

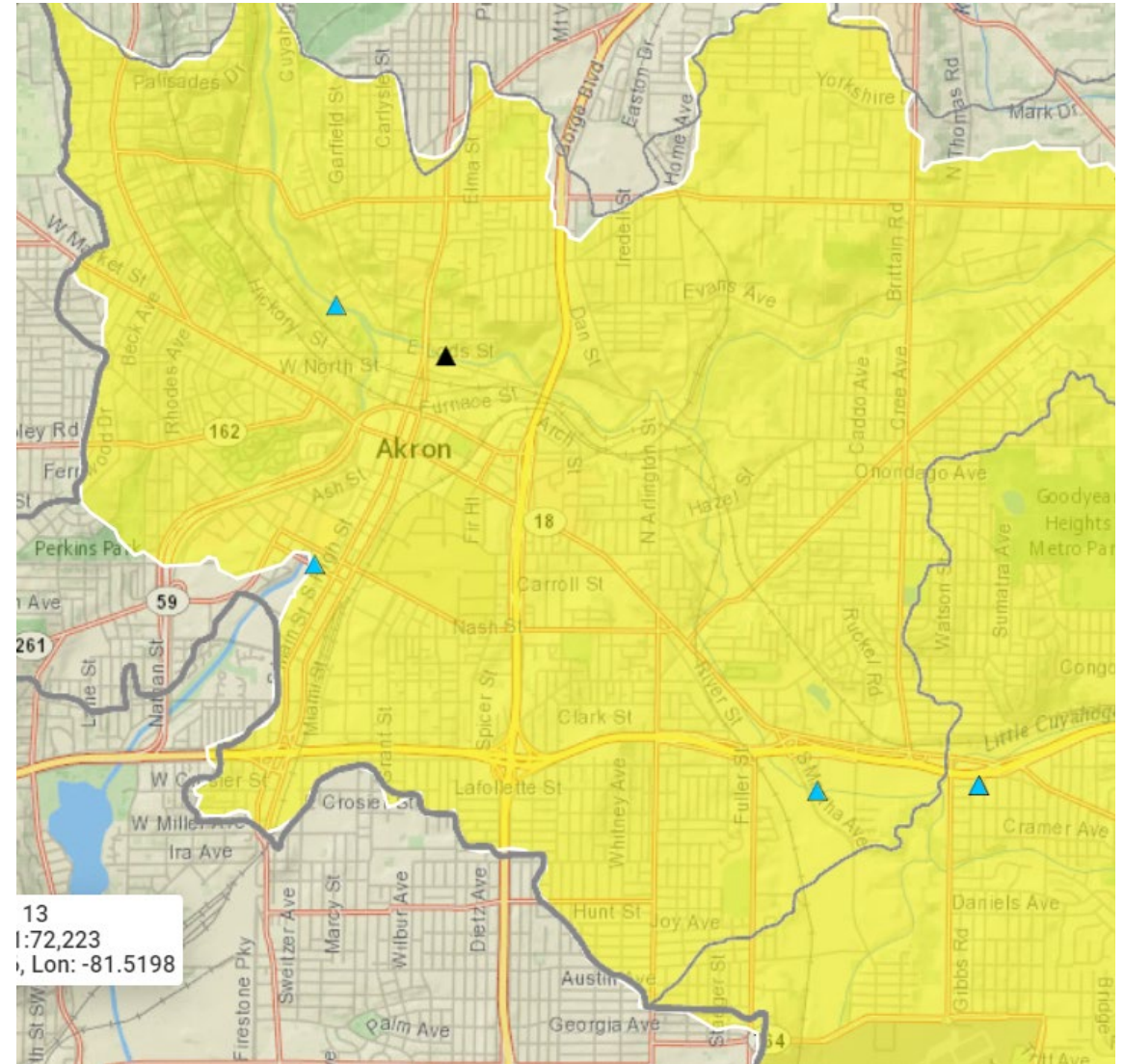


# Little Cuyahoga River Restoration

A Little River with a Big History

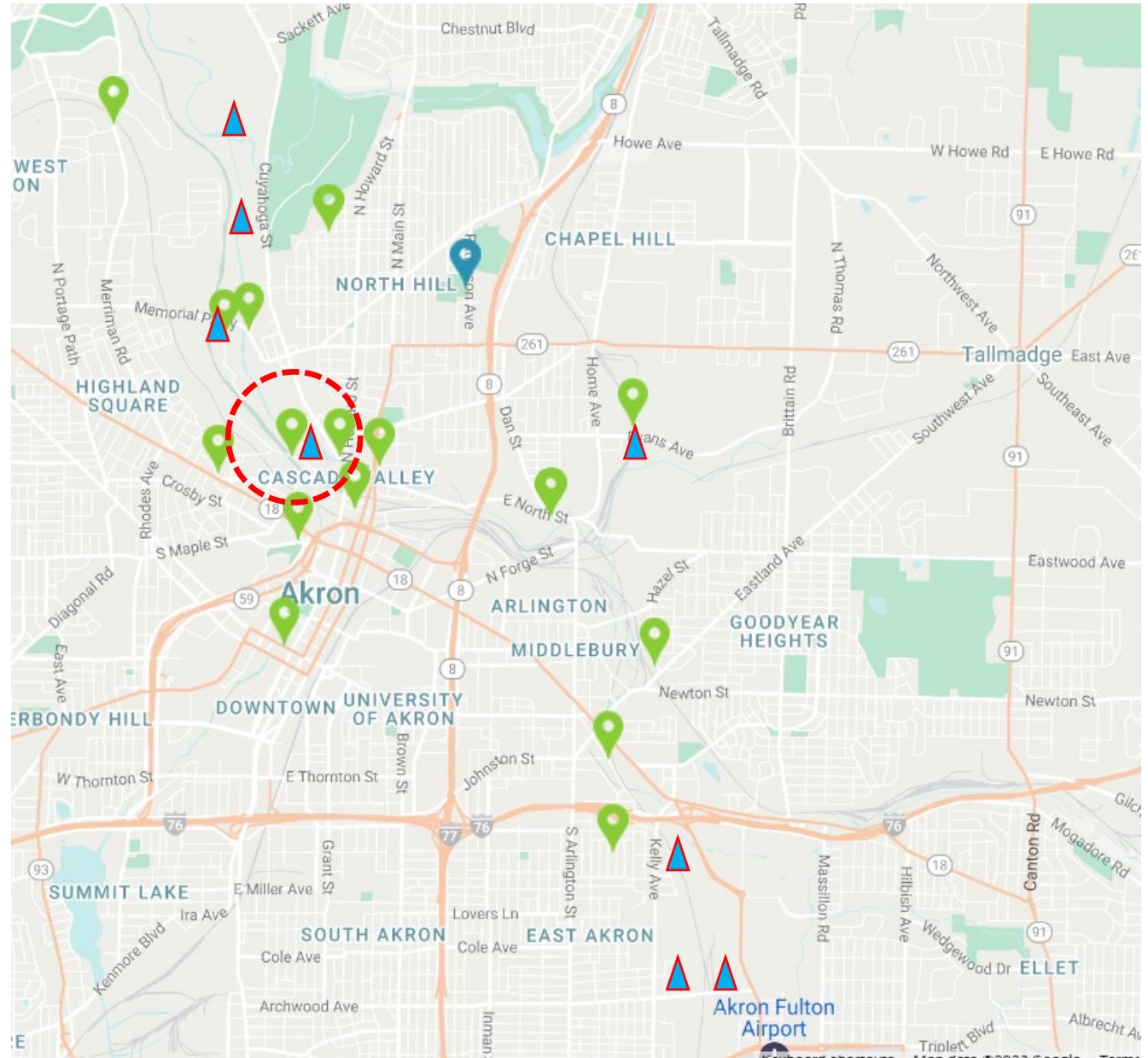
# Little Cuyahoga River Watershed

- Drainage Area 62 sq. miles
- 25.2 % impervious
- Ohio Erie Canal 1830-1860's made dramatic alterations to the valley
- 1913 Flood destroyed the canal beyond repair
- Multiple Dams were constructed for industry
- ~25% of Akron's sewers are CSO's
- City of Akron initiative to control Combined Sewer Overflows (CSO) and update the City's sewer infrastructure by Decree entered in 2014.
- Since 1987, City has invested more than \$450 million into Akron's sewer infrastructure to meet the requirements of the Clean Water Act (CWA).
- Water Quality has been trending towards attainment and improving over the past several decades

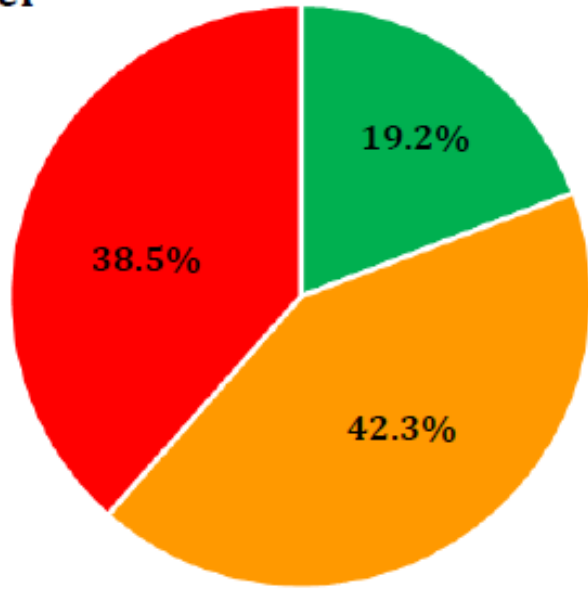


# Projects Paving the Way Towards the Goal

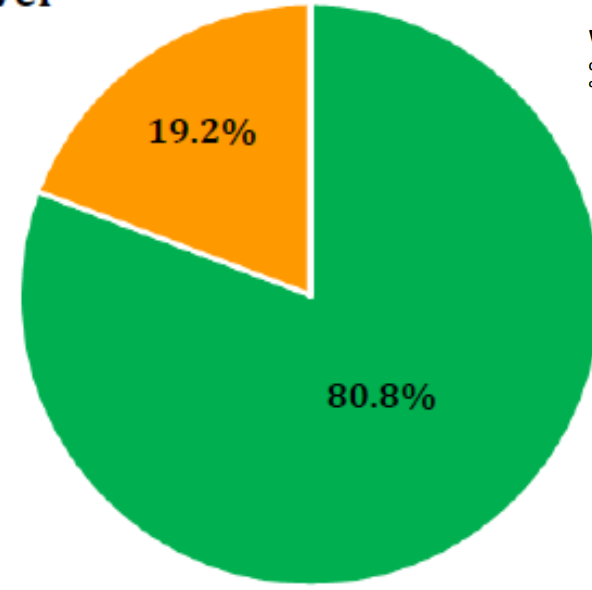
- City of Akron has 17 infrastructure / stormwater / CSO projects in the watershed
- To Date 8 Restoration Projects on mainstem and tributaries



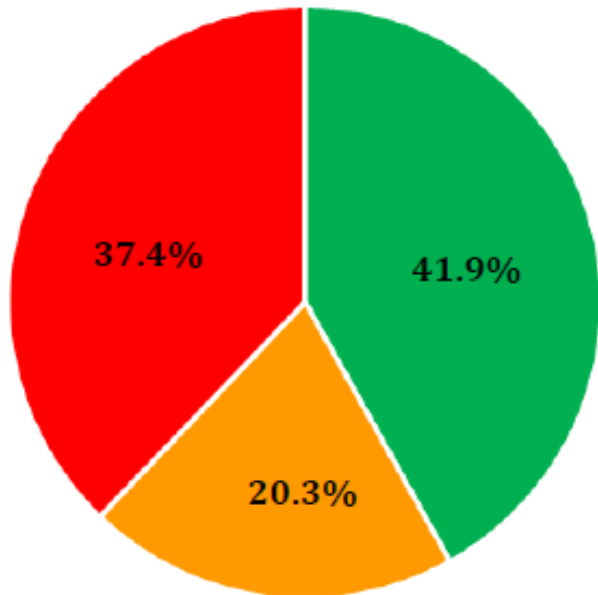
1996 & 2000  
Cuyahoga River  
mainstem  
(n=26 sites)



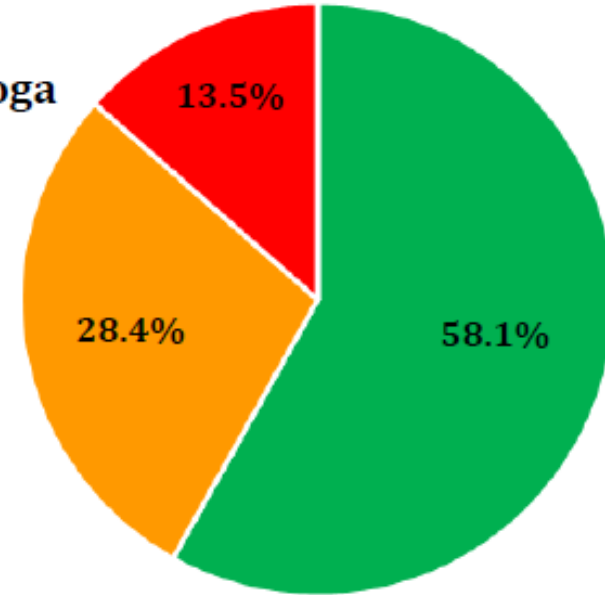
2017  
Cuyahoga River  
mainstem  
(n=26 sites)



1996 & 2000  
Cuyahoga  
River  
tributaries  
(n=74 sites)



2018 Cuyahoga  
River  
tributaries  
(n=74 sites)



# WWH Attainment Improvement 1986-2018



River Mile	1984	1986	1987	1988	1991	1993	1996	2000	2006	2008	2009	2010	2012-2013	2014-2015	2016	2018	2019
<b>Lower Cuyahoga Basin (dst. Gorge Dam to the Mouth)</b>																	
<b>Little Cuyahoga River</b>																	
11.2		24					26									44	
11.0		38			44		36										
9.7		22					42										
8.4		26					38									Good	
7.2		24					32					26		36		32	
6.7							28	Goodyear				34		Good		34	
5.1		8					26										
4.2-4.1		18			Fair		20/Fair										
2.1-1.9	Fair	18/18					Fair/16									38	
0.3		20			16		22	26								MG	



## Biological and Water Quality Study of The Cuyahoga River Watershed, 2017 and 2018

Cuyahoga, Summit, Portage, Geauga, Stark and Medina counties

Location	Station ID	Watershed	RM	Flow (cfs)	Temp (°F)	Dissolved Oxygen (mg/L)	BOD (mg/L)	TSS (mg/L)	Velocity (ft/s)	WQH	Notes
Little Cuyahoga R. at Akron at Bank St.	F01S82	WWH	5.11	47.0 <sup>W</sup>	30*	6.94*	34	53.75	PARTIAL		Pollutants in urban storm water Other flow regime alterations Urban runoff/stormwater
Little Cuyahoga R. at Akron at Cuyahoga St.	F01S99	WWH	2.14	54.0 <sup>W</sup>	36 <sup>NS</sup>	7.85	38	70.75	FULL		
Little Cuyahoga R. at Akron near mouth	502180	WWH	0.30	61.7 <sup>W</sup>	37 <sup>NS</sup>	8.46	MG <sup>NS</sup>	75.25	FULL		

# Macroinvertebrate Improvements

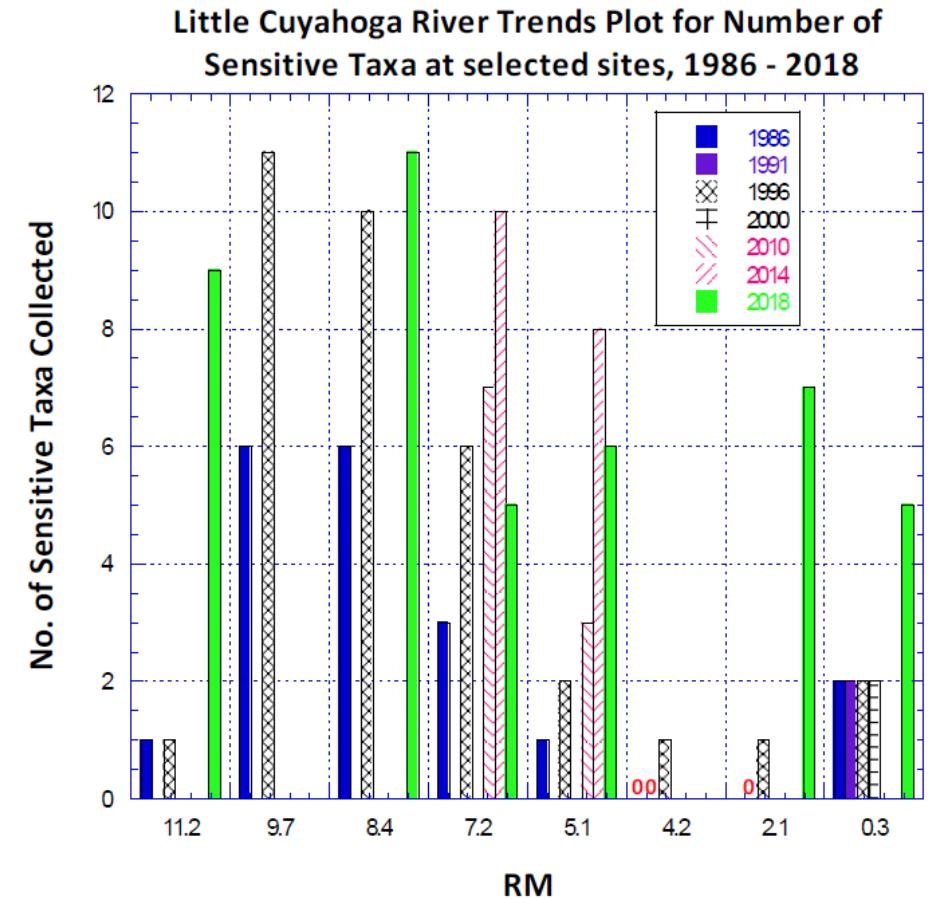
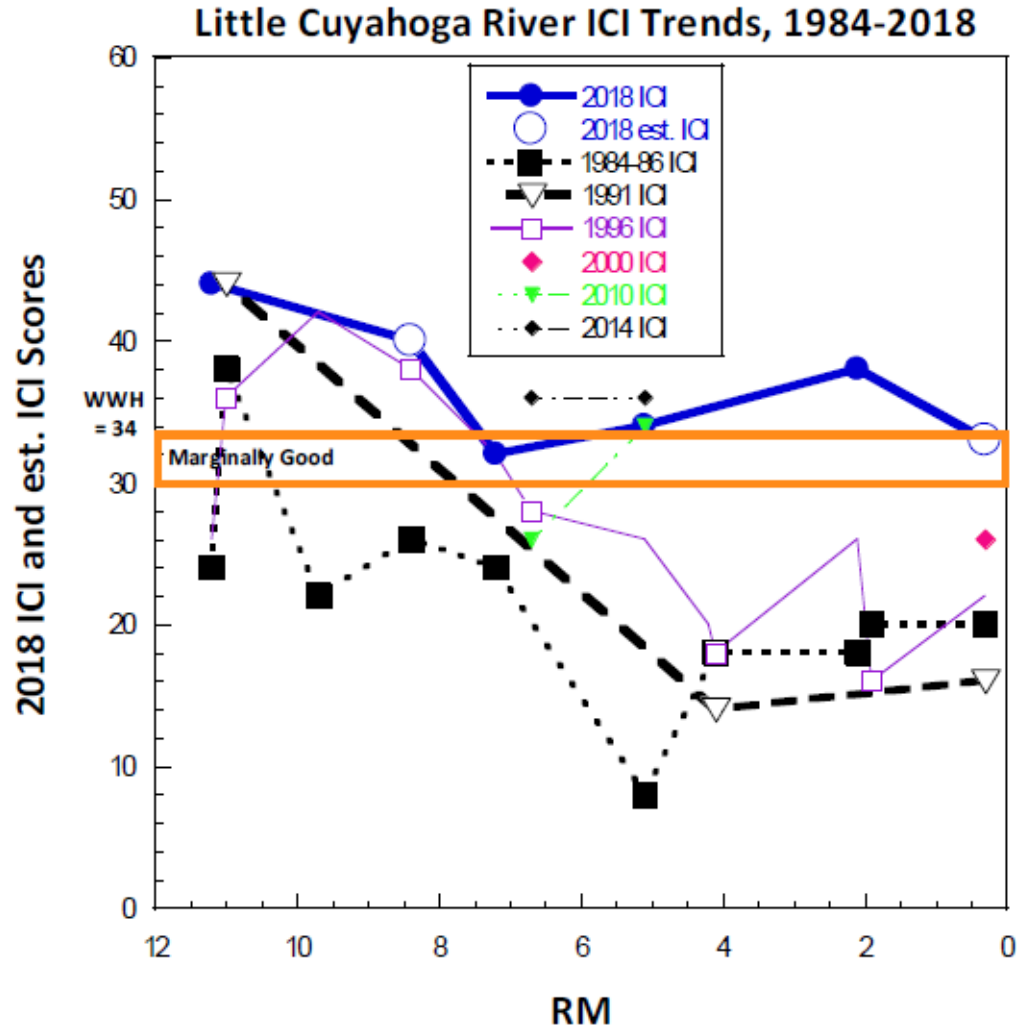
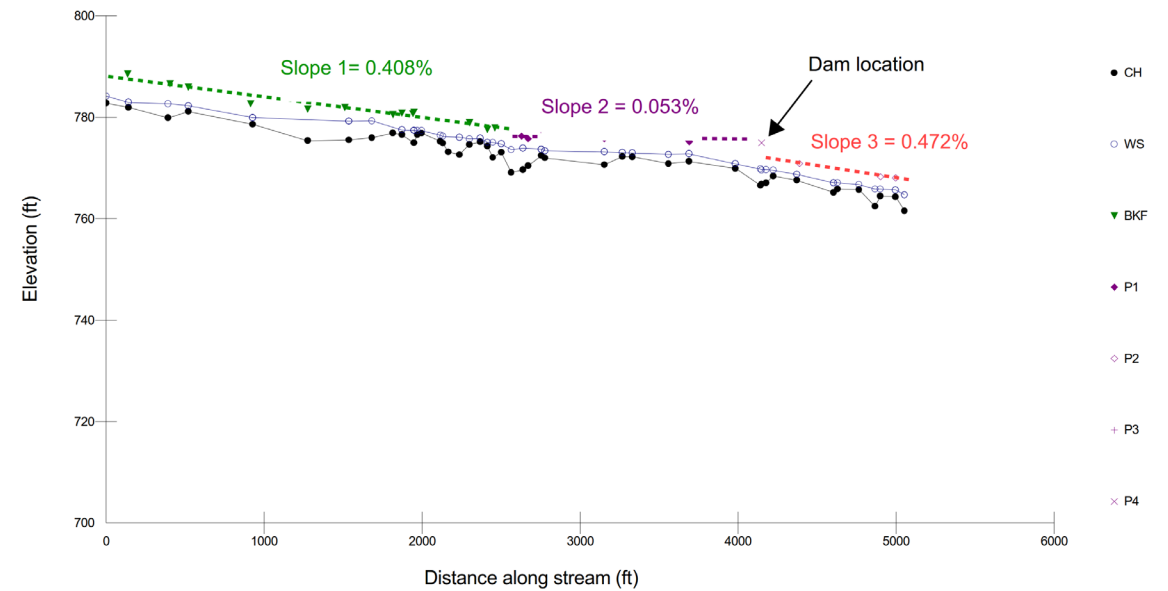


Figure 66 — Little Cuyahoga River Sensitive Taxa Trends, 1986-2018

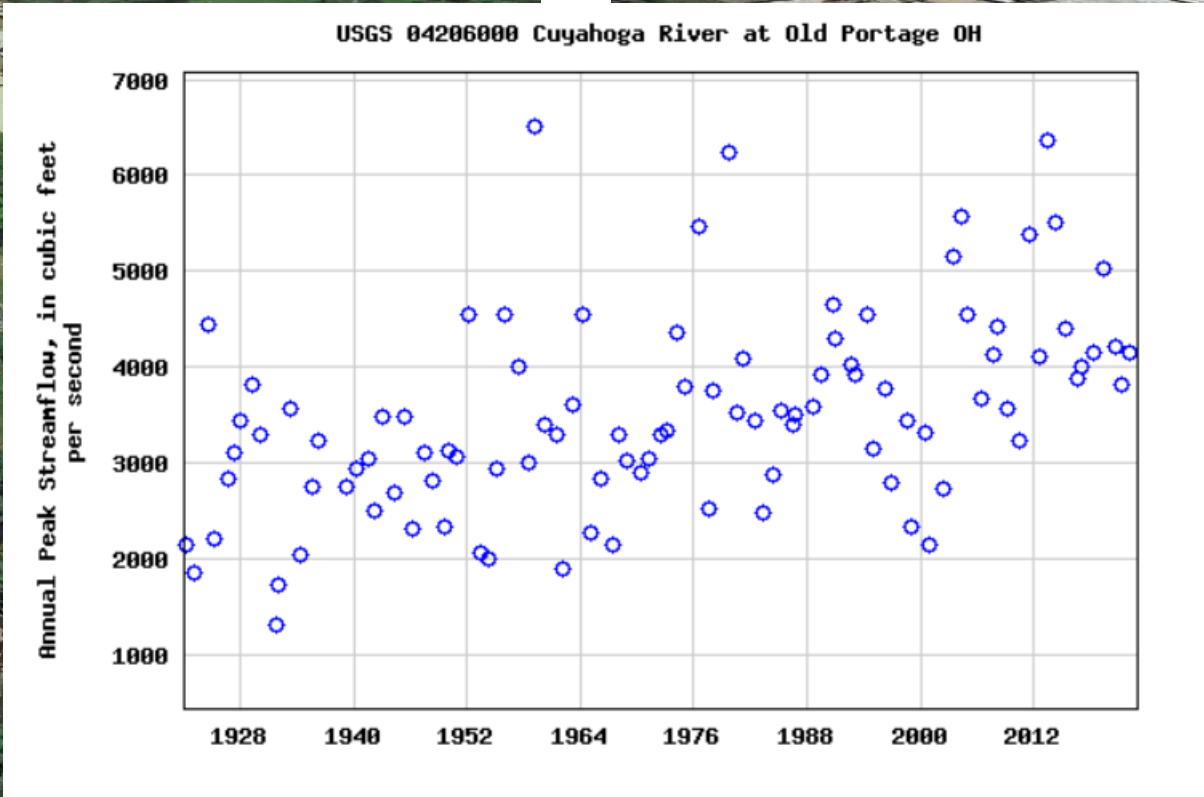
## The Restoration Project Begins with some history of the Otto Street Area

- Pipe/Dam conveyed sewage from Otto Street Neighborhood south across the river
- 2011/2012 pipe was replaced
- The crossing was later eliminated when the pump station was constructed on the north side



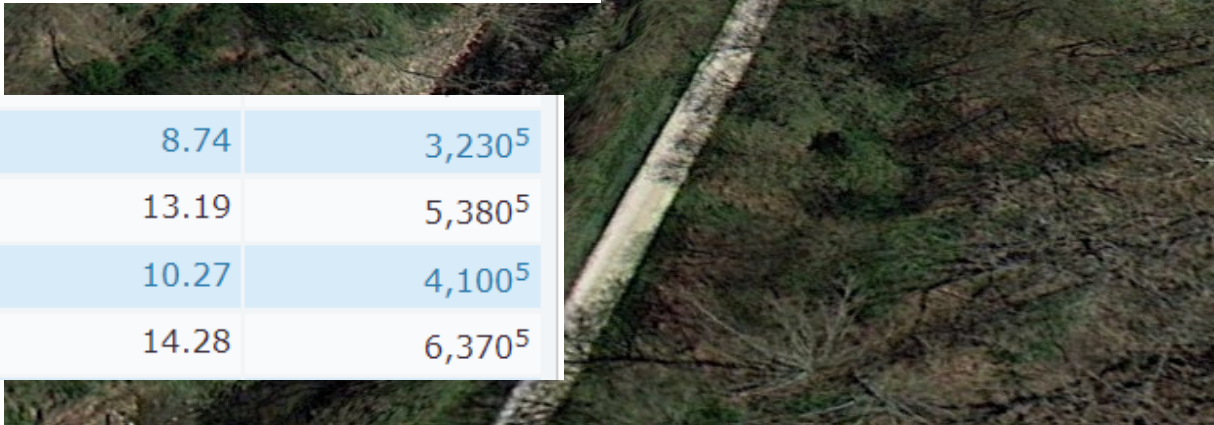


May 2010



2010	2010-07-24	8.74	3,230 <sup>5</sup>
2011	2011-07-19	13.19	5,380 <sup>5</sup>
2012	2012-07-26	10.27	4,100 <sup>5</sup>
2013	2013-07-10	14.28	6,370 <sup>5</sup>

2010-2011 Large Flood Event



April 2012





# Emergency Bank Stabilization





Little Cuyahoga River Staging Area

Little Cuyahoga River

June 2014



Little Cuyahoga River Staging Area

Little Cuyahoga River

June 2016



July 2018



August 2020

# OCIT Little Cuyahoga River Restoration / Stabilization

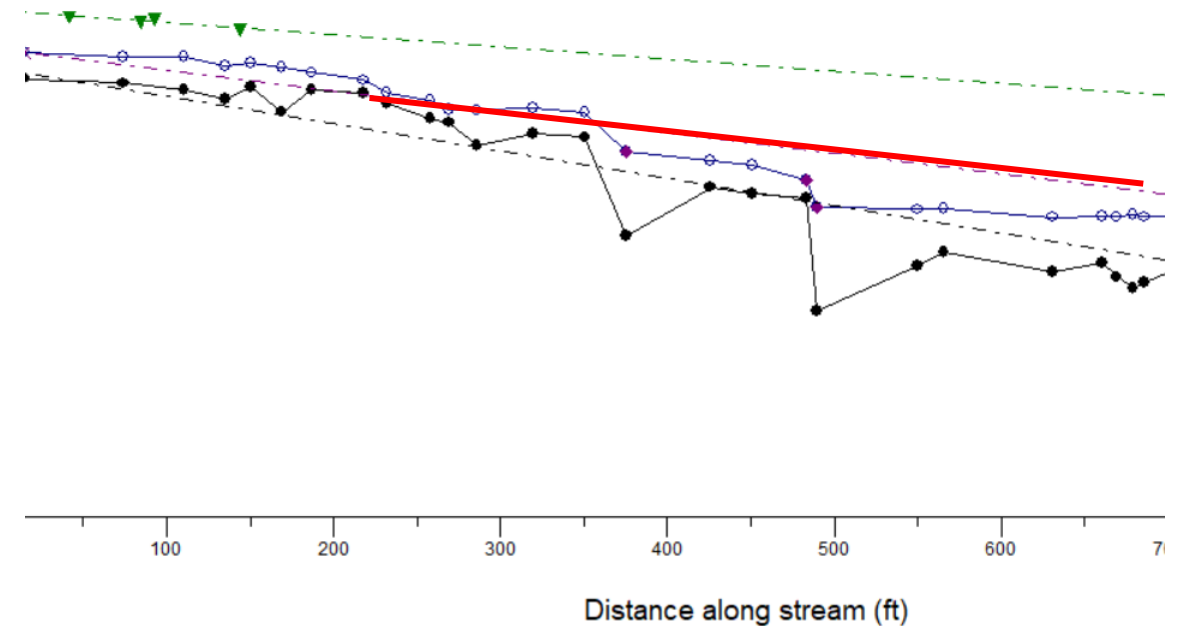


- EnviroScience and RiverReach Construction became involved Spring of 2021
- Original Plan performed years prior served as initial basis
- Changing conditions in the river provided opportunity for value engineering and evaluation of current conditions



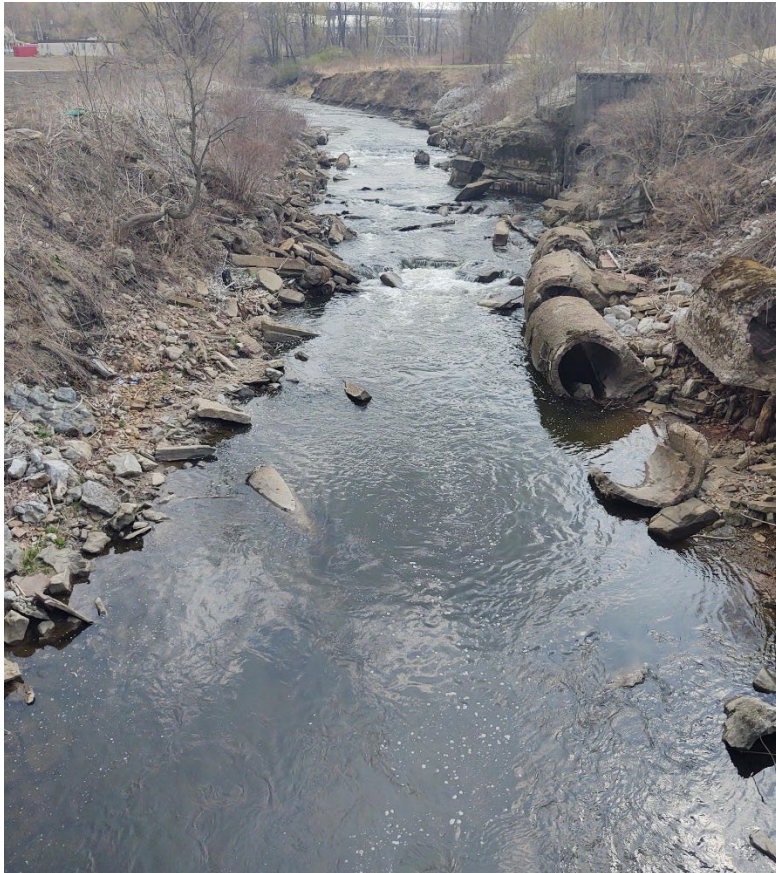
# Restoration Approach Goals

1. Remove fish passage barriers
2. Stabilize reach with functional morphology
3. Stabilize OCIT outfall interface with the river
4. Restore functional floodplain where possible
5. Restore foundation for riparian corridor re-forestation



# Existing Conditions / Impairments / Constraints

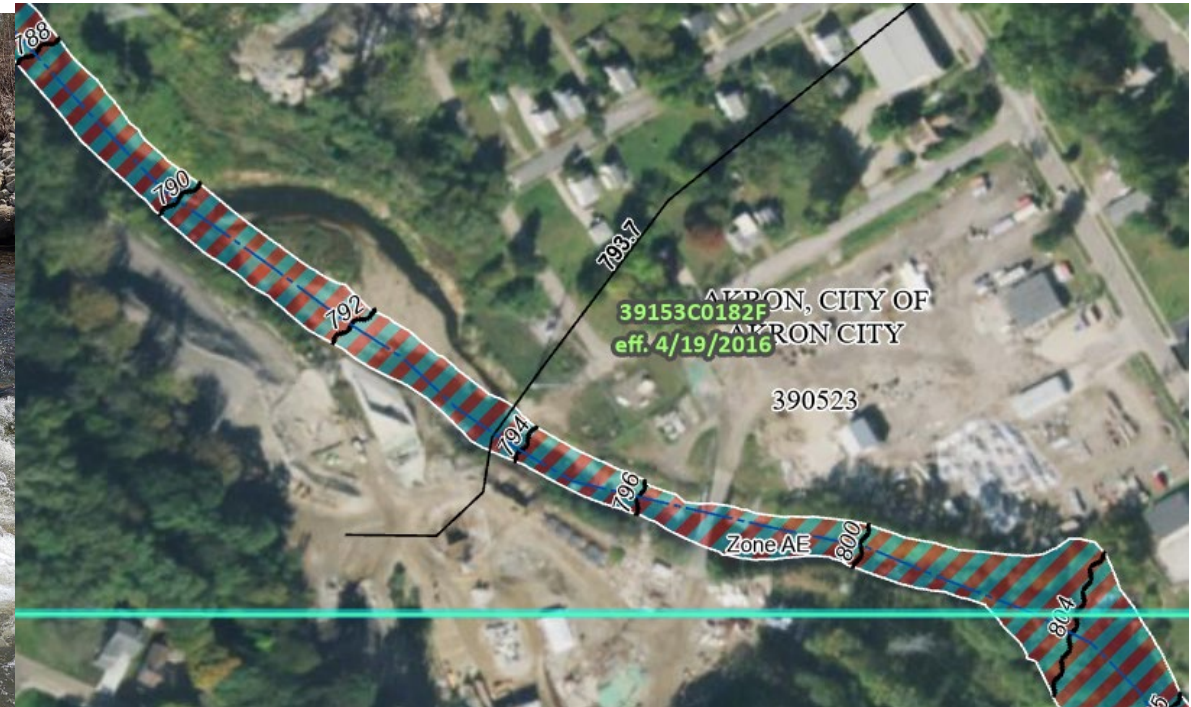
Presence of some legacy landfill/waste material on the southside which limited grading options



Concrete rubble, steep banks



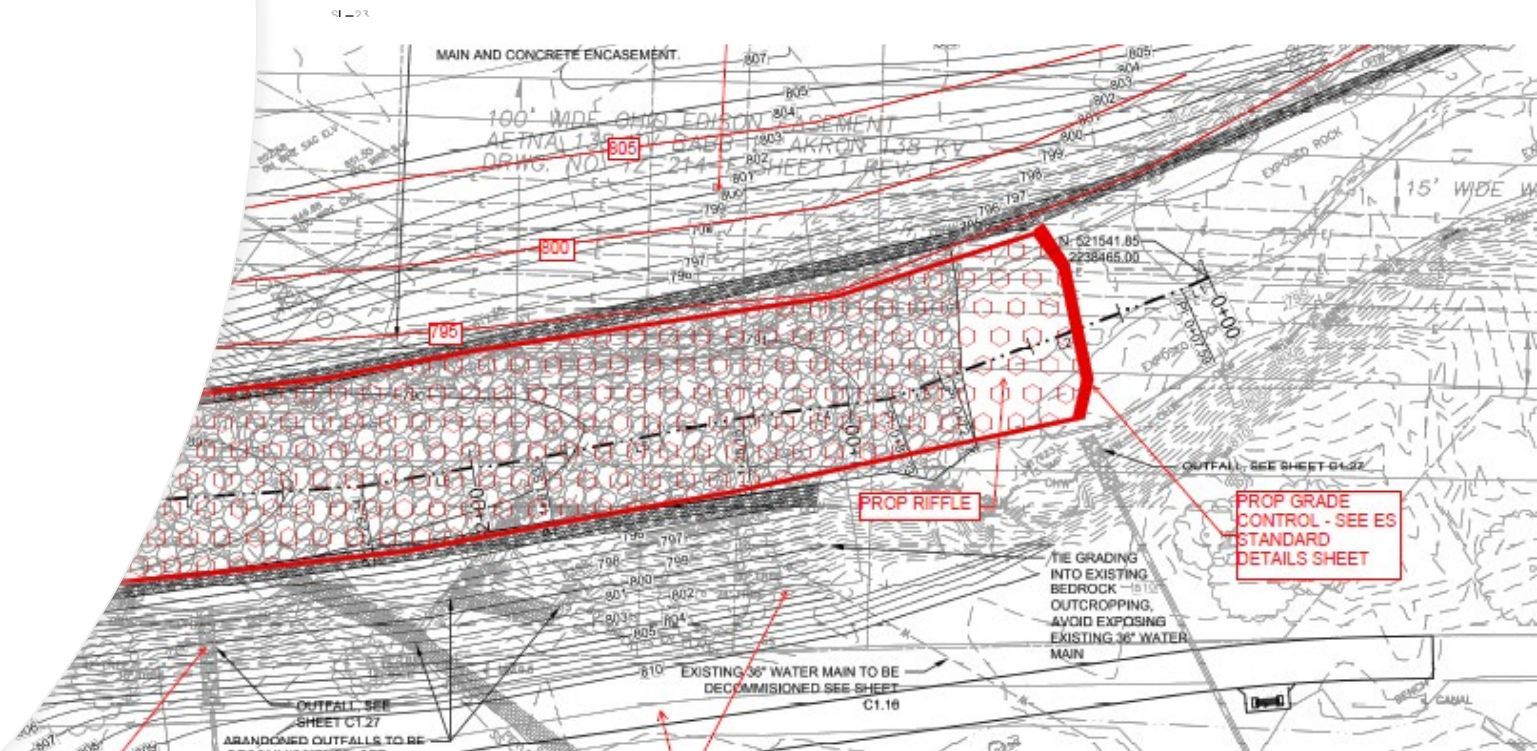
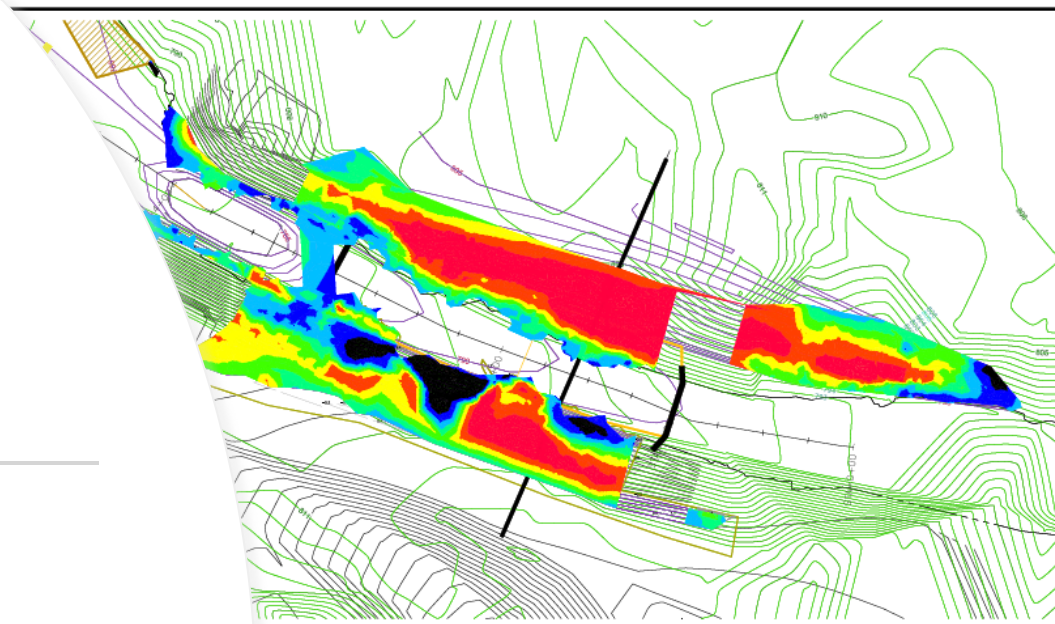
Fish Passage Barriers



Little to No In-Stream Cover

# Current Conditions Analysis

- Evaluated original plan vs. the current conditions
- Developed red-line mark ups of the original plan to save time and costs





# Restoration Construction

Duration ~1 month

Balanced Site

Natural substrate

Overlook Created with Existing Concrete

74 Trees of 3 & 7 gallon

Gage Installation piling





# Construction

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November 2021



May 2023

# Past and Present Major Impairments



# Questions

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