



# ORRCA

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Oak Ridge Reservation Communities Alliance  
Lower East Fork Poplar Creek Blueway Proposal

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Cover Photo Credit: Mr. Doug Colclasure

TDEC

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# Frequently Used Acronyms

303(d) – List of Impaired or Threatened Waters, as part of the Clean Water Act

CDC – Centers for Disease Control

cfu – colony forming unit

CROET – Community Reuse Organization of East Tennessee

CWA – Clean Water Act

DOE – Department of Energy

DOEO – Division of Remediation, Department of Energy Office (Division of TDEC)

EA – Environmental Assessment

*E. coli* – *Escherichia coli*

EPA – Environmental Protection Agency

ETTP – East Tennessee Technology Park

IDB – Industrial Development Board

LEFP Creek – Lower East Fork Poplar Creek

ORNL – Oak Ridge National Lab

ORR – Oak Ridge Reservation

ORRCA – Oak Ridge Reservation Communities Alliance

PAH – Polycyclic aromatic hydrocarbon

PCB - Polychlorinated biphenyl

ROD – Record of Decision

RWI – Recreational Water Illness

TCE – Trichlorethene

TDEC – Tennessee Department of Environment and Conservation

TVA – Tennessee Valley Authority

TWRA – Tennessee Wildlife Resources Agency

WQS – Water Quality Standards

This document is intended for academic and community use.

It is not to be used in place of scientific research and community sampling.

Any contaminants or activities not discussed within this document are subject to further examination.

This document is not NEPA compliant.

### **Summary of Action**

From August 19<sup>th</sup> 2015 to December 17<sup>th</sup>, 2015, Madelynn McCormick was an intern for ORRCA and TDEC. In her time there, she worked on two major projects: an environmental assessment and policy analysis. Both documents are in regards to Lower East Fork Poplar Creek and utilizing the waterway as a designated blueway.

The projects are featured as two separate documents, but can be viewed and read as one. There is one overlapping section (description of proposed project and alternatives). Both documents were designed to be used as planning tools in the creation of the Lower East Fork Poplar Creek Blueway; the two documents are on the following pages (environmental assessment followed by policy analysis and recommendations). Included in the appendices (Appendix D) is a separate project to obtain all environmental permits on the Oak Ridge Reservation. Credit for the permitting information goes to Joan Hughes of ORNL.

# **ENVIRONMENTAL ASSESSMENT**



## **CHAPTER 1: INTRODUCTION**

### **1.0 INTRODUCTION**

The Oak Ridge Reservation Communities Alliance (ORRCA) proposes to create a new community recreation area by designating a portion of Lower East Fork Poplar (LEFP) Creek and Clinch River as a blueway. ORRCA has chosen to prepare this environmental assessment as a planning tool to evaluate potential environmental impacts of the proposed canoe trail. The framework of this assessment approximates National Environmental Policy Act (NEPA) of 1969 guidelines.

### **1.1 PURPOSE OF ACTION**

The purpose of action is to designate a portion of the local waterways as an official blueway. A blueway also known as a blue trail, canoe trail, or water path that is developed with launch points/put-ins and points of interest for canoeists, paddle boarders and kayakers along the trail. The proposed project includes utilizing potential launch sites in current condition and enhancing other launch sites to improve conditions.

### **1.2 BACKGROUND**

From the ORRCA webpage: “The members of ORRCA are made up of the elected officials of each city/county. ORRCA members work with representatives from the Tennessee Department Environment and Conservation, the Department of Energy, Tennessee Emergency Management Agency, and the Environmental Protection Agency to oversee environmental studies and mitigation activities.” ORRCA also states that community outreach and environmental mitigation and environmental cleanup activities are high priority goals.

Tennessee Department of Environment and Conservation (TDEC), Tennessee State Parks Department, and The City of Oak Ridge – Parks and Recreation Department all have strategic goals in alignment with increased public access to water recreation.

To ensure that these activities are continued along LEFP Creek and the Clinch River, a blueway has been proposed. Because a blueway designation would increase recreational traffic, it may also necessitate an increase of monitoring for contaminants. The implementation of a recreational area could influence a monitoring effort utilized to protect human health. There is also a substantial amount of community support for a blueway.

### **1.3 SCOPE OF ANALYSIS**

The scope of analysis involves bacterial contamination of the waterways from municipal waste water systems (principally *E. coli*). This environmental analysis also touches on other contaminants such as mercury, but they are not the primary focus. The scope of the proposed blueway does not extend past the waterways and does not address landowners' responsibilities. The scope of this analysis does not address signage in relation to impaired waterways and the blueway.

### **1.4 PUBLIC INVOLVEMENT**

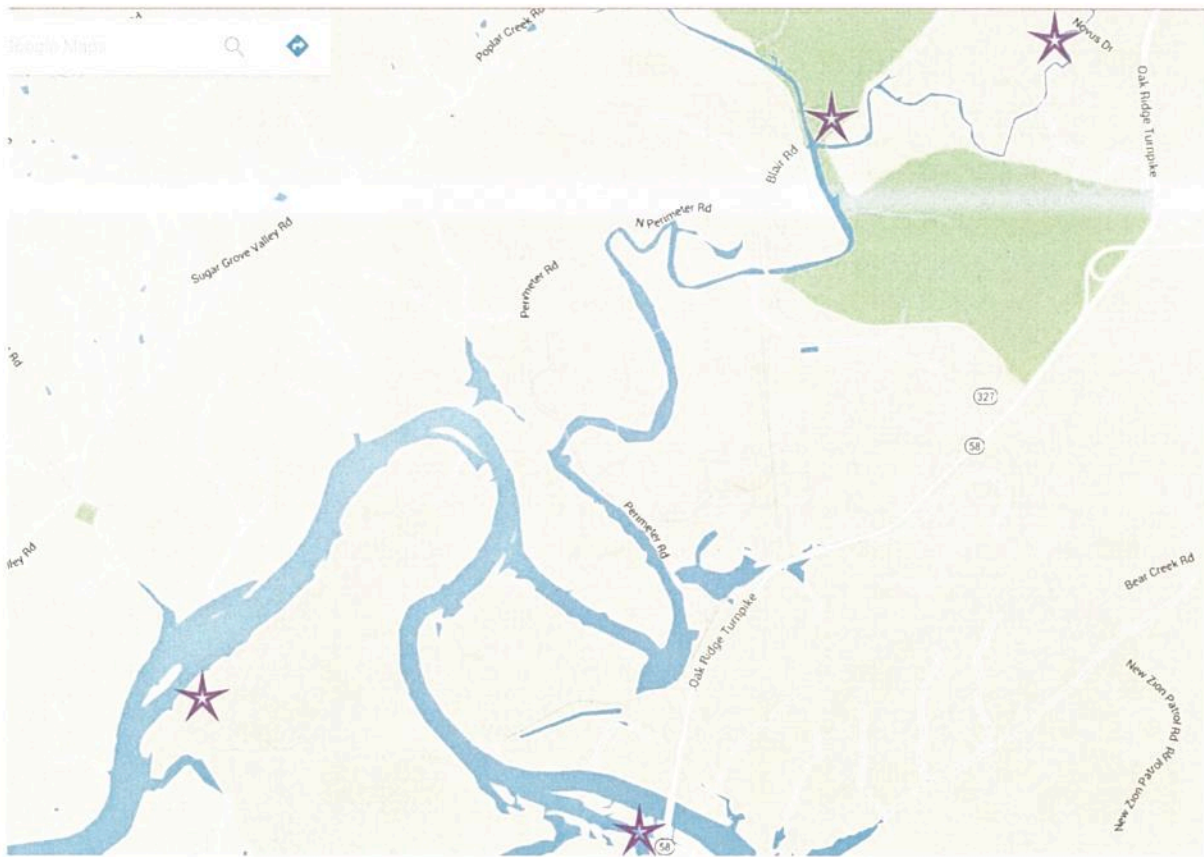
Because this environmental analysis was conducted by an intern, on a semester (16 week) basis, there was not adequate time for a full public commenting period. However, specific organizational partners were contacted. Out of all the public partners contacted, representatives from ORRCA, TDEC, Tennessee Valley Authority, City of Oak Ridge Parks and Recreation, City of Oak Ridge Industrial Development Board, Community Reuse Of East Tennessee, and Department of Energy responded to those efforts. ORRCA meetings are open to public participants (non-members) for public commenting.

## **CHAPTER 2: PROPOSED ACTION AND ALTERNATIVES**

Chapter two describes 1) the proposed project, 2) the no action alternative to the project, 3) the limited action approach to the project and 4) the comparison and contrasting of all project alternatives.

### **2.1 PROPOSED ACTION**

Under the Proposed Action, ORRCA would obtain funding for the Lower East Fork Poplar Creek Blueway Project (also known as the “the blueway project” or “project” in this record). This project would entail a blueway designation for a preexisting body of water on Lower East Fork Poplar Creek, with four put-ins at 1) an existing path in The Horizon Center near Tennessee’s largest tree, 2) at Blair Road and Poplar Creek intersection/bridge, 3) the pre-existing Gallaher Bridge boat ramp, and 4) the pre-existing boat ramp at The Preserve, across from Brashear Island. The project will also include bacterial sampling plans with local organizations, constructing or enhancing access points to water at one of the four areas, as well as designing and displaying appropriate signage around the blueway. After completion, TDEC could maintain bacterial sampling. A predetermined organization (i.e. – ORRCA) will be responsible for maintaining the blueway to ensure user health and safety. The blueway will be designated as a public recreation area and tourism attraction.



Map of Proposed Blueway Areas.

## 2.2 PROJECT AREAS

### *Horizon Center at East Tennessee Technology Park*

At its current stage, pre-development, The Horizon Center is already equipped with on-site restroom areas and room for parallel parking or a designated parking area where the undeveloped land is gated off. There is a pre-existing memorial stone and walking path that take leads recreational users to the large sycamore tree memorial. This path leads directly into Lower East Fork Poplar Creek. There is no need for further building or enhancements, at this time. The only blueway activities will be displaying signage and designating a parking space. The Horizon Center is an intended business park with over 1,000 acres for business buildings.

The Horizon Center is the Eastern part of East Tennessee Technology Park (ETTP) that is intended as a commercial business development and a nature preservation area.

ETTP is a current 'brown site' and gaseous diffusion plant (known as K-25) area that is being reindustrialized as both a business park and light industrial and manufacturing area. ETTP is also has the Western side, known as The Heritage Center and is managed by the Community Reuse Organization of East Tennessee (CROET). Because Poplar Creek flows through both the Horizon and Heritage Centers (ETTP), CROET was contacted as a stakeholder group.

### ***Gallaher Bridge Boat Ramp***

This is a present, state-maintained boat ramp and parking area, complete with an area for signage in relation to recreational use of the waterway. The only enhancement activity will be displaying signs in relation to blueway designation and proper blueway use. Tennessee Wildlife Resources Agency (TWRA) maintains the boat ramp and parking lot at Gallaher Bridge. The Region 3 office of TWRA was contacted as part of the community stakeholder input.

### ***The Preserve/Rarity Ridge Boat Ramp***

Currently, there is an existing boat ramp, dock, and parking area at the end of Broadberry Avenue to the Clinch River. There is no need for further development of the area other than posting appropriate signage for blueway use. This is a private road and boat ramp area. Permissions will need to be obtained from 'The Preserve at The Clinch Owners Association', also operating under the legal name of 'Rarity Ridge Owners Association' in order to use this existing boat ramp and parking area for public use and recreation.

### ***Blair Rd/Poplar Creek Intersection***

The intersection of Poplar Creek and Blair Road is currently overgrown with tall grasses. It is proposed that a path be manually created. The path will be approximately five feet across (achieved with landscaping equipment), from the asphalt road to Poplar Creek, roughly 30 feet long. The path will then be laid with gravel covering to create a path that will be easily maintained. There will need to be signs posted with directions to the put-in

area and instructions on where to park. There is an asphalt road present with room to parallel park in the grass. Because this road is part of a Tennessee Valley Authority (TVA) property line, a TVA representative has been consulted within the scope of this assessment. The necessary paperwork is a 26A Permit to assure that TVA and the Army Corps of Engineers are involved in the process.

At this point in the waterway, Poplar Creek as a fork that runs North and South. To continue along the proposed path, users would need to take Poplar Creek toward the South. A sign would need to be placed either on the bridge over pass, on the riverbank where users park their vehicles, or a sign staked in the waterway.

If recreational users were to travel along the North fork of Poplar Creek (parallel to Blair Road), they would then be leaving blueway-designated waters. The land along the banks is privately owned property of Roane County residents. Outside of the scope of this assessment is contacting Roane County, private landowners outside of the proposed blueway area.

#### ***Lower East Fork Poplar Creek, Poplar Creek, and Clinch River***

The water in Lower East Fork Poplar Creek has been previously adulterated by a variety of contaminants listed in the 303 (d). The scope of the blueway project focuses specifically on man-made, municipal sewage contamination (from the City of Oak Ridge), of *Escherichia coli* in Lower East Fork Poplar Creek. Currently LEFP Creek is on a list of impaired bodies of water in the state of Tennessee. The City of Oak Ridge is in the process of remediating the contamination leaks into the surrounding environment. Baseline data will be taken to determine current bacteria levels, and subsequent tests will be performed to assure that the *E. coli* has been removed from the proposed blueway site.

The scope of this environmental assessment is to evaluate the environmental feasibility of the blueway designation, not to postulate the legal designation of the project. However, here is a brief explanation of options: the designation of blueway is voluntary. The locations described fall under different municipalities and county control. ORRCA is

a multi-county organization that will oversee the planning and designation of a blueway system. At the county level, Roane and Anderson County share jurisdiction of the put-in areas. The State of Tennessee Parks and Recreation currently manages parks that contain waterways. Tennessee Department of Environment and Conservation has partnered with State Parks Department to designate a blueway at Seven Islands State Birding Park in Knox County; there is current capacity for this work.

#### ***Other Proposed Launch Sites***

Community members have proposed other sites, such as the boat ramp at ETPP and potential launch sites along LEFP Creek, between Big Turtle Park and The Horizon Center. Those sites have not been evaluated in this assessment.

### **2.3 LIMITED ACTION ALTERNATIVE**

The limited action alternative would be to continue the bacterial sampling plan, obtain legal designation of a blueway, but no put-in enhancements, signs or displays would be utilized.

### **2.4 NO ACTION ALTERNATIVE**

Under the no action alternative, there would be no bacterial sampling assigned, no blueway designation or blueway put-in enhancements.

**2.5 COMPARISON OF ALTERNATIVES**

<b><u>ALTERNATIVE PROPOSALS</u></b>	<b><u>EXPECTED OUTCOMES</u></b>
<b>Lower East Fork Poplar Creek Blueway</b>	A fully functioning & maintained public recreation and tourist destination for Anderson & Roane Counties complete with signs, displays, parking, blueway put-ins, and a bacterial sampling plan to protect public safety.
<b>Limited Action Alternative</b>	Only a bacterial sampling plan & blueway designation. No put-in enhancements or signs, displays. Would likely not significantly contribute to tourism or parks and recreation.
<b>No Action Alternative</b>	No bacterial sampling plans, no blueway. Would not contribute to Anderson & Roane County tourism or parks and recreation facilities.



## **CHAPTER 3: AFFECTED ENVIRONMENT**

### **3.0 AFFECTED ENVIRONMENT**

The affected environment provides the context for understanding the environmental consequences and serves as a baseline from which any environmental changes that would result from implementing the alternatives can be evaluated. The baseline conditions are the currently existing conditions.

### **3.1 LAND USE AND DEVELOPMENT**

#### ***Zoning***

Legally and technically navigable waterways involve Tennessee public ownership by common law or statute of the underlying streambed or lakebed, with public rights of navigation up to the low watermark. Land above the watermark, in the riparian zone, is the property of the landowner, not the Tennessee public. TENN. CODE ANN. 69-1-101 et seq. At each launch site, there should be posting of trespassing laws. This is much like a greenway. By using the greenway, users enter into a responsible use agreement. Any misuse of the greenway or leaving the intended trail, or in this case a blueway, is the liability of the user. Users will need to be informed that the waterways are public and land in the riparian zone is private or restricted land.

#### ***Compatibility and Urban Impact***

It is currently legal to navigate the proposed waterways in the state of Tennessee. The proposed blueway does not contradict any current legislation. The purpose of the blueway is to enhance and enjoy nature, there is no intended urban impact.

#### ***Slope and Erosion***

There is no impact anticipated with the proposed blueway.

#### ***Soil Suitability***

According to the 1995 EPA record of decision of LEFP Creek, the water and sediment within LEFP Creek contains unacceptably high levels of mercury for human risk. However, this contamination of mercury affects accidental soil ingestion and ingestion of contaminated groundwater as a consistent drinking source. These are also identified as

long-term exposure risks, not the type of incidental exposure seen by infrequent users. Because the hazards exist, launch site signage should reflect the risk and pathways of contamination to humans.

#### ***Hazards – Including Site Safety***

Physical hazards of the blueway to be considered are fallen trees. There are currently a few trees that have fallen across the blueway path, and are navigable only when water levels are high. A community member suggested one course of action: cutting the trees so that they can float out of the waterway on their own.

#### ***Energy Consumption***

There is no impact anticipated with the proposed blueway.

### **3.2 NOISE**

There is no significant impact anticipated with the proposed blueway. However, a representative of DOE suggested that if the blueway were to pass by a property with large animals (such as cows, donkeys, llamas, etc.) that a ‘quiet zone’ sign should be posted to avoid spooking the animals and causing them undue stress. At this point in time, the proposed blueway does not pass such an area, but there is a property near Big Turtle Park with these types of animals kept as pets; the property owner should be consulted if the proposed blueway path changes.

### **3.3 AIR QUALITY**

There is no increased or significant contribution to pollution level associated with canoeing, paddle boarding, and/or kayaking.

### **3.4 ENVIRONMENTAL DESIGN**

The proposal and alternatives does not include major construction or design. The proposed blueway is intended to utilize and enhance the natural environment.

### **3.5 SOCIOECONOMICS**

### ***Demographic Character Changes***

There are no foreseeable permanent demographic changes.

### ***Displacement***

The proposed blueway does not include construction. There is no displacement associated with the project.

### ***Employment and Income Patterns***

The proposed blueway could potentially increase revenue associated with The City of Oak Ridge's boat rental contract at the marina.

## **3.6 COMMUNITY FACILITIES AND SERVICES**

### ***Educational Facilities***

The proposed blueway does not interfere with any educational facilities. The blueway could serve as an 'outdoor classroom' or 'outdoor conference room'. The blueway could be used for field trips.

### ***Commercial Facilities***

There is no anticipated impact on commercial facilities.

### ***Healthcare***

There is no anticipated significant impact on healthcare in the region.

### ***Social Services***

There is no anticipated impact on social services in the region.

### ***Solid Waste***

Users will be responsible for their own generated waste. Trash and/or recycling receptacles should be made available at launch sites.

### ***Waste Water, Storm Water and Water Supply***

It is anticipated that the proposed blueway will encourage clean water and conservation efforts. Because the proposed blueway will lead to increased human presence in the outdoor environment, it can be postulated that outside agencies will be mindful of potential contamination of a public resource and potential risks to human health.

### ***Public Safety***

#### ***Police, Fire, and Emergency Medical***

The waterways are already being used for canoeing and kayaking activities. The proposed blueway would have an official designation as a public space, akin to a greenway. Having an increased public presence can serve as a potential increase in risk, but also the potential for increased safety. If people in the community are currently performing these activities, there is not a set, specific path or launch area at this given time. With a set blueway, users can alert public safety officers to their location. The blueway designation can provide helpful and safe parameters for recreational users to enjoy, and public safety officers to monitor.

#### ***Open Space and Recreation***

For the proposed blueway, the natural environment will remain an ‘open space’, just with an increase in recreation.

#### ***Cultural Facilities***

Because The National Parks Foundation has designated a portion of ETTP as “The Manhattan Project National Historical Park”, a blueway that encircles the National Historical Park would be culturally relevant and a potential way to initiate a partnership with the National Parks Foundation and Oak Ridge Parks and Recreation.

#### ***Transportation***

There is no foreseeable impact on local transportation.

### 3.7 NATURAL FEATURES

#### *Water Resources*

The streams and creeks of Tennessee are classified by TDEC and defined in the State of Tennessee Water Quality Standards. Classifications are based on water quality, designated uses, and resident aquatic biota. The Clinch River is the only surface water body on the ORR classified for domestic water supply. Most of the streams at the ORR are classified for fish and aquatic life, livestock watering, wildlife, and recreation. White Oak Creek and Melton Branch are the only streams not classified for irrigation. Portions of Poplar Creek and Melton Branch are not classified for recreation, currently. The Tennessee Division of Water Resources has cleared Poplar Creek for recreational use, but has not removed the signage denoting Poplar Creek as an impaired stream due to mercury contamination.

Current spring water/groundwater TDEC monitoring stations near the proposed blueway have sporadically detected the radioactive isotope Technetium – 99 and high levels of trichlorethene on a regular basis. These contaminants were found in groundwater, not surface water. The Technetium – 99 levels are low enough (1-2 picocuries/Liter) to be at a very minimal risk to human exposure. The trichlorethene (20 micrograms/Liter) levels are above EPA recommended levels (5 micrograms/Liter) for residential groundwater/drinking water use; this EPA measurement system is not a valid measure of risk for blueway use. Trichlorethene levels evaporate when in surface water; these high levels were found in groundwater, and retesting at the surface should be considered.

### ***Vegetation and Wildlife***

Due to the mercury contamination in the sediment, fish will bioaccumulate the mercury in muscle tissue. This cannot be cooked out. Users of the blueway cannot fish without a State fishing license, and – according to current signage – should limit their consumption of locally caught fish. An ORRCA member stated that there should be signage for “Catch and Release Fishing” to encourage recreational use without discouraging recreational activity in the area. There are no Federal-listed threatened or endangered plant species on Oak Ridge Reservation property.

The following is a chart of (State and Federal) Threatened and Endangered Species.

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<sup>a</sup>Land and surface waters of the ORR exclusive of the Clinch River, which borders the ORR.

<sup>b</sup>Status Code:

E = endangered

T = threatened

PE = proposed endangered

MC = of management concern

NM = in need of management

RI = regional importance

<sup>c</sup>Partners in Flight – an international organization devoted to conserving bird populations in the Western Hemisphere.

<sup>d</sup>The bald eagle was federally delisted effective August 8, 2007.

<sup>e</sup>The peregrine falcon was federally delisted effective August 25, 1999.

<sup>f</sup>Single specimen captured in mist net bordering the Clinch River, June 2013.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal</u>	<u>Status<sup>b</sup></u> <u>State</u>	<u>PIF<sup>c</sup></u>
		<b><u>FISH</u></b>		
<i>Phoxinus tennesseensis</i>	Tennessee dace		NM	
		<b><u>AMPHIBIANS &amp; REPTILES</u></b>		
<i>Cryptobranchus alleganiensis</i>	Hellbender	MC	NM	
<i>Hemidactylium scutatum</i>	Four-toed salamander		NM	
		<b><u>BIRDS</u></b>		
		<b>- Darters -</b>		
<i>Anhinga anhinga</i>	Anhinga		NM	
		<b>- Bitterns &amp; Herons -</b>		
<i>Ixobrychus exilis</i>	Least bittern	MC	NM	
<i>Ardea alba</i>	Great egret		NM	
<i>Egretta caerulea</i>	Little blue heron	MC	NM	
<i>Egretta thula</i>	Snowy egret	MC	NM	
		<b>- Kites, Hawks, Eagles &amp; Allies -</b>		
<i>Haliaeetus leucocephalus</i>	Bald eagle	MC <sup>d</sup>	NM	
<i>Circus cyaneus</i>	Northern harrier		NM	
<i>Accipiter striatus</i>	Sharp shinned hawk	MC	NM	
<i>Buteo lineatus</i>	Red-shouldered hawk			RI
<i>Buteo platypterus</i>	Broad-winged hawk			RI
		<b>- Falcons -</b>		
<i>Falco peregrinus</i>	Peregrine falcon	MC <sup>e</sup>	E	RI
<i>Falco sparverius</i>	American kestrel	MC		RI
		<b>- Grouse, Turkey &amp; Quail -</b>		
<i>Bonasa umbellus</i>	Ruffed grouse			RI
<i>Colinus virginianus</i>	Northern bobwhite			RI
		<b>- Owls -</b>		
<i>Aegolius acadicus</i>	Northern saw-whet owl	MC	T	RI
<i>Tyto alba</i>	Barn owl		NM	
		<b>- Goatsuckers -</b>		
<i>Caprimulgus carolinensis</i>	Chuck-will's-widow	MC		RI

		<u>Federal</u>	<u>State</u>	<u>PIF<sup>c</sup></u>
<i>Caprimulgus vociferous</i>	Eastern whip-poor-will	MC		RI
	<b>- Swifts -</b>			
<i>Chaetura pelagica</i>	Chimney swift			RI
	<b>- Kingfishers -</b>			
<i>Megasceryle alcyon</i>	Belted kingfisher			RI
	<b>- Woodpeckers -</b>			
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	MC		RI
<i>Sphyrapicus varius</i>	Yellow-bellied sapsucker	MC	NM	
<i>Picoides pubescens</i>	Downy woodpecker			RI
<i>Colaptes auratus</i>	Northern flicker			RI
	<b>- Tyrant Flycatchers -</b>			
<i>Contopus cooperi</i>	Olive-sided flycatcher	MC	NM	RI
<i>Contopus virens</i>	Eastern wood-pewee			RI
<i>Empidonax virescens</i>	Acadian flycatcher			RI
<i>Empidonax trailii</i>	Willow flycatcher			RI
	<b>- Swallows -</b>			
<i>Progne subis</i>	Purple martin			RI
<i>Riparia riparia</i>	Bank swallow			RI
<i>Hirundo rustica</i>	Barn swallow			RI
	<b>- Titmice &amp; Chickadees -</b>			
<i>Poecile atricapillus</i>	Black-capped chickadee	MC	NM	
<i>Poecile carolinensis</i>	Carolina chickadee			RI
	<b>- Nuthatches -</b>			
<i>Sitta pusilla</i>	Brown-headed nuthatch	MC		RI
	<b>- Wrens -</b>			
<i>Troglodytes troglodytes</i>	Winter wren			RI
<i>Thryothorus ludovicianus</i>	Carolina wren			RI
	<b>- Kinglets, Gnatcatchers &amp; Thrushes -</b>			
<i>Hylocichla mustelina</i>	Wood thrush	MC		RI
	<b>- Thrashers &amp; Mockingbirds -</b>			
<i>Toxostoma rufum</i>	Brown thrasher			RI
	<b>- Waxwings -</b>			
<i>Bombycilla cedrorum</i>	Cedar waxwing			RI
	<b>- Shrikes -</b>			
<i>Lanius ludovicianus</i>	Loggerhead shrike	MC	NM	RI
	<b>- Vireos -</b>			
<i>Vireo Flavifrons</i>	Yellow-throated vireo			RI
<i>Vireo solitarius</i>	Blue-headed vireo			RI



**- Wood Warblers -**

<i>Vermivora chrysoptera</i>	Golden-winged warbler	MC	NM	RI
<i>Vermivora cyanoptera</i>	Blue-winged warbler	MC		RI
<i>Setophaga discolor</i>	Prairie warbler	MC		RI
<i>Setophaga dominica</i>	Yellow-throated warbler			RI
<i>Mniotilta varia</i>	Black-and-white warbler			RI
<i>Helmitheros vermivorum</i>	Worm-eating warbler	MC		RI

<u>Scientific Name</u>	<u>Common Name</u>	<u>Federal</u>	<u>Status<sup>b</sup> State</u>	<u>PIF<sup>c</sup></u>
<i>Parkesia motacilla</i>	Louisiana waterthrush	MC		RI
<i>Protonotaria citrea</i>	Prothonotary warbler	MC		RI
<i>Geothlypis formosa</i>	Kentucky warbler	MC		RI
<i>Cardellina canadensis</i>	Canada warbler	MC		RI
<i>Setophaga citrina</i>	Hooded warbler			RI
<i>Icteria virens</i>	Yellow-breasted chat			RI
<i>Setophaga pinus</i>	Pine warbler			RI
<i>Cardellina pusilla</i>	Wilson's warbler			RI
<i>Setophaga magnolia</i>	Magnolia warbler			RI
<i>Setophaga fusca</i>	Blackburnian warbler			RI
<i>Setophaga pennsylvanica</i>	Chestnut-sided warbler			RI
<i>Setophaga virens</i>	Black-throated green warbler			RI
<b>- Tanagers -</b>				
<i>Piranga olivacea</i>	Scarlet tanager			RI
<i>Piranga rubra</i>	Summer tanager			RI
<b>- Cardinals, Grosbeaks &amp; Allies -</b>				
<i>Passerina cyanea</i>	Indigo bunting			RI
<b>- Towhees, Sparrows &amp; Allies -</b>				
<i>Pipilo erythrophthalmus</i>	Eastern towhee			RI
<i>Spizella pusilla</i>	Field Sparrow			RI
<i>Ammodramus savannarum</i>	Grasshopper sparrow			RI
<i>Pooecetes gramineus</i>	Vesper sparrow		NM	
<i>Ammodramus henslowii</i>	Henslow's sparrow	MC	NM	RI
<i>Melospiza Georgiana</i>	Swamp sparrow			RI
<b>- Blackbirds &amp; Allies -</b>				
<i>Dolichonyx oryzivorus</i>	Bobolink			RI
<i>Sturnella magna</i>	Eastern meadowlark			RI

**MAMMALS**

<i>Myotis grisescens</i>	Grey bat	E	E
<i>Myotis sodalist</i>	Indiana bat'	E	E
<i>Myotis septentrionalis</i>	Northern long-eared bat	PE	
<i>Sorex longirostris</i>	Southeastern shrew		NM
<i>Sorex cinereus</i>	Masked shrew		NM
<i>Zapus hudsonius</i>	Meadow jumping mouse		NM

There are three special status species known to occur on ORR, the gray bat (*Myotis grisescens*), a federally and state-listed endangered species; the state-listed threatened northern saw-whet owl (*Aegolius acadicus*) and the state-listed endangered peregrine falcon (*Falco peregrinus*). These species, along with 17 other species of animals listed as species of concern known to be present on ORR, shown in the previous table. There are also species included in the table that are regionally declining or infrequent migrants to the ORR. This previous table was made available by DOE found here: [http://energy.gov/sites/prod/files/2015/10/f27/EA-2014\\_Final\\_EA\\_2015.pdf](http://energy.gov/sites/prod/files/2015/10/f27/EA-2014_Final_EA_2015.pdf).

## **POLICY ANALYSIS AND RECOMMENDATIONS**

## **Introduction**

Disclosure of affiliation: the author of this policy analysis was employed with a joint appointment, at Oak Ridge Reservation Communities Alliance (ORRCA) and the Tennessee Department of Environment and Conservation (TDEC), Division of Remediation – Oak Ridge Office (TDEC – DOEO). The purpose of this policy analysis is to identify: what policy, if any, should ORRCA and TDEC put in place to encourage community use of Lower East Fork Poplar Creek while still maintaining public safety?

## **Background**

Within the Oak Ridge, Tennessee community lies a body of water known as Lower East Fork Poplar Creek; from this point forward it will be referred to as LEFP Creek. LEFP Creek runs through Oak Ridge city limits and ends at the mouth of Poplar Creek. LEFP Creek spans two Tennessee counties, Anderson and Roane.

Oak Ridge is also home to Y-12 Nuclear Facility and Oak Ridge National Lab (ORNL) and Reservation (ORR), a division of the Department of Energy (DOE). Historically, DOE property in Oak Ridge also housed nuclear facilities that were involved in the Manhattan Project and other gaseous diffusion activities from 1941 – 1985 (Manhattan Project Voices, n.d.). The gaseous diffusion plant was used to produce nuclear fuel, Uranium. This property that specifically enriched the Uranium is now called East Tennessee Technology Park (ETTP). ETTP has decommissioned all nuclear reactors and facilities, designated part of the area as a National Park, a portion

as a nature reserve, and are in the process of reindustrializing some of the property for new businesses. ETTP has been redesigned as a business park for light industrial use with an intended purpose to be multimodal, with areas for work, recreation, and restaurants. ETTP is divided into two parts, The Horizon Center and The Heritage Center (CROET, 2015).

Because of the former nuclear activities and governmental presence in the area, there has been a history of contamination (of both the natural and urban environment), multimillion-dollar projects, and – more recently and positively – partnerships among the community and governmental players.

Due to the level of contaminants from DOE property, there was a governmental Record of Decision (ROD) released on LEFP Creek in 1995 and a follow up decision in 1996 (USDOE, 2013). The purpose of the ROD and follow up was to detail the heavy metal, polycyclic aromatic hydrocarbons (PAH), and polychlorinated biphenyl (PCB) contamination (mainly of mercury) and to create a remediation plan. The plan detailed how the Department of Energy was to remove all contaminated soils from the flood plain. These remedial activities were completed by the year 2000 (USDOE, 2000). A monitoring plan has been in place since 1995 to assure that remedial activities were affective and that no further contamination occurs. Mercury contamination is still present within fish, and there is a still standing advisory on fish consumption in the area. This is because mercury bioaccumulates in the muscle tissue of fish. This means that organisms are exposed to mercury and their bodies cannot get rid of it as fast as they are being exposed to mercury and it accumulates in the body (USGS, 1997). The

implication is that the most probable risk pathway for human exposure to mercury in LEFP Creek is by consuming fish. Currently, the threshold for these specific contaminants (PHA and PCB) does not pose a significant risk to waterway users, outside of mercury and fish consumption.

While the ongoing remediation of mercury and other source contamination is a concern in LEFP Creek, it is not the main focus of the policy analysis. There is a current water contact advisory for LEFP Creek due to *Escherichia Coli* contamination from the City of Oak Ridge Municipal waste water system (p. 88, TDEC, 2014).

The overarching federal policy that protects LEFP Creek is the Clean Water Act (CWA). The CWA governs water pollution in the United States. Its purpose is to safeguard against pollution from all sources and provide assistance to publicly owned treatment works for the improvement of wastewater treatment. The CWA maintains a list of all waterways that are impaired and cannot be used freely. This list is called the 303(d) and is updated every year to list the specific contaminants for each body of water; this list can distinguish which limitations are imposed on the water and by what contamination sources. This federal law also enacted Water Quality Standards (WQS), which set specific pollutant levels for individual water bodies; each standard is based on the water body type (river, stream, ocean, etc.) and each type of contaminant has a specific level of measurement (e.g. *E. coli*, mercury, etc.) (EPA, 2015).

According to Environmental Protection Agency (EPA), *E. coli* levels for 'recreational water quality' are not to exceed a specific level of colony forming units (cfu) to be considered safe for recreation use (EPA, 2012). It is important to observe these

levels of *E. coli* in water because it can cause a variety of recreational water illnesses (RWI). According to the Centers for Disease control (CDC):

...[R]ivers can be contaminated with germs from sewage spills, animal waste, water runoff following rainfall, fecal incidents, and germs rinsed off the bottoms of swimmers. It is important to avoid swallowing the water because natural recreational water is not disinfected (CDC, 2013).

The City of Oak Ridge is slated to have the municipal wastewater system rehabilitated by the end of 2015. This wastewater rehabilitation project is a multimillion-dollar project that is intended to amend the human fecal contamination resulting from the city's 70-year-old sewage system (Langley, 2014). Once the municipal wastewater system has been rehabilitated and the *E. coli* levels return to acceptable, LEFP Creek will be acceptable for recreational use (with the exception of fishing) for the first time in several years. The significance of this issue and problem statement will be further explored in the landscape section of this analysis. **Update Dec 2015:** TDEC Division of Water Resources has deemed *E. coli* levels in LEFP Creek as meeting quality standards. The office will need to continue monitoring to assure public safety.

### **Landscape**

The clients for this policy analysis are both ORRCA and TDEC. Both ORRCA and TDEC have partnered in grant work, in an effort to protect and preserve the environment and educate community members on environmental issues. This partnership has resulted in a mutually beneficial arrangement to analyze policy around LEFP Creek. Both of these organizations have similar values centered on

environmental protection, community-based participation and education and other conservation efforts. Because these organizations have partnered together, they have accumulated more political power. ORRCA is comprised of local governmental representatives from several East Tennessee counties and TDEC - DOEO has regulatory jurisdiction in Anderson and Roane Counties where LEFP Creek lies.

TDEC has the authority to regulate DOE in order to protect the environment. As a community organization, ORRCA advocates for the cleanest and healthiest community for its residents. Because ORRCA is comprised of local governmental officials, it has the ability to set local agendas with environmental issues. This is particularly important according to the Kingdon Model of Policy (Appendix C), because potential policies can only move to legislation after being set on the agendas of decision makers; these policies must also have unified support (HFPR, 2015). In this case, unified support could come from the current alliance between ORRCA (community members) and a regulatory body (TDEC).

Other community stakeholders include City of Oak Ridge – Parks and Recreation, Industrial Development Board (IDB), Community Reuse Organization of East Tennessee (CROET), Tennessee Valley Authority (TVA), Tennessee Wildlife Resources Agency (TWRA), Department of Energy (DOE), local canoeing/water recreation groups, and local landowners near LEFP Creek.

Several community members were contacted directly in relation to LEFP Creek and the pending municipal wastewater rehabilitation. Of those that were contacted, representatives from eight organizations responded with their viewpoints on LEFP



Creek and potential community use of the waterway. Those eight representatives were from the following organizations: ORRCA, TDEC, Parks and Recreation (two members), IDB, DOE, CROET, and TVA.

### **Oak Ridge Reservation Communities Alliance**

Members of ORRCA were in support of recreational use of the body of water known as LEFP Creek. Because ORRCA is the organization analyzing potential use of the water, there was concern about financial responsibility of potential action. Outside the scope of this analysis, some ORRCA members were concerned with EPA mandated signage labeling LEFP Creek as “impaired”. While this is a valid concern, remediation activities around mercury and contamination of fish (which are also outside the scope of this analysis), require signage, years of remediation efforts, and will incur millions of dollars in remediation efforts. Because ORRCA has multiple, local governmental representatives, its support vital to any effort that will occur in the local political environment. Part of ORRCA’s strategic plan is to increase community outreach and participation; an effort to increase community recreational use would align with ORRCA’s strategic plan.

### **Tennessee Department of Environment and Conservation**

TDEC supports recreational use of LEFP Creek, provided it meets national safety standards as delivered by the EPA and Clear Water Act. Once *E. coli* levels are at a national water quality standard, LEFP Creek will be safe for recreational use and free from that contaminate. Also outside the scope of this analysis, TDEC members have voiced concerns over mercury contamination. Signage will remain that imposes limits

on the consumption of fish from the water. At least one TDEC member has proposed measuring the sediment levels of mercury to check recent levels and reassess the risk to recreational use of LEFP Creek. TDEC members support the notion that recreational use is practical application of policy endeavors and supports the concept of community-based participation and partnerships. TDEC has approved new strategic objectives which strengthening community outreach and public communication; this is a mutually beneficial issue that aligns with internal TDEC policies.

TDEC members also had concerns with liabilities of recreational use and would want law enforcement officials to be included in the planning phase, to know where to patrol.

#### **City of Oak Ridge – Parks and Recreation**

Two members of Parks and Recreation commented that encouraged recreational use of LEFP Creek is rather timely. It is well-timed in conjunction with the city's efforts to both increase waterway recreation and formalize a partnership with a canoe, kayak, and paddle-board rental business. The water sports rental business has done well over and increased revenue over the last three years. This has increased the community's capacity for water sports and recreation. This also makes for an opportunity to mobilize a community partnership and effort, and unified support.

Both Parks and Recreation members stated that the biggest barrier to waterway recreational use would be community perceptions around safety of the water. Parks and Recreation members postulated that it is reasonable to assume that community members will be reticent to use the water for fear of personal risk of exposure to

contaminants. This resistance was attributed to a history of contamination in LEFP Creek and current mercury contamination, even if risk is acceptably low by EPA standards.

### **Tennessee Valley Authority**

The TVA member was supportive of recreational use of the waterway, but pointed out that the responsible organization would need submit a joint application with the TVA to the Army Corps of Engineers: a Section 26A permit. This permit would allow boat traffic and make sure that there were no unreasonable obstructions in LEFP Creek and Poplar Creek. A TDEC member assured that this permit while necessary, was not a threat to recreational use of the water, but in fact a protection to assure that waterway would be used responsibly. The TVA member mentioned that he/she would support an effort to increase recreational use of LEFP Creek; this makes for an opportunity to mobilize a community partnership and unified support of a potential policy.

### **City of Oak Ridge – Industrial Development Board**

The IDB representative was only tentatively supportive of increased recreational use. The stakeholder was concerned with liability to property members if recreational users left the water to explore property along the water. The IDB member also worried that if property along LEFP Creek exchanged property owners in the years to come, if the hypothetical property owners would be supportive of the environmental mission and respectful of the recreational waterway users. The IDB member was mildly supportive of the idea, provided that liability issues would be addressed in a potential policy.

**Department of Energy**

The Department of Energy member was very supportive of the issue, but denoted that certain other DOE representatives would prove to be opponents of the waterway use. However, the stakeholder noted that certain DOE property was to be transferred to another organization (CROET), by March 2016. This member brought up that recreational use of the waterway surrounding ETTP would be a timely effort in regards to the National Park/conservation area designation within ETTP property. The waterway recreational use effort would support the overall outdoor recreational use mentality surrounding the National Park. The DOE stakeholder supported recreational use of the water on LEFP Creek as an issue that fits into the redesign of ETTP as a multimodal recreational, work, and retail area. The member stated that as part of federal settlements DOE has to provide the Oak Ridge community with safe, environmentally protected areas or provide environmental stewardship to the community. There is a potential for some of the environmental settlement dollars to be used in a partnership with ORRCA.

**Community Reuse Organization of East Tennessee**

The member of CROET suggested that recreational use of the waterway was timely in that CROET was to be deeded current DOE property that is adjacent to LEFP Creek. The stakeholder member noted that CROET had been looking into recreational waterway activities and policy, but did not have any current community partnerships, or an idea of how to start the effort. A partnership with CROET could result in a mutually

beneficial partnership. CROET is also partially federally funded and could provide a source of funding for potential policies.

### **Policy and Policy Alternatives**

This section describes: 1) the proposed project, 2) the no action alternative to the project, 3) the limited action approach to the project and 4) the comparison and contrasting of all project alternatives.

#### **Blueway Action Alternative**

Under the Proposed Action, ORRCA would obtain funding for the Lower East Fork Poplar Creek Blueway Project (also known as the “the blueway project” or “project” in this record). This project would entail a blueway designation for a preexisting body of water on Lower East Fork Poplar Creek, with four put-ins at 1) an existing path in The Horizon Center near Tennessee’s largest tree, 2) at Blair Road and Poplar Creek intersection/bridge, 3) the pre-existing Gallaher Bridge boat ramp, and 4) the pre-existing boat ramp at The Preserve, across from Brashear Island. The project will also include bacterial sampling plans with local organizations, constructing or enhancing access points to water at one of the four areas, as well as designing and displaying appropriate signage around the blueway. After completion, TDEC will maintain bacterial sampling. ORCCA will maintain the blueway to ensure user health and safety. The blueway will be designated as a public recreation area and tourism attraction.

**Project areas.*****Horizon Center at East Tennessee Technology Park.***

At its current stage, pre-development, The Horizon Center is already equipped with on-site restroom areas and room for parallel parking or a designated parking area where the undeveloped land is gated off. There is a pre-existing memorial stone and walking path that take leads recreational users to a large sycamore tree memorial. This path leads directly into Lower East Fork Poplar Creek. There is no need for further building or enhancements, at this time. The only blueway activities will be displaying signage and designating a parking space. The Horizon Center is an intended business park with over 1,000 acres for business buildings.

The Horizon Center is the Eastern part of East Tennessee Technology Park (ETTP) that is intended as a commercial business development and a nature preservation area. ETTP is a former brown site and gaseous diffusion plant (known as K-25) area that has been reindustrialized as both a business park and light industrial and manufacturing area. ETTP is also has the Western side, known as The Heritage Center and is managed by the CROET. Because Poplar Creek flows though both the Horizon and ETTP, CROET was contacted as a stakeholder group.

***Gallaher Bridge Boat Ramp.***

This is a present, state-maintained boat ramp and parking area, complete with an area for signage in relation to recreational use of the waterway. The only enhancement activity will be displaying signs in relation to blueway designation and proper blueway use. Tennessee Wildlife Resources Agency (TWRA) maintains the boat ramp and

parking lot at Gallaher Bridge. The Region 3 office of TWRA was contacted as part of the community stakeholder input, but did not respond.

***The Preserve/Rarity Ridge Boat Ramp.***

Currently, there is an existing boat ramp, dock, and parking area at the end of Broadberry Avenue to the Clinch River. There is no need for further development of the area other than posting appropriate signage for blueway use. This is a private road and boat ramp area. Permissions will need to be obtained from The Rarity Ridge Owners Association in order to use this existing boat ramp and parking area for public use and recreation. The owners association was contacted, but has not yet responded. (Rarity Ridge has recently changed hands and is now called The Preserve At Clinch River. The owners association has yet to legally change their name, but operates under the new name).

***Blair Rd/Poplar Creek Intersection.***

The intersection of Poplar Creek and Blair Road is currently overgrown with tall grasses. It is proposed that a path be manually created. The path will be approximately five feet across (achieved with landscaping equipment), from the asphalt road to Poplar Creek, roughly 30 feet long. The path will then be laid with gravel covering to create a path that will be easily maintained. There will need to be signs posted with directions to the put-in area and instructions on where to park. There is an asphalt road present with room to parallel park in the grass. Because this road is part of a TVA property line, a TVA representative was consulted within the scope of this assessment.

At this point in the waterway, Poplar Creek has a fork that runs North and South. To continue along the proposed path, users would need to take Poplar Creek toward the South. A sign would need to be placed either on the bridge over pass, on the riverbank where users park their vehicles, or a sign staked in the waterway.

If recreational users were to travel along the North fork of Poplar Creek (parallel to Blair Road), they would then be leaving blueway-designated waters. The land along the banks is privately owned property of Roane County residents. Outside of the scope of this assessment is contacting Roane County, private landowners outside of the proposed blueway area.

#### ***Lower East Fork Poplar Creek, Poplar Creek, and Clinch River***

The water in Lower East Fork Poplar Creek has been previously adulterated by a variety of contaminants listed in the 303(d) (TDEC, 2014). The scope of the blueway project focuses specifically on man-made, municipal sewage contamination (from the City of Oak Ridge), of *Escherichia coli* in Lower East Fork Poplar Creek. Currently LEFP Creek is on a list of impaired bodies of water in the state of Tennessee. The City of Oak Ridge is in the process of remediating the contamination leaks into the surrounding environment. Baseline data will be taken to determine current bacteria levels, and subsequent tests will be performed to assure that the *E. coli* has been removed from the proposed blueway site.

The scope of this environmental assessment is to evaluate the environmental feasibility of the blueway designation, not to postulate the legal designation of the project. However, here is a brief explanation of options: the designation of blueway is



voluntary. The locations described fall under different municipalities and county control. ORRCA is a multi-county organization that will oversee the planning and designation of a blueway system. At the county level, Roane and Anderson County share jurisdiction of the put-in areas. The State of Tennessee Parks and Recreation currently manages parks that contain waterways.

### **Limited Action Alternative**

The limited action alternative would be to continue the bacterial sampling plan, obtain legal designation of a blueway, but no put-in enhancements, signs or displays would be utilized. This alternative would negate the use of community partnerships. Essentially, the only change would be to obtain legal policy designation of the proposed waterway as a blueway.

### **No Action Alternative**

Under the no action alternative, there would be no bacterial sampling assigned, no blueway designation or blueway put-in enhancements. The property and body of water would remain, as is.

**Comparison of Alternatives**

<b><u>ALTERNATIVE PROPOSALS</u></b>	<b><u>EXPECTED OUTCOMES</u></b>
<b>LEFP Creek Blueway Project Alternative</b>	A fully functioning & maintained public recreation and tourist destination for Anderson & Roane Counties complete with signs, displays, parking, blueway put-ins, and a bacterial sampling plan to protect public safety. This option has the highest monetary cost. There is current community support for recreational use of LEFP Creek. This alternative includes the most provisions for public safety.
<b>Limited Action Alternative</b>	Only a bacterial sampling plan & blueway designation. No put-in enhancements or signs, displays. Would likely not significantly contribute to tourism or parks and recreation. This is the option with middling cost, there would be cost of having someone spend the man hours to work toward the legal designation of the blueway, but no cost for signage, maintenance or enhancements. There are no provisions for public safety and it is likely that there would be little input for support, because the effort wouldn't be advertised.
<b>No Action Alternative</b>	No bacterial sampling plans, no blueway. Would not contribute to Anderson & Roane County tourism or parks and recreation facilities. There would be no cost, no need for support. This option does not make any considerations for public safety.

## **RECOMMENDATIONS**

The following recommendation of alternative will be based on four criteria: potential for increased tourism, stakeholder support, public safety, and monetary cost. Although it would be the most expensive options of all the policy alternatives, the author recommends moving forward with the full LEFP Creek Blueway Project. The American Rivers Blue Trails Society suggests that there are economic benefits to blueways within communities (2015). This could factor in, in offsetting some of those start-up costs to enhance existing infrastructures. This also includes increased tourism and recreation for the Oak Ridge community (American River Blue Trails, 2015). This notion is also supported by the fact that The City of Oak Ridge Parks and Recreation has experienced a current increase in revenue due to their partnership with a water sports rental company.

According to the stakeholder interactions, thus far, there is community support for activities and potential for mutually beneficial arrangements with other community partners. Along with the current set of stakeholder support is that fact that many of these stakeholders are “insiders” with knowledge, values, and the power to create and follow-through with the proposed policy.

This policy alternative also has the most provisions for public safety. Parks and Recreation stakeholders noted that the largest barrier to the project would be concern from community members around public safety. Because this is a large barrier to overcome, the author suggests that it is paramount to address the barrier when

designing a policy. This will ensure that the policy is more likely to be accepted by the community.

Overall, with the amount of community support and current community activities around increasing waterway recreation, this is a timely endeavor and a well-designed policy that includes the above considerations, would bode well with community members. Next steps would need to form a community group (or sub-committee within an existing group, such as ORRCA) to support the creation of the LEFP Creek Blueway; and to work with the Tennessee Division of Water to remove the water contact signage along LEFP Creek. This would be an excellent project to mobilize partnerships among TDEC Divisions, TN State Parks Department, The City of Oak Ridge, and other vested community players.

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## **APPENDICES**

### **Appendix A**

The following is a list of contacts for those who actively participated in the project:

<b>Name</b>	<b>Organization</b>	<b>Email</b>
Ron Woody	ORRCA	<a href="mailto:Ron.woody@roanecountytn.gov">Ron.woody@roanecountytn.gov</a>
Traci Cofer	ORRCA	<a href="mailto:Traci.cofer@roanecountytn.gov">Traci.cofer@roanecountytn.gov</a>
Scott Stout	ORRCA	<a href="mailto:Scott.stout@roanecountytn.gov">Scott.stout@roanecountytn.gov</a>
Dale Rector	TDEC	<a href="mailto:Dale.rector@tn.gov">Dale.rector@tn.gov</a>
John Hetrick	OR Parks and Rec	<a href="mailto:JHetrick@oakridgetn.gov">JHetrick@oakridgetn.gov</a>
Kathryn Baldwin	OR Parks and Rec	<a href="mailto:KBaldwin@oakridgetn.gov">KBaldwin@oakridgetn.gov</a>
Doug Colclasure	Citizen of OR	<a href="mailto:DougColcl@aol.com">DougColcl@aol.com</a>
Dave Adler	DOE	<a href="mailto:David.adler@orem.doe.gov">David.adler@orem.doe.gov</a>
David Wilson	IDB	<a href="mailto:Dewilson99@juno.com">Dewilson99@juno.com</a>
Dave Harrell	TVA	<a href="mailto:dbharrell@tva.gov">dbharrell@tva.gov</a>
Bob Greenwell	CROET	<a href="mailto:bgreenwell@croet.com">bgreenwell@croet.com</a>
Madelynn McCormick	ORRCA/TDEC	<a href="mailto:Madelynn.mccormick@tn.gov">Madelynn.mccormick@tn.gov</a>

**Appendix B**

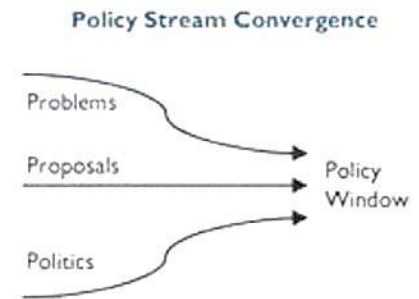
The following are the original project SMART objectives:

**SMART Objectives:**

- By 9/25/15, complete the "Proposed Action and Alternatives" chapter of the environmental assessment, by creating a detailed plan of action for a blueway designation and proposed alternatives to a blueway designation on Lower East Fork Poplar Creek (the Horizon Center to Gallaher Bridge).
- By 10/9/15, complete the "Affected Environment and Environmental Consequences" chapter of environmental assessment, by using the resources at TDEC (such as, but not limited to: consulting subject-matter experts in the office and gathering relevant literature and government documents available, both at TDEC and UTK) to determine the affect a possible blueway would have on the surrounding environment and vice versa.
- By 10/23/15, complete the "Environmental Consultation, Review, & Permit Requirements" chapter of the environmental assessment by consulting TDEC subject-matter experts and determining and compiling the applicable national policy requirements for the proposed activity site(s).
- By 10/28/15, complete the "Purpose and Need for Action" chapter of the environmental assessment, by defining the need and purpose of the proposed activity; providing a background of the proposed activity; contacting stakeholders to determine what issues should be of concern for the environmental analysis; listing the areas of concern outside the scope of the environmental analysis.
- Provide the final NEPA Environmental Assessment, project portfolio, and appropriate documentation to ORRCA, Drs. Chen and Myers, and Dale Rector by 12/11/15.

## **Appendix C**

According to The Harvard Family Research Project (HFRP, 2015), the Kingdon Model of Policy is about passing policies – even at the local level. In order to pass a policy, three policy streams (problems, proposals, and politics) all have to align to get the policy to the policy window... and then to get the policy passed.



The problem stream has to have a well-defined problem. The proposal (create a blueway) also has to be well defined. The politics stream can often be seen as the most influential because the politics stream requires “agenda setting” for the proposal to even make it to the policy window. Agenda setting means that either someone influential or a group of people needs to be powerful enough (either in a power position/with a powerful title or powerful in sheer number) to get others to pay attention to the issue.



## Appendix D

Table: East Tennessee Technology Park Environmental Permits, 2014

Regulatory driver	Permit title/description	Permit number	Issue date	Expiration date	Owner	Operator	Responsible contractor
CAA	State permit to construct or modify an air contaminant source—internal combustion engine—powered emergency generators and fire water pump	967220P	08-22-2013 Amended 07-26-2014	08-23-2015	DOE	UCOR	UCOR
CWA	NPDES permit for storm water discharges	TN0002950	02-26-10	12-31-13 <sup>a</sup>	DOE	UCOR	UCOR
CWA	State operating permit—waste transportation project; Blair Road and Portal 6 sewage pump and haul permit	SOP-05068	07-01-14	02-28-19	DOE	TFE	TFE
CWA	State operating permit—ETTP holding tank/haul system for domestic wastewater	SOP-99033	04-30-10	04-30-15	UCOR	UCOR	UCOR
UST	Authorized/certified USTs at K-1414 Garage	Customer ID 30166 Facility ID 073008	03-20-89	Ongoing	DOE	UCOR	UCOR
RCRA	ETTP container storage and treatment units	TNHW-117 <sup>b</sup>	09-30-04	09-30-14	DOE	UCOR	UCOR
RCRA	Hazardous waste corrective action document (encompasses entire ORR)	TNHW-121 <sup>b</sup>	09-28-04	09-28-14	DOE	DOE/All <sup>c</sup>	DOE/All <sup>c</sup>

<sup>a</sup>An NPDES permit renewal application has been submitted in a timely manner. In cases where permit renewal applications have been submitted to regulatory agencies in a timely manner, but a new permit has not been issued, permission is granted by regulators to continue operating under the terms of the existing but expired permit. The new NPDES permit was issued in 2015.

<sup>b</sup>Operating under timely submittal of renewal permit.

<sup>c</sup>DOE and all ORR co-operators of hazardous waste permits.

### Acronyms

CAA = Clean Air Act

CWA = Clean Water Act

DOE = US Department of Energy

ETTP = East Tennessee Technology Park

ID = identification (number)

NPDES = National Pollutant Discharge Elimination System

ORR = Oak Ridge Reservation

RCRA = Resource Conservation and Recovery Act

SOP = state operating permit

TFE = Technical and Field Engineering, Inc.

UCOR = URS | CH2M Oak Ridge LLC

UST = underground storage tank

Table: Oak Ridge National Laboratory environmental permits, 2014

Regulatory driver	Permit title/description	Permit number	Issue date	Expiration date	Owner	Operator	Responsible contractor
CAA	Title V Major Source Operating Permit, ORNL	562765	08-16-11	08-15-16	DOE	UT-B	UT-B
CAA	Construction Permit, CFTF facility (located near ETPP)	965013P	03-27-12	11-01-14	DOE	UT-B	UT-B
CAA	Construction Permit, CFTF emergency generator	967180P	03/07/14	03-06-15	DOE	UT-B	UT-B
CAA	Operating Permit, NTRC	0941-05 <sup>a</sup>	10-23-12	Annually <sup>b</sup>	DOE	UT-B	UT-B
CAA	Operating Permit, WAI	063331P	03-07-12	03-01-22	DOE	WAI	WAI
CAA	Operating Permit, WAI emergency generator	068459P	04-14-14	10-01-23	DOE	WAI	WAI
CAA	Title V Major Source Operating Permit, ORNL	562860	07-16-10	07-15-15	DOE	UCOR	UCOR
CAA	Title V Major Source Operating Permit, Isotek	568276	10-06-14	10-05-19	DOE	Isotek	Isotek
CWA	ORNL NPDES Permit (ORNL sitewide wastewater discharge permit)	TN0002941	03-01-14	10-31-18	DOE	DOE	UT-B, UCOR, WAI
CWA	Tennessee General NPDES Permit TNR10-0000, Storm Water Discharges from Construction Activities— Spallation Neutron Source	TNR139975	10-10-00	05-23-16	DOE	DOE	UT-B
CWA	Tennessee General NPDES Permit TNR10-0000, Storm Water Discharges from Construction Activities— 7018 Renovations/Additions (2.81 acres)	TNR134552	08-05-14	05-23-16	DOE	DOE	UT-B
CWA	Industrial and Commercial User Waste Water Discharge Permit (CFTF)	1-12	10-15-12	03-31-15	UT-B	UT-B	UT-B
CWA	Tennessee General NPDES Permit TNR10-0000, Storm Water Discharges from Construction Activities— Pro2Serve National Security Engineering Center		10-06	NA	DOE	DOE	CROET
CWA	Tennessee Operating Permit, Holding Tank/Haul System for Domestic Wastewater	SOP-07014	06-01-12	04-30-17	UCOR	UCOR	UCOR
CWA	Tennessee Operating Permit (sewage)	SOP-02056	02-01-13	12-31-17	DOE	WAI	WAI
CWA	Tennessee General NPDES Permit TNR10-0000, Storm Water Discharges from Construction Activity— Site Expansion Project	TNR 133560	08-31-09	NA	DOE	WAI	WAI
CWA	ARAP for ORNL East Campus Pond Replacement	ARAP NR1403.060	05-06-14	06-30-15	DOE	UT-B	UT-B
RCRA	Hazardous Waste Transporter Permit	TN18900900 03	01-17-14	01-31-15	DOE	DOE	UT-B, UCOR

Table: ORNL (continued)

Regulatory driver	Permit title/description	Permit number	Issue date	Expiration date	Owner	Operator	Responsible contractor
RCRA	Hazardous Waste Corrective Action Permit	TNHW-121	09-28-04	09-28-14 <sup>c</sup>	DOE	DOE/all <sup>d</sup>	DOE/all
RCRA	Hazardous Waste Container Storage and Treatment Units	TNHW-134	09-26-08	09-26-18	DOE	DOE/UT-B	UT-B
RCRA	Hazardous Waste Container Storage and Treatment Units	TNHW-145	02-03-10	02-03-20	DOE	DOE/ UCOR/ WAI	UCOR/WAI

<sup>a</sup>Permit issued by Knox County Department of Air Quality Management.

<sup>b</sup>Continued construction/operation under an expired permit is allowed under air pollution control regulations when timely renewal or construction permit applications are submitted.

<sup>c</sup>TDEC issued completeness determination on 9/5/14 for the Part A and Part B renewal application. Permit is anticipated to be renewed in 2015.

<sup>d</sup>DOE and Oak Ridge Reservation contractors are co-operators of hazardous waste permits.

**Acronyms**

ARAP = Aquatic Resource Alteration Permit

CAA = Clean Air Act

CFTF = Carbon Fiber Technology Facility

CROET = Community Reuse Organization of East Tennessee

CWA = Clean Water Act

DOE = US Department of Energy

ETTP = East Tennessee Technology Park

Isotek = Isotek Systems LLC

NPDES = National Pollutant Discharge Elimination System

NTRC = National Transportation Research Center

ORNL = Oak Ridge National Laboratory

RCRA = Resource Conservation and Recovery Act

UCOR = URS | CH2M Hill Oak Ridge LLC

UT-B = UT-Battelle, LLC

WAI = Wastren Advantage, Inc.

Table: Y-12 National Security Complex environmental permits, 2014

Regulatory driver	Title/description	Permit number	Issue date	Expiration date	Owner	Operator	Responsible contractor
CAA	Title V Major Source Operating Permit	562767	1/8/2012	1/8/2017	DOE	DOE	CNS
CAA	UPF Construction Permit	967550P	3/01/2014	3/01/2015	DOE	DOE	CNS
CWA	Industrial & Commercial User Wastewater Discharge (Sanitary Sewer) Permit	1-91	4/1/2010	3/31/2015	DOE	DOE	CNS
CWA	NPDES Permit	TN0002968	10/31/2011	11/30/2016	DOE	DOE	CNS
CWA	UPF 401 Water Quality Certification/ ARAP Access/Haul Road	NRS10.083	6/10/2010	6/09/2015	DOE	DOE	CNS
CWA	UPF Department of Army Section 404 Clean Water Act Permit	2010-00366	9/02/2010	9/02/2015	DOE	DOE	CNS
CWA	UPF General Storm Water Permit Y-12 Complex (41.7 hectares/103 acres)	TNR 134022	10/27/2011	5/23/2016	DOE	CNS	CNS
RCRA	Hazardous Waste Transporter Permit	TN38900900 01	1/17/2014	1/31/2015	DOE	DOE	CNS
RCRA	Hazardous Waste Corrective Action Permit	TNHW-121	9/28/2004	9/28/2014 <sup>a</sup>	DOE	DOE, NNSA, and all ORR co-operators of hazardous waste permits	UCOR
RCRA	Hazardous Waste Container Storage Units	TNHW-122	8/31/2005	8/31/2015	DOE	DOE/CNS	CNS/ Navarro co- operator
RCRA	Hazardous Waste Container Storage and Treatment Units	TNHW-127	10/06/2005	10/06/2015	DOE	DOE/CNS	CNS co-operator

Table: Y-12 (continued)

Regulatory driver	Title/description	Permit number	Issue date	Expiration date	Owner	Operator	Responsible contractor
RCRA	RCRA Postclosure Permit for the Chestnut Ridge Hydrogeologic Regime	TNHW-128	9/29/2006	9/29/2016	DOE	DOE/UCOR	UCOR
RCRA	RCRA Postclosure Permit for the Bear Creek Hydrogeologic Regime	TNHW-116	12/10/2003 Permit reapplication submitted to TDEC on 1/31/13	12/10/2013 <sup>a</sup>	DOE	DOE/UCOR	UCOR
RCRA	RCRA Postclosure Permit for the Upper East Fork Poplar Creek Hydrogeologic Regime	TNHW-113	9/23/2003 Permit reapplication submitted to TDEC on 1/31/13	9/23/2013 <sup>a</sup>	DOE	DOE/UCOR	UCOR
Solid Waste	Industrial Landfill IV (Operating, Class II)	IDL-01-103-0075	Permitted in 1988—most recent modification approved 1/13/1994	N/A	DOE	DOE/UCOR	UCOR
Solid Waste	Industrial Landfill V (Operating, Class II)	IDL-01-103-0083	Initial permit 4/26/1993	N/A	DOE	DOE/UCOR	UCOR
Solid Waste	Construction and Demolition Landfill (Overfilled, Class IV subject to CERCLA ROD)	DML-01-103-0012	Initial permit 1/15/1986	N/A	DOE	DOE/UCOR	UCOR
Solid Waste	Construction and Demolition Landfill VI (Postclosure care and maintenance)	DML-01-103-0036	Permit terminated by TDEC 3/15/2007	N/A	DOE	DOE/UCOR	UCOR
Solid Waste	Construction and Demolition Landfill VII (Operating, Class IV)	DML-01-103-0045	Initial permit 12/13/1993	N/A	DOE	DOE/UCOR	UCOR
Solid Waste	Centralized Industrial Landfill II (Postclosure care and maintenance)	IDL-01-103-0189	Most recent modification approved 5/8/1992	N/A	DOE	DOE/UCOR	UCOR

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**Table Legend: Y-12**

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\*Continue to operate in compliance pending TDEC action on renewal and reissuance.

**Acronyms**

ARAP = Aquatic Resource Alteration Permit

CAA = Clean Air Act

CERCLA = Comprehensive Environmental Response, Compensation,  
and Liability Act

CNS = Consolidated Nuclear Security LLC

CWA = Clean Water Act

DOE = US Department of Energy

Navarro = Navarro Research and Engineering, Inc.

NNSA = National Nuclear Security Administration

NPDES = National Pollutant Discharge Elimination System

ORR = Oak Ridge Reservation

RCRA = Resource Conservation and Recovery Act

ROD = record of decision

TDEC = Tennessee Department of Environment and  
Conservation

UCOR = URS | CH2M Oak Ridge LLC

Y-12 Complex = Y-12 National Security Complex

# ORRCA/TDEC Internship Project: Oak Ridge Water Ways

Madelynn McCormick  
Fall 2015

# What is a Blueway?

- \* Sometimes called a “blue trail”
- \* A designated portion of a waterway for recreational use, with at least 2 put-in areas.
- \* A greenway on water



# Renovated boat launch opens at Seven Islands State Birding Park

Story Comments

Print  Font Size:  

Posted: Sunday, November 29, 2015 12:00 am

sports@thedailytimes.com | 0 comments



Legacy Parks Foundation

## Boat Ramp Ribbon Cutting

The ribbon is cut for a reopening of a new and improved public boat launch at Knox County's Seven Islands State Birding Park.

Knox County's Seven Islands State Birding Park now has a new and improved public boat launch on the south side of the French Broad River thanks to a unique partnership between Legacy Parks Foundation, Tennessee Department of Environment and Conservation, Tennessee State Parks, TVA and Knox County.

The ribbon cutting at Mutton Hollow Landing on Nov. 18 was part of an initiative to increase public access to rivers and promote the state's blueways or river trails. Tennessee now boasts 20 blueways connecting people, parks and communities by waterway.

"Water trails, like greenways, give people an opportunity to get out and enjoy nature," said Jane Polansky, Tennessee State Scenic Rivers administrator. "Since 2009 we've been able to connect seven state parks to blueways," she added.

The refurbished road, parking area, and boat launch at Mutton Hollow is located on 40 acres of Seven Islands State Birding Park on the southern side of the French Broad River. TVA provided the funding for the environmental review and materials and Knox County employees provided the labor.

"This project is an example of successful partnerships across multiple organizations with a singular goal – to improve access to our beautiful natural resources," said Rebecca Tolene, vice president of Natural Resources for TVA. "And our state park system, like TVA land along the river system, provides the public with opportunities to experience nature first hand," she added.

Creating more access to Knoxville's three rivers is a Legacy Parks Foundation priority



Bringing  
together:

- \* Community organizations
- \* Community members
- \* Environmental agencies

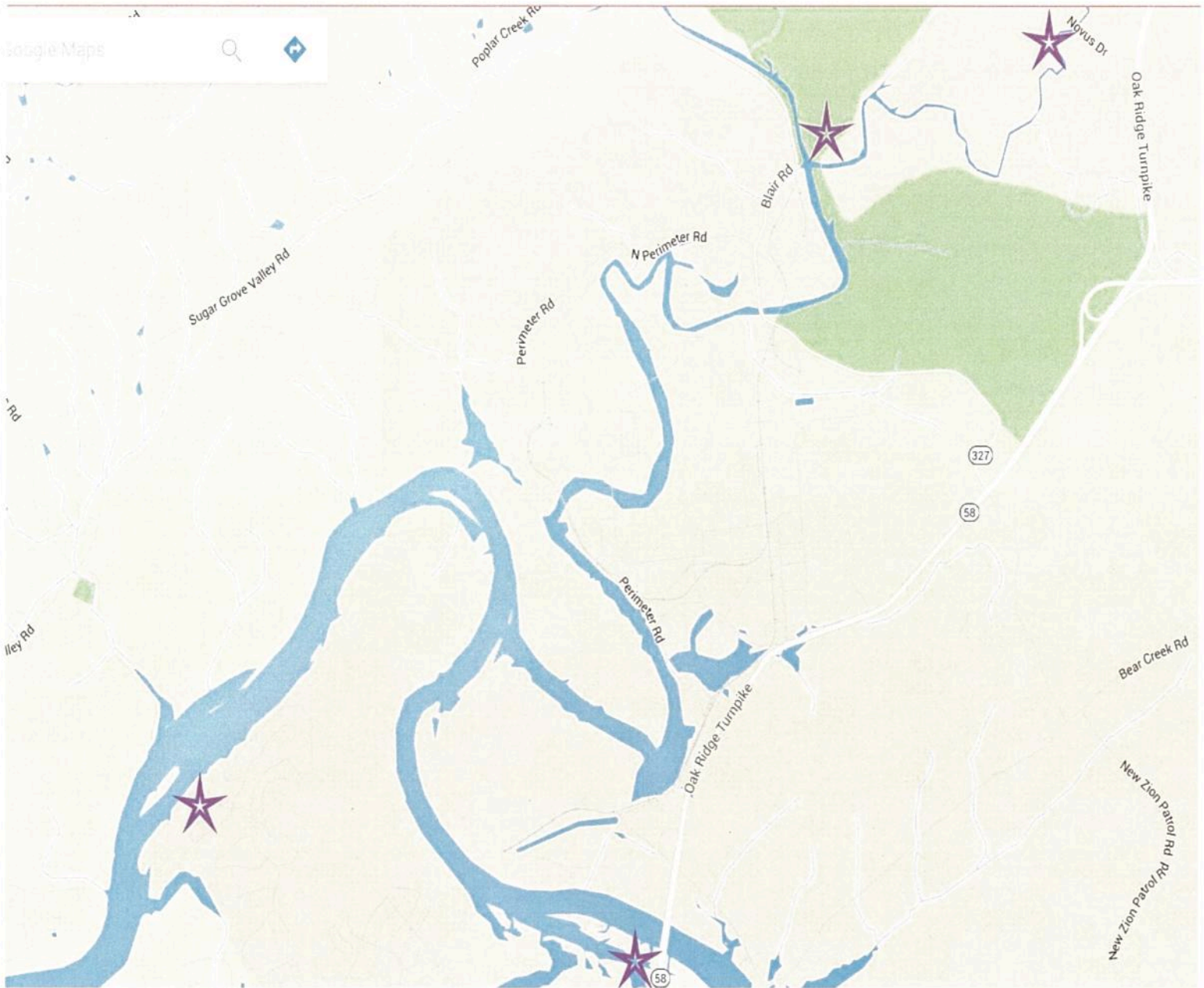
# Why a Blueway?

- \* ORRCA Goal: Community Outreach
  - \* Mobilize community partnerships
  - \* Blueway as a community resource
- \* ORRCA Goal: Environmental Clean Up Projects
  - \* Environmental preservation & conservation

# Where?

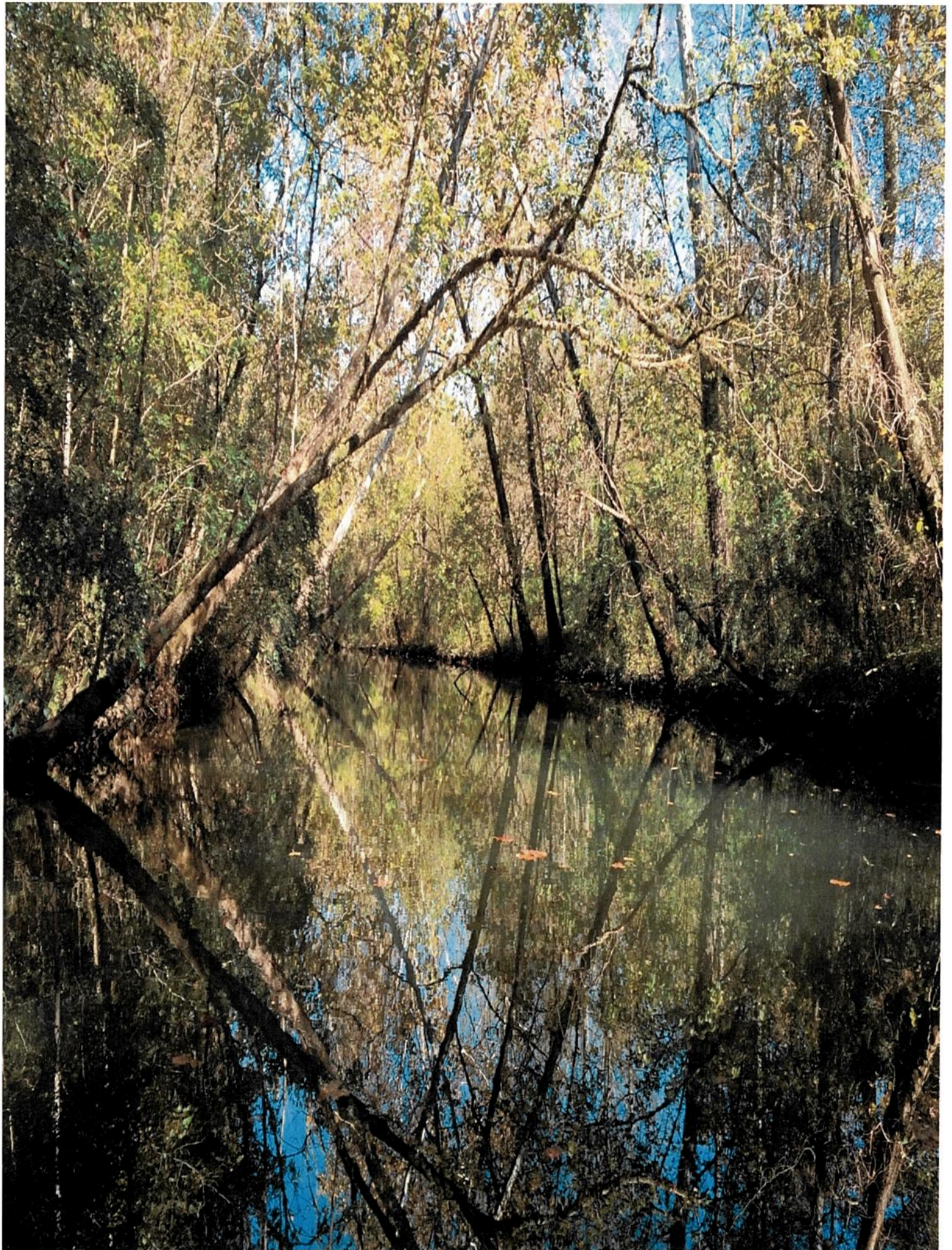
- \* Lower East Fork Poplar Creek
- \* Goal: Environmental Clean Up
  - \* TDEC Division of Water Resources
    - \* Decommissioning “Bacterial Hazard Signs” from municipal wastewater contamination

# Proposed Blueway Put-Ins



# What Will ORRCA Receive?

- \* Permit Catalog for website
- \* Op-ed for website & local news outlets
- \* Report 1: breakdown of policies on proposed blueway
  - \* From federal to local
  - \* Evidence-based policies
- \* Report 2: environmental assessment of proposed blueway
  - \* EPA – NEPA format



# What's Next?

- \* Utilize “good timing”
  - \* TDEC/State goals
  - \* Manhattan Project National Park Designation
  - \* Upcoming ETP Land Donations → CROET
  - \* City of Oak Ridge/Parks & Rec: Marina Boat Rentals
- \* Formalize organizational partnerships
  - \* Create a team, workforce, coalition
- \* Maintain human & environmental safety audits
  - \* Use blueway planning as an opportunity to enhance monitoring

