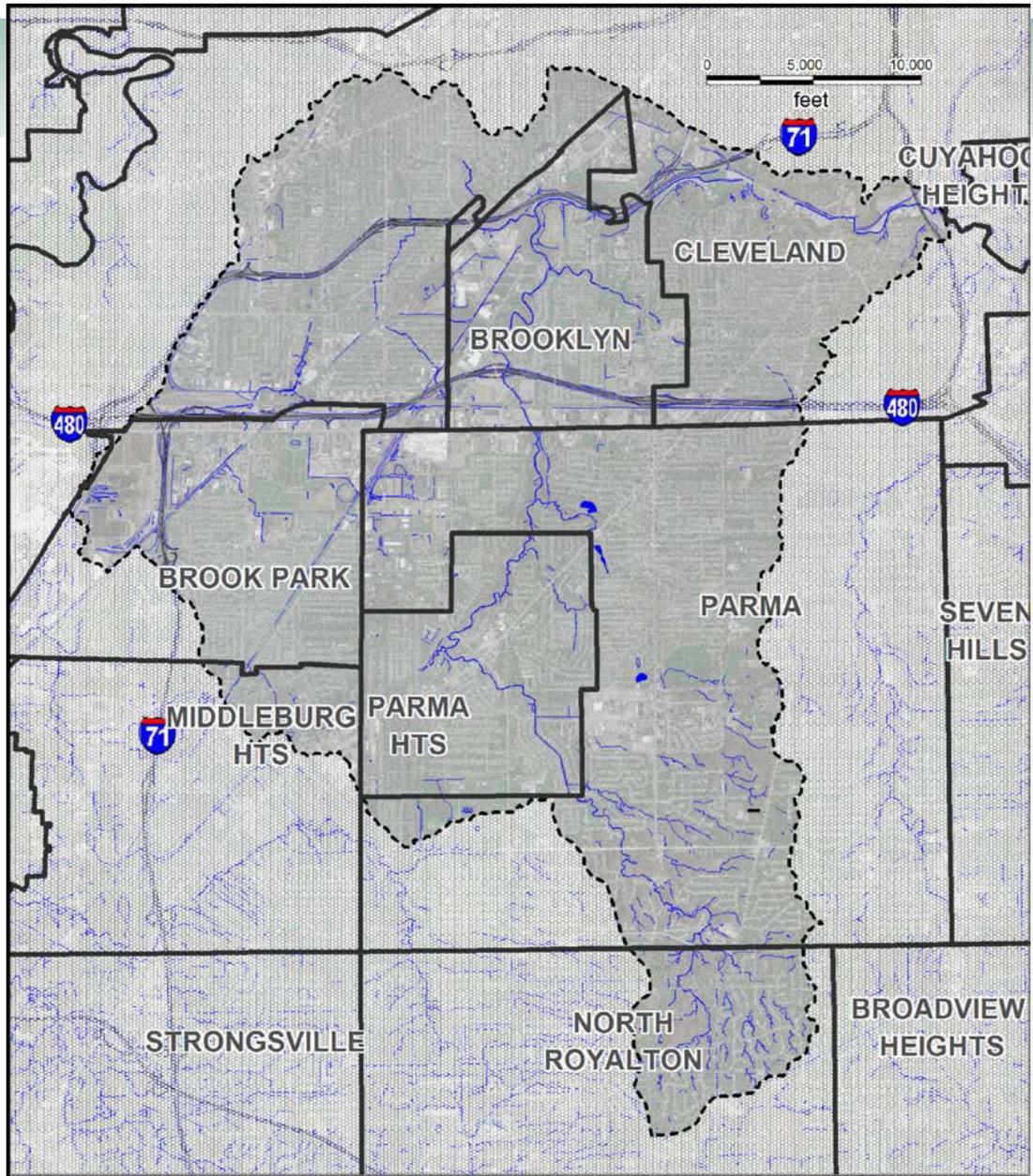




*A community-based greenway advocacy
and watershed stewardship organization*

**Big Creek Watershed Balanced Growth Plan
4th Annual Partnership Meeting
March 24, 2015
Brook Park**



Big Creek Watershed Balanced Growth Partnership

1st Annual Meeting

November 2011

Parma



2nd Annual Meeting

October 2012

Brooklyn



3rd Annual Meeting

November 2013

Parma Heights

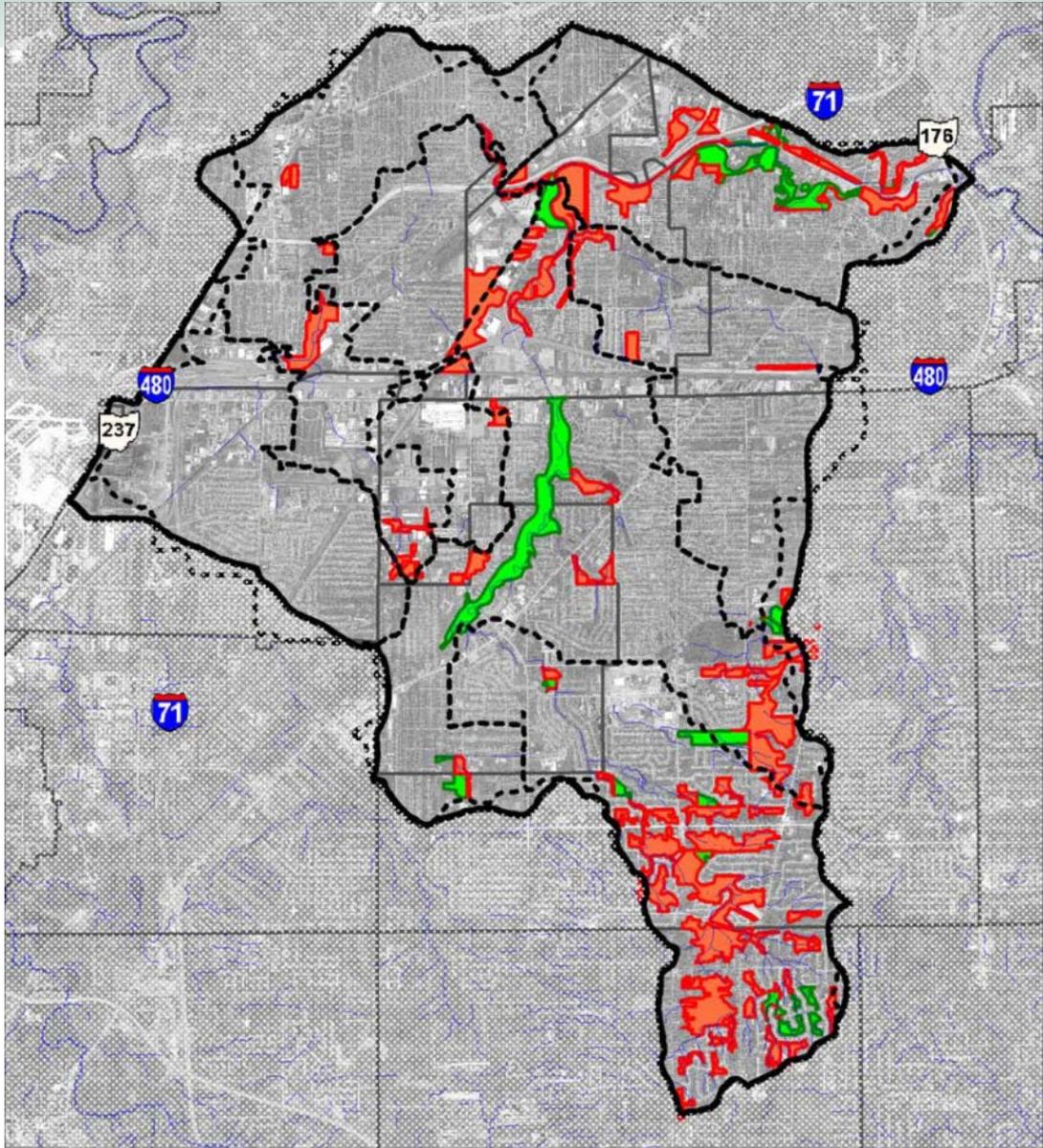


4th Annual Meeting

March 2015

Brook Park





Priority Conservation Areas

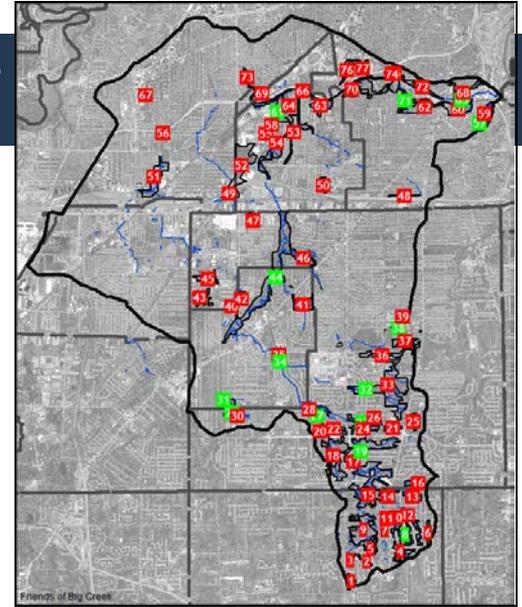


Big Creek – East Branch Conservation Project

STORMWATER RETROFIT RANKING PROJECT

Phase 1

- ❑ Further evaluated sites identified in the Plan through desktop and field analysis
- ❑ Established an evaluation and ranking system
- ❑ Developed conceptual plans and cost estimates that can be taken to the funding stage



Technical Advisory Committee established.
TetraTech hired as consultant.
Intern hired.

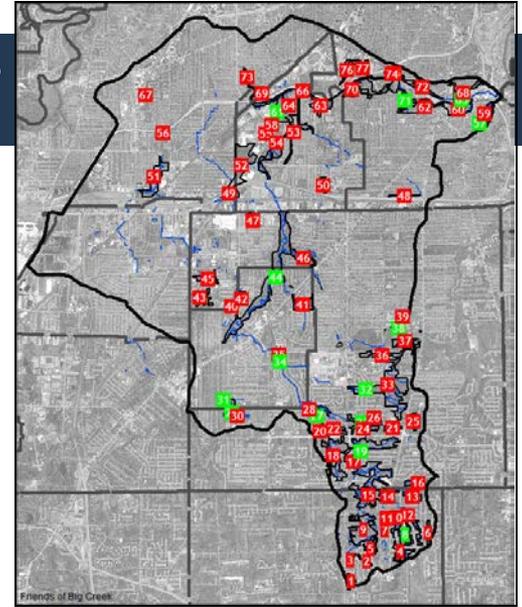
Funded by:

Northeast Ohio Regional Sewer District
Ohio Lake Erie Commission
Freshwater Future

STORMWATER RETROFIT RANKING PROJECT

Phase 2

- ❑ Additional field studies and conceptual design work for the highest ranking sites identified during the first phase
- ❑ Including new analysis of large roof areas
- ❑ Including new analysis of source control areas



Technical Advisory Committee
re-established.
TetraTech as consultant.

Funded by:
Ohio Lake Erie Commission
Northeast Ohio Regional Sewer District
General Motors Foundation

Source Control Retrofit Conceptual Design



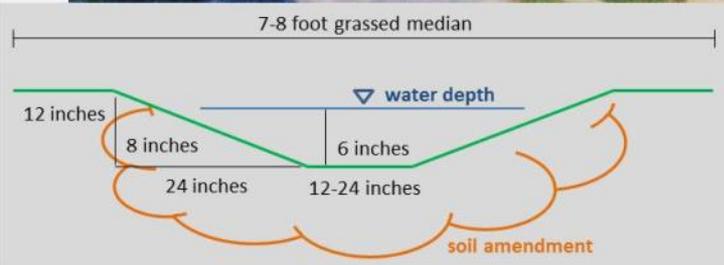
Existing Conditions

Total site area – street and driveways draining to intersection (sq ft):	41,280
Imperviousness (%):	100
Pollutant loading (lbs of sediment/year):	379

General Findings: Residential streets are generally untreated in the watershed and they make up 10-15 percent of the total watershed imperviousness. Typical streets include 12 foot driving lanes and no on-street parking. Sidewalks are common, and tree lawns are 6-8 feet in width.



Proposed Concept Design



Retrofit Description: Bioswales are proposed to treat runoff from residential streets and driveways. Bioswales are approximately 7-8 feet in width, depending on available right of way with six inches of ponded water. Bump outs that add 2-3 feet of additional width to the swale are proposed at intersections with 9 inches of ponded water. Runoff will be routed to bioswales/bump outs through new curb cuts that will also serve as overflow structures. An average length of 50 feet is assumed. A planting plan that is prominently herbaceous native plants that are salt and water tolerant is recommended.

Total area to be treated (per intersection) (sq ft):	41,280	Retrofit Cost Estimate:	
Proposed storage volume (cubic feet):	833		
Percent of Ohio EPA water quality volume:	36%		\$46,000 - \$54,000 per intersection
Additional flood control volume (cubic feet):	0		
Pollutant load reduction (lbs of sediment/year):	110		

Cuyahoga Community College Parking Lot Retrofit Conceptual Design (Site 20)



Existing Conditions

Total site area (acres):	6.1
Imperviousness (%):	70
Pollutant loading (lbs of sediment/year):	2,440

General Findings: Existing parking lot is well utilized and maintained. Grassed medians are present throughout. Site is served by catch basins and storm sewer located adjacent to grassed medians.



Existing grass median



Conceptual grass median

Proposed Concept Design



Retrofit Description: Ten existing grassed medians will be converted to bioretention areas. Depressions will be 1 foot deep maximum, allowing 6 inches of ponded water. Runoff will be routed to bioretention areas through new curb cuts. New outlet structures will be used to connect bioretention areas and existing catch basins. A planting plan that is prominently herbaceous native plants that are water tolerant is recommended. Costs assume volunteers planting the vegetation.

Total area to be treated (acres):	2.3
Proposed storage volume (acre-feet):	0.11
Percent of Ohio EPA water quality volume:	118%
Additional flood control volume (acre-feet):	0.02
Pollutant load reduction (lbs of sediment/year):	740

Retrofit Cost Estimate: \$280,000 - \$325,000

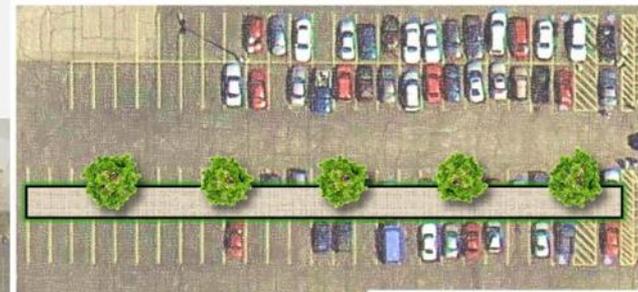
**Dave's Market / Neighborhood Family Practice
Parking Lot / Pedestrian Walkway Conceptual Design
(Site 40)**



Project Location



--- Proposed Pedestrian Walkway
..... Drainage Area



Curb stops can be used when sidewalk is adjacent to parking areas.

Existing Conditions: Three large parking lots and one vacant area. No stormwater management on site. Site drains from east to west, existing stormsewers and catch basins are present.

Retrofit Description: A porous concrete sidewalk/walkway will be installed to provide connectivity between Denison Avenue, retail and services in the existing commercial area, and Ridge Road. Trees will be placed along the sidewalk at grade to provide shade and to further delineate the sidewalk. The sidewalk will collect parking lot runoff from the existing commercial area. A two foot gravel storage layer beneath the sidewalk will provide storage for runoff and an underdrain will be used to ensure proper drainage. Runoff entering the permeable pavement will be available for tree uptake. A maintenance plan will be needed that includes frequent sweeping of permeable pavement and leaf litter removal.

Color can be added to the porous concrete sidewalk to distinguish it from nearby driving surfaces.

Total area to be treated (acres):	3.5
Proposed storage volume (acre-feet):	0.24
Percent of Ohio EPA water quality volume:	100%
Additional flood control volume (acre-feet):	0.05
Pollutant load reduction (lbs of sediment/year):	1,130

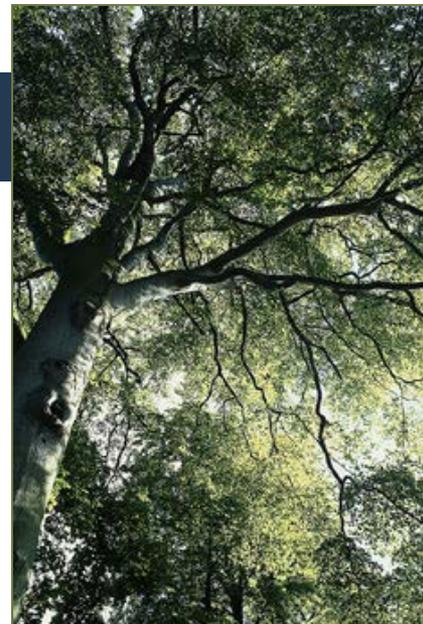
Retrofit Cost Estimate: \$190,000 - \$230,000

Connecting People + Places + Stormwater Treatment

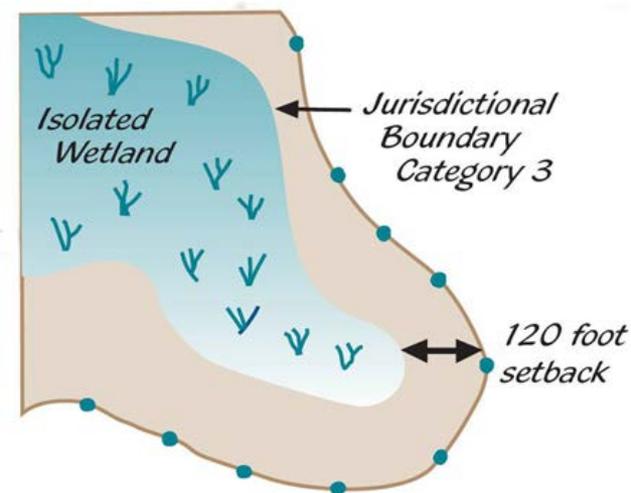
Big Creek Connects



LAND USE TOOLS & PRACTICES

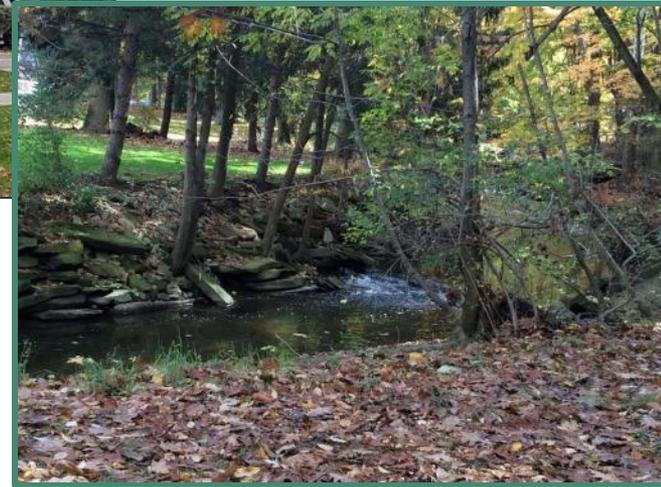


- Adopt Watershed Map for Community Guidance
- Conserve Streams and Riparian Corridors
- Conserve Wetlands and Setbacks
- Avoid Floodplains
- Avoid Steep Slopes
- Minimize Development on Critical Soils
- Low Impact Development
- Conservation Development
- Woodland / Tree Canopy Protection



Parma Heights

Church in the Woods
Senior living facility



Brooklyn

Stickney Creek Sewer Protection
and Flood Plain Enhancement

STEWARDSHIP ACTIVITIES



Spring Cleaning!

May 9 - RiverSweep 2015

May 30 - 17th Annual Big Creek
Watershed Cleanup

May 16 -
25th Annual
RiverDay

Big Creek: Historic
Lower Big Creek
Valley Tour



Brooklyn seventh graders learn about stream
assessment in Big Creek
Mark Holan, Special to the Sun News
September 28, 2014

BROOKLYN, Ohio -- The GM environ-
ment team, Earth Force and the Big Cree
organization teamed up for a stre-
am assessment of Big Creek Sept. 26
Memphis picnic
area.

The seventh graders from Broo-
klyn Middle School's science class had fun
exploring through the stream, and learn-
ing about the condition of the str-
eam. Kapin, the seventh grade scie-



Brooklyn 7th graders



3rd Biennial

Greater Cleveland

Trails & Greenways

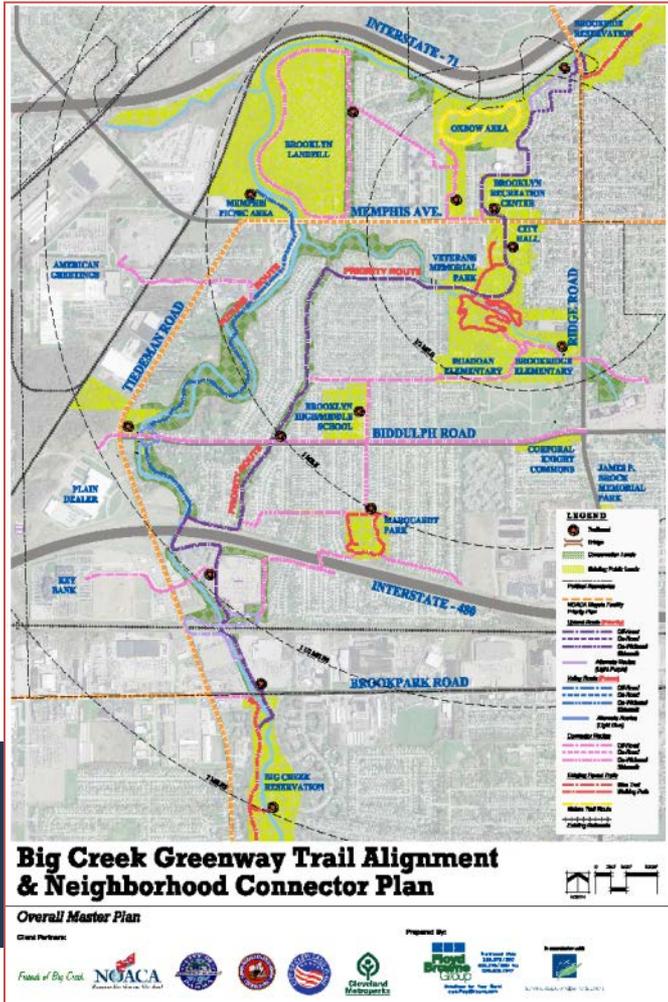
Conference 2014

Pathways to Healthy Communities

June 12, 2014

Hilton Garden Inn
Mayfield Village, Ohio





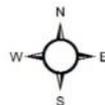
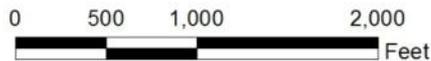
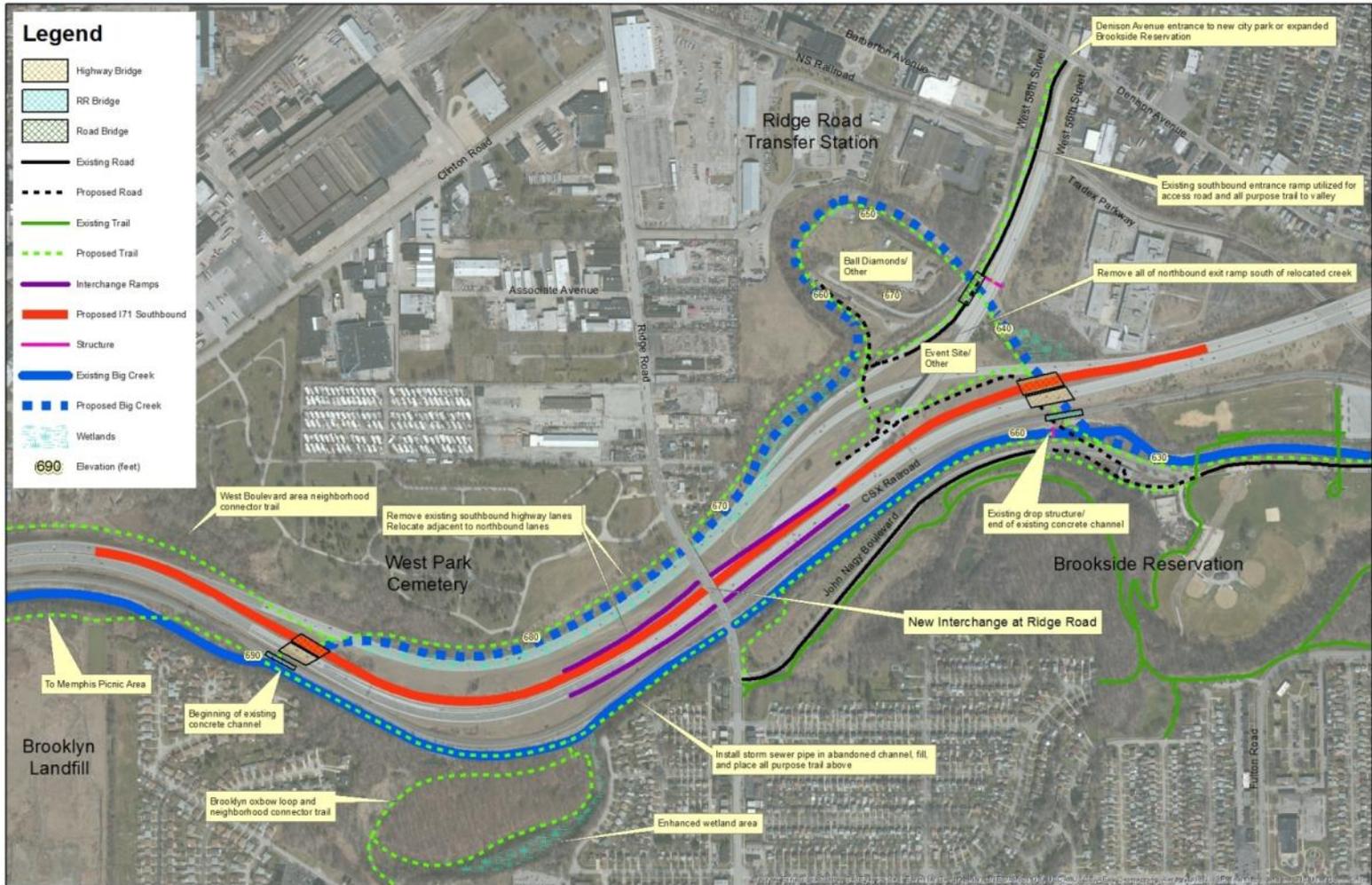
Implementation of Big Creek Greenway plans



Big Creek / I-71 Relocation & Restoration Initiative

Big Creek / I-71 Relocation & Restoration Initiative

Concept Plan B



Big Creek Connects

Revised: December 8, 2014

Brookside Reservation

Existing

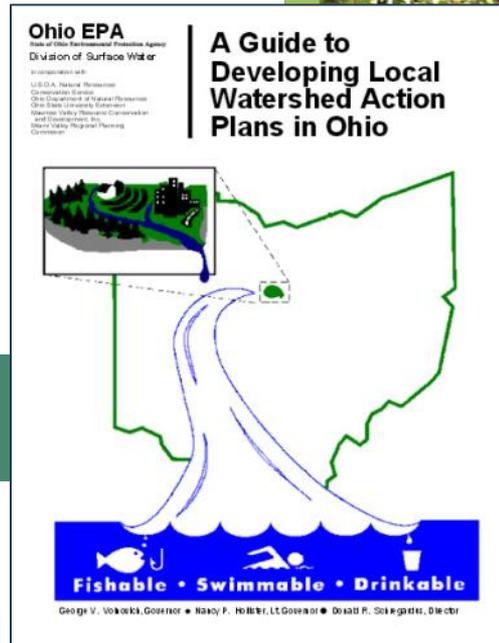


Proposed

ALSO IN 2015!



Stream signage



Watershed Action Plan

BCC is generously supported by



**Northeast Ohio
Regional Sewer District**
Your Sewer District: Keeping our Great Lake great

