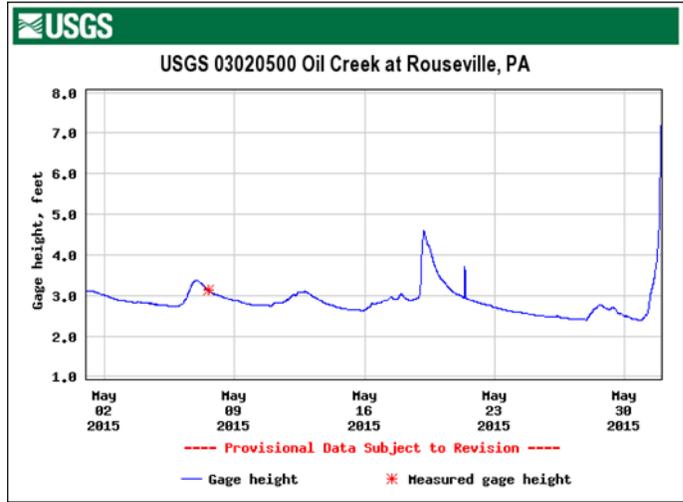
Rouseville Webcam (source: http://waterdata.usgs.gov/nwis/uv?site_no=03020500)



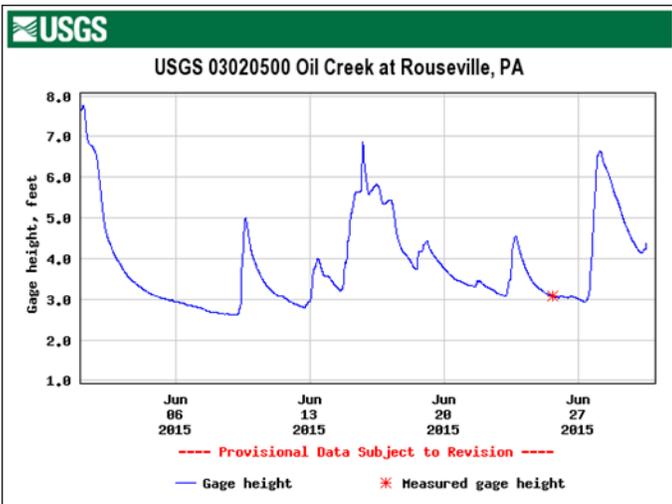
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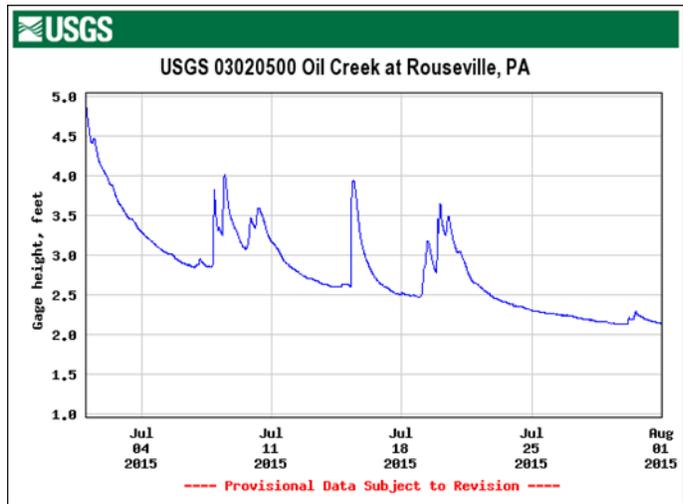
MAY 2015



JUNE 2015



JULY 2015





Public Outreach

A public outreach strategy was developed to engage the various communities and stakeholders to obtain input regarding Oil Creek and its amenities as well as garner community support. A summary of the input received can be found in the Appendices.

Meetings

- ◆ A project committee was formed to assist in the development of the feasibility study. Meetings were held on February 20 and June 17.
- ◆ Public Open House meetings were held. The first meeting was held on April 15 at the Drake Well Museum and the second was held on April 21 at the Oil City Public Library, reaching stakeholders in both Crawford and Venango County regions of the Oil Creek waterway.
- ◆ An economic development meeting was held on August 13 at the Drake Well Museum to provide information on the benefits of and how to implement a River Town Program Strategy.
- ◆ A final meeting was held on November 4 at the Drake Well Museum to finalize the study, organize action teams and begin project implementation.

Stakeholders

The following stakeholders were interviewed:

- ◆ Centerville Borough Mayor Bruce Drake
- ◆ Venango County Conservation District
- ◆ Crawford County Conservation District
- ◆ Centerville Volunteer Fire Department, Hydetown Volunteer Fire Department (no response), Titusville Fire Department, Cornplanter Volunteer Fire Department, Rouseville Volunteer Fire Department (no response), and Oil City Fire Department
- ◆ Oil Region Alliance
- ◆ Titusville Area School District



Physical Inventory and Assessment

A physical inventory and assessment of the proposed Oil Creek Water Trail corridor was completed between May and August of 2015 via the following:

- ◆ Review of aerial mapping and photographs
- ◆ On-water assessments via multiple kayak trips
- ◆ Field views on land from public access points
- ◆ Stakeholder interviews with various organizations, landowners and municipal officials

The purpose of the inventory was to identify existing and potential launch sites, signage opportunities, hazards/obstacles and other features and opportunities.

Section 1: Centerville to Mystic Park = 7 miles

The water trail begins on the East Branch of the Oil Creek at the former ballfield owned by Centerville Borough. The stream here is narrow and shallow but runnable during the appropriate water levels. The East and West branch of Oil Creek meet at the site of a former Grist Mill bordering Centerville Road Bridge. A historic dam limits flow from the West Branch of the Oil Creek resulting in a popular fishing spot. An attractive waterfall can be seen here at higher water elevations and there may be potential to develop an ADA fishing pier at the Centerville Road Bridge. This section is primarily wooded and features very few residences on either side of the creek. Overall this section has scenic value; portions of this route feature some of the most scenic woodlands along the entire trail. The narrow creek winds through a few downed trees and some shallow areas, resulting in a difficult yet passable paddle.

Mystic Park is a former park along the Hydetown-Canadea Trolley Line, operated by the Titusville Electric Traction Company. The park itself closed shortly after the trolley line ended in 1922, as the main purpose of the park was to generate ridership for the trolley line. Now privately owned, Mystic Park is used by the community for events and angling. The owner is receptive to the idea of a water trail. There is opportunity for extensive parking and a working restroom exists on site.

An existing pull off area along Mystic Park Road is one of the better undeveloped launch points along the entire water trail.



Mystic Park (source: *Greater Erie Trolleys*, Kenneth C. Springirth; retrieved online—books.google.com)



Launch Site Name / Location	Mile Marker	Status	Ownership	Features
<p data-bbox="110 449 354 512">Former ball field Centerville Borough</p> 	<p data-bbox="672 449 824 512">East Branch – Oil Creek</p>	<p data-bbox="872 449 971 478">Potential</p>	<p data-bbox="1019 449 1138 512">Centerville Borough</p>	<p data-bbox="1198 449 1510 751">Large open field; No parking on site; Site would need grading to easily access the creek but is less steep than the bank at the VFD property; Site is in a floodplain</p>
<p data-bbox="110 932 354 995">Centerville VFD Centerville Borough</p> 	<p data-bbox="672 932 824 995">East Branch – Oil Creek</p>	<p data-bbox="872 932 971 961">Potential</p>	<p data-bbox="1019 932 1138 995">Centerville VFD</p>	<p data-bbox="1198 932 1494 1045">Large parking lot available; Site would need grading to easily access the creek</p>
<p data-bbox="110 1446 396 1509">Centerville Road / Dam Centerville Borough</p> 	<p data-bbox="672 1446 716 1476">0.0</p>	<p data-bbox="872 1446 971 1476">Potential</p>	<p data-bbox="1019 1446 1138 1509">Private landowner</p>	<p data-bbox="1198 1446 1494 1591">Possibility for one-two car parking area; Access to the creek is downstream from the dam</p>



Launch Site Name / Location	Mile	Status	Ownership	Features
<p>Five Corners Road Bridge Steuben Township</p> 	4.0	Potential	PennDOT	<p>No parking on site nor space to pull off on either side of the bridge;</p> <p>“No stopping on bridge” sign;</p> <p>Steep grade to stream</p>
<p>Mystic Park Road Steuben Township</p> 	5.5	Potential	Possibly PennDOT right-of-way (ROW)	<p>Small pull-off exists now and is informally used as a launch site;</p> <p>Creek is easily accessible;</p> <p>VFD uses to access creek for water in emergency situations</p>
<p>Mystic Park Steuben Township</p> 	7.0	Informal - Existing	Private Landowner	<p>Large parking lot available;</p> <p>Site would need grading to easily access the creek;</p> <p>Facilities include picnic shelters (3—for rent), volleyball court, basketball hoop, swings, grills (2), restrooms, and water;</p> <p>Owner is agreeable to being identified as a private launch</p>



Section 2: Mystic Park to Titusville Ball Fields = 7 miles

The trail continues south along Mystic Park Road where the creek slows and has the deepest pools along the water trail. Minor Class I rapids separate these pools. Cabins and residences are prevalent on each side of the trail but the exposed bedrock and pockets of wooded vegetation provides scenic value. An Oil Creek tributary joins the trail just past the State Route 408 Bridge resulting in sedimentation deposits and shallow water depths. Opportunities exist here for a streambed restoration project. The trail then parallels Hasbrouck Sand and Gravel quarry just before entering Titusville. After traversing another section of Class I rapids, you arrive near the City of Titusville’s O’Rourke Ball Fields, which offers adequate parking and gentle sloping access to Oil Creek. A completed Streambed Restoration project can be seen across the creek and is a potential educational opportunity.

Launch Site Name / Location	Mile Marker	Status	Ownership	Features
Newtown Road Bridge Troy Township 	8.5	Potential	PennDOT ROW	Favorable access to creek; No parking on site; Vacant cabin nearby—property could be an opportunity for a public access site with parking
SR 408 Bridge Hydetown Borough 	11.0	Potential	PennDOT ROW	Steep access to creek; Heavy vegetation; No parking on site



Launch Site Name / Location	Mile	Status	Ownership	Features
<p>Gresham Road Bridge Hydetown Borough</p> 	11.0	Potential	PennDOT	<p>Favorable access to creek; No parking on site; Close to sand and gravel operation</p>
<p>Titusville Free Methodist Church Oil Creek Township</p> 	13.2	Potential	Private (church)	<p>Large parking area; Private residence adjacent to creek</p>
<p>O'Rourke Field / Waterworks City of Titusville</p> 	14.0	Potential	Public (City of Titusville)	<p>Two ballfields; Rustic restrooms available; Favorable access to creek; Opportunity to create a "beach" alongside the creek</p>



Section 3: Titusville Ball Fields to Jersey Bridge = 2.6 miles

This short section of creek is relatively straight and free of obstacles, offering a few nice Class I rapids. The creek passes Titusville Middle School near the South Brown Street Bridge. The school, along with an existing Blue Heron rookery a few hundred yards downstream, provide some of the best educational opportunities on the water trail. The Black Bridge (railroad bridge over Oil Creek) presents a possible trailhead for both the Queen City Trail (multi-purpose ped/bike trail) and the Oil Creek Water Trail. While combined sewer outfall was noted near O'Rourke Ball Fields, the Sewage Authority stated that improvements to the waste water facility has addressed this issue. Businesses and residences mostly border each side of the creek until reaching a wooded stretch bordering Titusville's Ed Myer Recreation Complex, where the corridor becomes more scenic. Jersey Bridge, near the Drake Well Museum, serves as a trailhead to the Oil Creek State Park Bicycle Trail (walking/biking) and offers a canoe/kayak launch.

Launch Site Name / Location	Mile Marker	Status	Ownership	Features
Black Bridge Trailhead City of Titusville 	15.1	Potential	Private	Privately owned. This area offers potential to serve as a trailhead for both the Queen City Trail as well as the Water Trail.
Ed Myer Recreation Complex City of Titusville 	15.7	Potential	Public (city)	Two options for creek access: one is near the soccer fields and one is near the tennis courts. The access near the soccer fields is more open and flat alongside the creek but the one near the tennis courts is closer to parking.



Launch Site Name / Location	Mile Marker	Status	Ownership	Features
<p>Ed Myer Recreation Complex City of Titusville</p> 	15.7	Potential	Public (city)	<p>Large recreational complex featuring ball fields, tennis courts, BMX track, etc.</p> <p>Opportunity exists to develop a viewing area for the Blue Heron Rookery that is across the creek in Titusville Opportunity Park.</p>
<p>Jersey Bridge Oil Creek Township (Venango County)</p>  	16.6	Existing	Public (state park)	<p>Jersey Bridge offers a grassy canoe/kayak launch area alongside a large parking area with rustic restrooms. This is a popular launch site along Oil Creek and is heavily used by anglers. Jersey Bridge also serves as a trailhead for the Oil Creek State Park Bicycle Trail and the southern trailhead for the Queen City Trail.</p> <p>The Drake Well Museum and train station are on the opposite side of the creek. The railroad provides portage for canoers and kayakers for a fee.</p>



Section 4: Oil Creek State Park = 13 miles

This long stretch of Oil Creek, through Oil Creek State Park, is the crowning jewel of the water trail. The creek winds through an extremely scenic gorge rich with American Oil Industry history. The Oil Creek & Titusville Railroad follows Oil Creek through the State Park and offers stops at Perry Street (Titusville), Drake Well Station, Petroleum Centre Station and Rynd Farm Station. The Railroad provides portage (bicycles, kayaks, canoes) for a fee.

The creek flows south past the Drake Well Museum providing a potential educational link to the water trail. Many fly fishermen utilize the section of the creek behind Drake Well Museum, which can cause paddling difficulty during the peak fishing season. The creek flows south through Oil Creek State park paralleling the existing bike trail. The creek picks up speed through the park and is littered with exposed bedrock and Class I rapids. Both sides of the creek feature beautiful old growth with large Sycamore trees. Nine miles through the park you arrive at Petroleum Centre and the Park Office. This is the southern terminus of the Oil Creek State Park bike trail and offers a picnic area, canoe/kayak launch and parking on site.

A major ice control dam is found two miles south of Petroleum Centre. The dam provides the biggest safety concern of the entire water trail; portage (land route used by paddlers to transport their boats) around it is required. There are warning signs that instruct users to the portage area on the east side of the dam. However, safety concerns exist regarding the proximity of the portage area to the dam, deep sedimentation and the size of the portage area itself.

After passing a ¾ mile interpretive trail near Blood Farm, Oil Creek State Park ends at the Rynd Farm Train Station. Parking and a canoe/kayak launch are provided; however, there are no public restrooms. There is a possible vending/rental opportunity at the Coal Oil Johnny House.

While overnight camping opportunities exist within the State Park, it is only allowed at designated sites; none are directly along the creek.

Launch Site Name / Location	Mile Marker	Status	Ownership	Features
Miller Farm Cornplanter Township 	20.0	Potential	Public (Oil Creek State Park)	Located halfway between Jersey Bridge and Petroleum Centre, Miller Farm presents an opportunity for a launch site to allow paddlers a shorter trip within the state park The bridge is to be replaced— opportunity to create a launch site at that time Can also serve as a trailhead for the Bicycle Trail



Launch Site Name / Location	Mile	Status	Ownership	Features
<p>Petroleum Centre Cornplanter Township</p> 	26.1	Existing	Public (Oil Creek State Park)	<p>Petroleum Centre serves as a trailhead for the Oil Creek State Park Bicycle Trail. There is a railroad station here, which will provide portage for canoers/kayakers for a fee. There is a large parking lot along with picnic shelters and rustic restrooms. Organized group tenting is available nearby.</p>
<p>Ice Dam—Obstacle</p> 	28.6	Existing— portage required around the dam	Public (Oil Creek State Park)	<p>The dam serves to break ice blockage from upstream.</p> <p>Oil City and the State Park have an agreement to clean the portage area but silt is a big issue and costly to address. The put-in on the other side of the dam needs improvements—fast-moving water and the concrete chute can be very slippery. The National Park Service provides design specifications for portages at www.nps.gov/ncrc/programs/rtca/helpfultools/</p>
<p>Rynd Farm Cornplanter Township</p> 	29.3	Existing	Public (Oil Creek State Park)	<p>Grassy canoe/kayak launch; Large parking lot; Train Station and concessions; Coal Oil Johnny House (owned by Oil Region Alliance)</p>



Section 5: Oil Creek State Park to Oil City = 4.6 miles

Beginning at Rynd Farm and ending in Oil City at the confluence with the Allegheny River, the final 4.6 mile section of the water trail offers the greatest amount of rapids for paddlers. The water speed accelerates and the rapids approach Class II during higher water levels. The surrounding land use is mostly industrial, offering the least amount of natural scenic value along the water trail. The biggest safety concern in this section is the railroad bridge south of Rouseville. Paddlers should be aware of water speeds, which could pin canoes/kayaks against the bridge piers.

As you enter Oil City, the creek crosses under Upper Seneca Street. The Oil Creek Memorial Landing was constructed in 2015, thus offering parking and access to the McClintock Trail (walking/biking). A canoe/kayak launch onto Oil Creek will be installed in the spring of 2016.

Oil Creek is bordered by industrial shorelines and concrete walls before ending at the existing boat launch at Justus Park. Justus Park provides adequate parking, picnic areas, public restrooms, and is easily accessible to downtown Oil City. Dangerous rapids exist at the confluence with the Allegheny River and should only be attempted by experienced paddlers.

Launch Site Name / Location	Mile Marker	Status	Ownership	Features
Oil Creek Memorial Landing City of Oil City	32.7	Existing	Private (Oil Region Alliance); Open for public use	<p>Newly constructed along Route 8/ Seneca Street.</p> <p>Features parking, handicapped access and seating.</p> <p>Being installed in 2016 are canoe/ kayak launch, memorial elements, kiosk, landscaping, etc.</p> <p>The adjacent Dollar General retail store has agreed to allow trail users to utilize the store's restrooms.</p>





Launch Site Name / Location	Mile	Status	Ownership	Features
<p data-bbox="110 449 285 512">Justus Park City of Oil City</p>  	33.9	Existing	Public (City of Oil City)	<p data-bbox="1130 449 1503 701">Justus Park features a launch for cartop small boats, canoes and kayaks; parking; public restrooms; passive recreation; picnic tables and a trailhead for the Samuel Justus Trail (multi-purpose trail). The park is easily accessible to the downtown.</p> <p data-bbox="1130 737 1511 921">Oil City has plans to add in 2015-2016 a kiosk map on the outer wall of the restroom building, several free-standing interpretive panels, and designate several parking spaces for trail users.</p> <p data-bbox="1130 989 1500 1110">The ramp to the water is concrete slab but is somewhat overgrown with vegetation and is in need of repair.</p>



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Environmental Assessment

An environmental assessment of the Oil Creek corridor was completed by Dr. Andrew M. Turner, Ph.D, Biology Professor at Clarion University. The assessment provides data on water quality, benthic invertebrates, and fish communities of Oil Creek along with general observations regarding riparian vegetation and wildlife. These findings are based on two canoe trips made in support of this feasibility study, as well as data collected in prior years by Clarion University students and faculty.

Context

Oil Creek of northwestern Pennsylvania occupies a unique geological setting. The headwaters of the watershed are near the boundary of Erie and Crawford counties, as well as in western Warren County, and the waters flow towards the south and into the Allegheny River at Oil City. The low-gradient streams of the headwaters drain a glaciated landscape with many lakes, ponds, and marshes. Canadohta Lake, one of just eight natural glacial lakes in Northwestern Pennsylvania, lies in the headwaters of the West Branch of Oil Creek. In addition to its unique glacial history, Canadohta Lake is also notable for its relatively large size (170 acres) and depth (~ 50 feet). The waters of the West Branch and East Branch of Oil Creek converge at Centerville. This stream flows south to Titusville, where it is joined by Pine Creek from the east. Titusville sits near the terminal moraine, representing the maximum advance of the Wisconsin glaciation, and at this point the stream changes character. Moving south from Titusville the valley becomes narrow, slopes much steeper, and stream gradient is higher. Streams that drain a glaciated landscape tend to have different water chemistry and biology than do streams draining an unglaciated landscape. **Oil Creek, being a transitional watershed that bridges both types of landscapes, thus has unique biological features rarely found in a watershed of this size.**

Findings

Water quality in Oil Creek is good to excellent (Table 1). The stream can be characterized as having good pH and being moderately well buffered. Concentrations of Total Dissolved Solids (TDS) measured in 2015 ranged from 75-88 mg/l, which is a relatively low value. If there were any strong effects of agriculture, sewage inflows, or industrial discharges, it would be considerably higher. TDS values were higher in 2013. This may be due to lower flows in 2013, or it may reflect wastewater inputs which have since been eliminated. Oxygen concentrations are at saturation. The stream is moderately well buffered, with alkalinity of 40 mg/l and higher, and pH of 7.0 or higher. Our visual observations reveal that the water is relatively clear, even with recent rainfall, and our water quality measurements confirm that the turbidity is generally very low.



On July 3 we sampled benthic invertebrates at two sites in Oil Creek: Blood Farm and at the abandoned Quaker State Refinery site (Table 2). Both sites contained a diverse array of invertebrate taxa, with 23 taxa identified at Blood Farm and 16 at Quaker State. More importantly, there was a strong representation of sensitive taxa at both sites, with 11 of the 23 (48%) Blood Farm taxa belonging to the orders Ephemeroptera, Plecoptera, or Trichoptera (EPT taxa), and 9 of the 16 (56%) Quaker State taxa belonging to the EPT groups. **This is strong evidence of excellent water quality.** The substrate is generally of excellent quality, with low silt loads and embeddedness.

Mussels are present in the stream. We identified just one species, the spike, *Elliptio dilatata*, which is a common species. It is typically found in larger rivers, and not streams, but the low gradient of the upper reaches of Oil Creek seems to mimic the conditions of the larger river. Other species have been reported, but not yet confirmed.

High flows in summer 2015 prevented us from engaging in fish survey work, but we have two years of historical data (Table 3). In summer 2008 we sampled three sites on Oil Creek and found a streamwide total of 19 taxa. The most diverse individual site was, interestingly, the Quaker State Refinery site, with 13 taxa. In fall 2013 we sampled four sites, ranging from Drake Well to the mouth, and found a streamwide total of 22 species. Again, diversity tended to increase as we moved downstream. Combining the two sampling episodes, we have identified 28 species from Oil Creek, which is a relatively high diversity for a stream of this size. The fish fauna includes a state endangered species, the northern madtom. Thus, despite the historical degradation of Oil Creek, the native fish community of Oil Creek is diverse and characteristic of a healthy stream.



Northern madtom (Source: Dr. Andrew Turner)



Trout are stocked into Oil Creek and is managed as a put-and-take fishery. Trout normally do not persist through the summer in Oil Creek, due to warm water temperatures, but we noted on our canoe trip on July 3 that the trout fishing was still good.

There is a diverse assemblage of birds occupying the riparian forests. Species we observed include the Bald Eagle, Black-crowned Night-heron, Spotted Sandpiper, Hooded Merganser, Common Merganser, Red-Breasted Merganser, Wood Duck, Kingfisher, Yellow Warbler, and Great Blue Heron.

Herpetological fauna sighted included an abundance of northern watersnakes, the mudpuppy *Necturus maculosus*, and the spiny softshell turtle *Apalone spinifera*.



Rainbow trout caught Rynd Farm, July 3, 2015
(Source: Dr. Andrew Turner)

The riparian zone is notable for the diversity and composition of the forests. The lower valley, below Petroleum Centre, has well developed stands of Sycamore. The sycamore is characteristic of streams in the mid-Ohio Valley, but we are not aware of any other stream in this region with such well developed Sycamore stands.

Recommendations

The presence of Japanese Knotweed (*Fallopia japonica*), an invasive species, is a threat to the biological diversity of the riparian zone. Left unchecked, Japanese Knotweed will form a dense canopy that excludes other plants and suppresses biological diversity. It can be controlled via cutting and herbicide application, but this is a labor intensive activity and is feasible only for smaller patches. Larger outbreaks cover such extensive areas that control is nearly impossible, so it is imperative to control the plant before it becomes too abundant. At present there are just small growths of knotweed in the riparian corridor and manual control is feasible. We observed outbreaks along the streambank in Titusville, as well as within the state park just below Petroleum Centre. These growths should be addressed immediately. Control of knotweed and other invasive species provides an opportunity for public engagement in stream restoration activities. This is a good opportunity to involve students from local schools.

Overall, the riparian zone is in good shape, with relatively little agriculture along the stream edge. The area around Hydetown, with the large field above Thompson Run and the quarry below Thompson Run, is one exception. Any management plan should recommend restoration of the riparian vegetation in this area. The land once occupied by oil refineries, in the lower stream corridor between Rouseville and Oil City, is another area in need of some restoration, though the stream corridor is in surprisingly good shape, given its industrial



history. Restoration of riparian corridors, by plantings of trees and shrubs, is another activity that can afford opportunities to involve students from local schools. Brian Pilarcik, of the Crawford County Conservation District, is already quite active in collaborating with high schools in riparian restoration activities.

The upper portion of the stream, above Hydetown, has a number of unstable banks that are actively eroding and adding silt to the water. To a large degree this is certainly a natural consequence of the geological history of the stream – there was glacial damming of the valley (there was likely stream reversal here during glaciation), and much of this silt was probably deposited at the bottom of a proglacial lake (e.g. a glacial kame terrace). The stream is now cutting down through this fine material. Research also reveals that there were a number of small mill dams on upper Oil Creek in the 1800's. These may have also resulted in the retention of silts. The best that can be done is to protect the largely intact riparian zone.

The historical story of the degradation of Oil Creek, due to the oil boom and subsequent industrialization of the lower valley, and the subsequent recovery, is quite compelling. Few aquatic ecosystems anywhere in the world have seen such devastation, and then been afforded the opportunity to recover. Our studies found that the current biological diversity of Oil Creek is relatively high for a stream of this size. The recovery of Oil Creek is an amazing testament to the resilience of stream ecosystems, and an inspiring story. Any development of a water trail should feature educational exhibits and activities aimed at telling this story.



Clarion University students, July 3, 2015 (Source: Dr. Andrew Turner)



Because Oil Creek is a high-quality stream ecosystem with high biological diversity, but is adjacent to several moderate size population centers (Titusville, Oil City), there is a unique opportunity to treat it as a “living laboratory”. It provides an excellent venue for field trips aimed at teaching environmental science. There really is no good substitute for authentic field experiences when teaching students about ecology, environmental science, and sustainability. Oil Creek has the potential to provide these experiences to a significant number of high school students. Development of a water trail should be done in collaboration with local educators.

Accomplishment of these goals will require public support and participation. For example, volunteer groups can provide the labor needed to control the Japanese Knotweed. Volunteer labor should also be recruited for riparian plantings. In turn, public investment into restoration activity will build a sense of community stewardship and foster positive attitudes towards the stream and its watershed.

Table 1. Example water quality data from Oil Creek.

	pH	TDS (mg/l)	Alkalinity (mg/l CaCO ₃)
Mystic Park May 15	6.91	85	-
Pine Run May 15	7.61	88	-
Quaker State July 15	8.14	75	-
Drake Well Sept 13	7.64	185	108
Petrol. Center Sept 13	8.53	174	100
Quaker State Sept 13	8.58	194	90
Justus Park Sept 13	8.4	119	40



Table 2. Oil Creek Invertebrates, July 3, 2015.

	Rynd Farm	Quaker State
Mayflies (Ephemeroptera)		
Ephemeridae (burrowing mayfly)	x	x
Isonychiidae (brush legged mayfly)	x	x
Leptophlebiidae (pronggill mayfly)	x	
Heptageniidae (flathead mayfly)	x	
Baetidae (minnow mayfly)	x	x
Caddisflies (Trichoptera)		
Limnephilidae (Northern casemaker)	x	x
Helicopsychidae (snail casemaker)	x	x
Hydropsychidae (netspinner)	x	x
Rhyacophilidae (free-living)		x
Brachycentridae (squarecase caddis)	x	x
Flies and Midges (Diptera)		
Chironomidae (midges)	x	x
Tipulidae (crane flies)	x	
Water Beetles (Coleoptera)		
Gyrinidae (whirlygig beetle)	x	
Psephenidae (water penny)	x	x
Elmidae (riffle beetles)	x	x
Dragon- and Damselflies (Odonata)		
Gomphidae (clubtails)	x	



Table 2. Oil Creek Invertebrates, July 3, 2015 (continued)		
	Rynd Farm	Quaker State
True Bugs (Hemiptera)		
Veliidae (little waterstriders)	x	x
Plecoptera		
Perlidae (common stonefly)	x	x
Crustaceans		
Amphipods	x	
Decapoda	x	
Planariidae (flatworms)		x
Molluscs		
Corbiculidae (Asiatic clam)		x
Hydrobiidae		x
Oligochaeta		
Annelida (earthworms)		x
Arachnida		
Hydracarina		x
Total Taxa	19	18



Table 3. Fish community of Oil Creek. Fish were sampled in July 2008 and September 2013.

	Drake Well 2008	Petroleum Centre 2008	Quaker State Refinery 2008	Drake Well 2013	Petroleum Centre 2013	Quaker State Refinery 2013	Justus Park 2013
Petromyzontidae							
Ohio lamprey	X		X				
Cyprinidae							
Creek Chub	X						
River Chub	X	X	X	X	X	X	X
Tonguetied Minnow	X			X	X		
Bluntnose Minnow				X			
Striped Shiner		X		X	X	X	
Blacknose dace	X						
Longnose dace				X			
Central stoneroller		X	X		X	X	
Rosyface shiner					X	X	X
Silver shiner							X
Streamline chub			X				
Catostomidae							
Northern Hogsucker				X	X	X	
Ictaluridae							
Stonecat Madtom	X		X	X	X	X	X
Northern MadtomE						X	X
Cottidae							
Mottled Sculpin	X			X			
Centrarchidae							
Smallmouth Bass			X	X	X	X	X
Bluegill						X	
Rockbass			X				X



Table 3. Fish community of Oil Creek (continued)

	Drake Well 2008	Petroleum Centre 2008	Quaker State Refinery 2008	Drake Well 2013	Petroleum Centre 2013	Quaker State Refinery 2013	Justus Park 2013
Percidae							
Logperch			X				
Fantail Darter	X	X		X	X		
Greenside Darter	X	X	X	X	X	X	X
Rainbow Darter	X	X	X		X	X	X
Banded Darter		X	X			X	X
Variegate Darter			X			X	X
Longhead Darter		X	X			X	X
Tippacanoë DarterT						X	
Spotted DarterT							X
Total # Species							
28	10	8	13	11	11	15	13



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Management and Operations

Perhaps one of the biggest questions moving forward is who is going to manage the Oil Creek Water Trail? A management entity is a requirement to becoming designated as an official water trail by the Pennsylvania Fish and Boat Commission and can be one of the hardest to fulfill. Per the National Park Service, designated water trails must incorporate the following best management practices:

- ◆ **Recreation Opportunities:** The water trail route has established public access points that accommodate a diversity of trip lengths and provide access to a variety of opportunities for recreation and education.
 - ◇ Along Oil Creek, there are several existing public access points and many more potential access points. While the management entity need not be the owner of the sites, they would need to be partners for purposes of obtaining grant funding for site development.
- ◆ **Education:** The water trail users are provided with opportunities to learn about the value of water resources, cultural heritage, boating skills, and outdoor ethics.
 - ◇ Many educational opportunities existing along Oil Creek. The management entity would need to coordinate and develop these opportunities.
- ◆ **Conservation:** The water trail provides opportunities for communities to develop and implement strategies that enhance and restore the health of local waterways and surrounding lands.
 - ◇ The management entity should partner with the local municipalities to implement sustainable best management practices with regards to stormwater management and streambank stabilization.
- ◆ **Community Support:** Local communities provide support and advocacy for maintenance and stewardship of the water trail.
 - ◇ The management entity would serve as the leader to publicize and market the water trail, develop a volunteer base and organize community events.
- ◆ **Public Information:** The public is provided with accessible and understandable water trail information, including details for identifying access and trail routes; cultural, historic, and natural features; hazards; and water quality. The water trail is promoted to the community and broad national audience.
 - ◇ The Pennsylvania Fish and Boat Commission requires that every water trail have maps and information available to the public. The management entity would be responsible for developing the water trail map and guide, ensuring that it is available online and could provide hard, printed copies for a fee.



- ◆ **Trail Maintenance:** There is a demonstrated ability to support routine and long-term maintenance investments on the water trail. Facilities are designed, constructed, and maintained by incorporating sustainability principles.
 - ◇ As cited in the descriptions of each section of the creek, Oil Creek has a number of downed trees and other potential snags that would need to be addressed and continually monitored. The management entity would be responsible for ensuring that these obstacles are cleared regularly. They could also partner with the owners of the public access sites for maintenance of the sites and amenities offered at each.
- ◆ **Planning:** Maintain a water trail plan that describes a vision, desired future conditions, and strategies to strengthen best management practices.
 - ◇ The management entity would be responsible for the long-term planning of the water trail.

During the feasibility study, a number of organizations were identified as potential organizations to take on this responsibility. Ultimately, the managing entity will need to be determined based upon willingness and interest as well as capacity (staff and resources). It is not necessary for one entity to manage the entire length of the water trail; the trail may be split into sections and managed by several organizations. While this study began conversations with the various organizations in the region, it will be important to continue the conversation and determine what organization(s) is ready and willing to take on such a vital task.

There was some discussion regarding the feasibility of having a for-profit entity as the water trail manager, such as an outfitter, eco-tourism organization or other similar business. Initial research on this concept revealed that all designated water trails in Pennsylvania are managed by non-profit organizations. It is recommended that this concept be explored further, especially regarding potential liability concerns, as the Pennsylvania Recreational Use of Land and Water Act would not be applicable to a for-profit entity.



Recommendations

Recommendations have been developed that once implemented, will make the Oil Creek Water Trail a reality. The recommendations have been grouped to follow the Pennsylvania Fish and Boat Commission's water trail principles; however, it should be noted that while this is a long-term goal, formal designation as a water trail is not required to proceed with developing Oil Creek as a water trail.

Trail Amenities

1. **Develop public river access areas at strategic points along Oil Creek.** Each access area should be designed to accommodate, at a minimum, the following:

- ◆ Parking for at least four (4) cars, although 6-8 is ideal
- ◆ Launch area of a secured stable surface with ADA slope; could be primitive in design (grass) or more formal (paved / stones / permeable paving).
- ◆ Signage should site name/owner, emergency contact information, boating safety rules and regulations, and wayfinding. Local emergency response agencies identified concerns regarding users not knowing their location if they are in trouble. To assist with this, access sites should include signage that offers a map of the trail, river mile markers as well as approximate paddle times to the next access point.

Note: the example signage photo to the right includes the GPS coordinates of the site.

- ◆ Additional amenities that could be offered include shelters, lighting, canoe/kayak racks, water spigot (clean watercrafts to limit transport of invasive species) and shade. Concerns regarding cellular coverage on the creek was raised; a potential idea could be to partner with local providers to install mini-cell towers at public access areas to provide coverage.





◆ Section1: Centerville to Mystic Park

- ◇ Centerville Borough property along East Branch of Oil Creek. This site will require the development of a parking area and launch to the creek.
- ◇ Mystic Park Road or Mystic Park. The Mystic Park Road location would require minimal work; it already offers a small pull-off area and the creek is easily accessible. However, there is only room for a few cars and there are no restrooms or other amenities. Mystic Park is privately owned, but the owner is agreeable to being identified on maps and guides as a private launch. Parking and public restrooms are available on site. Any future improvements however, would require an agreement with the landowner.

◆ Section 2: Mystic Park to O'Rourke Field / Waterworks

- ◇ O'Rourke Field / Waterworks. Owned by the City of Titusville, this site already offers parking and rustic restrooms (port-a-john).

◆ Section 3: O'Rourke Field / Waterworks to Jersey Bridge

- ◇ Black Bridge or Ed Myer Recreation Complex. This site has the potential to be developed as both a trailhead for the Queen City Trail as well as the Oil Creek Water Trail. The Ed Myer Recreation Complex is already owned by the City of Titusville and offers parking as well as restroom facilities; however, access to the creek would need to be improved. Currently, the creek is accessible from the Queen City Trail but is a fair distance from the parking lots.

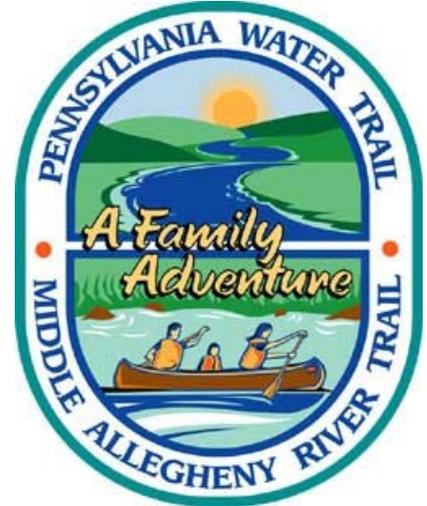
This section presents a unique opportunity to develop for tubing. If the O'Rourke Field and the Ed Myer Recreation Complex are developed as access sites, it offers a great day use area for families. Tubes could be rented/sold and a beach area could be developed along Oil Creek at the Ed Myer Recreation Complex.



Boulder Creek Tubing
(source: <http://www.uncovercolorado.com/river-tubing-kayaking/boulder-creek/>)



- ◆ Section 4: Oil Creek State Park
 - ◇ There are already existing access areas in Oil Creek State Park; however, it is recommended that better signage is installed to direct potential users to the creek access areas and provide information on the water trail itself.
- ◆ Section 5: Oil Creek State Park to Allegheny River in Oil City
 - ◇ Similar to within Oil Creek State Park, the City of Oil City already has (or is in the process of) formal canoe/kayak launches. It is recommended that signage is improved in these areas to direct users and sign the water trail.



2. **Design a logo for the Oil Creek Water Trail.** A logo should be developed that will identify the Oil Creek Water Trail and be used in all publicity and marketing for the trail.

Example of Water Trail logo (source: www.fish.state.pa.us/watertrails/alleg/trailguide.htm)

3. **Develop a signage plan.** The signage plan should including the following:

- ◆ Wayfinding—signage should be installed to direct users to the public access areas from main roads as well as along the creek itself to direct water trail users to take out points and local amenities. Coordination with PennDOT is recommended to ensure that all state bridges over the creek include water trail signage as they are rehabbed.
- ◆ Orientation and Safety—signage should be installed at all public and private access points that includes the name of the site and location (river mile markers) along with boating safety rules and regulations
- ◆ Interpretive—interpretive signs can be installed along the trail to identify historic sites, natural areas and features.

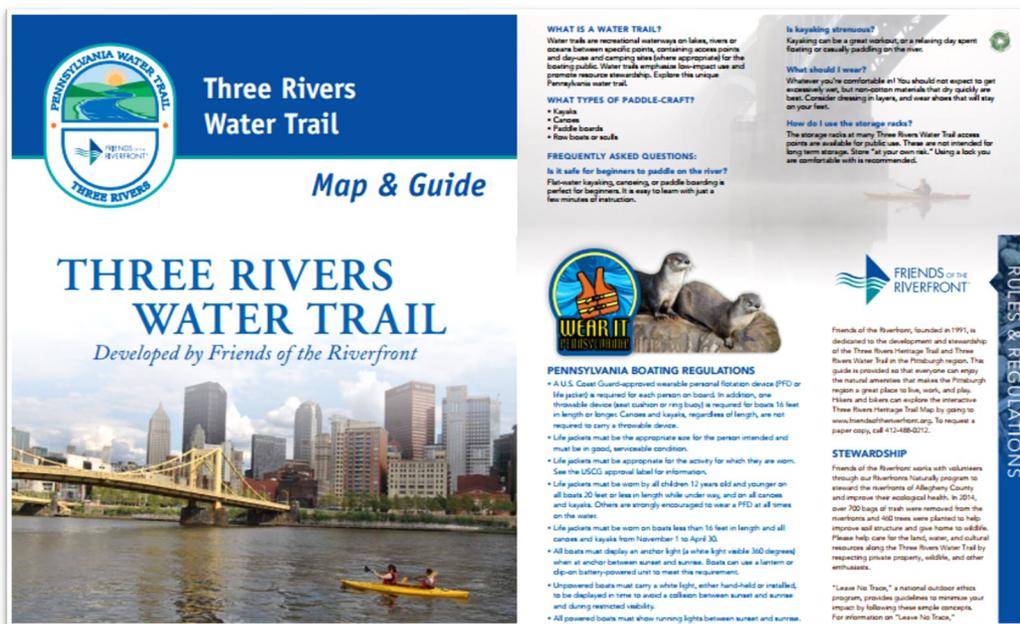


Example of Access Point and Trail Signage (source: <http://www.americantrails.org/NRTDatabase/trailDetail.php?recordID=3625>)



Partnerships / Feasibility

1. **Identify a Management Entity.** Prior to applying for designation as a water trail, a management entity will need to take responsibility for the water trail. If there is no one organization that wants to take on such responsibility, an option would be to have multiple organizations assume management of different sections. This could be done on a county or municipal basis.
2. **Create Water Trail Map and Guide.** Using the mapping provided through the feasibility study, an official water trail map and guide should be developed. The map and guide should include access and hazard sites, trail amenities, safety information, boating regulations and information on the natural, cultural and historic points of interest trail users will see along the way.



Example of Water Trail Map and Guide (source: <http://friendsoftheriverfront.org/trails/three-rivers-water-trail/>)

3. **Add a Webcam at Drake Well.** A webcam can provide information on water depth and clarity and live video can be used for promotion to bring people into the State Park to use the water trail.
4. **Develop an Online Presence.** Provide information regarding the water trail, including the map and guide, on all local and regional organizations' websites. Create a presence on social media, through Facebook, Twitter, etc., to engage the community, recruit volunteers and publicize events.



5. **Build Relationships with State and Local Agencies.** Many different agencies and local organizations may contribute multiple resources toward the creation and management of the Water Trail. Resources include technical assistance, financial support, fundraising, education, public outreach and volunteer coordination. Agencies and organizations may include, but are not limited to, the following:

- ◆ Pennsylvania Department of Conservation and Natural Resources (DCNR)
- ◆ Pennsylvania Department of Environmental Protection (DEP)
- ◆ Pennsylvania Fish and Boat Commission (PFBC)
- ◆ Crawford County and Venango County—Planning Commissions, Conservation Districts, etc.
- ◆ Colleges and Universities (University of Pittsburgh-Titusville, Clarion University, Allegheny College)
- ◆ Local emergency management agencies (fire and water rescue),
- ◆ Allegheny Canoe Club
- ◆ Three Rivers Paddling Club
- ◆ PA Cleanways
- ◆ Paddle without Pollution
- ◆ Pennsylvania Environmental Council (PEC)
- ◆ Boy-Girl Scouts of America

Stewardship

1. **Develop Agreements for the Maintenance of Facilities.** Once formal public access areas are developed for the water trail, it is recommended that the management entity develop formal maintenance agreements for all facilities developed along the water trail. Oil Creek State Park and the City of Oil City have a maintenance agreement for the ice dam; partner with both to improve the safety of the portage area around the dam.
2. **Coordinate Creek Clean-ups.** While very little litter was found along Oil Creek, annual clean-ups should be held. Not only will these ensure a cleaner corridor, but they can also serve to engage the community and encourage more people to use the water trail. In addition, the creek should be cleared regularly for downed trees, logs and brush. The Shenango River Water Trail has used the Amish community to lead clean up efforts, with Pennsylvania Department of Environmental Protection (DEP) approval.



3. **Monitor Water Quality.** There are several entities that already conduct various water quality testing and monitoring (Titusville Middle School, University of Pittsburgh—Titusville, Clarion University). These organizations should continue to conduct such studies and serve as an educational opportunity for local students.

Volunteerism

1. **Develop a Database of Volunteers.** Begin to build a database of volunteers by adding people who attend meetings and events regarding the water trail.
2. **Organize Community Events that Provide a Volunteering Opportunity.** Organize community events, such as paddles, clean-ups, invasive species control, riparian plantings, etc., to engage residents, businesses and schools in the water trail. Students and scouts could be engaged to fulfill service projects.

Education

1. **Utilize Oil Creek as a “Living Laboratory.”**
Collaborate with local educators to develop field trips aimed at teaching environmental science. There really is no good substitute for authentic field experiences when teaching students about ecology, environmental science, and sustainability.
2. **Establish Programs with Surrounding Colleges and School Districts.** With so many local school districts and colleges nearby, Oil Creek is rife with opportunities to develop educational programs. Titusville Area Middle School sits adjacent to Oil Creek and presents an invaluable opportunity to host such programs.



Titusville Middle School / Queen City Trail along Oil Creek (source: Mackin, 2015)



Conservation

1. **Prepare a River Conservation Plan.** A river conservation plan should be developed for the Oil Creek Watershed, which would provide an inventory of significant natural, recreational and cultural resources; identify issues, concerns and threats to river resources; and recommend methods to conserve, enhance and restore Oil Creek. Funding is available through Pennsylvania Department of Conservation and Natural Resources (DCNR) Rivers Conservation Program.

2. **Invasive Species Control.** Control the small growths of Japanese Knotweed found along the streambank in Titusville and in Oil Creek State Park, just south of Petroleum Centre.

3. **Restore Riparian Corridors.** Overall, the riparian zone was found to be in good shape, with an exception near Hydetown above Thompson Run and the quarry below Thompson Run. There is an opportunity to partner with adjacent landowners to restore riparian corridors by planting trees and shrubs. Clear sediment and repair washed out streambanks at locations downstream from entry points of tributaries.

4. **Stabilize the Streambank.** In areas where the streambank is heavily eroding, partner with local landowners and County Conservation Districts to implement streambank stabilization projects. Investigate a possible partnership with the local Sand and Gravel Company for use of rock boulders to stabilize embankments .



Recently completed streambank and fish habitat restoration project along Oil Creek (source: Merrilynn Marsh, TRA)

Community Vitality

1. **Publicize and Market Shared Land Trail and Water Trail Access Areas.** There are already several areas where land trails and the water trail can be accessed (Drake Well Museum, Petroleum Centre, Oil Creek Memorial Landing in Oil City). These should be publicized and marketed as such. Ensure that all trail brochures, maps and guides identify both the land and water trails and access points.



2. **Install Interpretive Signage.** Such signage could be installed at trailheads and at various points along the creek. Opportunities include the historical story of the degradation of Oil Creek due to the oil industry and its subsequent recovery; educational panels on invasive species and streambank stabilization; and information on the Blue Heron Rookery in Titusville Opportunity Park.

Diversity

1. **Develop a Program to Bring City Youth to the Water Trail.** OARS Outfitters, located in Franklin, Pennsylvania, offers a program where they bring inner city youth to local area water trails. Partner with OARS to offer such a program on the Oil Creek Water Trail.
2. **Partner with Local / Regional Recreation Organizations to Offer Programs.** There is an opportunity to develop both educational and recreational programs that utilize the water trail. Titusville Middle School has kayaks that they use for teaching purposes; an opportunity exists to partner with them as well as other local/regional organizations, such as the Titusville YMCA, to offer recreational programs on the creek.

Wellness and Wellbeing

1. **Utilize the Water Trail for Health and Wellness Programs.** Another option with regards to utilizing the water trail for programs is to partner with the area hospitals, healthcare providers and school districts to host educational programs on health and wellness. Healthcare providers could also be a financial resource as their goals align with the water trail goals for promoting healthy lifestyles and active communities. Regional partnership examples include Jameson Health Network, which maintains a 1-mile fitness par course in a nearby park (Lawrence County, PA) and the Healthy Ride Pittsburgh Bike Share Program partnership with Highmark and the Allegheny Health Network (Allegheny County, PA).



Healthy Ride Pittsburgh Bike Share Program (source: <http://pghbikeshare.org/>)



Conclusions

In conclusion, the study looked to answer two questions: is developing a water trail along Oil Creek physically feasible and/or financially feasible. The answers to these questions lies in the water level of Oil Creek and the availability of public access to the creek.



Physical Feasibility.

The biggest question to establishing a water trail along Oil Creek throughout the study was “is the water level high enough?” The Canoe and Kayaker’s Guide recommends that the creek be at least three (3) feet but less than five (5) feet. Like any creek or river, the water level of Oil Creek fluctuates depending on the time of year and amount of precipitation. During the course of this study, the water levels were monitored using the USGS gage at Rouseville, which is the only gage along Oil Creek that measures water level. The precipitation data for this station are temporary and are only available for 120 days, therefore data for dates prior to April of 2015 were unavailable.

Based on the data available for 2015, the recommended paddling season for Oil Creek is April to July. It is estimated that the creek is floatable between 50% and 75% of the time during these months. Water level data for August and September in 2015 remained below the recommended three (3) feet; October offered limited floatability towards the end of the month.

There is no official recommended water level to develop a water trail. During the study, in talking to local residents and water trail users, along with conducting several kayaking trips in May of 2015, the sections of Oil Creek vary in floatability. Reasons for the variations include width of the stream channel and amount of sedimentation downstream of tributaries. The section between Mystic Park and Jersey Bridge was completely floatable, with no issues, when the water level was at 3.4 feet. The first four to five miles of the creek between Centerville and Mystic Park were floatable at only 2.4 feet, but it became difficult to navigate as you neared Mystic Park and walking was required.

There is a concept to “play to your strengths” and “market to your weakness.” The strengths of Oil Creek as a water trail include the natural beauty of the corridor and unique resources, such as the Blue Heron Rookery; world class bass and trout fishery; the proximity of and access to the Erie to Pittsburgh Trail system; the availability of the Oil Creek & Titusville Railroad that offers portage of bicycles, canoes and kayaks; and the availability of public access to the creek. The section within Oil Creek State Park is already developed and marketed as a water trail, complete with multiple existing canoe/kayak launches and paddling information on the park’s website and promotional brochures. Even outside of the State Park, there are existing informal canoe/kayak launches that local residents already use to canoe/kayak the creek now.



The weakness of Oil Creek as a water trail is the limited availability of paddling the creek. As such, develop a marketing campaign that encourages visitors to paddle the creek while they can. Market the availability of the water trail during the spring/early summer season.



Financial Feasibility.

The following factors determine that the development of the Oil Creek Water Trail is financially feasible.

1. **Right to Paddle.** Although Oil Creek is a private waterway, where the adjacent riparian landowners own to the middle of the creek, the public has the right to use the water for navigational purposes, including paddling. Unlike land trails, there is no need to obtain land ownership, which can be costly and preventative in developing such trails.
2. **Availability of Public Access.** While the public has the right to navigate Oil Creek, they still need permission to access the creek from landowners. As documented in the inventory, there are many publicly owned sites that can (and in many cases, already do) offer public access to the creek. In addition, the locations of these sites allow for a variety of trip lengths, ranging from just a couple hours to an overnight trip. The development of formal canoe/kayak launches is only recommended for sites that are already under public ownership and therefore do not require the purchase of property.
3. **Minimal Financial Commitment.** The only requirements for formal designation as a Pennsylvania Water Trail by the Pennsylvania Fish and Boat Commission (PFBC) include having a managing organization and the availability of a water trail map and guide. In addition, formal designation is not necessary to begin promoting and marketing Oil Creek as a water trail. The recommendations contained in this study are not cost-prohibitive. Many can be completed through the development of partnerships and with the use of grant funds.



Action Plan

Based upon the recommendations and the overall physical and financial feasibility of developing the Oil Creek Water Trail, seven (7) priority projects have been identified that once implemented, will allow the region to begin marketing and promoting the Oil Creek Water Trail.



Priority #1: Create Action Teams.

Similar to the Titusville Trail Town Master Plan, the creation of Action Teams is recommended to help with implementation. The purpose of the Action Teams is to organize around and oversee specific priority projects. During this study, many people expressed interest in being involved in the development of the Oil Creek Water Trail and the creation of Action Teams will allow local residents, businesses, landowners and agencies and organizations to take ownership in implementation. At a minimum, it is recommended that an Action Team be created for each priority project identified below; however, additional Action Teams can be established based on community interest. For example, if local artists are interested, an Action Team could be created to spearhead creating and installing public art along the waterway. More information regarding the creation of Action Teams can be found in the Appendices under “A River Town Program Strategy.”

Lead Organization: The Steering Committee for this Feasibility Study can serve to create the initial Action Teams. Each Action Team will need a chairperson to take on the responsibility of coordination of meeting times, priority projects and interaction with the local municipalities, counties and other organizations to provide technical / financial assistance.

Opinion of Probable Cost: None.



Priority #2: Create Water Trail Map and Guide.

Working towards achieving official water trail status, the water trail organization should create an official Water Trail Map and Guide. These materials can be submitted with the Water Trail Application to the PA Fish and Boat Commission for official designation. The first step in finalizing the map and guide is to take the mapping materials and research accompanying this study and decide what additional information users would like to see on a final publication.

The next step needs to be made how this information should split between a simple map to be taken on the water by users and a more detailed guide for planning. Key elements of a Water Trail Map should include a



brief overview, safety information, interpretation, stewardship, amenities, and a note pointing users to where they can find additional information. Many times interpretive guides are an effective companion piece to a trail map. Elements of a guide may include detailed stories of place, a comprehensive list of amenities, advertising, and a list of grants and sponsors. The information should be provided to an entity that will then produce a graphically pleasing publication appropriate for digital and hard copy distribution.

Finally, the water trail organization should identify multiple ways to distribute information about water trails. Some sample methods include a dedicated website, website links on other sites, local libraries handouts, and providing information at the trailheads. It is recommended that distribution should be handled by a dedicated organization and an individual to restock information at trailhead sites.

Lead Organization: Water Trail Managing Entity / Action Team

Potential Partners: Municipalities, Crawford County Planning Commission, Venango County Regional Planning Commission, Crawford County Convention and Visitors Bureau, Titusville Redevelopment Authority, Oil Region Alliance, French Creek Conservancy, Titusville Area Chamber of Commerce, Venango Area Chamber of Commerce, Local Businesses, PA DCNR, PFBC

Opinion of Probable Cost: \$2,500—\$5,000, depending on project scope and cost of printing. See PFBC website for designated water trail map and guides as they vary in design and quality.



Priority #3: Install Water Trail Signage.

Signage is essential to a water trail. The purpose of signage is not only for wayfinding but for safety and orientation. We recommended the water trail organization develop a Water Trail Signage Plan and circulate standard sign templates to all organization and stakeholders associated with the trail. The Pennsylvania Water Trails Program website (<http://pawatertrails.org/build/water-trail-signage/>) and the Blue Trails Guide (<http://www.bluetrailsguide.org/build/promote/create-blue-trail-signs-2/>) are two helpful resources concerning water trail signage.

It is our recommendation that the water trail organization first focus on signage at existing trailheads. Informative kiosks should be installed above the floodplain near the parking area. Information on each kiosk should include Emergency Contacts, PA Fish & Boat Regulations, Private Property Respect and Best Users Practices, and Wayfinding mapping. A context map, route map, business supporter's map, and a list of e-services are important wayfinding information to provide on the kiosk signage.

Next, the water trail organization should work with receptive landowners, state and local bridge owners and utility companies to sign the trail with mile markers, emergency info, private property acknowledgement and 'leave no trace' signage. A landowner written agreement and maintenance agreement will be required for any signage on private property. PennDOT completed an initiative in 2014 that developed procedures for including



wayfinding signs over designated water trails during bridge projects. Once the Oil Creek Water Trail is officially designated by the PA Fish and Boat Commission, PennDOT will incorporate such signs over state bridges that cross the water trail.

Standardized signage will help to establish the trails identity. It is recommended that PennDOT signage standards are used on all state route right of ways. Special attention should be paid to the size of sign, letter heights and fonts, and the contrast colors for readability. We recommend that all signage efforts are coordinated with other regional efforts.

Interpretive and educational signage should be added to the list of signage priorities. Potential sites along the trail include the Centerville Mill Grist Mill, Trolley line at Mystic Park, Titusville Slope Stabilization project across from O'Rourke Field, the Blue Heron Rookery in Titusville, Drake Well Museum, Oil Creek State Park wildlife, Petroleum Centre, the ice breaker dam in the state park, Rynd Farm, industry along creek in Rouseville, and at Oil City describing its history. The placement of signage should consider property ownership and avoid environmentally sensitive habit areas such as wetlands.

The final stage of water trail signage should research potential commercial opportunities with local businesses. A successful water trail is a gateway to the community and its commerce.

Lead Organization: Water Trail Managing Entity / Action Team

Potential Partners: Landowners, Municipalities, Crawford County Planning Commission, Venango County Regional Planning Commission, Crawford County Convention and Visitors Bureau, Titusville Redevelopment Authority, Oil Region Alliance, French Creek Conservancy, PA DCNR, PFBC

Opinion of Probable Cost:

Entrance Sign: \$2,000

Kiosk: \$4,500

Interpretive Panel (including frame) = \$1,900



Priority #4: Promote / Market the Water Trail.

It is important for the water trail organization to think about how the water trail and its associated information will be located and distributed to potential users. A logo should be established and used on all marketing materials, letterhead, and trailhead signage. The trail should be promoted through local and state agencies. In addition to a 'Landowner Liaison', a dedicated person in charge of communication should be appointed. This person will be the liaison between the trail and each entity: public emergency services, private/public Associations, Allegheny Canoe Club, Three Rivers Paddling Club, PA Cleanways, Boy-Girl Scouts of America.

The internet has now surpassed literature as the primary source of information for tourist and travelers. We recommend the water trail establishes its own dedicated website with a maintenance plan moving forward. Website content should include accurate and current information, be easily to read, provide engaging photographs and videos (avoid lengthy videos and extensive photograph galleries), and be able to track usage to see if the website is working or not. Additional ideas include providing web cam footage to provide clarity and depth (Drake Museum is a possible location) and displaying USGS water gauge information from Rouseville on site informing users where the creek is runnable or not based on water levels. Once the website is completed, local organizations should be contacted and encouraged to add the water trail to their website.

Special float/creek events should not only be added to the water trail website's blog but advertised through social media sites such as Facebook and Twitter, and radio and newspaper spots. It is recommended that the digital marketing of the trail be handled by a dedicated organization or individual as continual maintenance will be required.

Lead Organization: Water Trail Managing Entity / Action Team

Potential Partners: Municipalities, Crawford County Planning Commission, Venango County Planning Commission, Crawford County Convention and Visitors Bureau, Titusville Redevelopment Authority, Oil Region Alliance, French Creek Conservancy, Titusville Area Chamber of Commerce, Venango Area Chamber of Commerce, Local Businesses, PA DCNR, PFBC

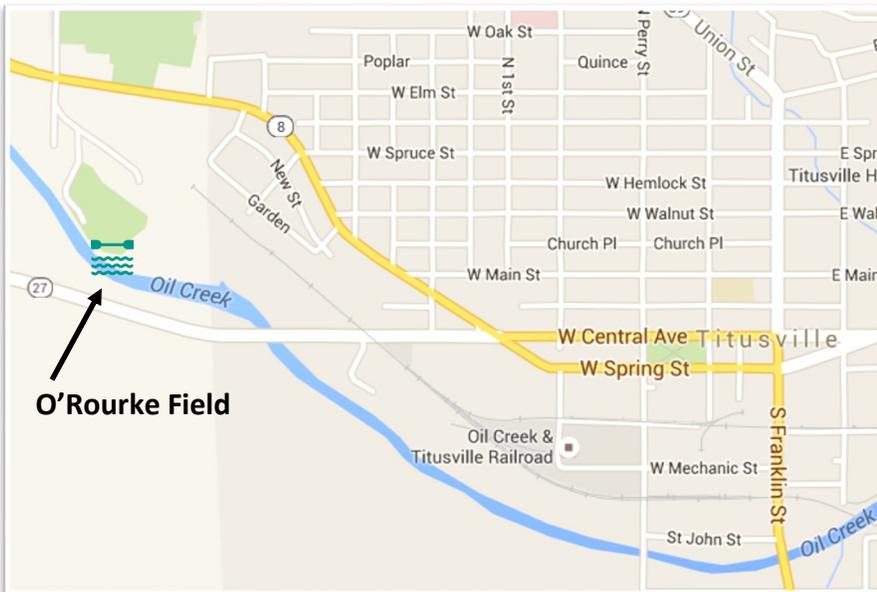
Opinion of Probable Cost: Cost dependent upon project scope.



Priority #5: Develop Launch Sites / Water Trailheads.

Based upon our inventory of the water trail, existing public and/or private informal access sites and the length of paddle trips between access points, we recommend the development of two trailheads for the water trail as priority projects. Recommended projects to develop the launch sites include opinions of probable cost. It is recommended that the launch sites be developed in phases. Priority projects would include the improvements to the creek access (canoe/kayak launch) and signage. Additional amenities can be developed as the trail becomes more heavily used.

Location #1: O'Rourke Field—City of Titusville, Crawford County



Owner:	City of Titusville
Location:	Oil Creek Township
Lot Size:	9.24 acres

Source: Google Maps (2015)

We recommend O'Rourke Field as a priority access point for the following reasons. Currently there are no official canoe/kayak launches accessing Oil Creek north of the Oil Creek State Park. Although access is permitted at Mystic Park, there is no formal launch area developed. By establishing a canoe/kayak launch at O'Rourke Field, paddlers are presented with a manageable trail segment of approximately three (3) miles to the Jersey Bridge launch site in Oil Creek State Park. This leisurely stretch of water is appropriate for all age groups and experience levels. Those who do not own canoes or kayaks could alternatively use inner tubes to complete this stretch of water. As mentioned previously, a "beach" area could be developed along the streambank at this location to allow residents and tourists to use this area for recreation, even when the creek is too low to float.

This section of water trail also traverses past the City of Titusville, offering economic development opportunities for local businesses; educational opportunities at the Titusville Middle School, the existing Blue



Heron Rookery at Titusville Opportunity Park and the Drake Well Museum; and provides connections to the recreational amenities at the Ed Myer Recreational Complex, the Queen City Trail (multi-purpose hiking/ biking), the Oil Creek State Park Bicycle Trail and Oil Creek State Park and it's already developed water trail.

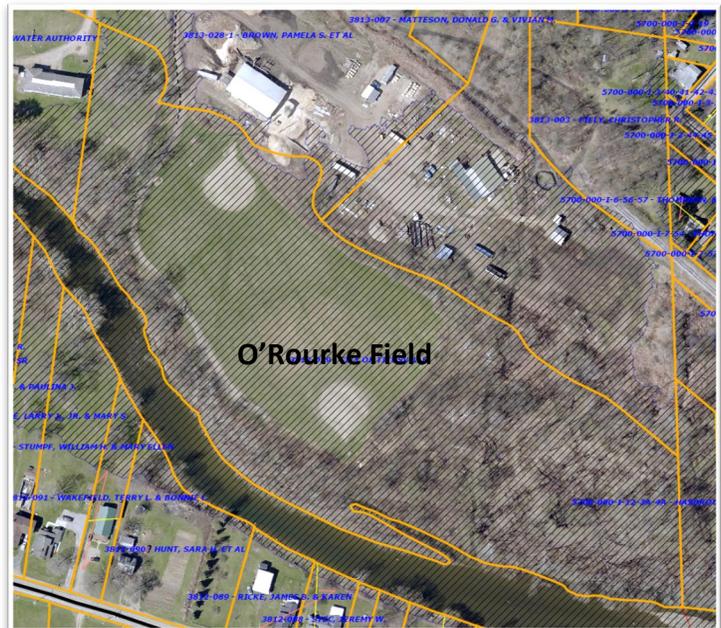
Besides its location, O'Rourke's existing amenities make it a favorable water trailhead location. The creek is located approximately 80 feet from the existing parking lot and portable toilet facilities. The gradual sloping topography would limit the amount of work necessary to construct of formal canoe/kayak access launch on the northwest banks of the creek. Existing vegetation could be thinned to create a natural seating area on the creek's banks. The site's acreage offers the space needed to store boats on site; providing a possible rental opportunity. Improvements to the current park would include a permanent prefabricated restroom/changing facility, water trail kiosk and additional parking spaces.

Lead Organization: City of Titusville

Potential Partners: Water Trail Managing Entity / Action Team, Titusville Redevelopment Authority, Crawford County Convention and Visitors Bureau, French Creek Conservancy, PA DCNR, PFBC

Opinion of Probable Cost:

Site Preparation:	\$11,700
Canoe/kayak launch:	\$4,000
Parking Area (paving):	\$16,850
Signage (entrance sign and kiosk):	\$6,500
Primitive Restroom Facility:	\$0*
Total Cost =	\$46,860 **
* a primitive restroom already exists onsite	
**includes 20% contingency	

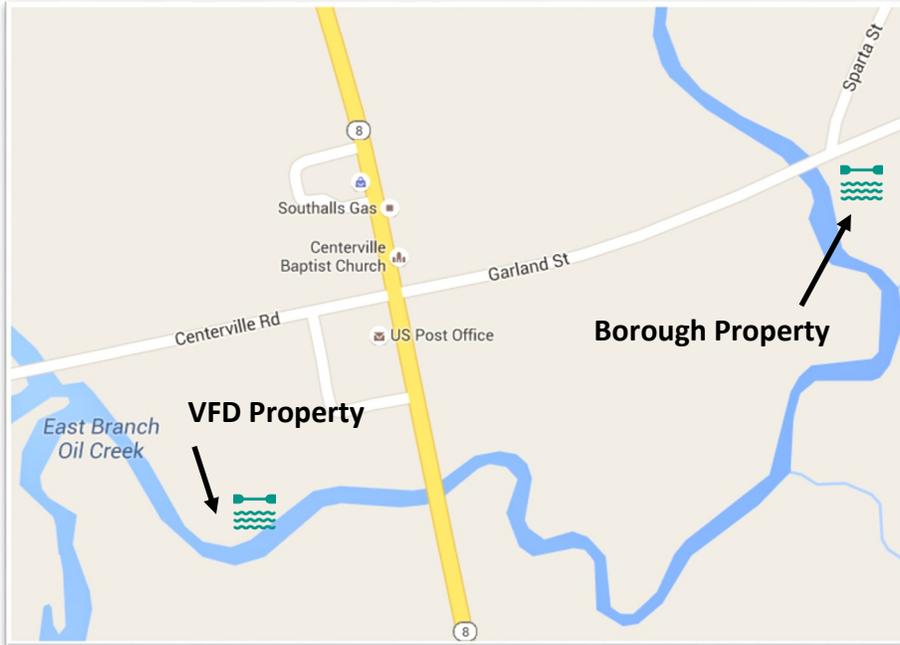


Source: Crawford County GIS Web Server (2015)

Note: these cost estimates are for a basic design. The full estimates can be found in the Appendices for both the basic design as well as the choice design.



Location #2: Centerville Property (former ball fields)—Centerville Borough, Crawford County



Owner:	Centerville Borough
Location:	Centerville Borough
Lot Size:	3.7 acres

Source: Google Maps (2015))

Centerville Borough is planned to be the northern most trailhead for the Oil Creek Water Trail. In talking with representatives from the Borough and the Volunteer Fire Department, we recommend that the former ball fields, owned by the Borough, along the East Branch of Oil Creek offer the best location for a trailhead. However, the Borough is researching the possibility of using a site near the Volunteer Fire Department as an undeveloped launch site, until such a time that the former ball fields site can be fully developed.

The eastern branch of Oil Creek borders the ball fields at the western property line. The site will need significant updates to become an appropriate trailhead. Currently, there is no parking at the site; at a minimum, parking will need to be established for 4-6 automobiles with one space dedicated for ADA parking. Even though the site is relatively flat, grading operations will need to occur to establish a parking area into the site from Garland Street. The existing streambank has a considerable slope to the water, therefore, a canoe/kayak walkway with a gradual grade will need to be cut into the streambank near the proposed parking area.

The trailhead is recommended to have the appropriate signage including Emergency Contacts, PA Fish and Boat Regulations, Private Property Respect and Best User Practices, Wayfinding (context map, route map, and business supporter’s map, e-services, etc.). Additional options include shade, shelter, lighting, kayak racks and a water spigot for cleaning boats. The fire department expressed its interest for a flat area that would allow for helicopter landing improving trail safety. The size of the site and wooded tree line on the southern property line could possibly lend itself as a formal or informal camping site in the future.



Lead Organization: Centerville Borough

Potential Partners: Water Trail Managing Entity / Action Team, Titusville Redevelopment Authority, Crawford County Convention and Visitors Bureau, French Creek Conservancy, PA DCNR, PFBC

Opinion of Probable Cost:

Site Preparation:	\$38,100
Canoe/kayak launch:	\$4,000
Parking Area (paving):	\$24,030
Signage (entrance sign and kiosk):	\$6,500
Primitive Restroom Facility:	0*
Total Cost =	\$87,156 **

* long-term rental of portable toilet with standard cleaning service is estimated at \$100—\$200 / month
 **includes 20% contingency

Note: these cost estimates are for a basic design. The full estimates can be found in the Appendices for both the basic design as well as the choice design.



Source: Crawford County GIS Web Server (2015)



Priority #6: Clear Logs and Brush from the Creek.

Although the entire length of the proposed water trail can be currently paddled, the Oil Creek Water Trail has some obstacles that could pose difficulty and a safety concern for paddlers at high water levels. It is recommended that each bridge pier and abutment is checked and cleared. All areas where tributaries enter the creek should be cleared of obstructions to allow unhindered, maximum stream flow. There are a handful of fallen or low hanging trees that need to be removed from the existing stream bed. A majority of these obstacles were located between Centerville and Hydetown. It is important to work with property owners to provide access to project areas.

Nearby water trail groups have successfully hired the Amish/Mennonite community to clear the waterway's obstructions. Their lack of motorized equipment result in a favorable, low impact cleanup effort for the waterways. When clearing trees, the root structures of cut trees should remain intact to minimize the erosion of stream banks.

After the initial clearing of logs and brush successfully occurs, the water trail organization should establish a long-term maintenance agreement with adjacent landowners for access. This agreement is essential due to the ever changing nature of the creek and future issues that may occur. Trail signage should list contact information for the water trail organization so that water trail users can alert the organization of any new obstructions and safety concerns.

Lead Organization: The Managing Entity, once established, or an Action Team in conjunction with a municipality(s), county(s) or other organization (such as the Titusville Redevelopment Authority) to provide technical assistance.

Opinion of Probable Cost: Dependent on project scope (method used, permitting required and project length).



Priority #7: Identify a Managing Entity.

As stated in the Recommendations, prior to applying for designation as a water trail, a management entity will need to take responsibility for the water trail. If there is no one organization that wants to take on such responsibility, an option would be to have multiple organizations assume management of different sections. As mentioned under Previous Plans and Studies, both the Crawford County Comprehensive Plan and the Venango County Comprehensive Recreation, Parks and Open Space Plan recommended the hiring of a staff person at the county level to manage and assist local municipalities with trails. Such a staff person could allow for the counties to become the managing entities for the water trail.

It should be noted that this is a priority in terms of being formally designated as a Pennsylvania Water Trail; however, the implementation of the priority projects is not dependent on such an entity. The Action Teams would serve the role of the Managing Entity in the interim, until such an organization is identified. There is also a possibility of obtaining grant funding (private foundations and PA DCNR) to hire a program manager to assist with implementation of the water trail. An example of this would be the Monongahela River Town Program (see “A River Town Program Strategy” in the Appendices under for more information).

It is also recommended that the Managing Entity designate a “landowner liaison” to handle communication between the water trail organization and adjacent riparian property owners. This person should be someone the landowners can trust to address any potential issues that arise from the creation of the water trail. The point is to make this project a win-win-win; for property owners, the community and water trail users alike. The benefits of a water trail need to be communicated to the public and to those adjacent to the water trail.

A community supported water trail can increase land values, stimulate the local economy, protect the natural environment and provide recreational opportunities for people!

Lead Organization: It is recommended that an existing organization would become the managing entity for the water trail; however, a new water trail organization could be created to administer, organize and lead the implementation of the project if no existing organization is willing or able.

Opinion of Probable Cost: None.



Appendices