

West Virginia Watershed Atlas

WATER USE SECTION



west virginia department of environmental protection

November 2013

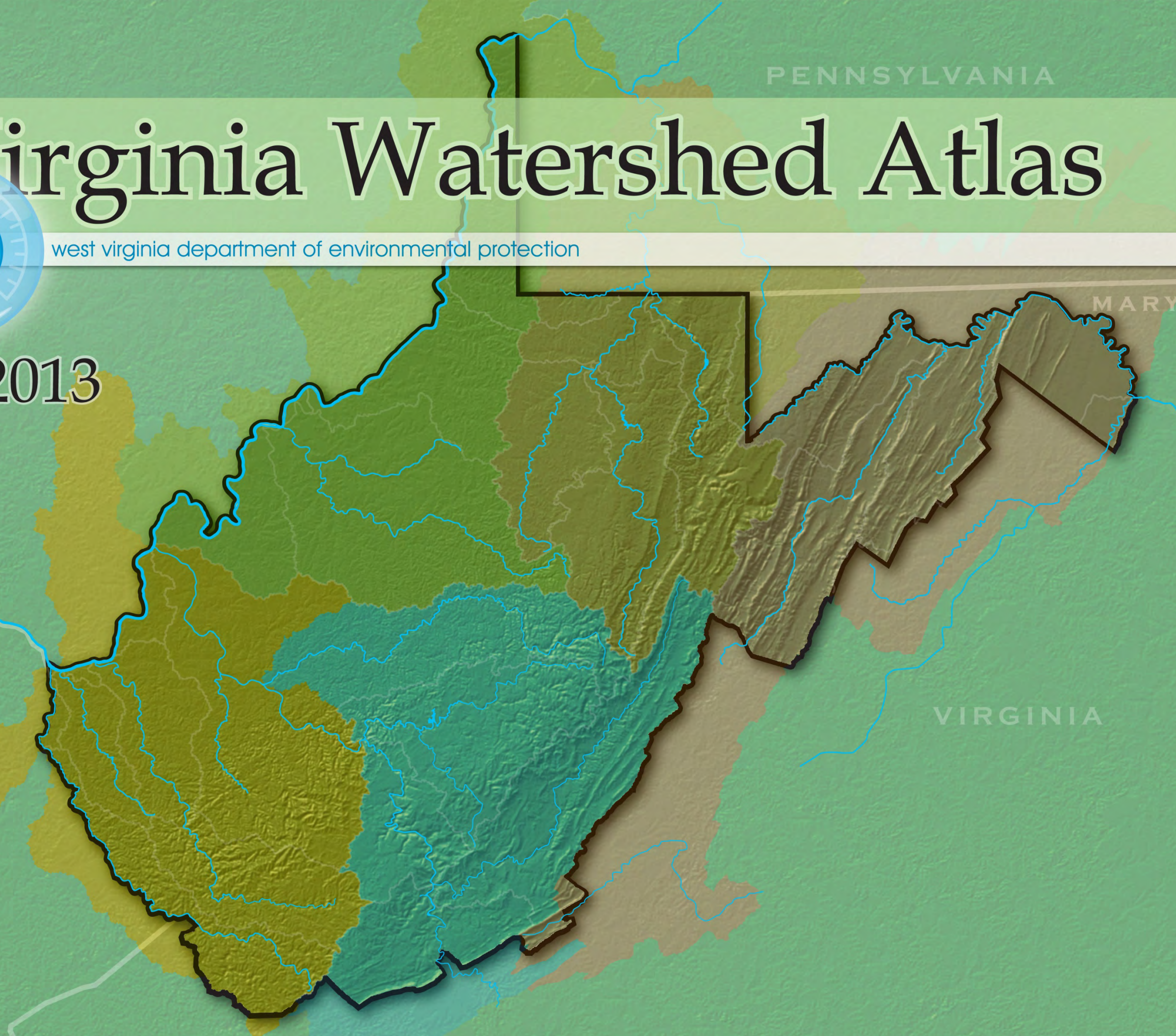
KENTUCKY

OHIO

PENNSYLVANIA

VIRGINIA

MARYLAND



Legal Disclaimer

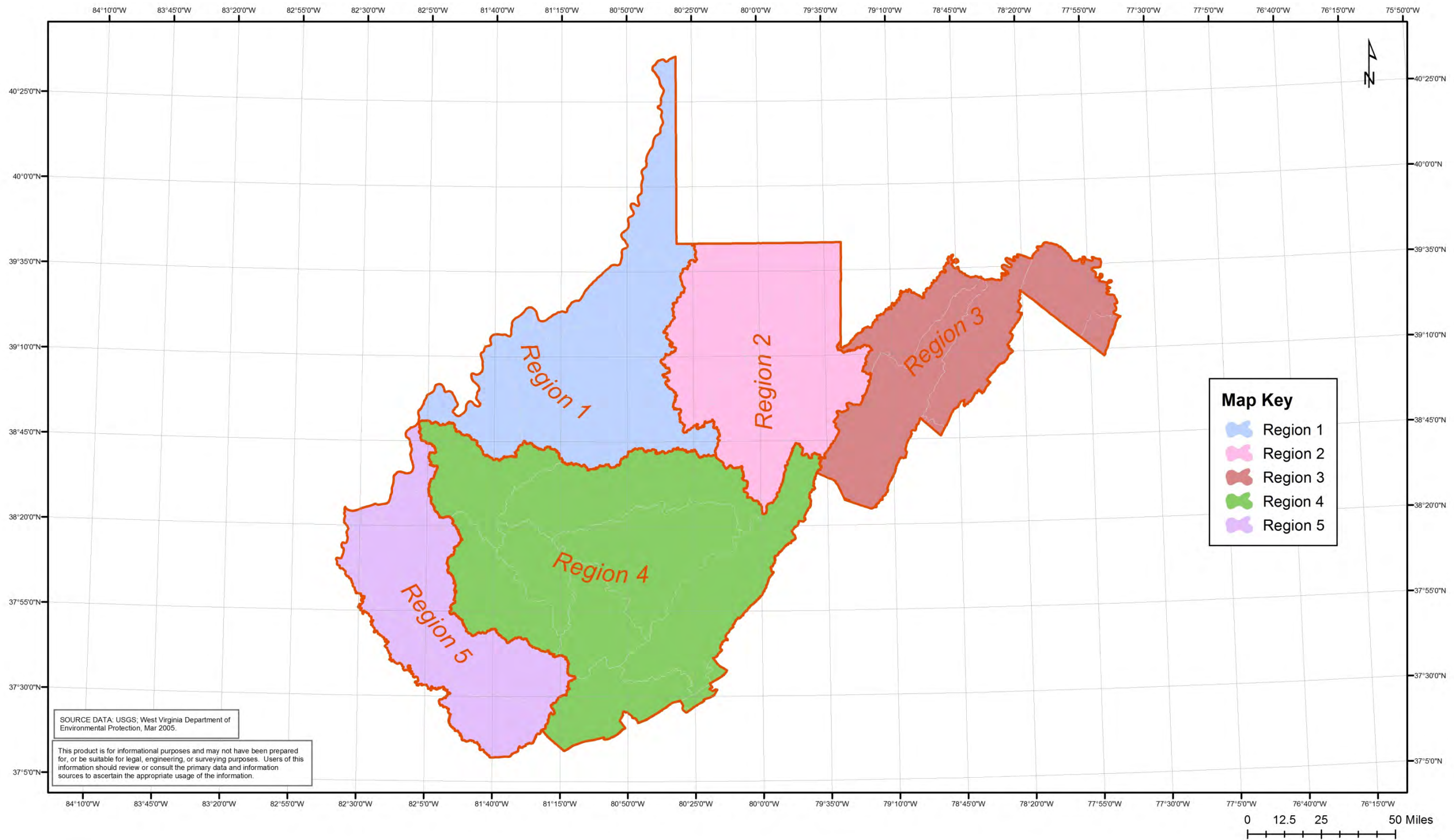


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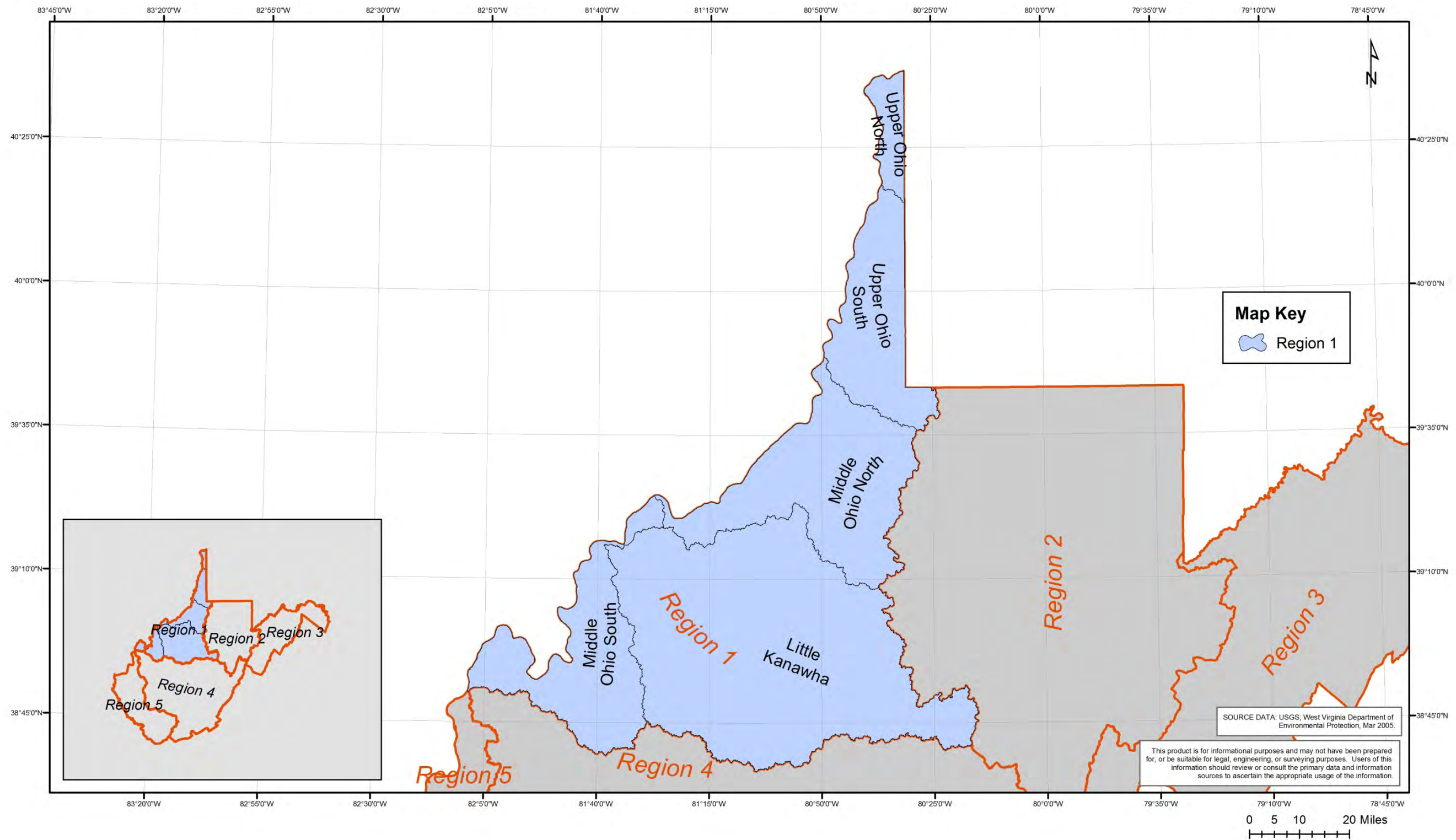
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West Virginia Watershed – Regional Map

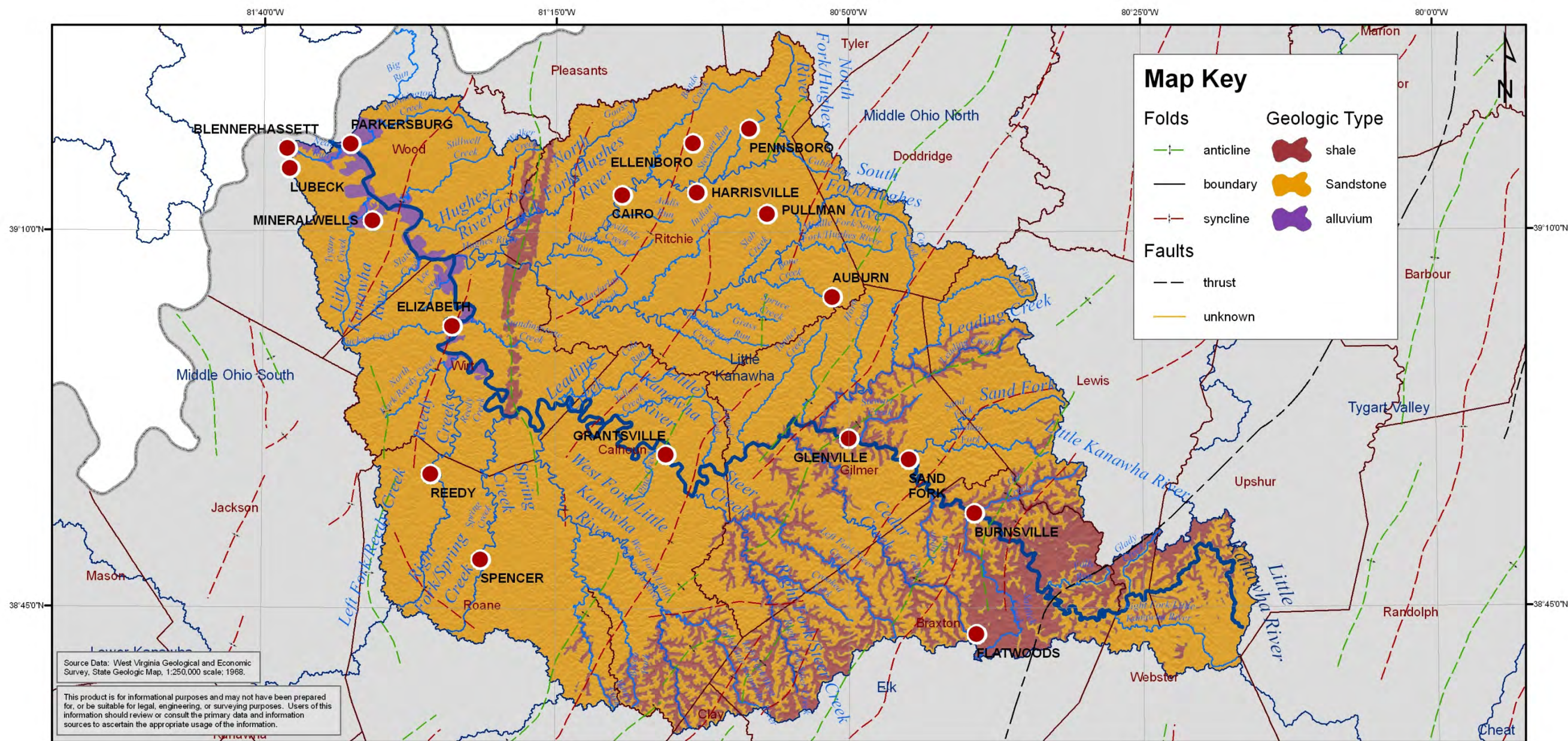


Region 1



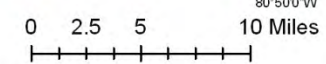
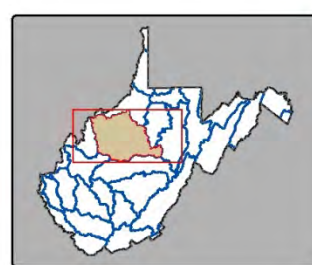
Little Kanawha HUC-8 Watershed

Surface Geology



Source Data: West Virginia Geological and Economic Survey, State Geologic Map, 1:250,000 scale; 1968.

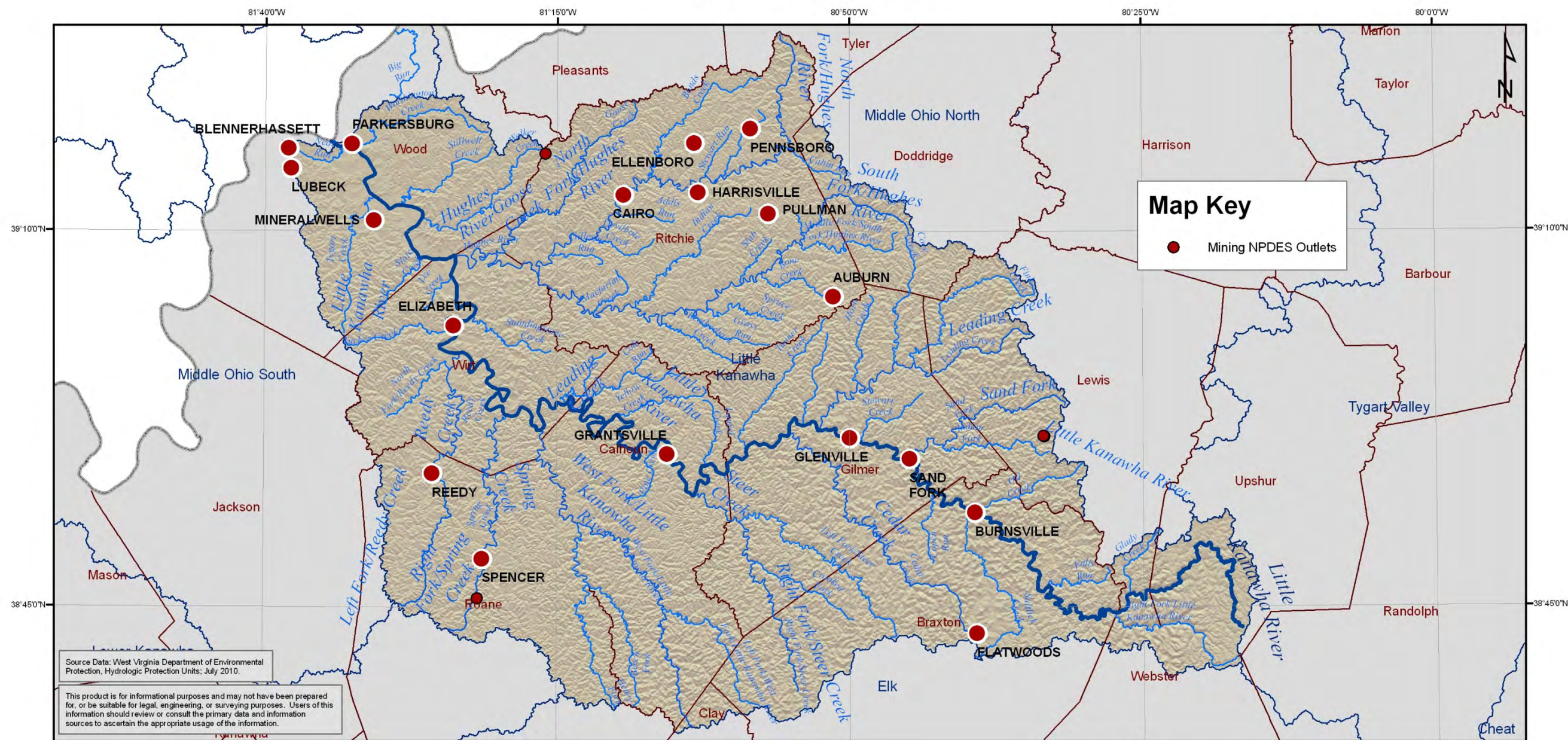
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- State Boundary
- County Boundary
- 8-Digit Watershed Boundary
- City/Town

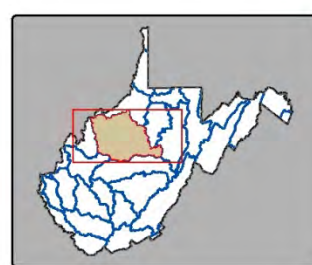
Little Kanawha HUC-8 Watershed

Mining Related NPDES Outlets



Source Data: West Virginia Department of Environmental Protection, Hydrologic Protection Units; July 2010.

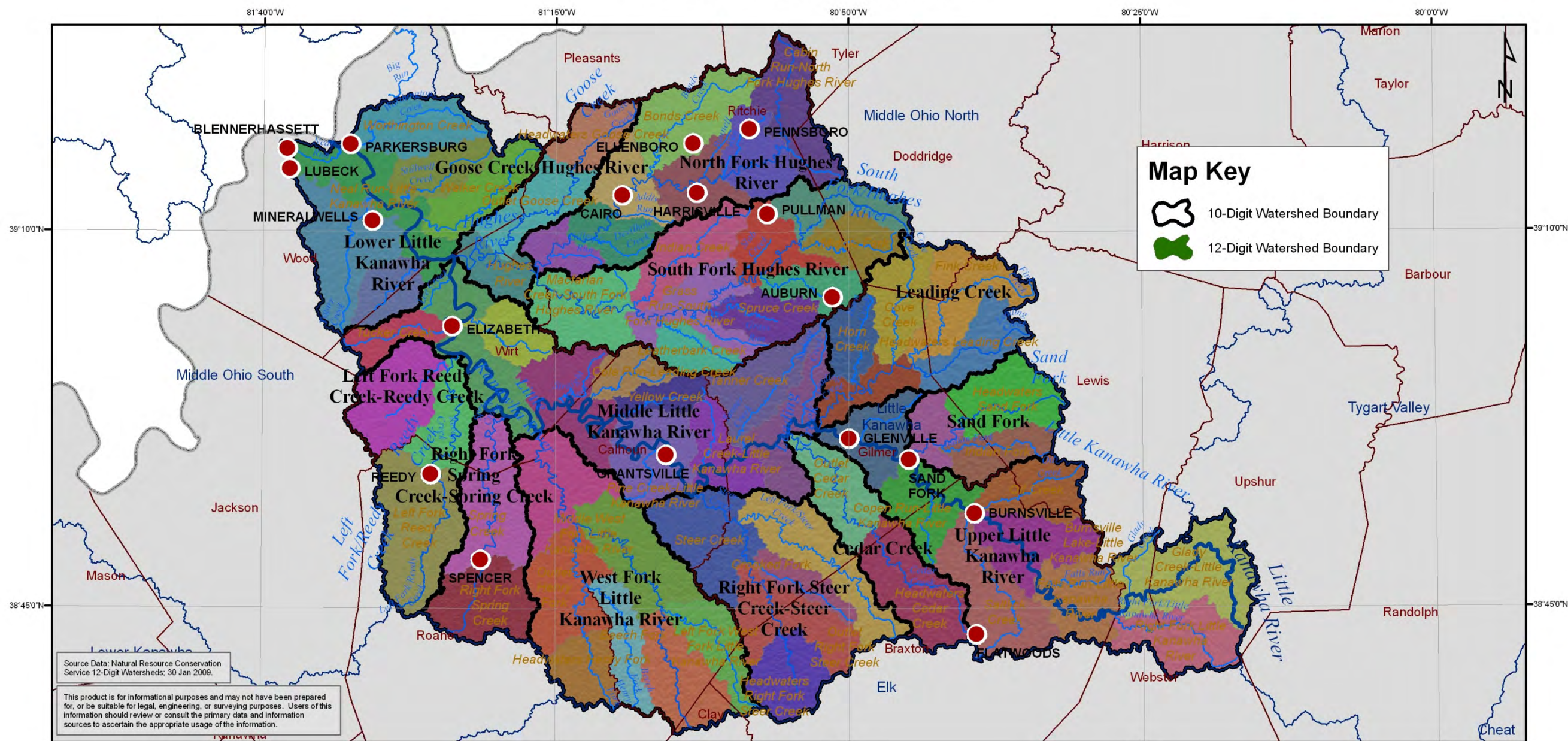
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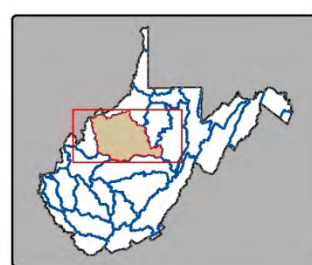
Little Kanawha HUC-8 Watershed

HUC 10 and HUC 12 Watersheds



Source Data: Natural Resource Conservation Service 12-Digit Watersheds; 30 Jan 2009.

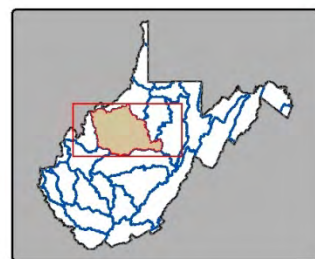
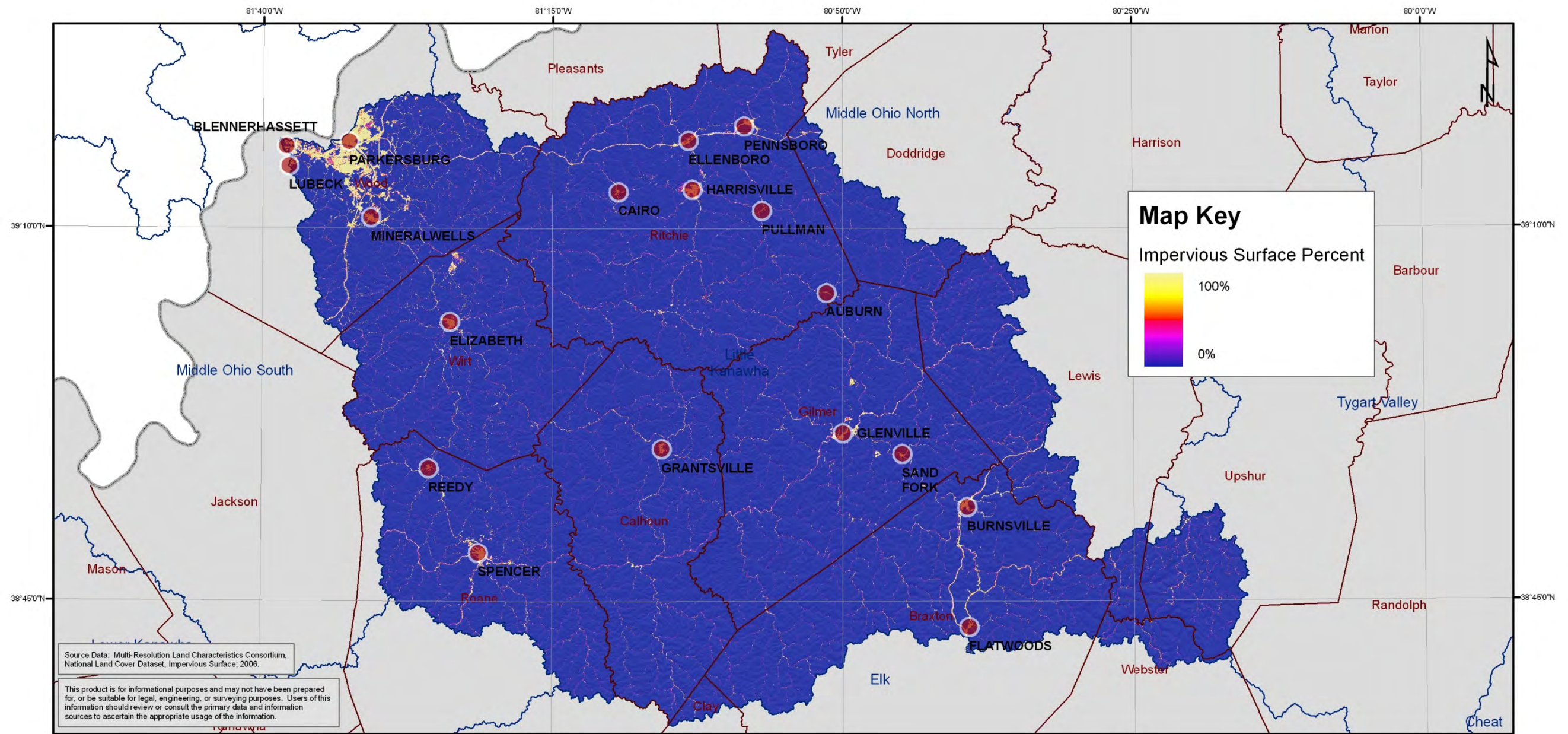
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Little Kanawha HUC-8 Watershed

2006 Impervious Surfaces

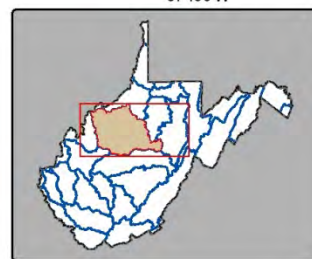
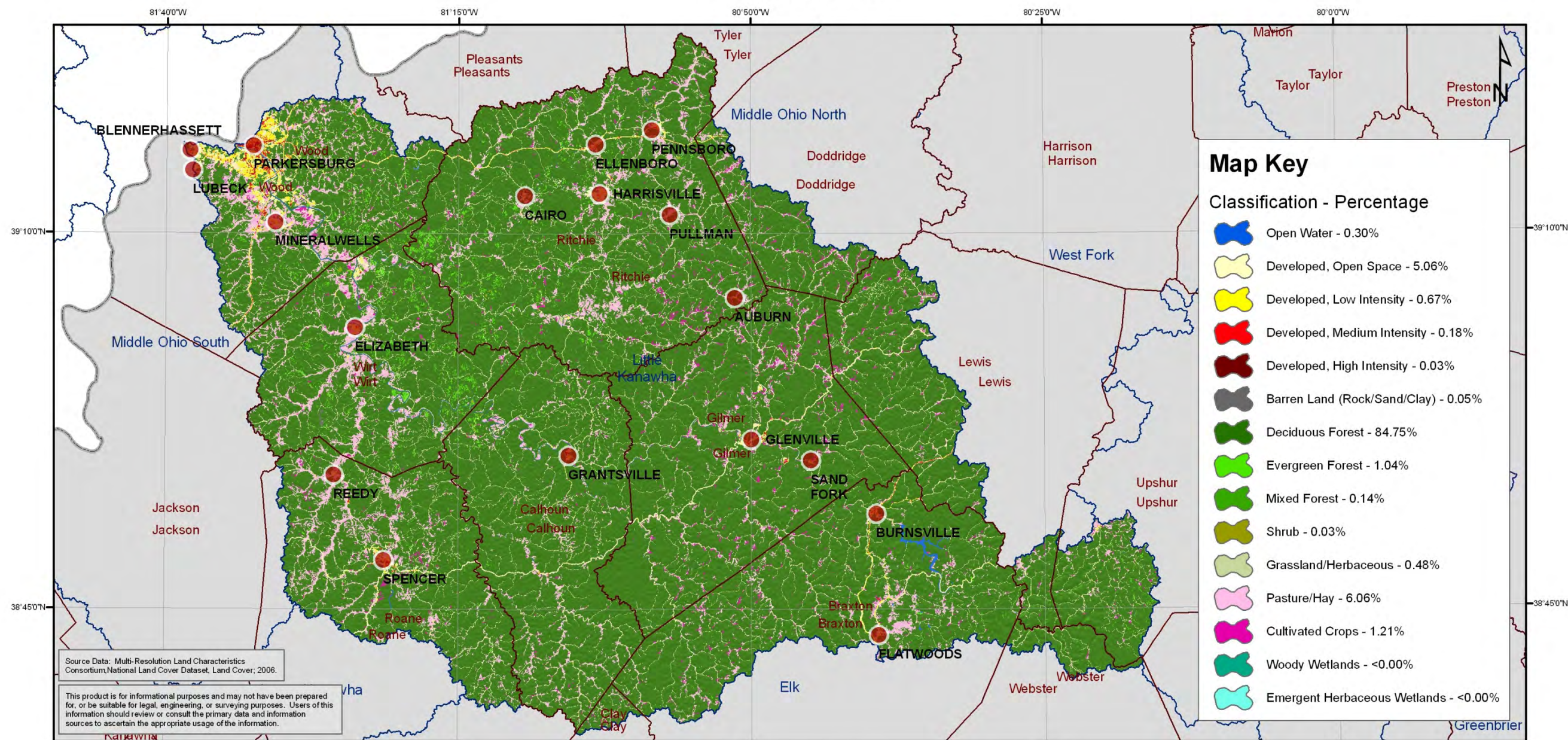


0 2.5 5 10 Miles

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Little Kanawha HUC-8 Watershed

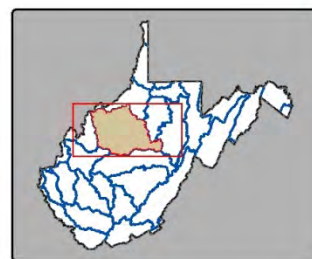
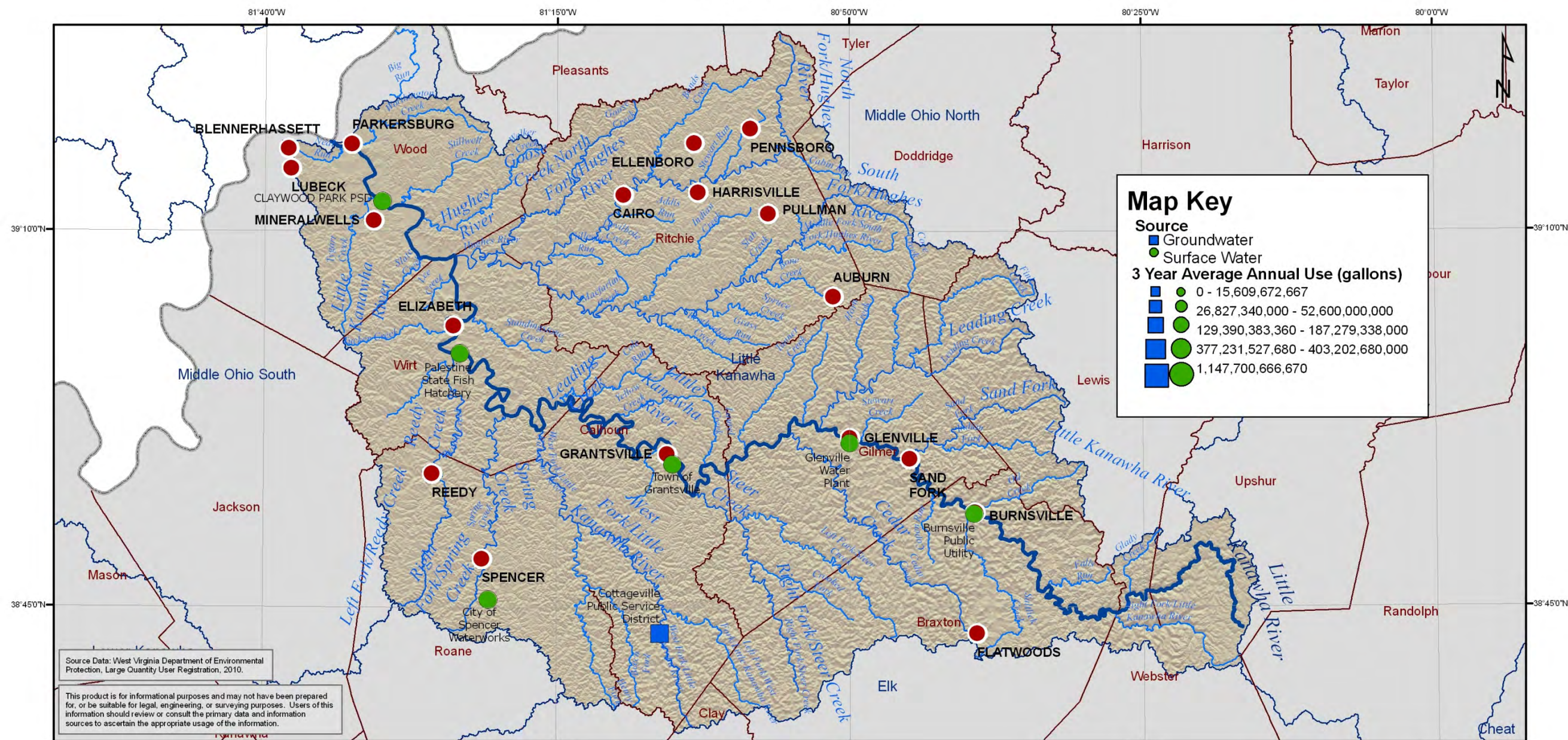
2006 Land Cover



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Little Kanawha HUC-8 Watershed

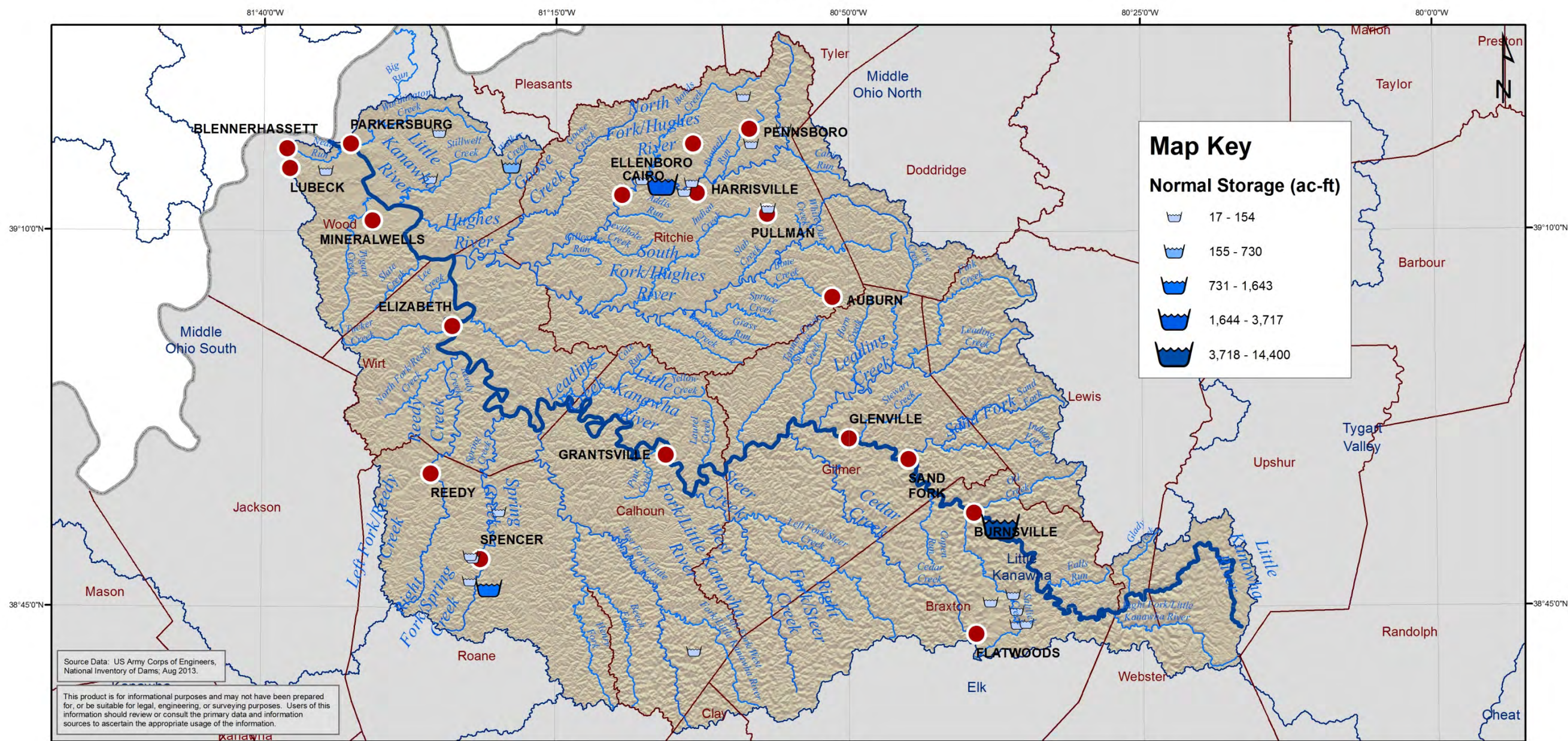
Large Quantity Users



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Little Kanawha HUC-8 Watershed

Permitted Dams



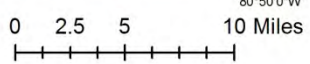
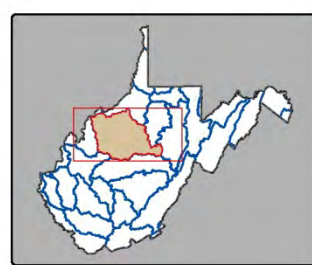
Map Key

Normal Storage (ac-ft)

	17 - 154
	155 - 730
	731 - 1,643
	1,644 - 3,717
	3,718 - 14,400

Source Data: US Army Corps of Engineers, National Inventory of Dams, Aug 2013.

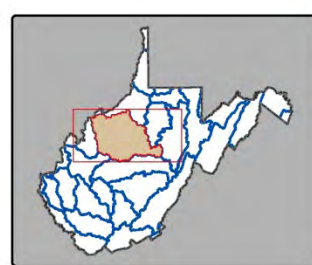
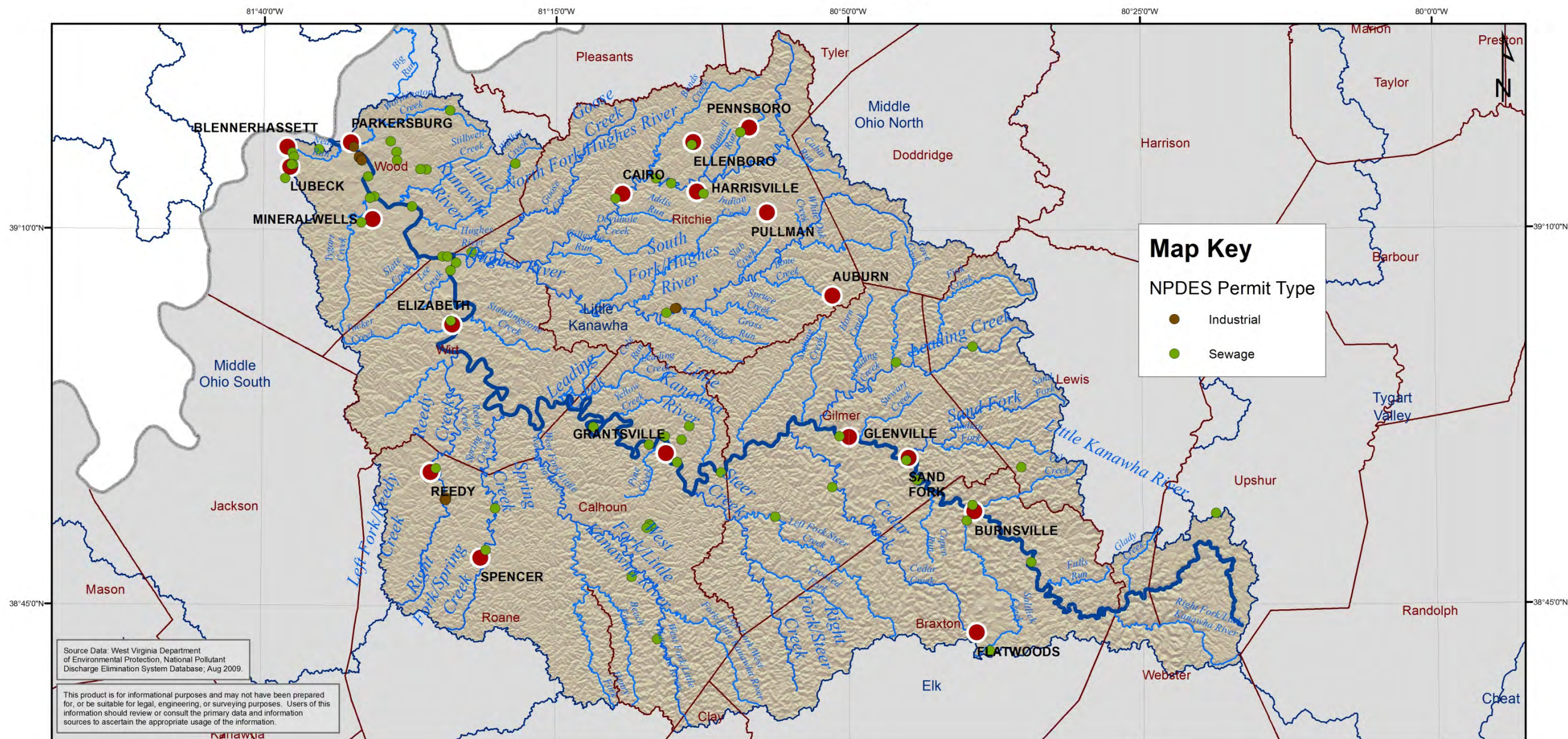
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Little Kanawha HUC-8 Watershed

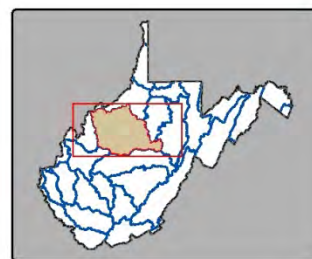
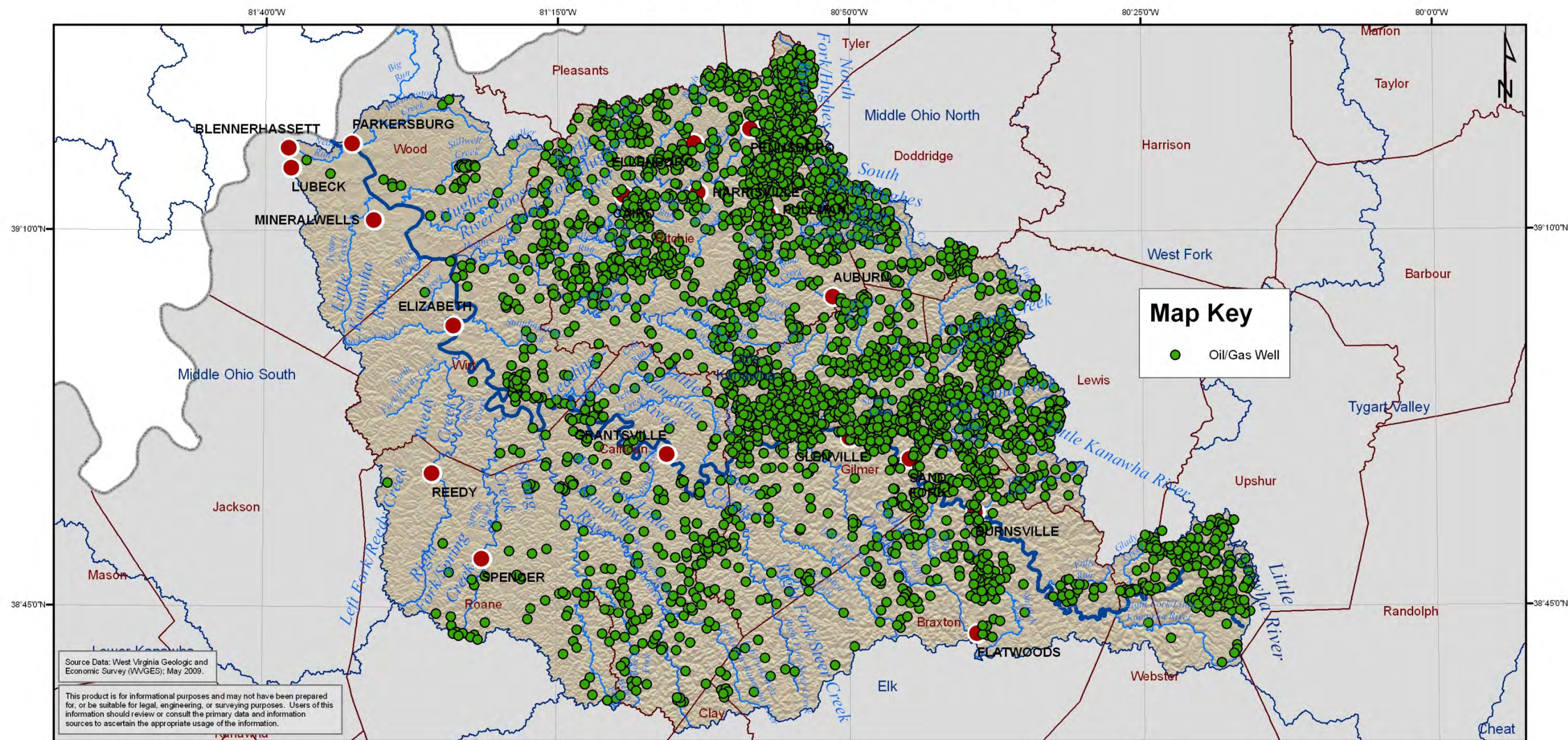
Non-Mining NPDES Outlets



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- County Boundary
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- City/Town

Little Kanawha HUC-8 Watershed

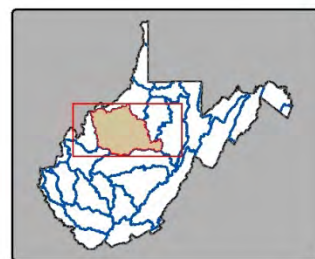
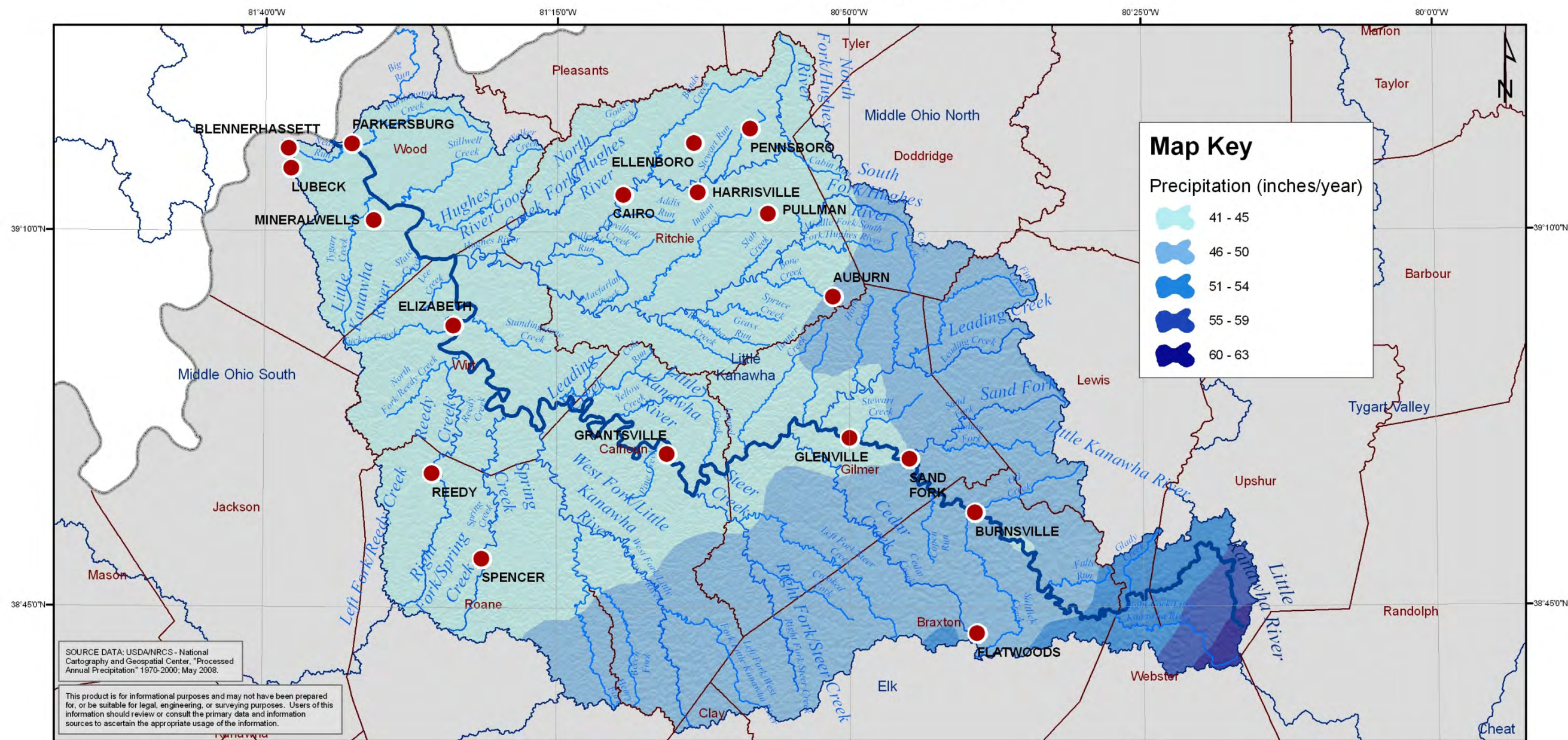
Well Logs with Gamma Rays and Water Shows



- State Boundary
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- City/Town

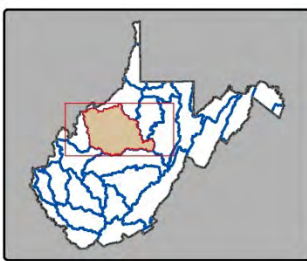
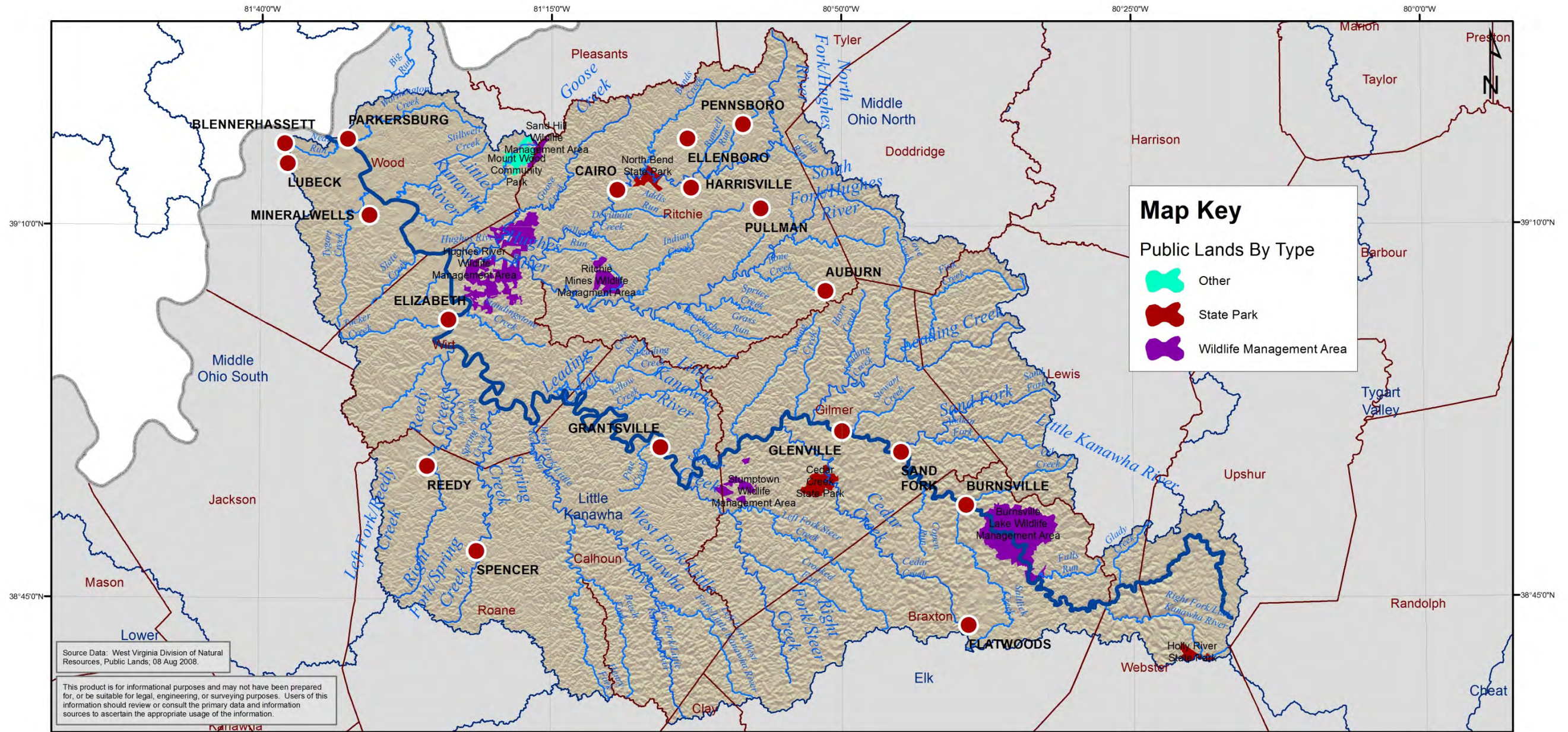
Little Kanawha HUC-8 Watershed

Average Annual Precipitation (1971-2000)



Little Kanawha HUC-8 Watershed

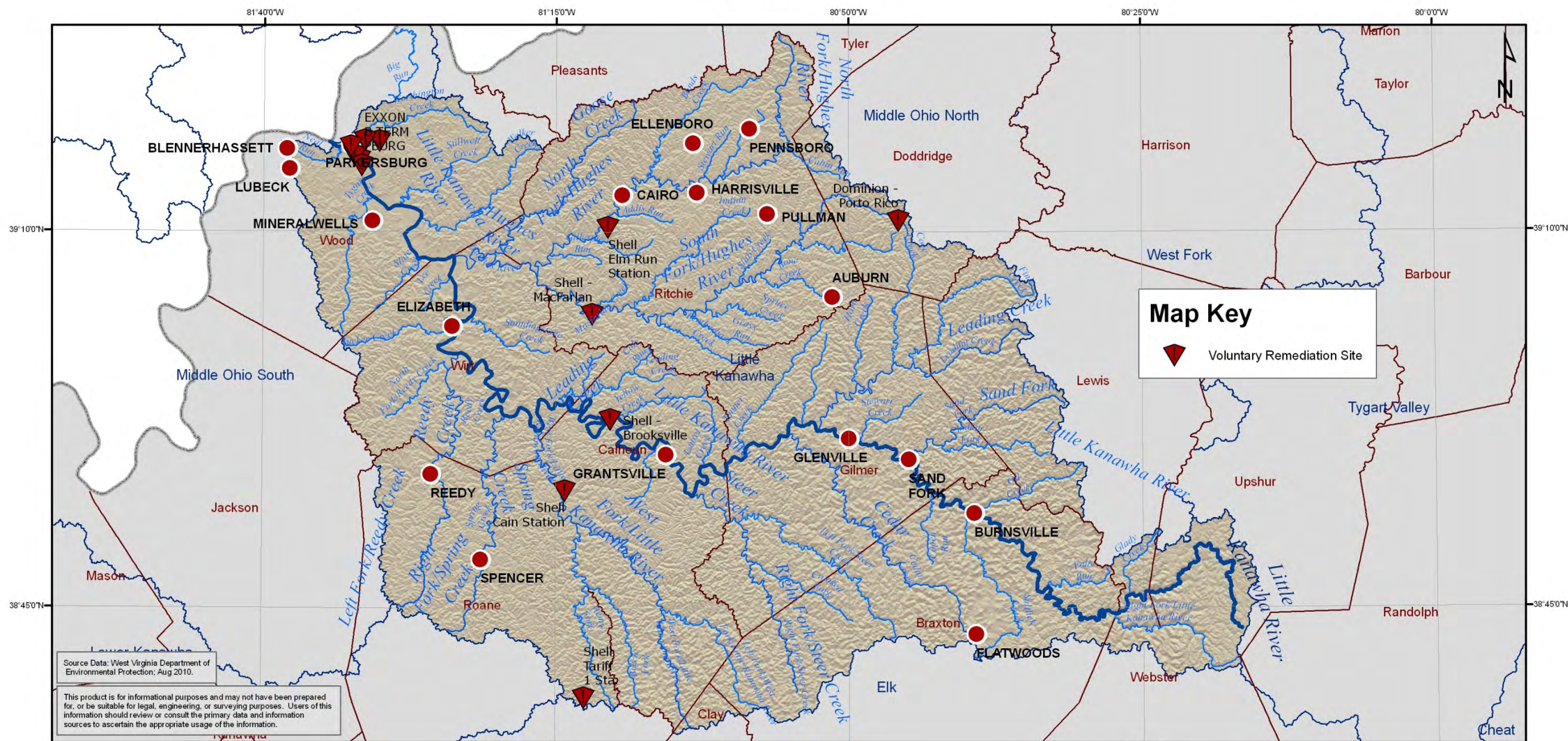
Public Lands



-  State Boundary
-  County Boundary
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-  City/Town

Little Kanawha HUC-8 Watershed

Remediation Sites

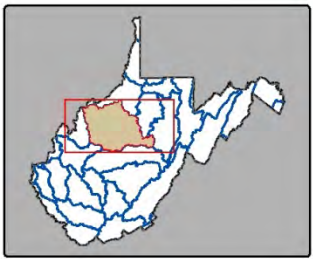
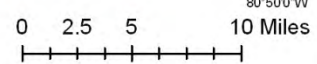


Map Key

- Voluntary Remediation Site

Source Data: West Virginia Department of Environmental Protection; Aug 2010.

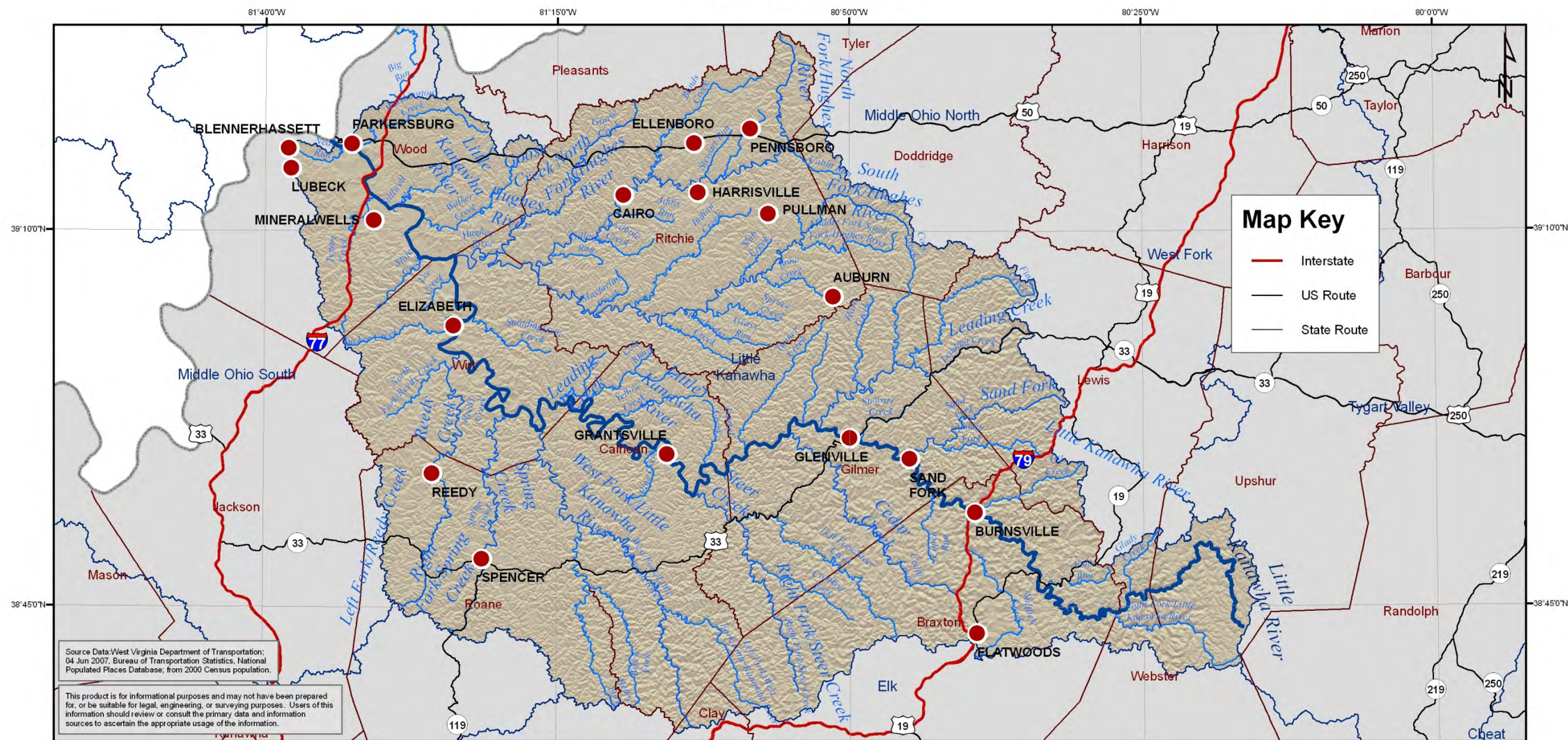
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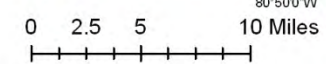
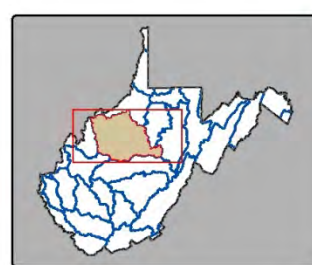
Little Kanawha HUC-8 Watershed

Major Roads and Cities



Source Data: West Virginia Department of Transportation; 04 Jun 2007; Bureau of Transportation Statistics; National Populated Places Database; from 2000 Census population.

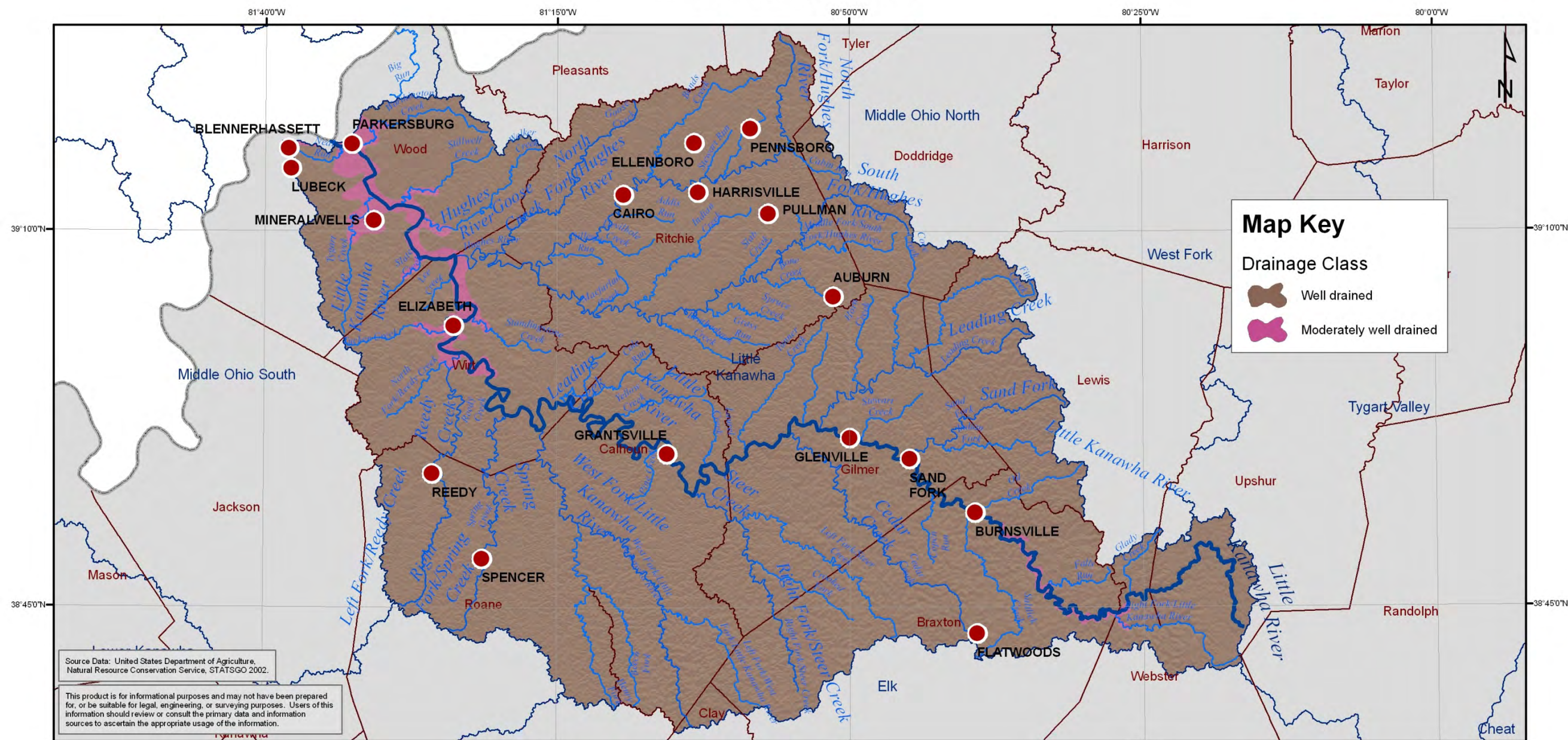
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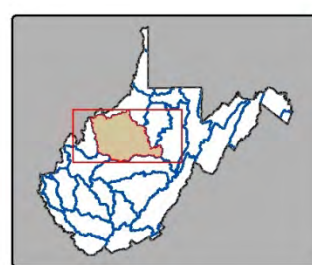
Little Kanawha HUC-8 Watershed

Soil Drainage Classes



Source Data: United States Department of Agriculture, Natural Resource Conservation Service, STATSGO 2002.

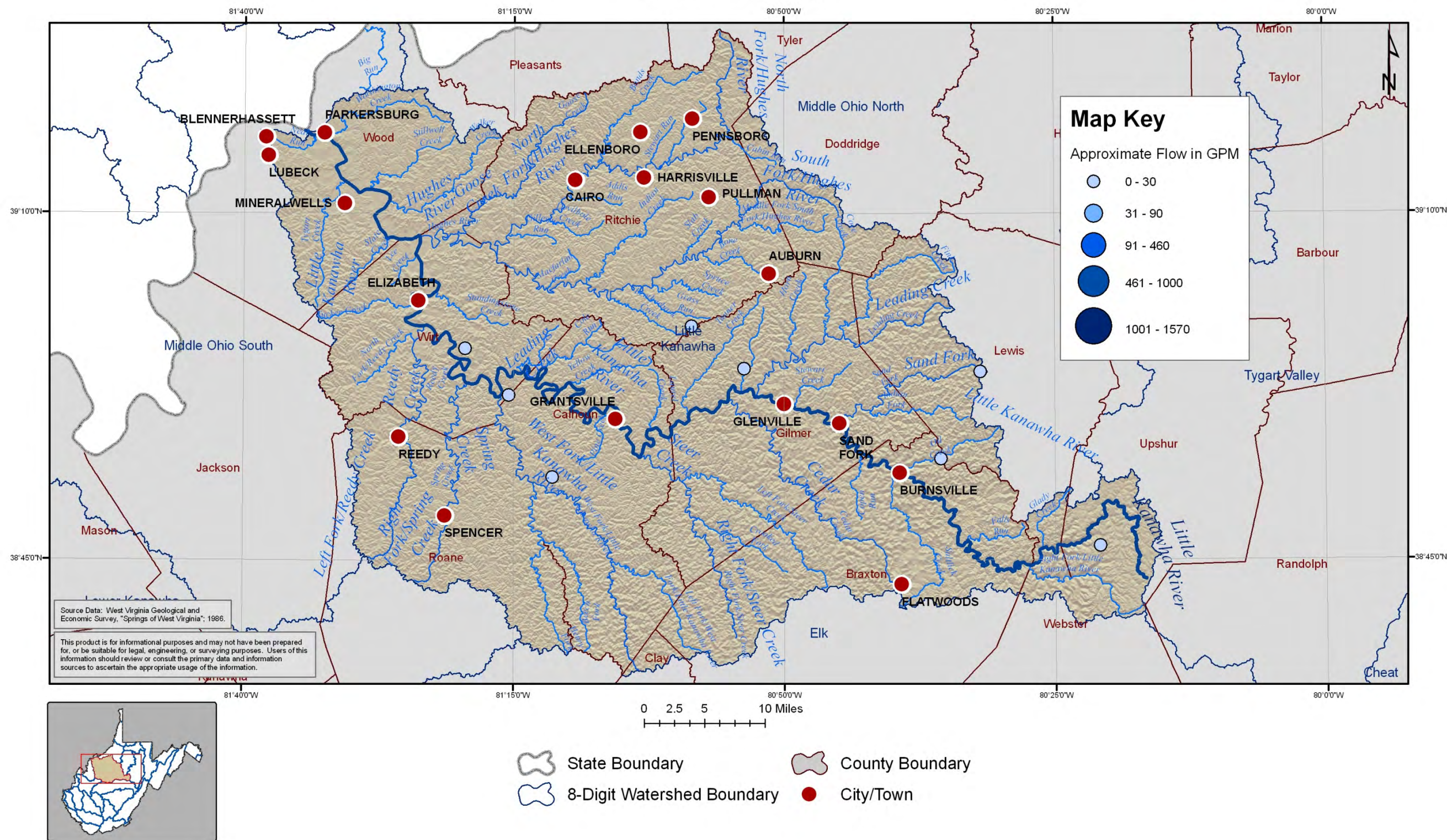
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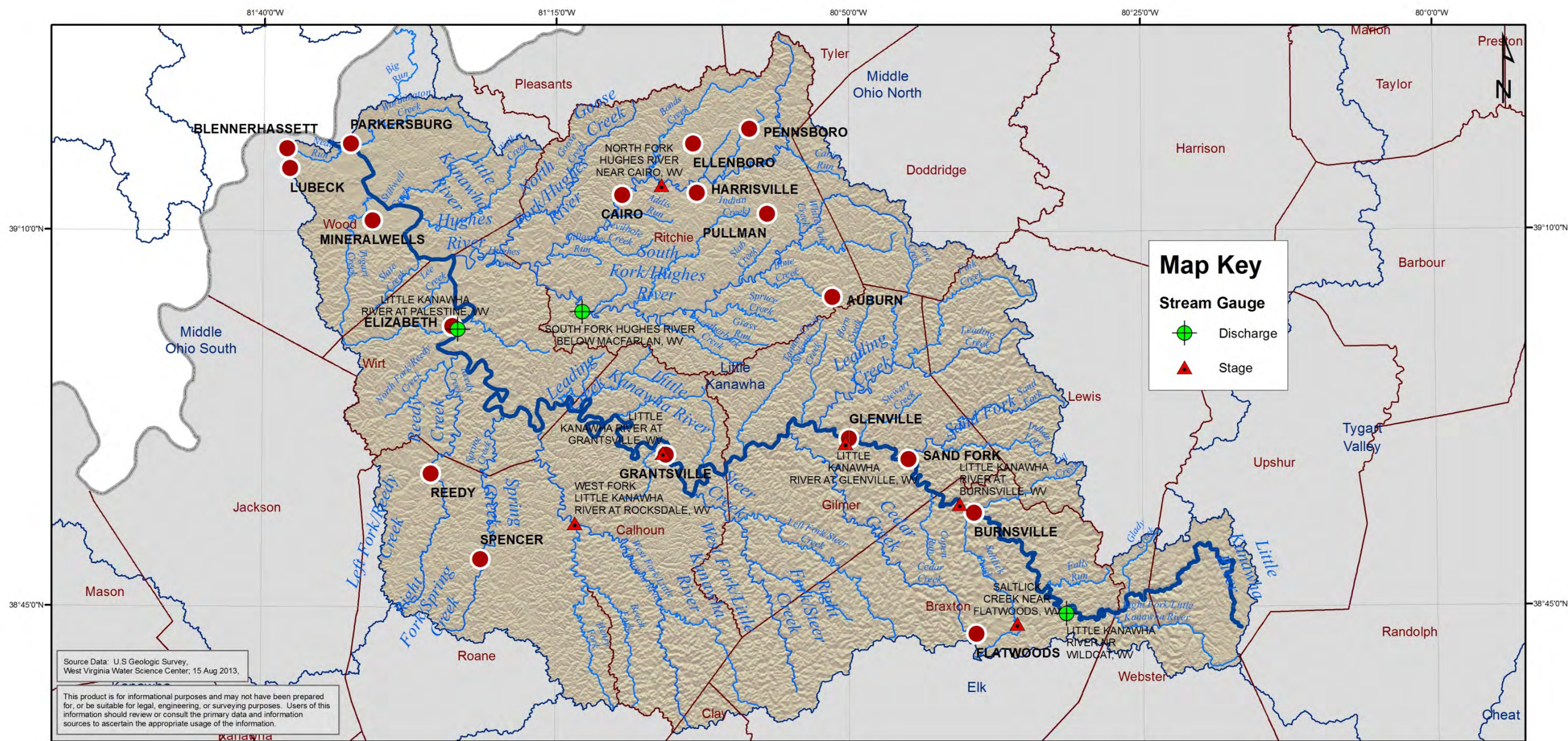
Little Kanawha HUC-8 Watershed

Documented Springs



Little Kanawha HUC-8 Watershed

Stream Gauges



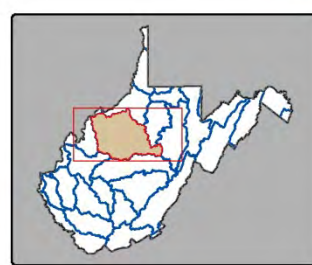
Map Key

Stream Gauge

- Discharge
- ▲ Stage

Source Data: U.S. Geologic Survey, West Virginia Water Science Center, 15 Aug 2013.

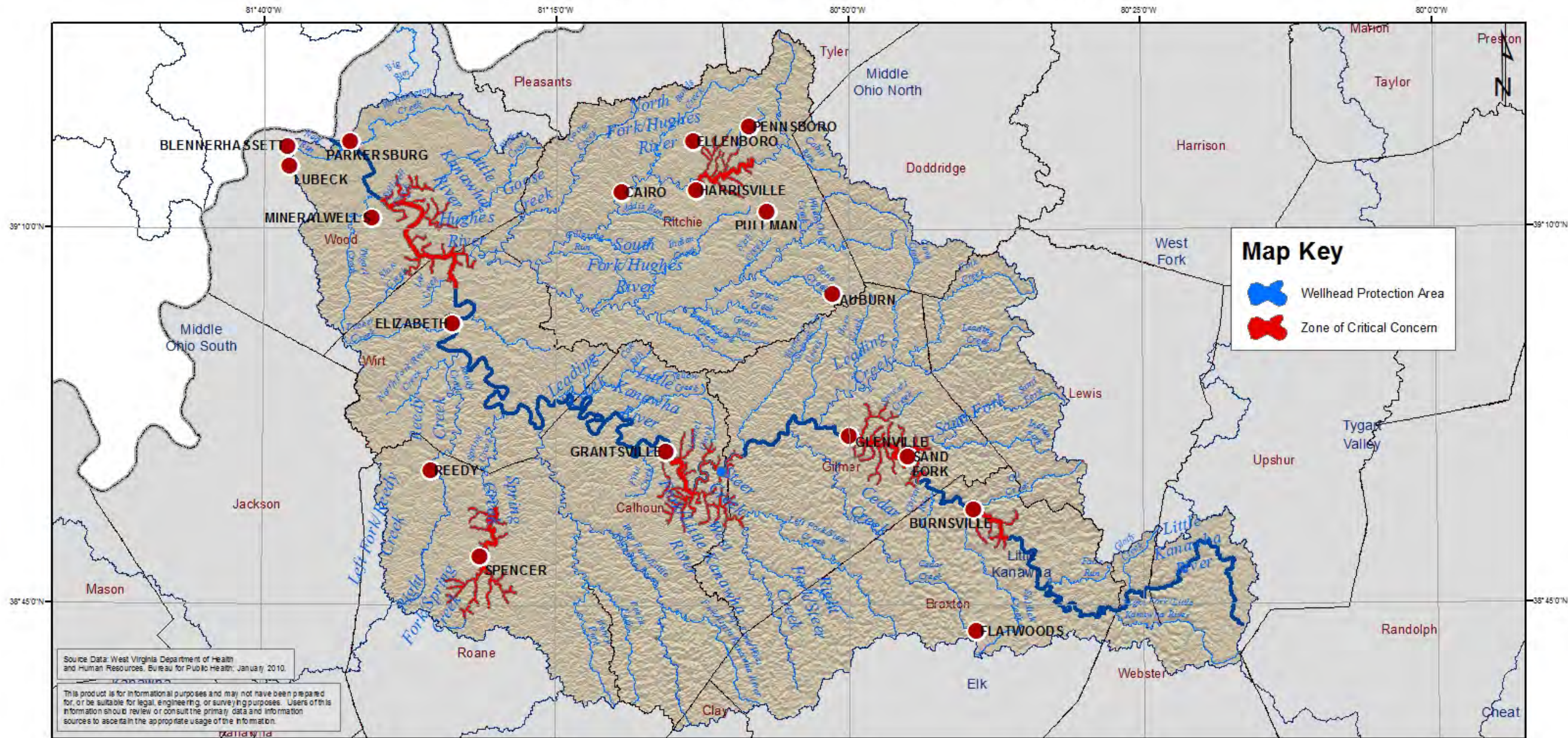
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Little Kanawha HUC-8 Watershed

Source Water Assessment and Wellhead Protection Programs

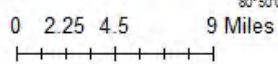
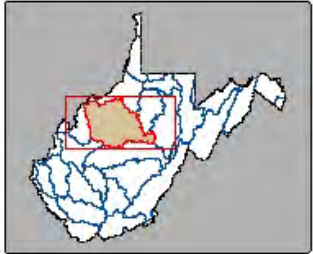


Map Key

- Wellhead Protection Area
- Zone of Critical Concern

Source Data: West Virginia Department of Health and Human Resources, Bureau for Public Health, January 2010.

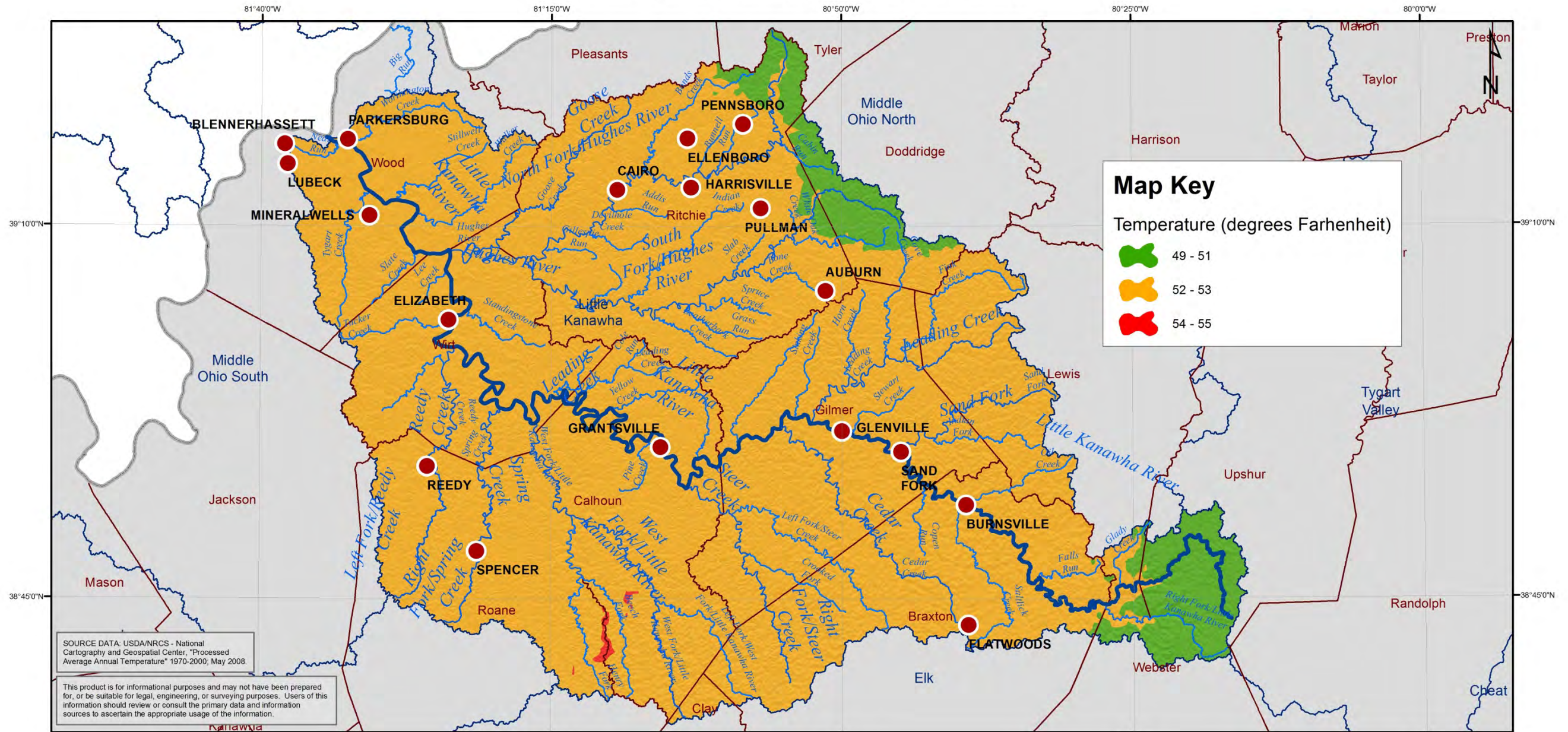
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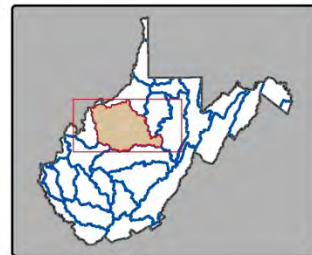
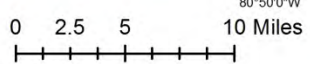
Little Kanawha HUC-8 Watershed

Average Annual Temperature (1971-2000)



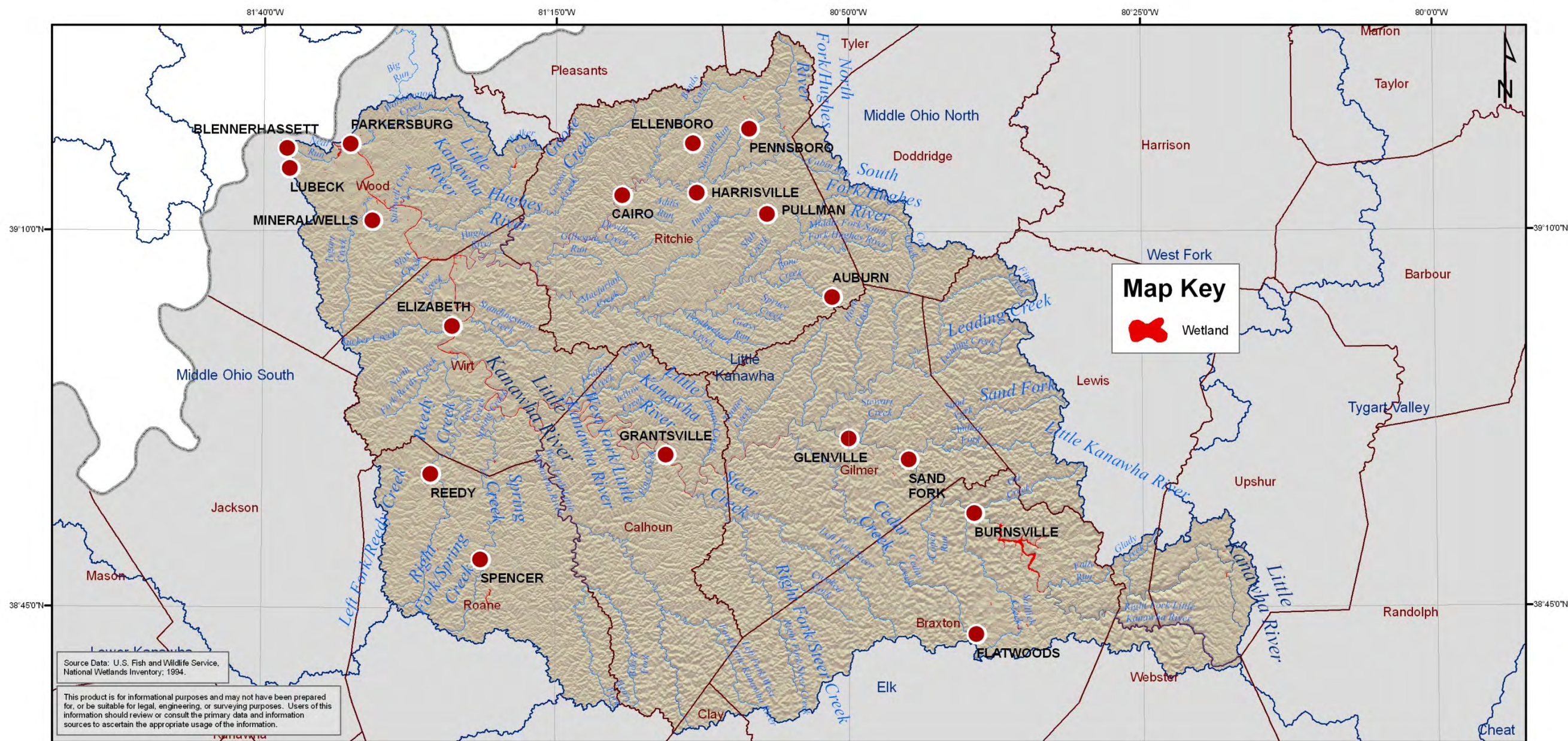
SOURCE DATA: USDA/NRCS - National Cartography and Geospatial Center, "Processed Average Annual Temperature" 1970-2000, May 2008.

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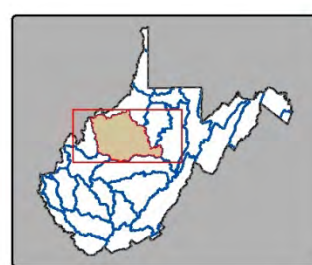
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Little Kanawha HUC-8 Watershed Wetlands



Source Data: U.S. Fish and Wildlife Service, National Wetlands Inventory; 1994.

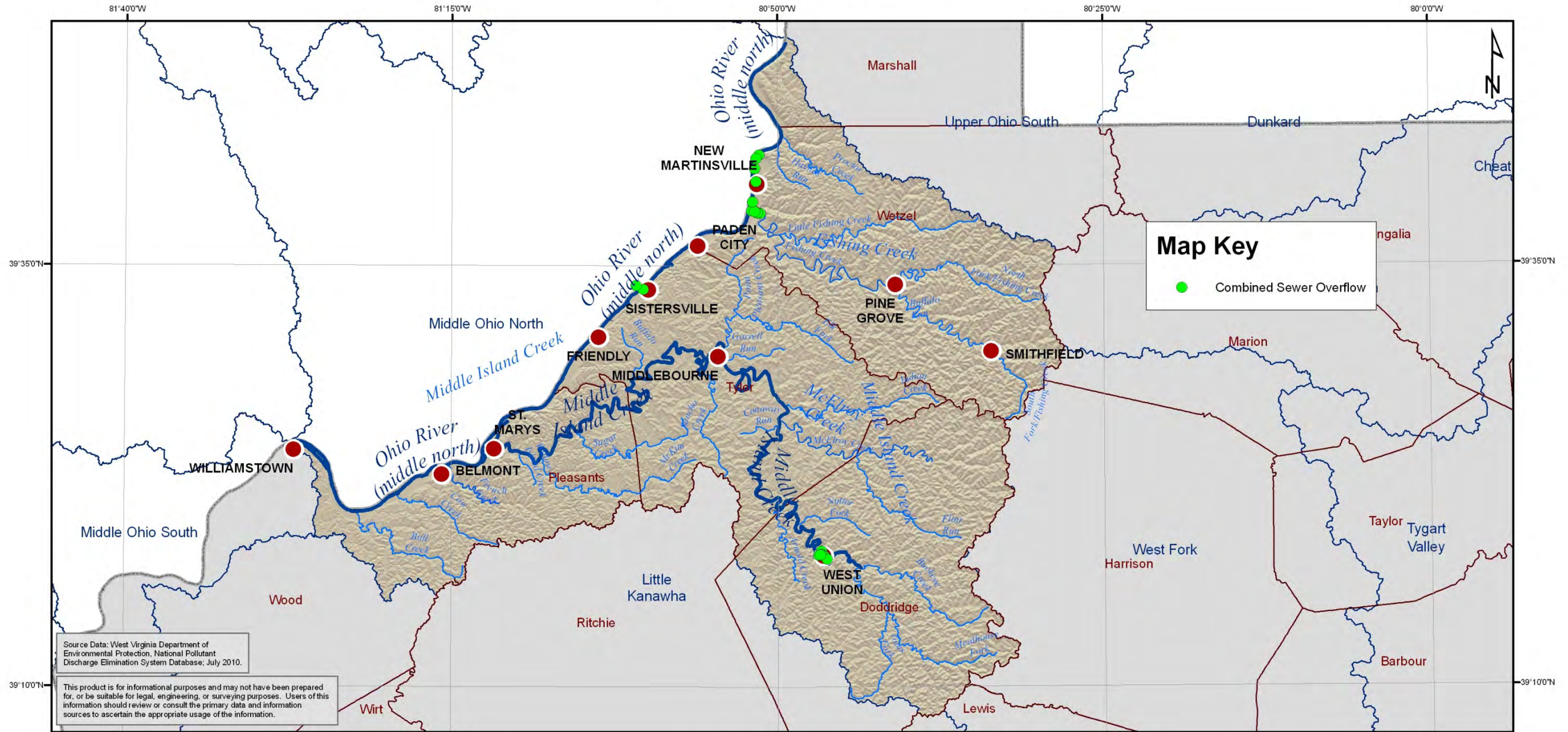
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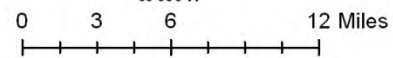
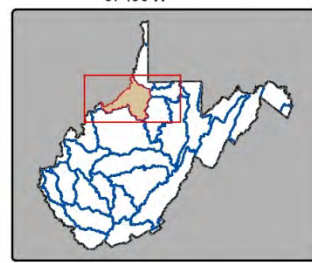
Middle Ohio North HUC-8 Watershed

Combined Sewer Overflow



Source Data: West Virginia Department of Environmental Protection, National Pollutant Discharge Elimination System Database, July 2010.

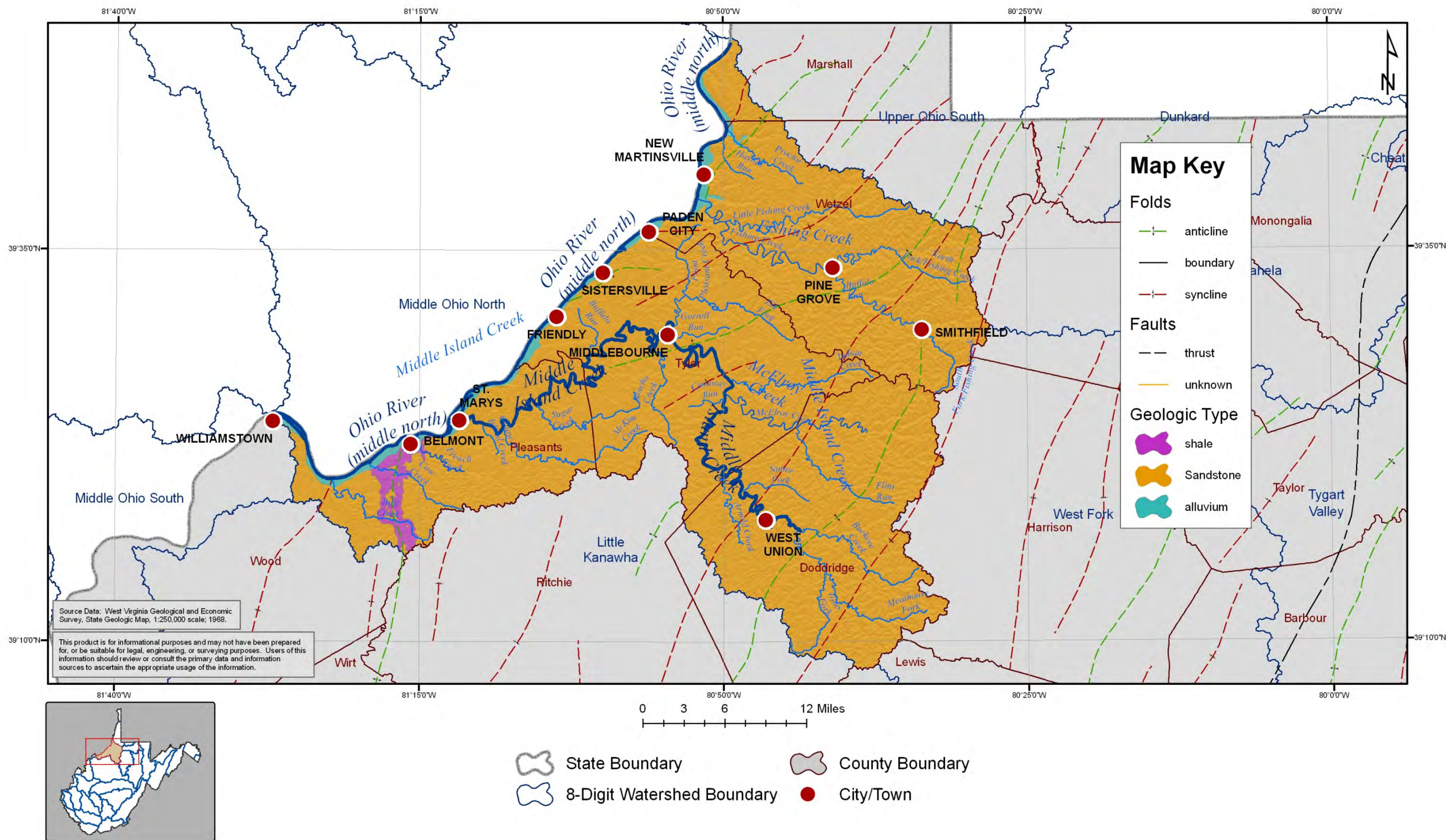
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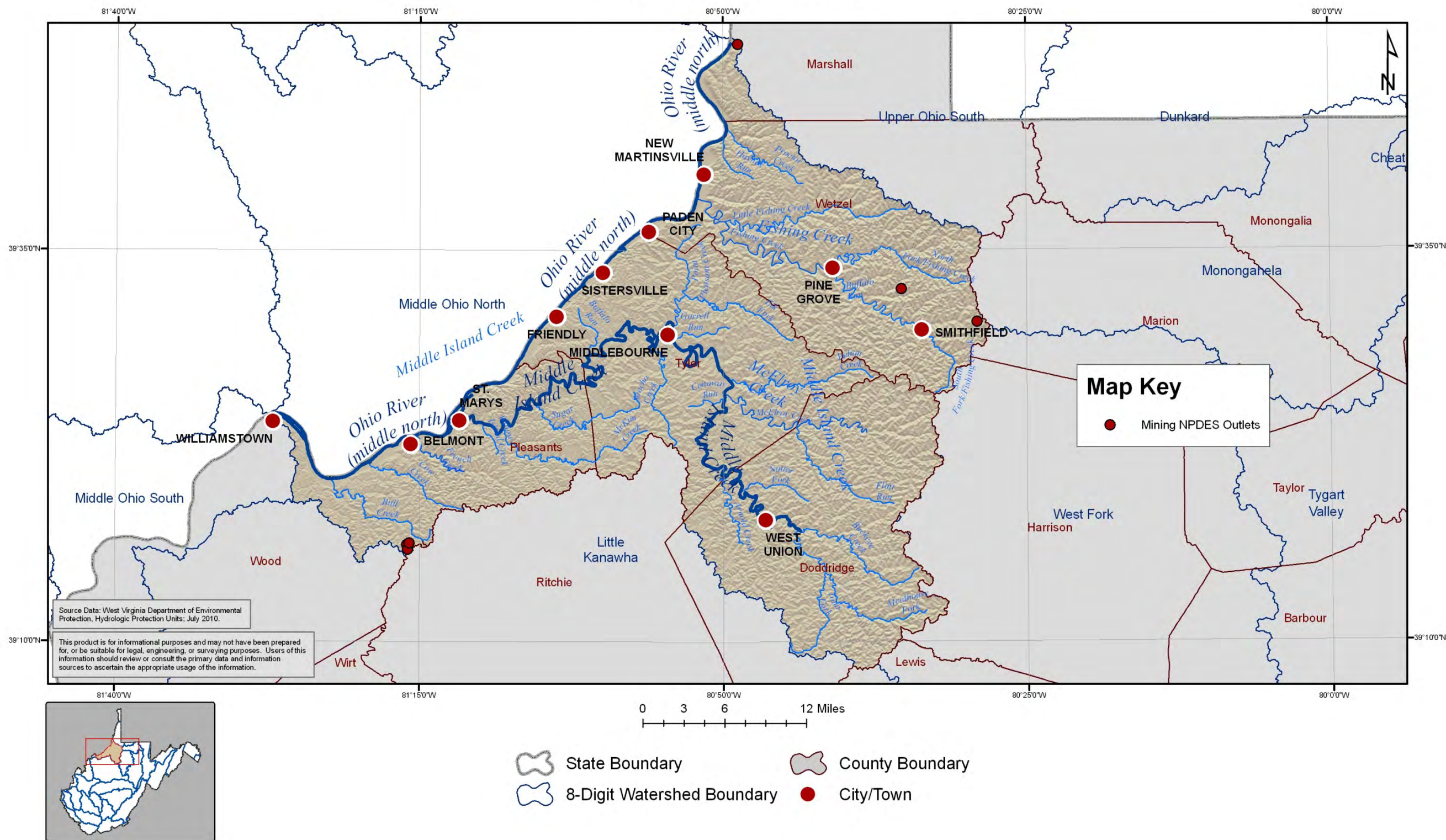
Middle Ohio North HUC-8 Watershed

Surface Geology



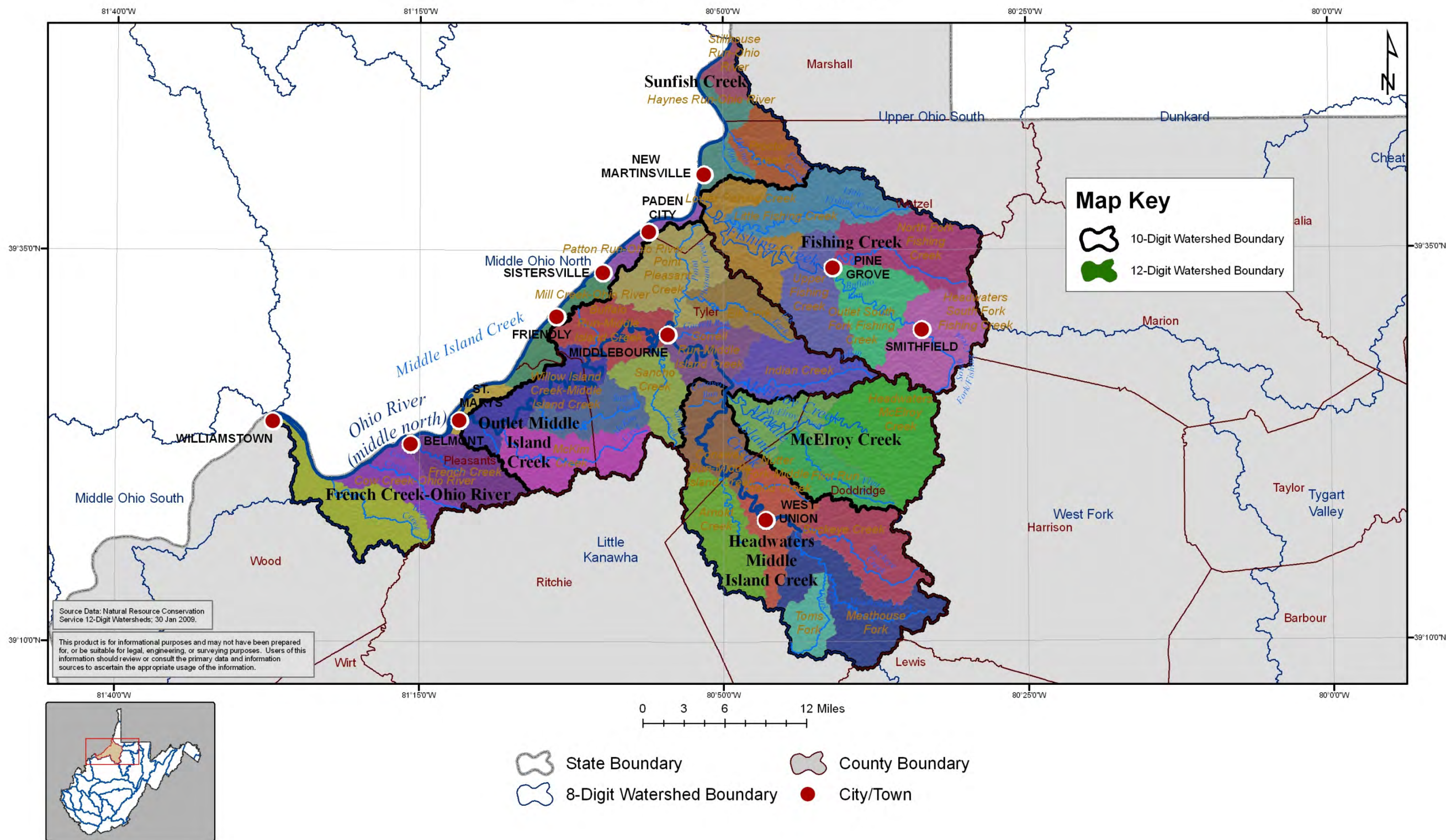
Middle Ohio North HUC-8 Watershed

Mining Related NPDES Outlets



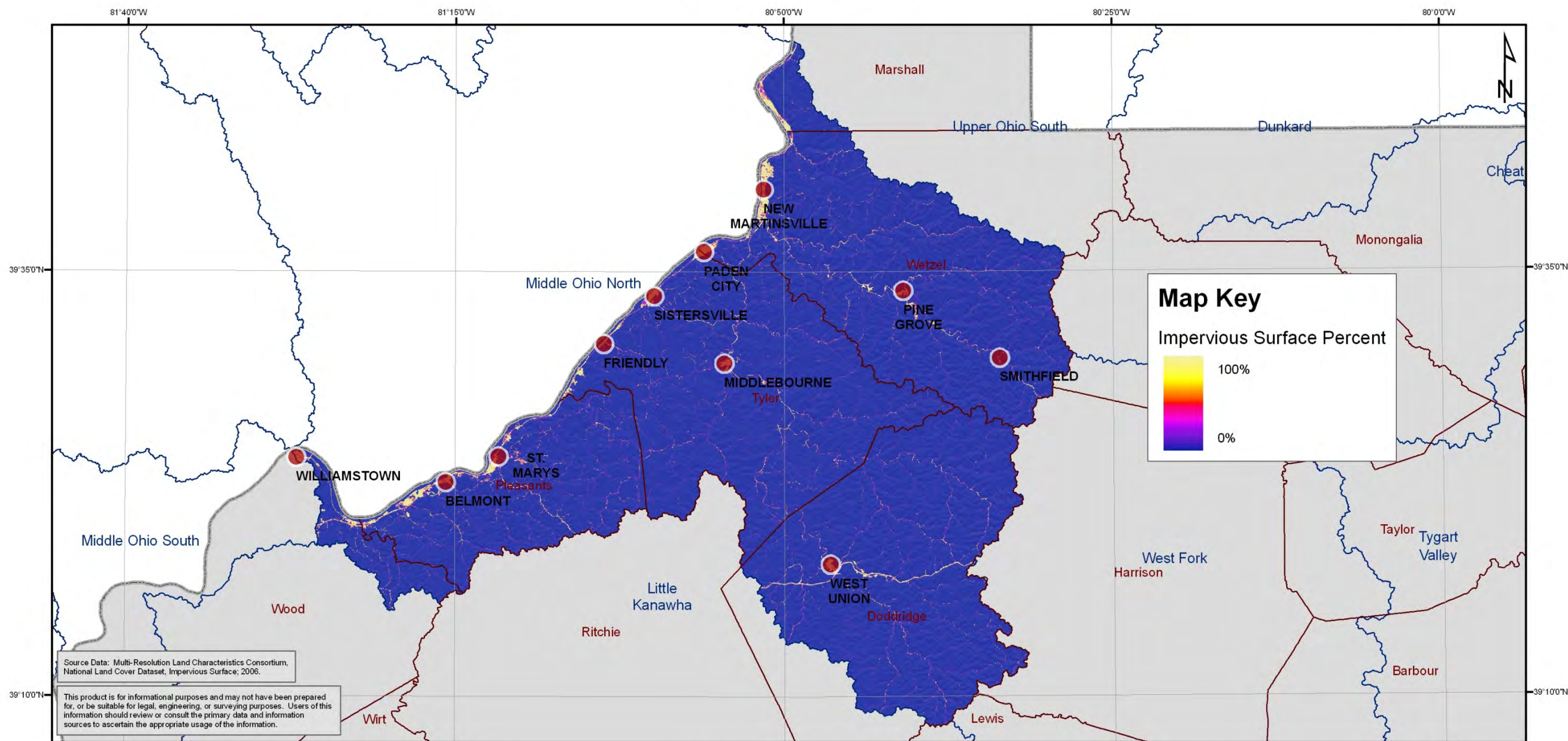
Middle Ohio North HUC-8 Watershed

HUC 10 and HUC 12 Watersheds



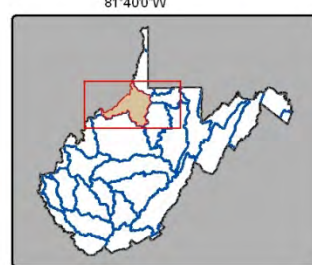
Middle Ohio North HUC-8 Watershed

2006 Impervious Surfaces



Source Data: Multi-Resolution Land Characteristics Consortium, National Land Cover Dataset, Impervious Surface, 2006.

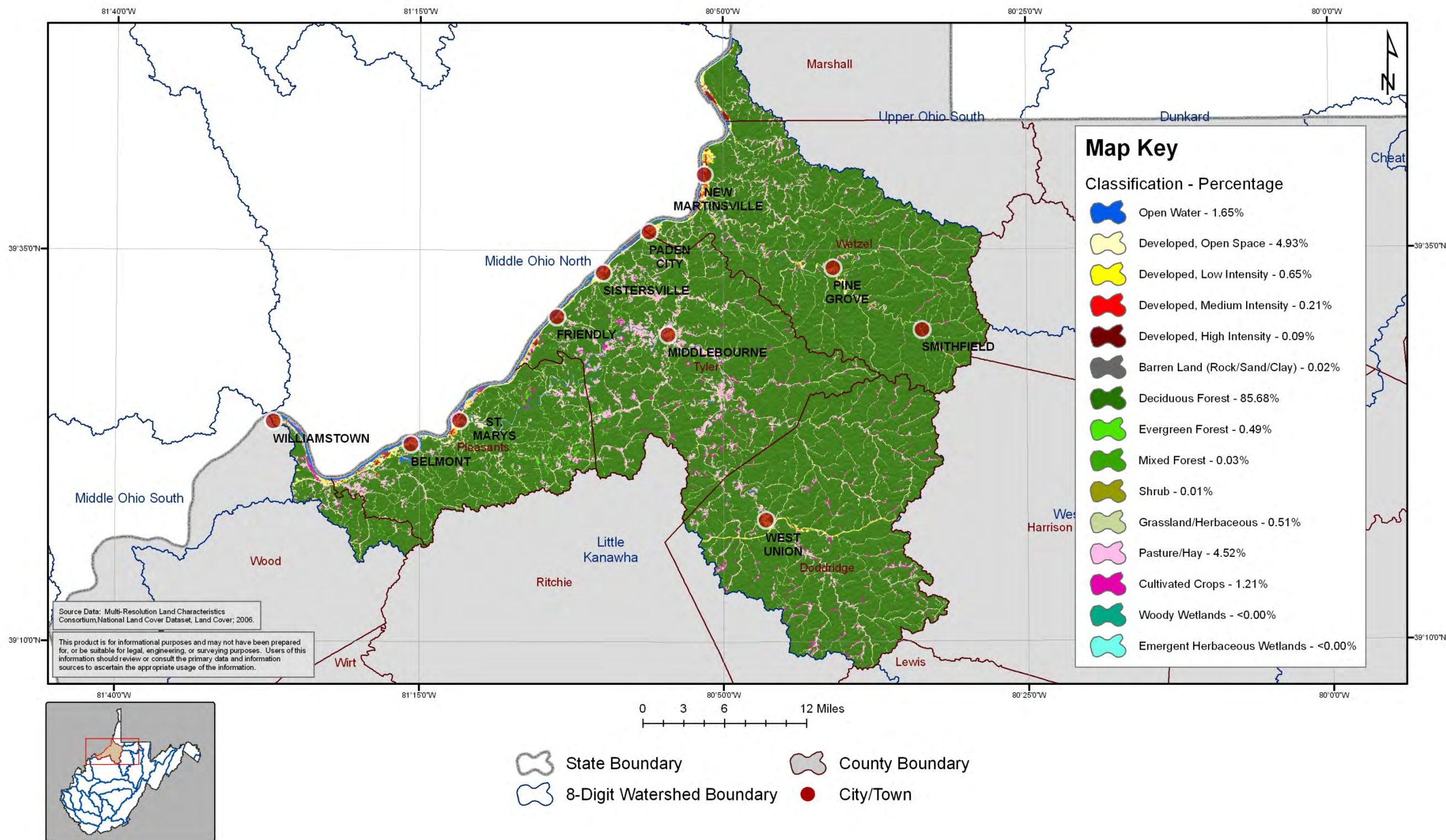
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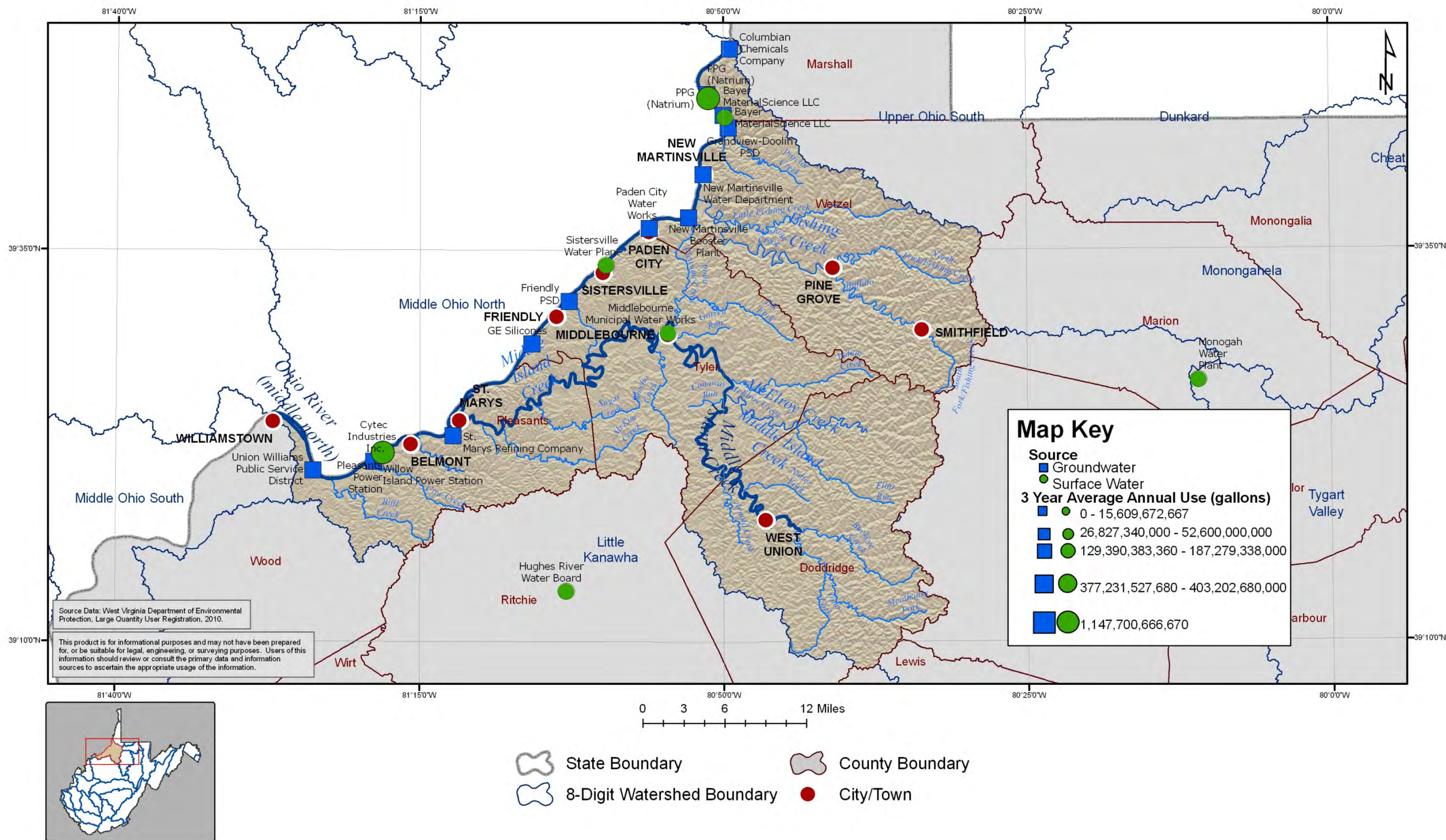
Middle Ohio North HUC-8 Watershed

2006 Land Cover



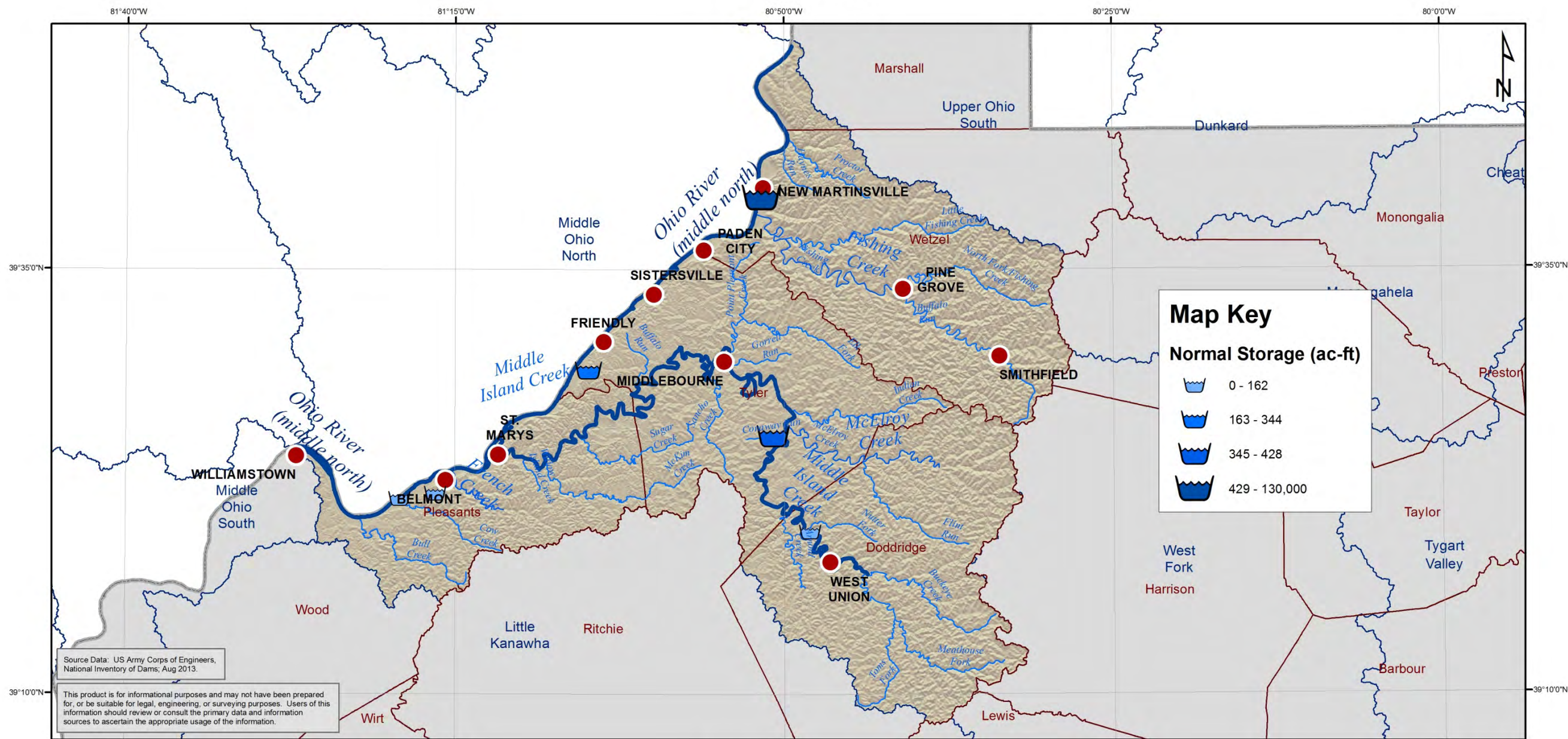
Middle Ohio North HUC-8 Watershed

Large Quantity Users



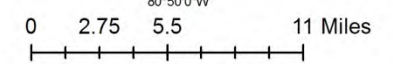
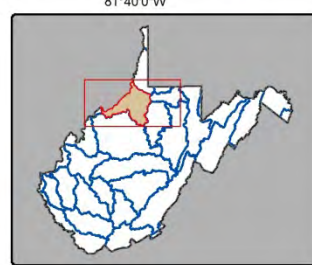
Middle Ohio North HUC-8 Watershed

Permitted Dams



Source Data: US Army Corps of Engineers, National Inventory of Dams, Aug 2013.

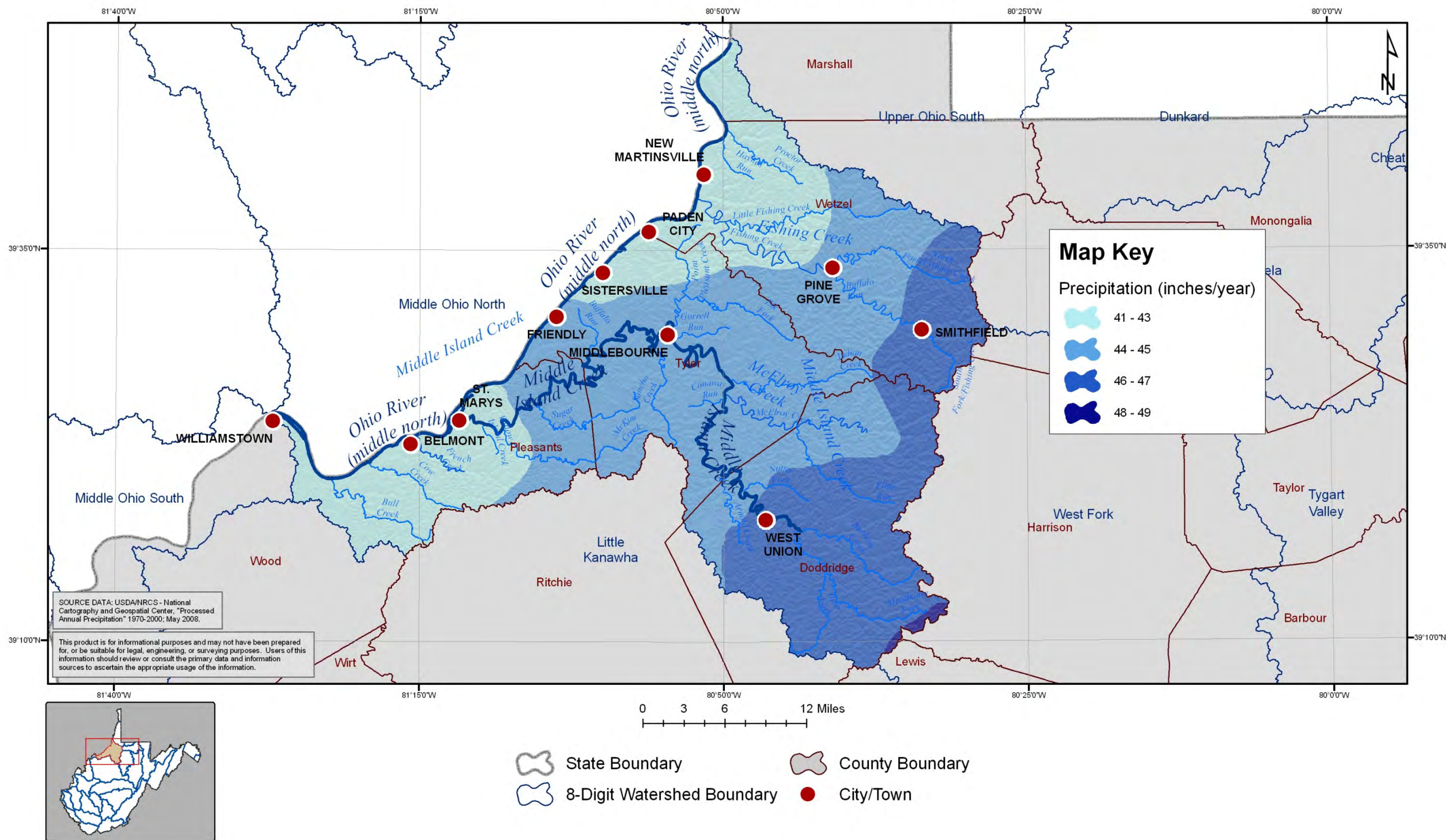
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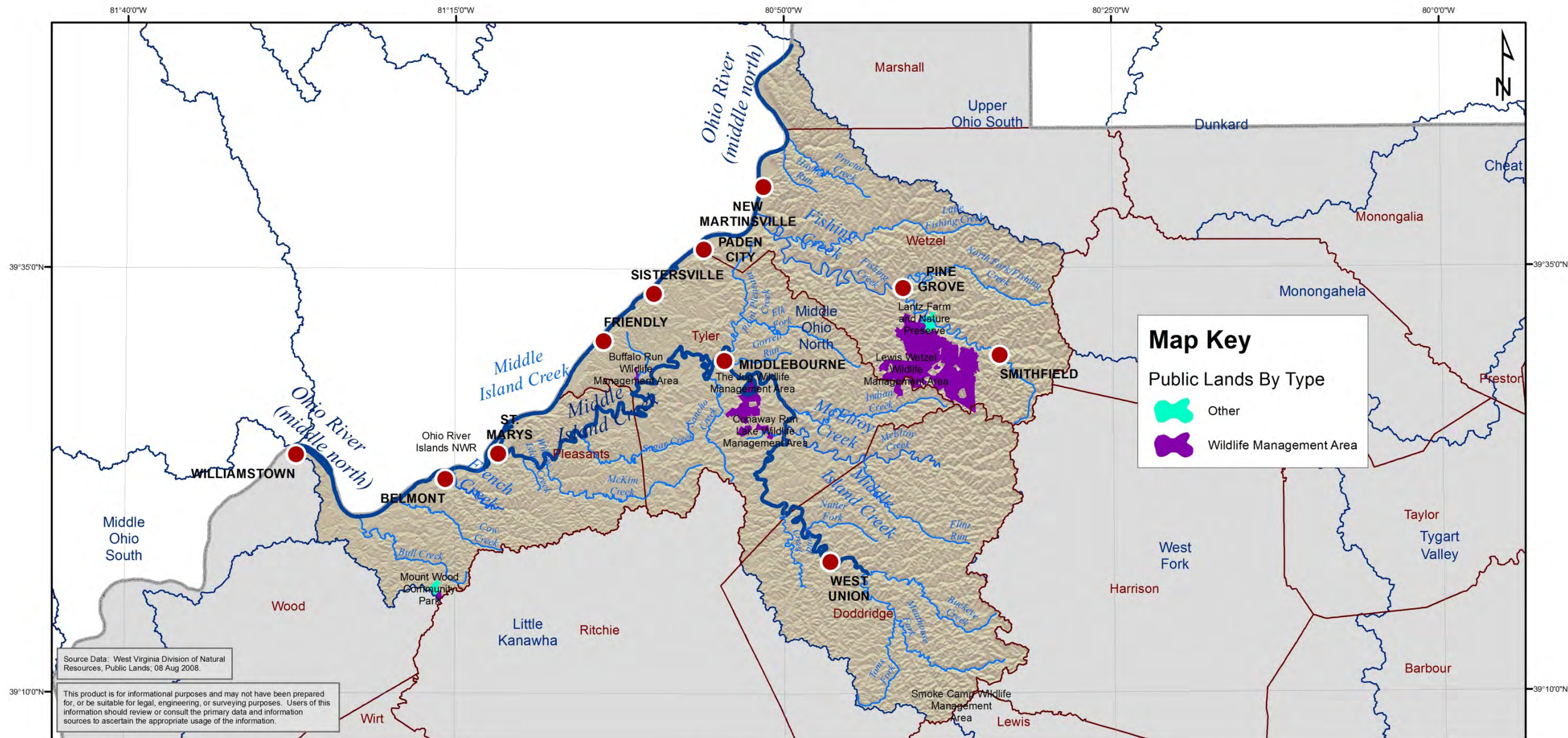
Middle Ohio North HUC-8 Watershed

Average Annual Precipitation (1971-2000)



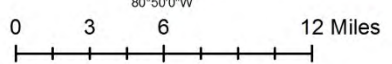
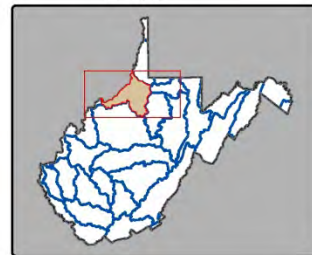
Middle Ohio North HUC-8 Watershed

Public Lands



Source Data: West Virginia Division of Natural Resources, Public Lands, 08 Aug 2008.

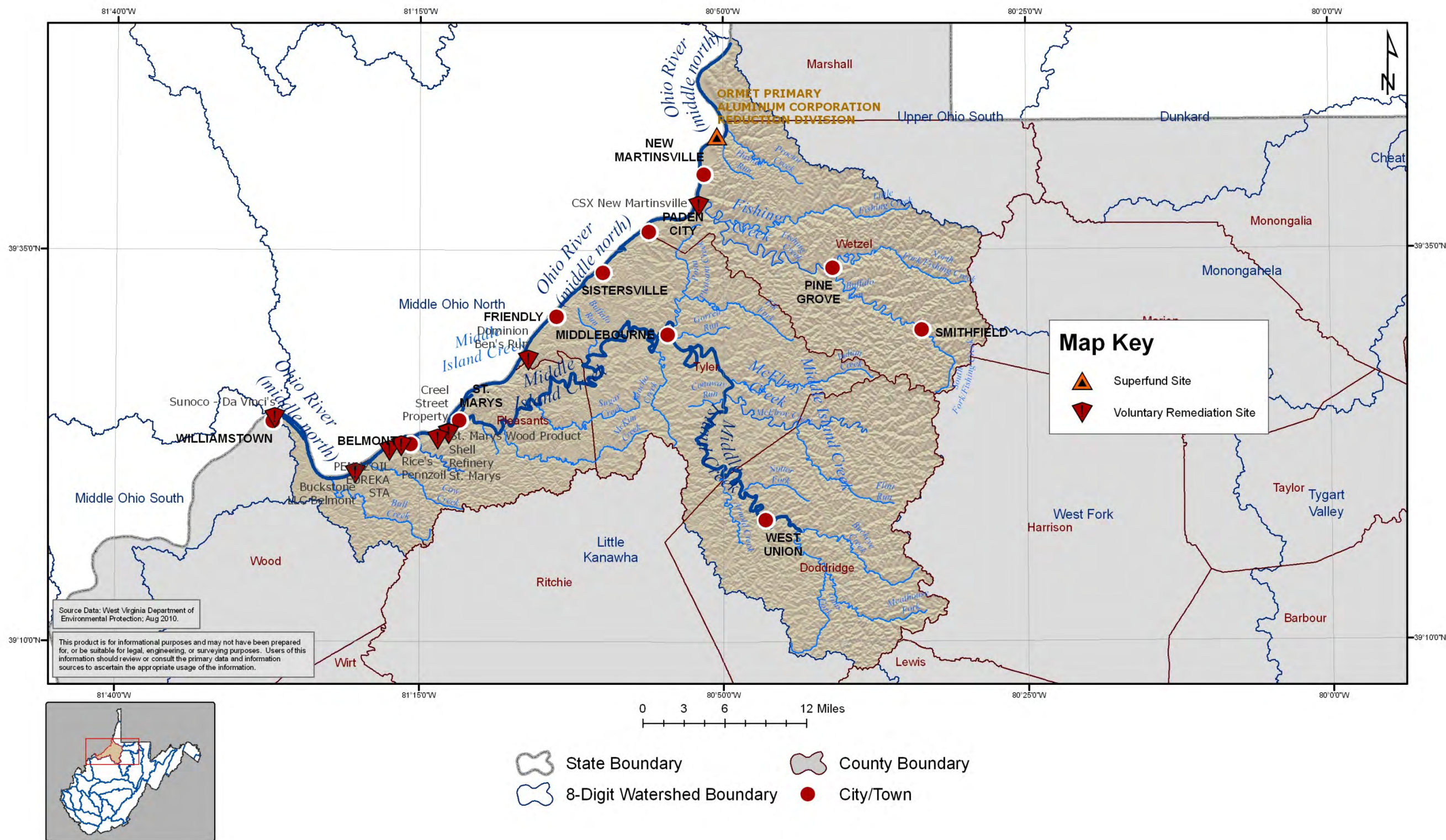
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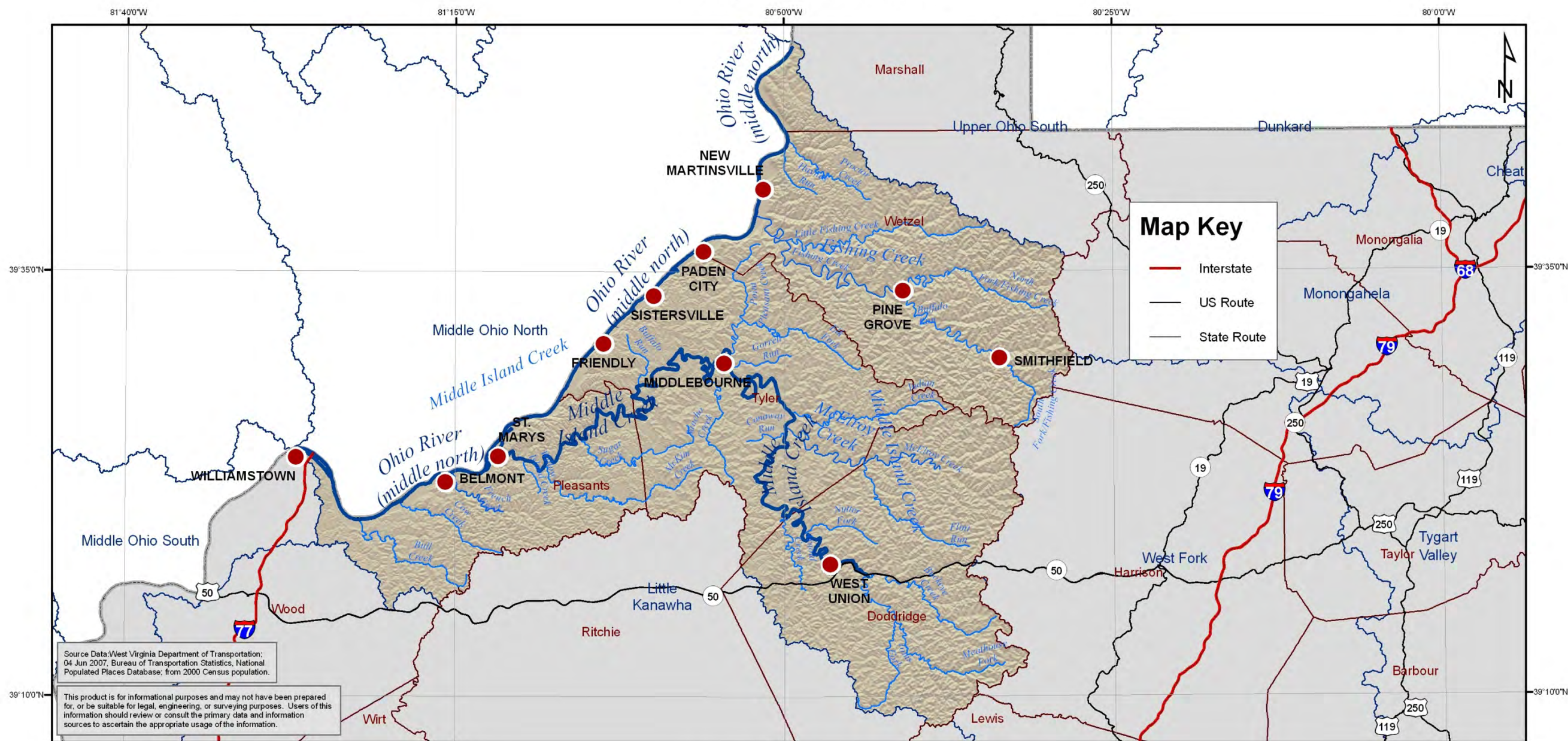
Middle Ohio North HUC-8 Watershed

Remediation Sites



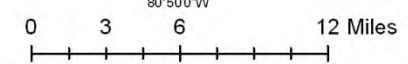
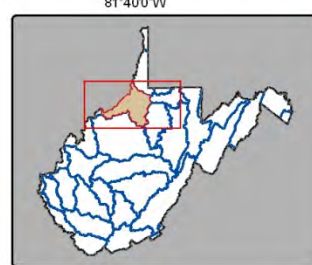
Middle Ohio North HUC-8 Watershed

Major Roads and Cities



Source Data: West Virginia Department of Transportation; 04 Jun 2007, Bureau of Transportation Statistics, National Populated Places Database; from 2000 Census population.

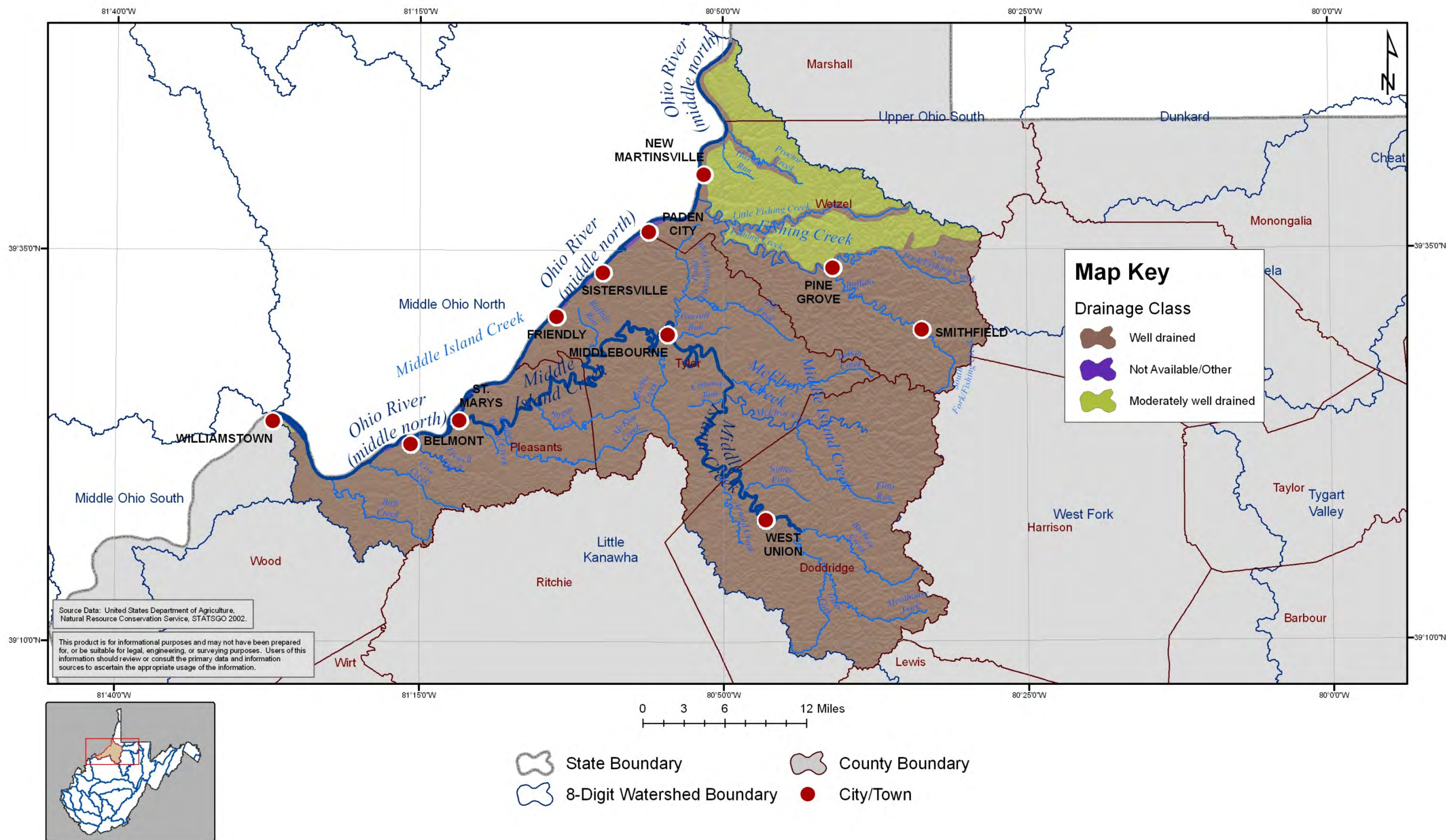
This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the appropriate usage of the information.



- State Boundary
- County Boundary
- 8-Digit Watershed Boundary
- City/Town

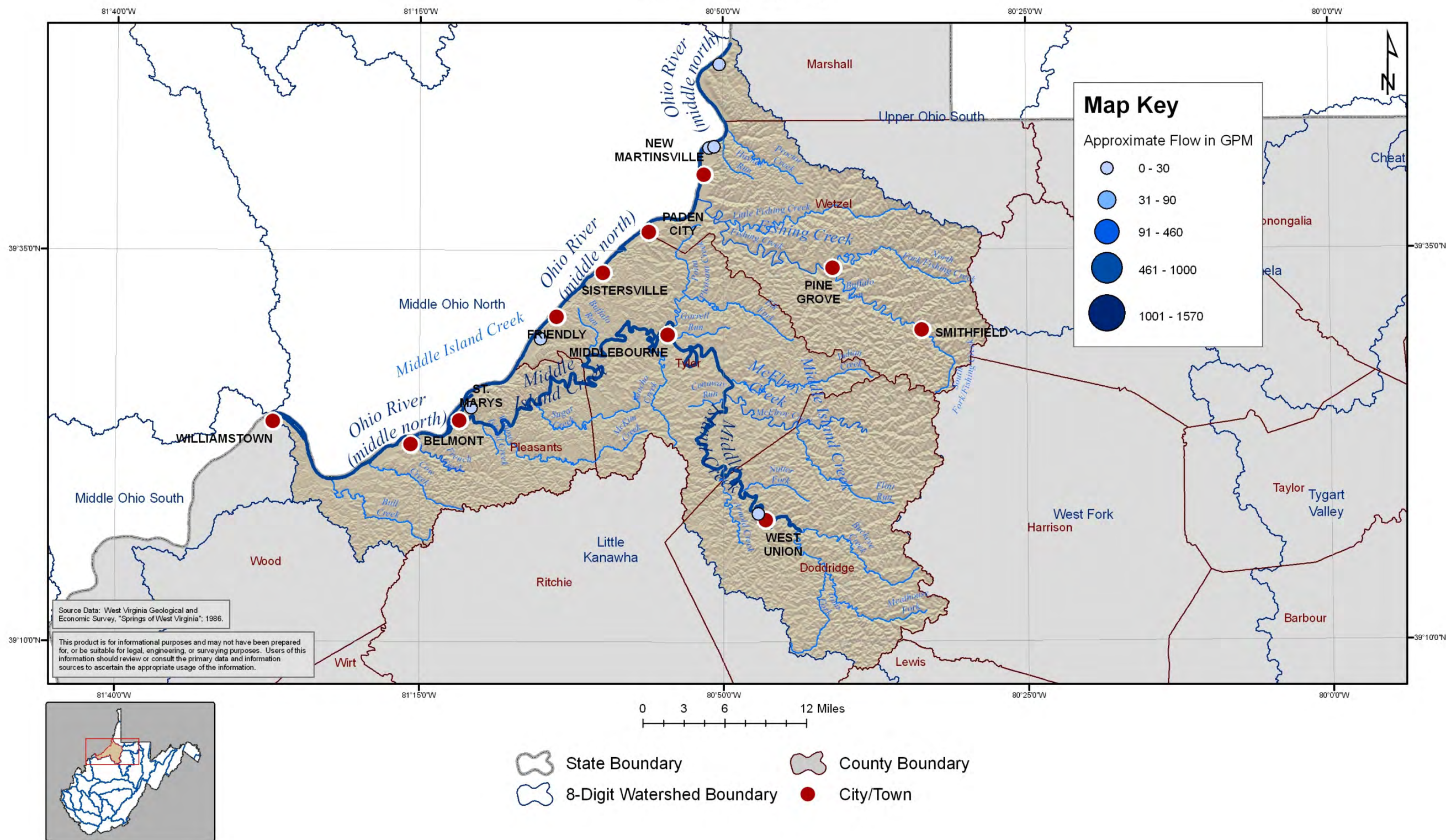
Middle Ohio North HUC-8 Watershed

Soil Drainage Classes



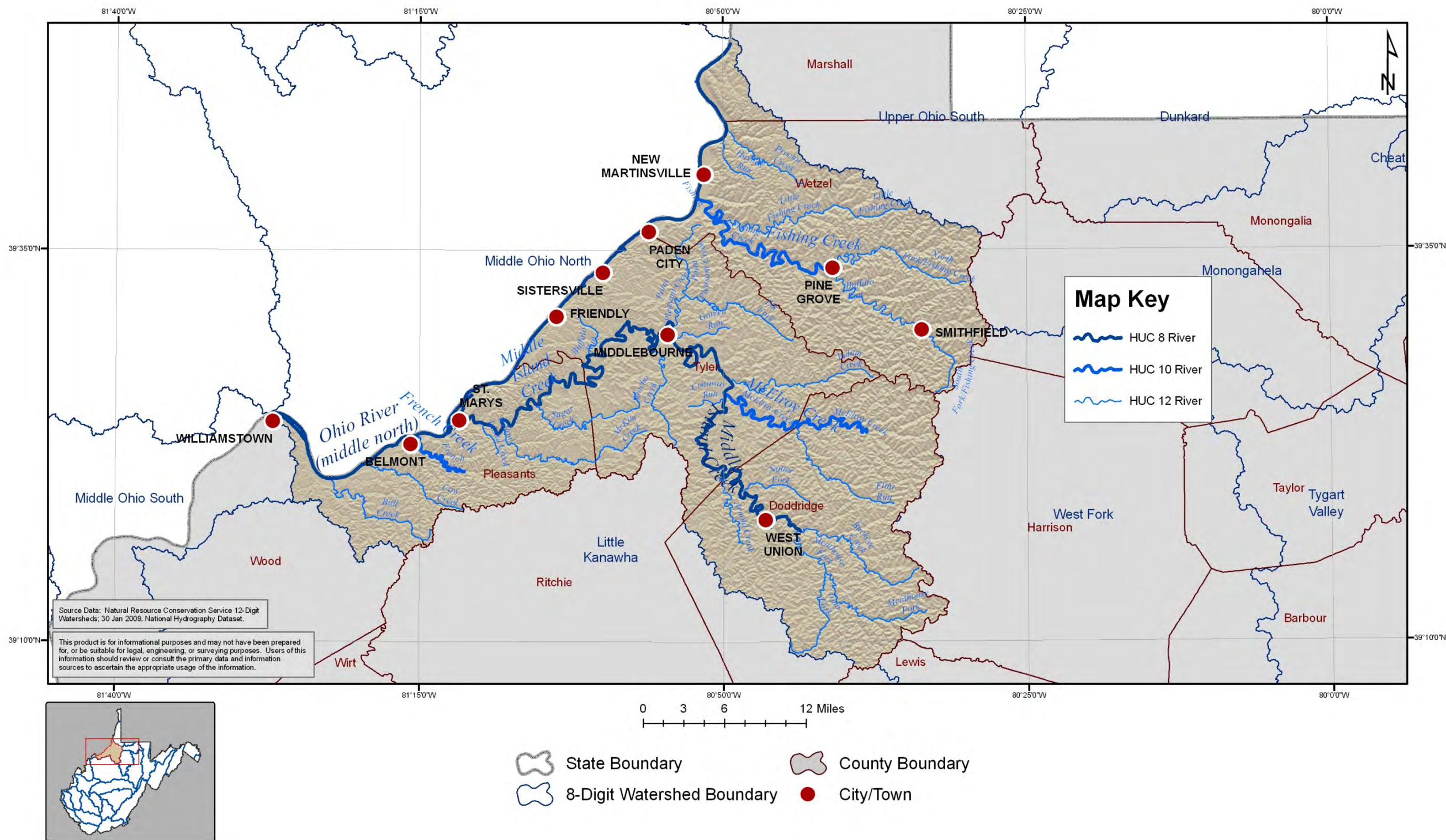
Middle Ohio North HUC-8 Watershed

Documented Springs



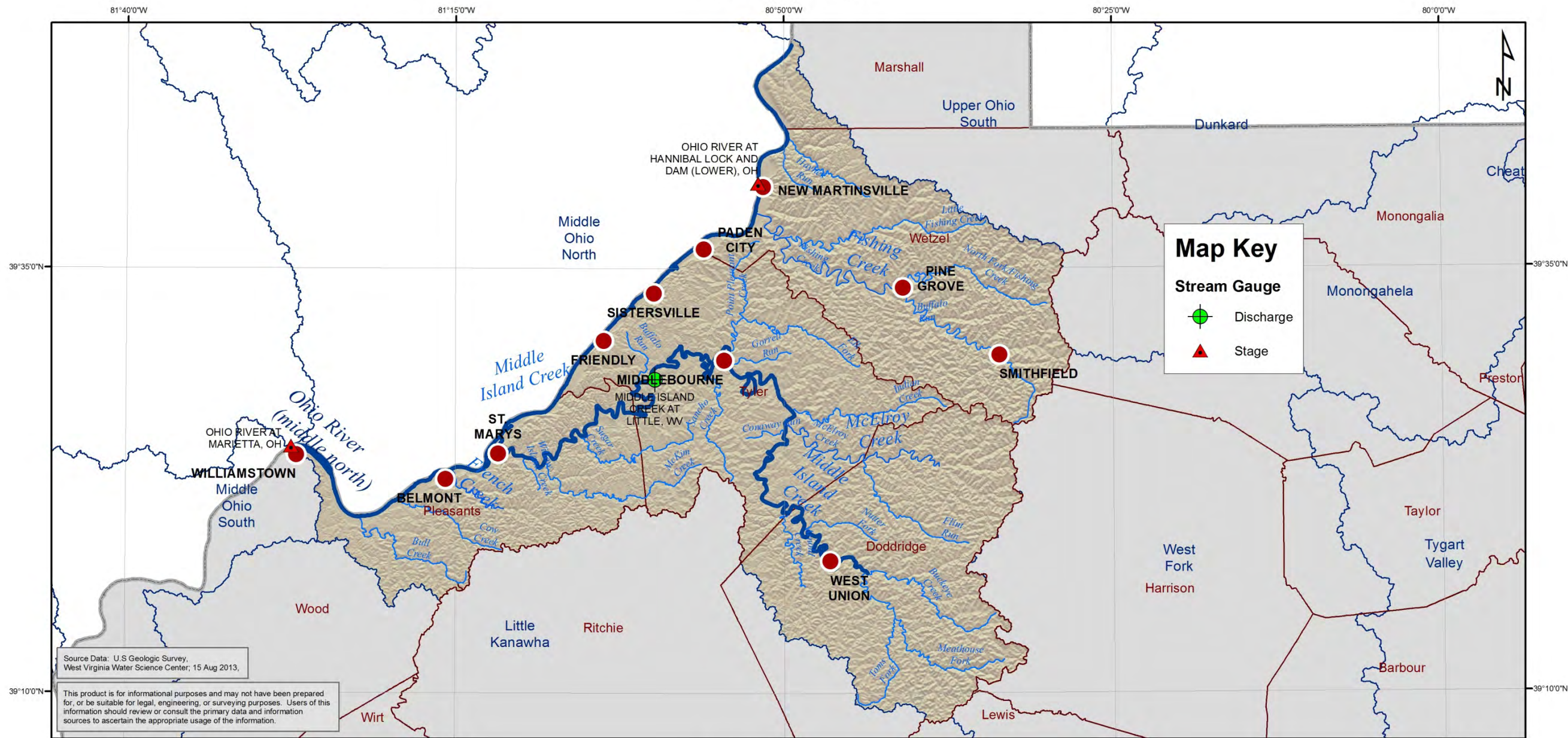
Middle Ohio North HUC-8 Watershed

Stream Connections



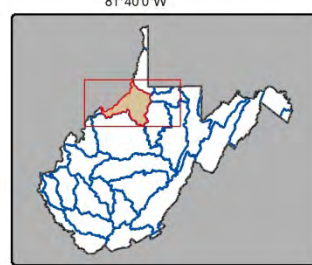
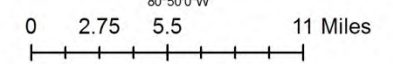
Middle Ohio North HUC-8 Watershed

Stream Gauges



Source Data: U.S. Geologic Survey, West Virginia Water Science Center, 15 Aug 2013.

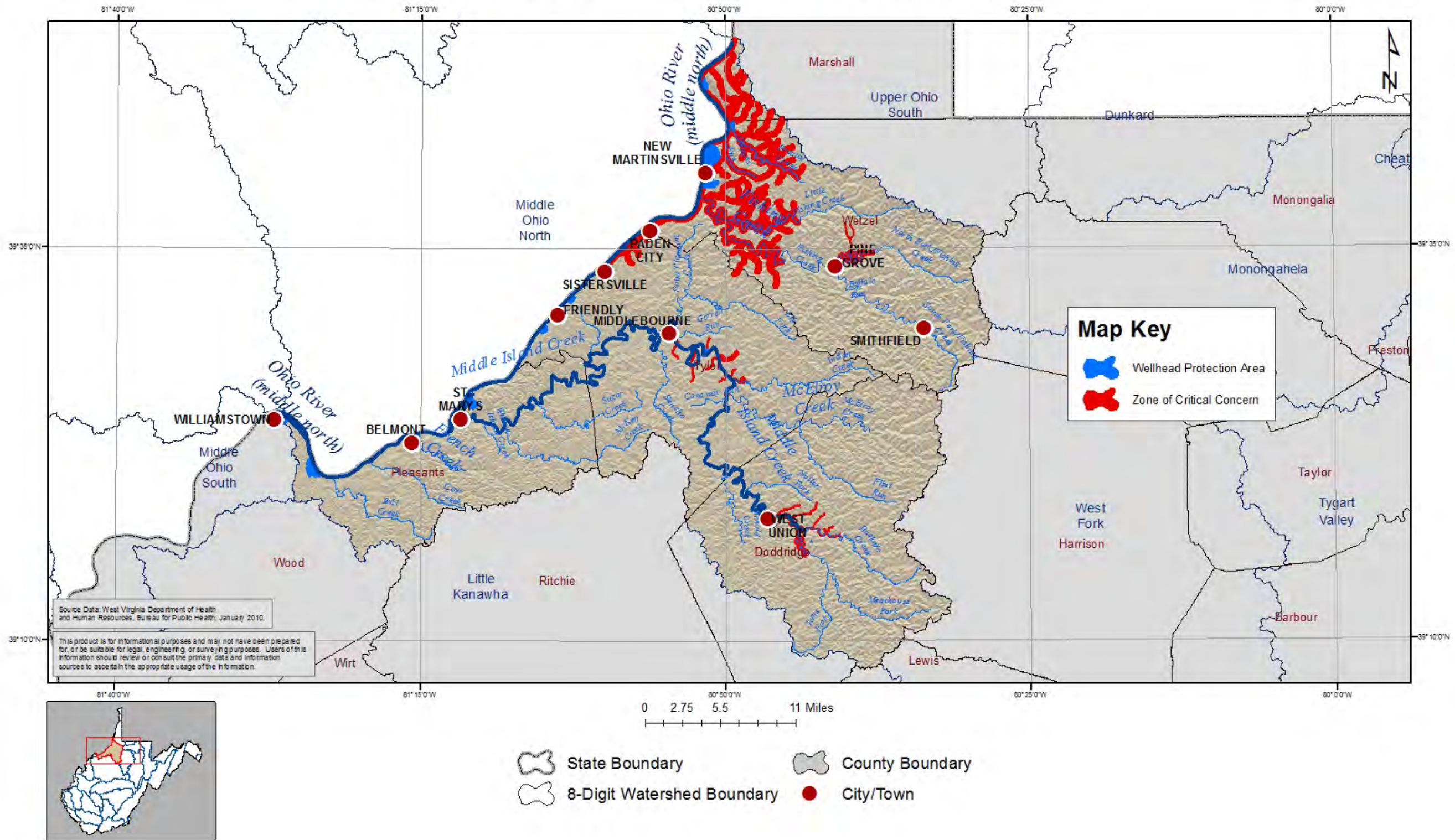
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- State Boundary
- 8-Digit Watershed Boundary
- County Boundary
- City/Town

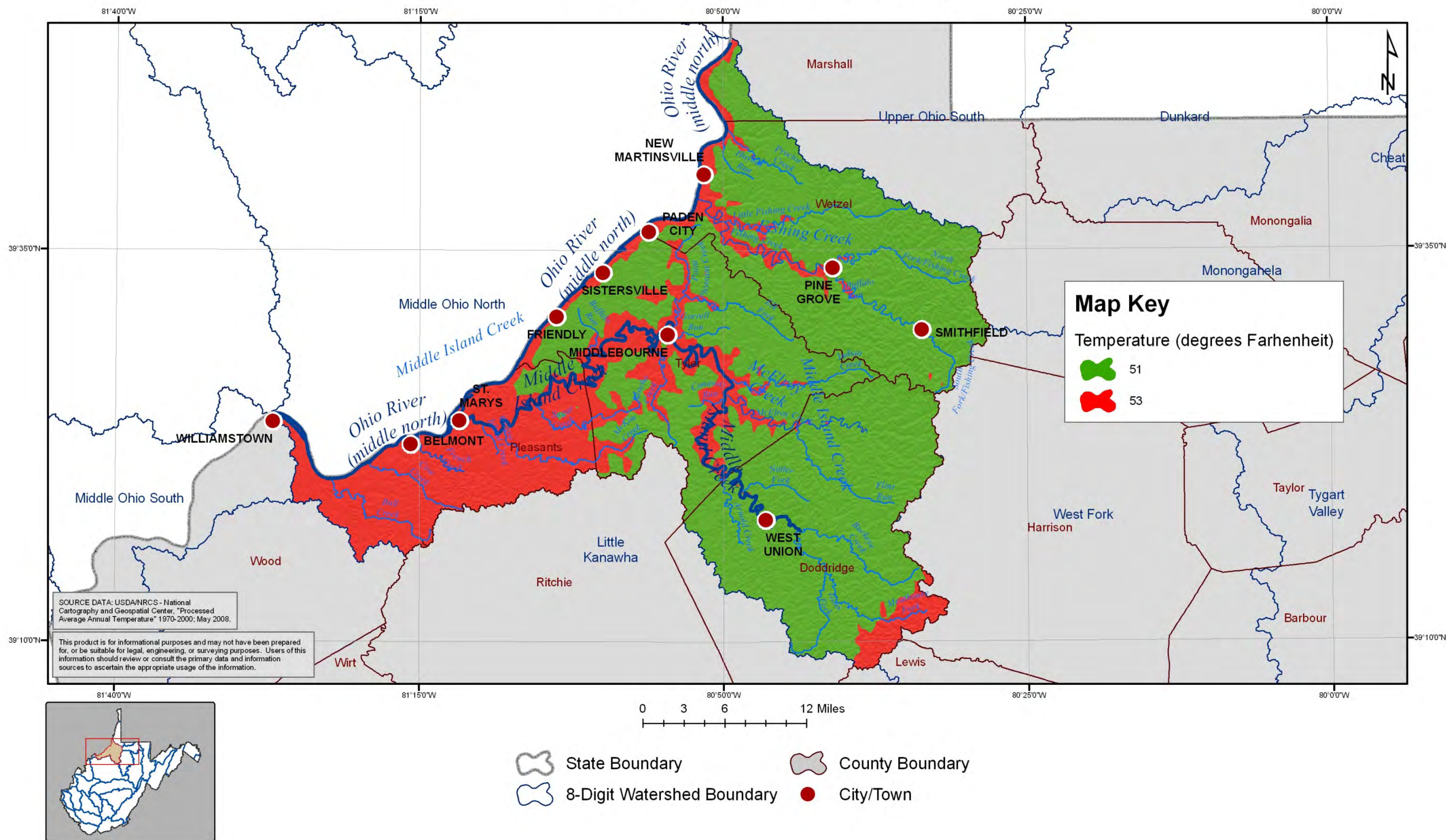
Middle Ohio North HUC-8 Watershed

Source Water Assessment and Wellhead Protection Programs

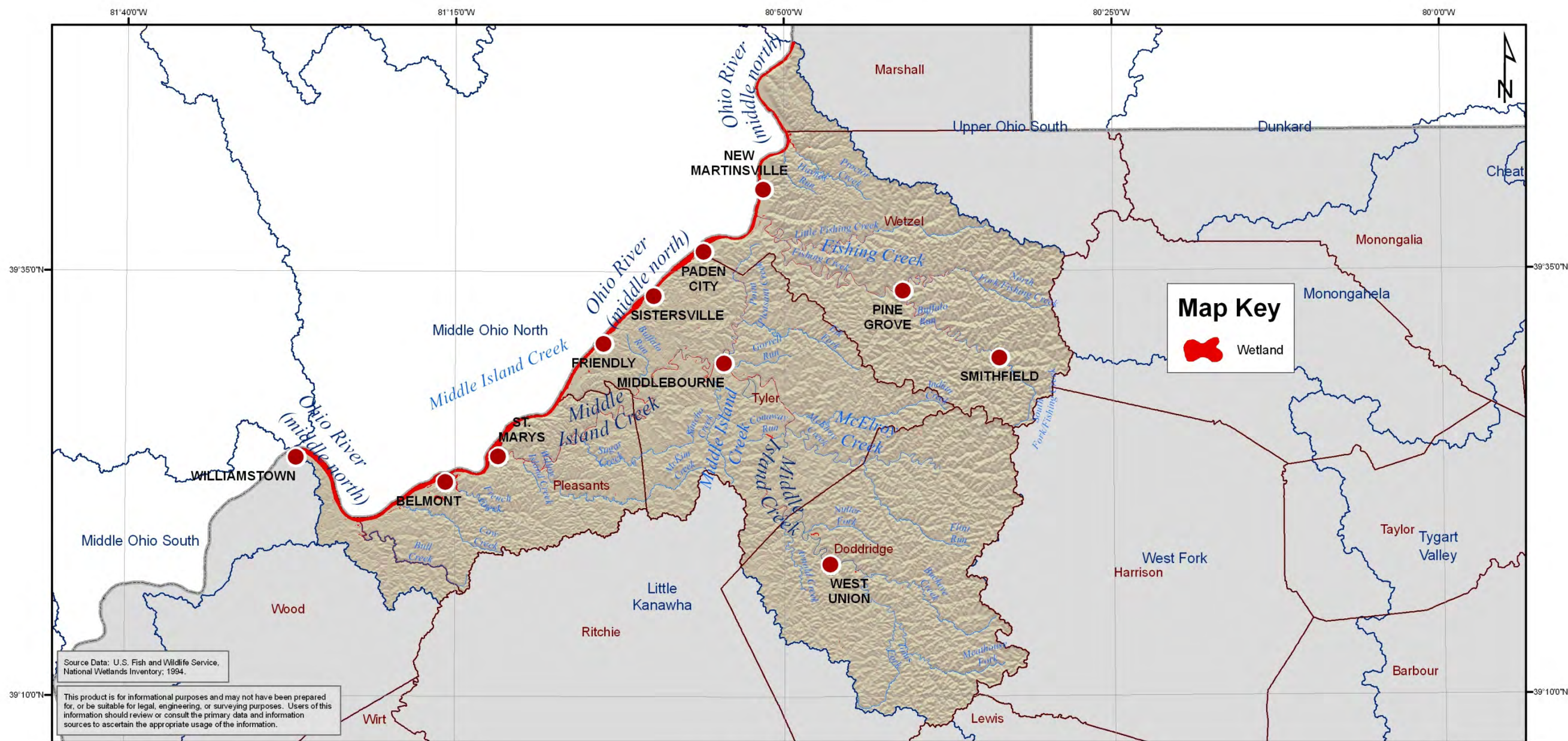


Middle Ohio North HUC-8 Watershed

Average Annual Temperature (1971-2000)

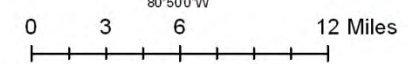
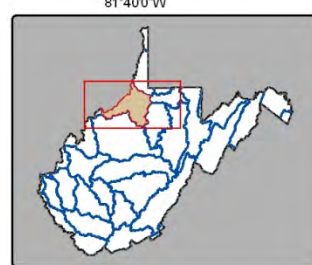


Middle Ohio North HUC-8 Watershed Wetlands



Source Data: U.S. Fish and Wildlife Service, National Wetlands Inventory; 1994.

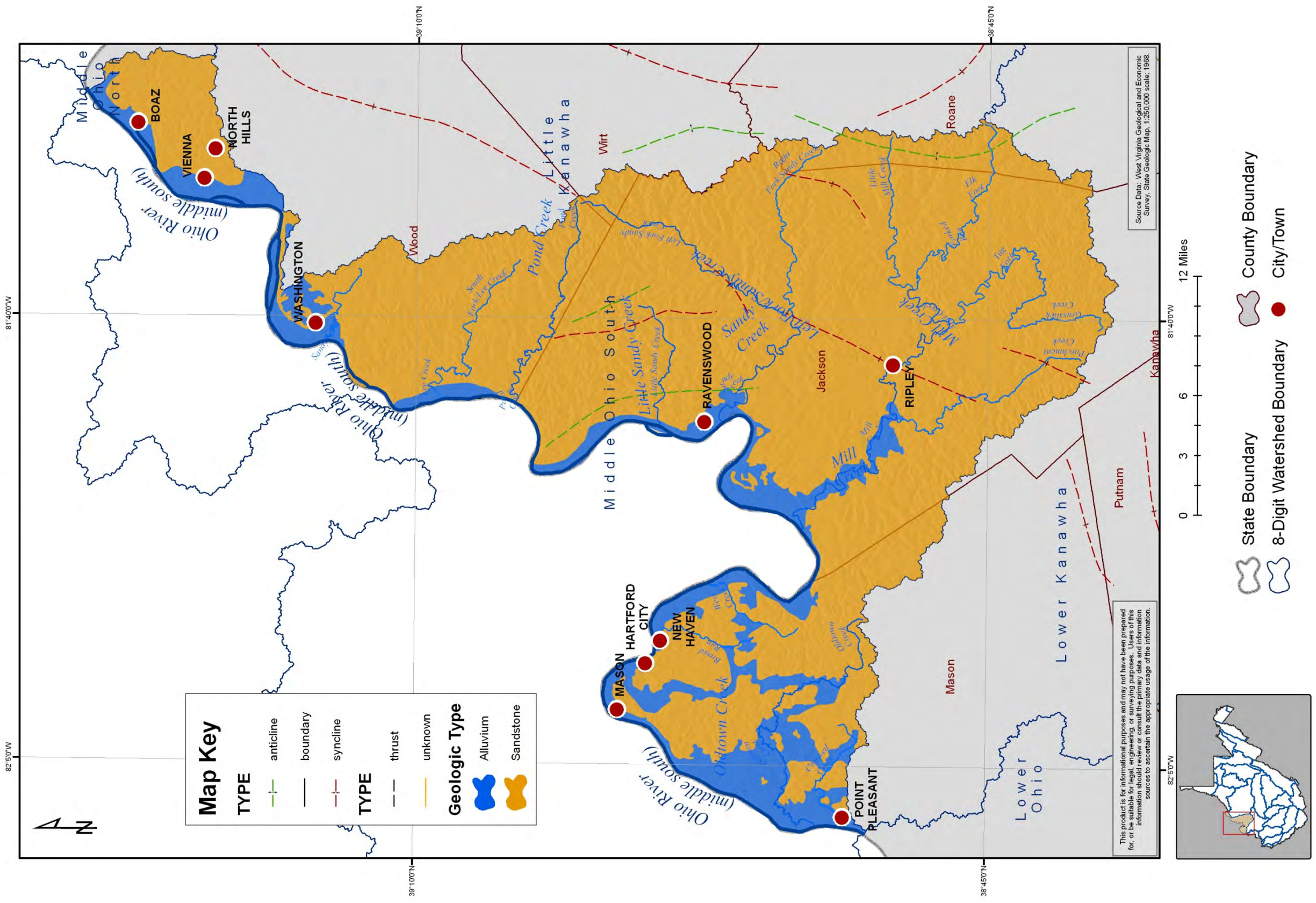
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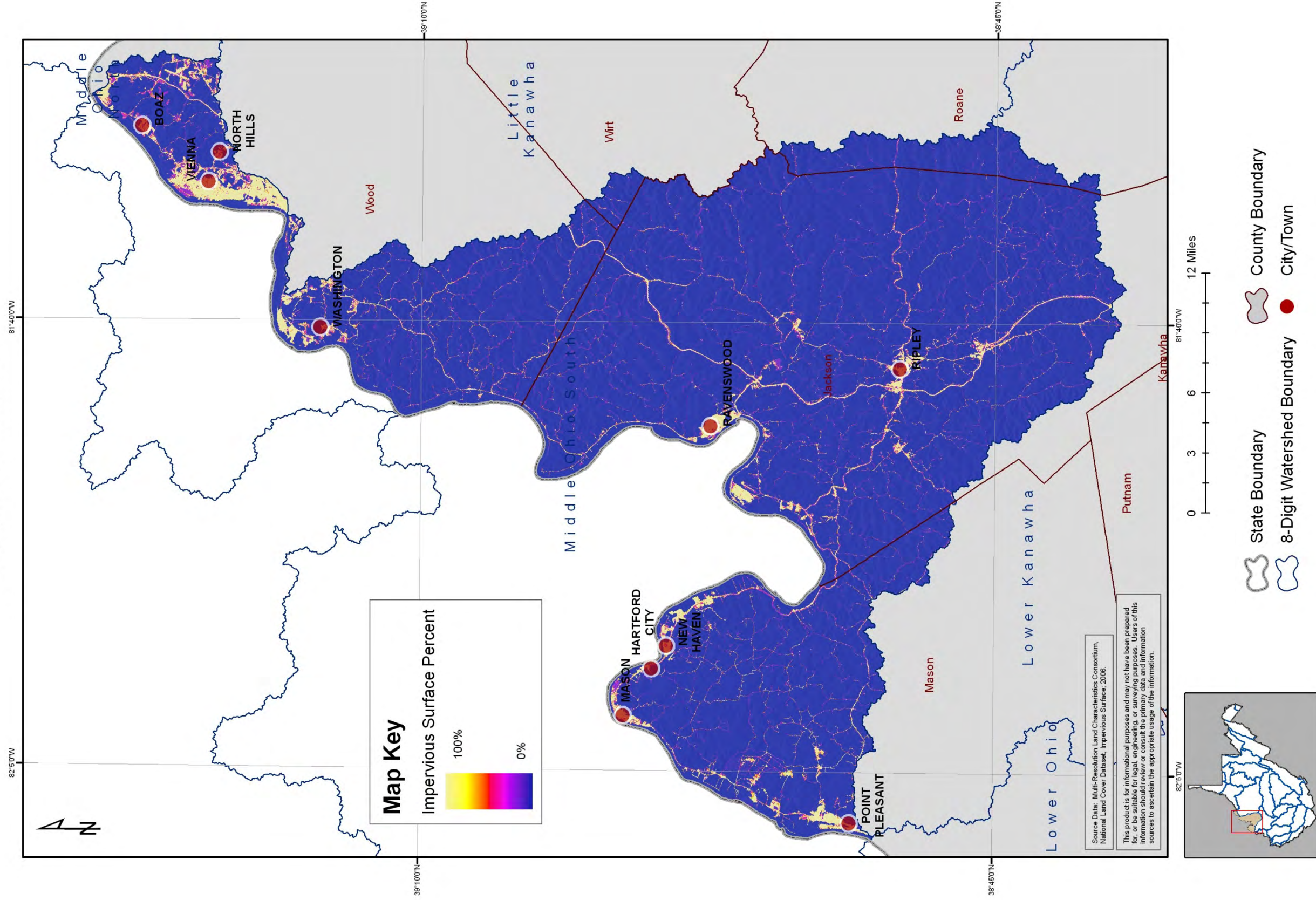
- State Boundary
- County Boundary
- 8-Digit Watershed Boundary
- City/Town
- Wetland

Middle Ohio South HUC-8 Watershed

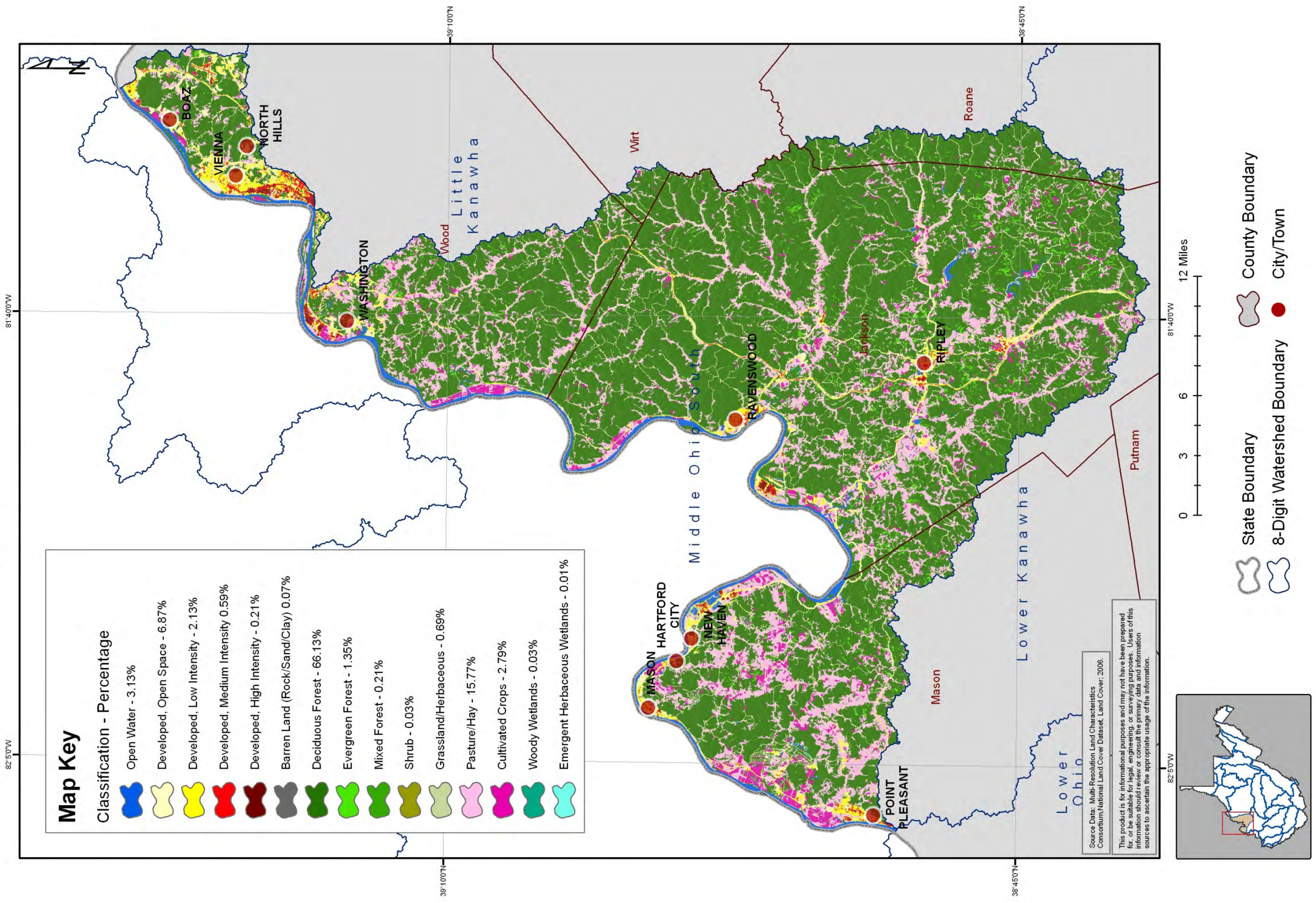
Surface Geology



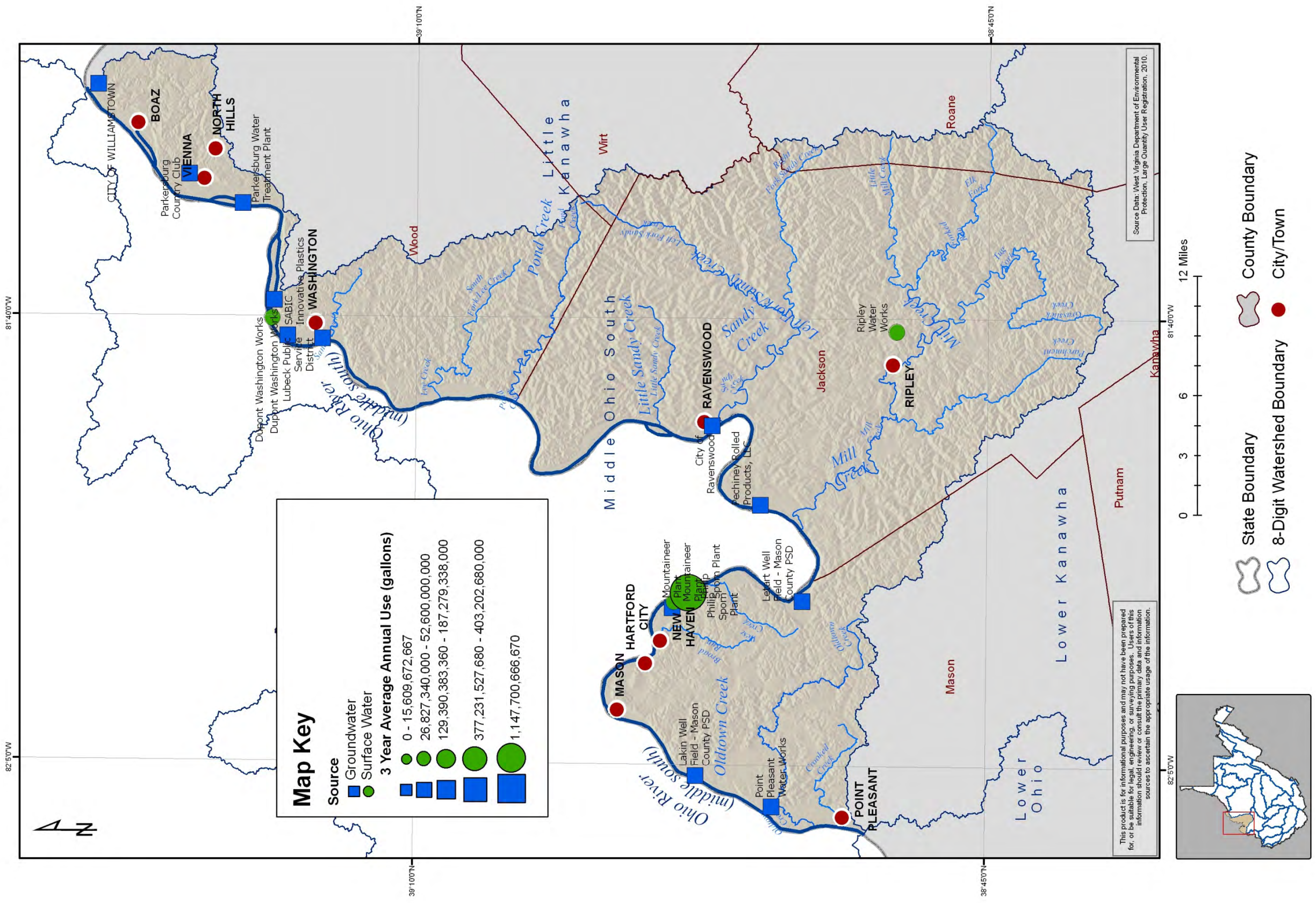
Middle Ohio South HUC-8 Watershed 2006 Impervious Surfaces



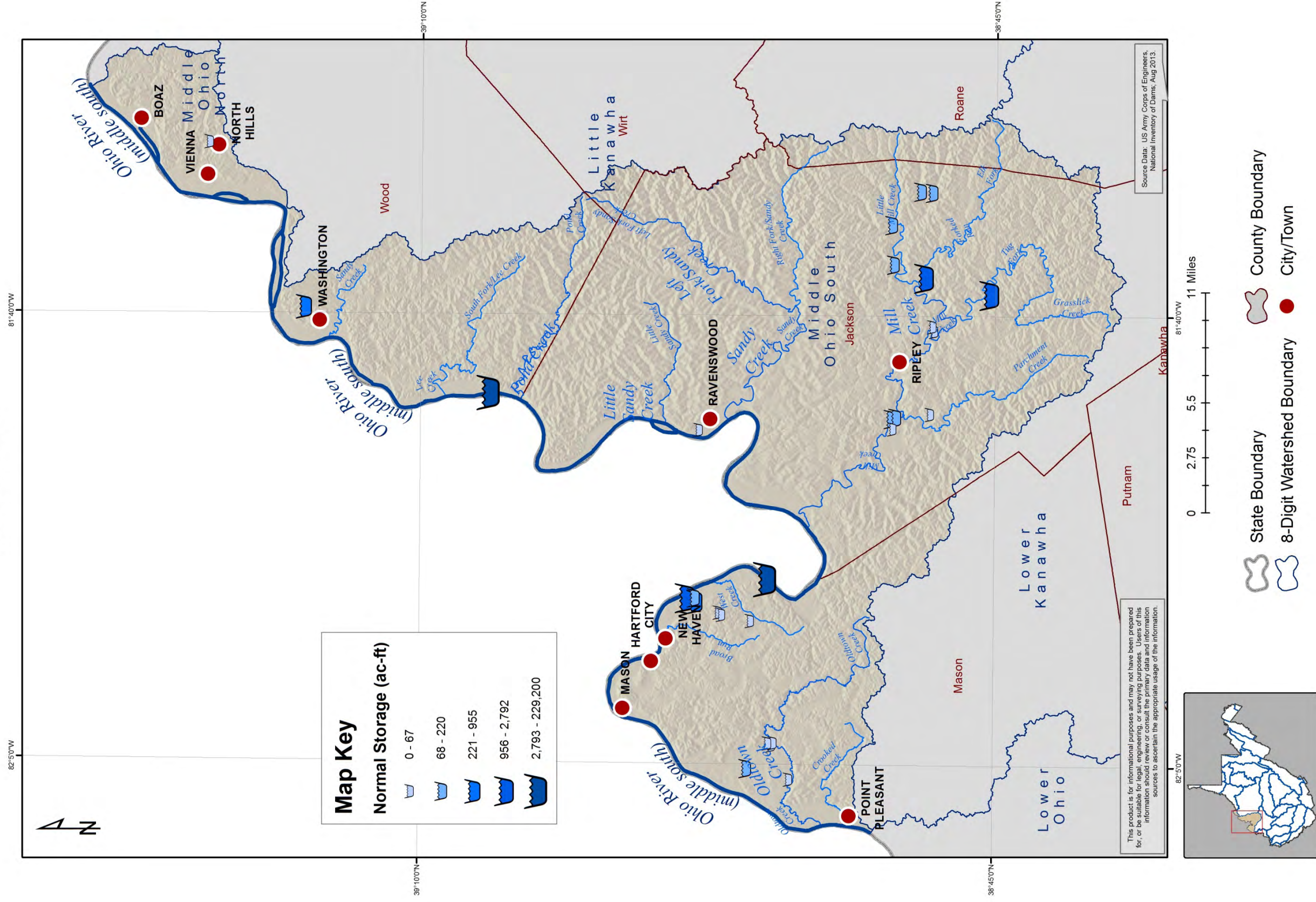
Middle Ohio South HUC-8 Watershed 2006 Land Cover



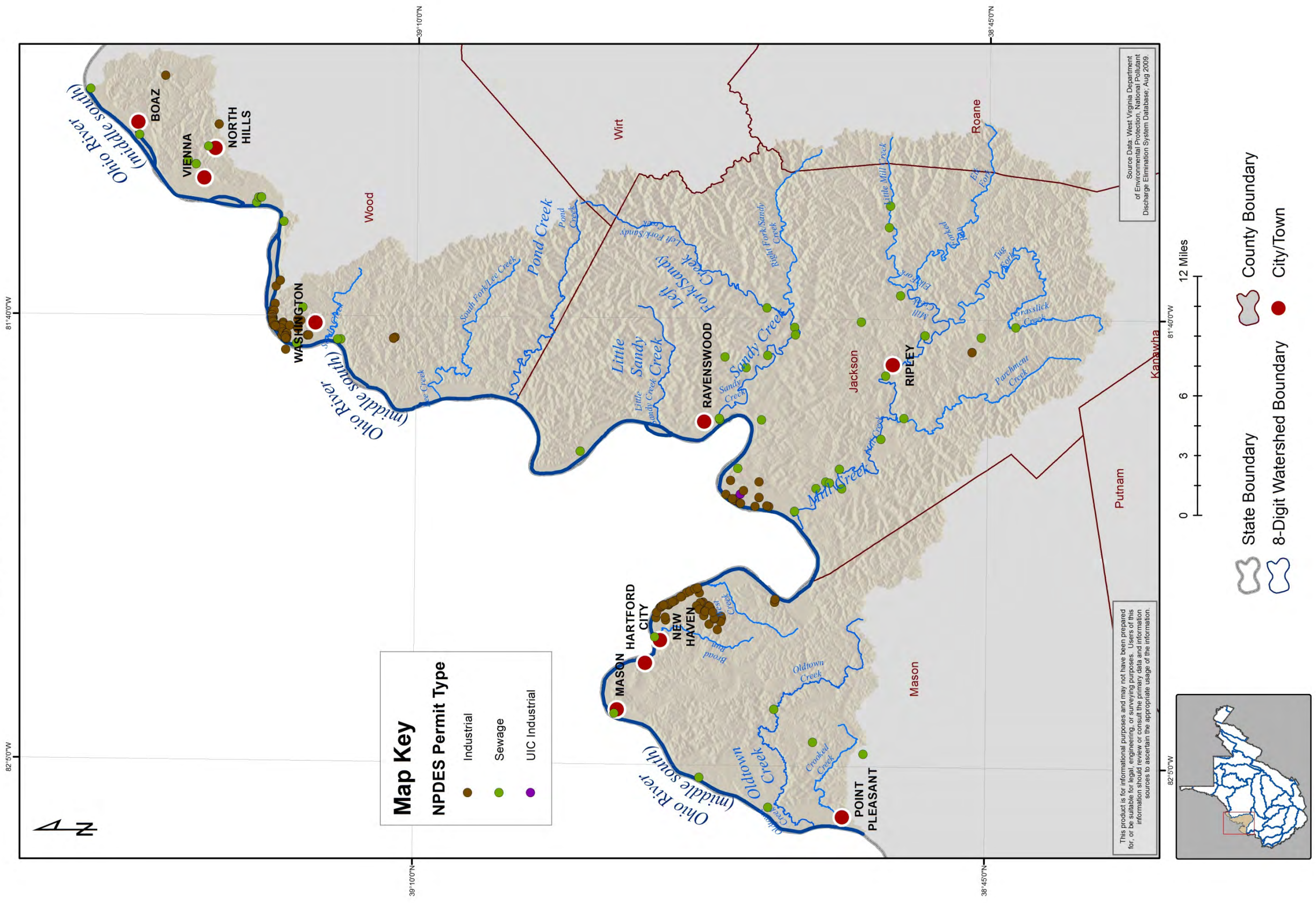
Middle Ohio South HUC-8 Watershed Large Quantity Users



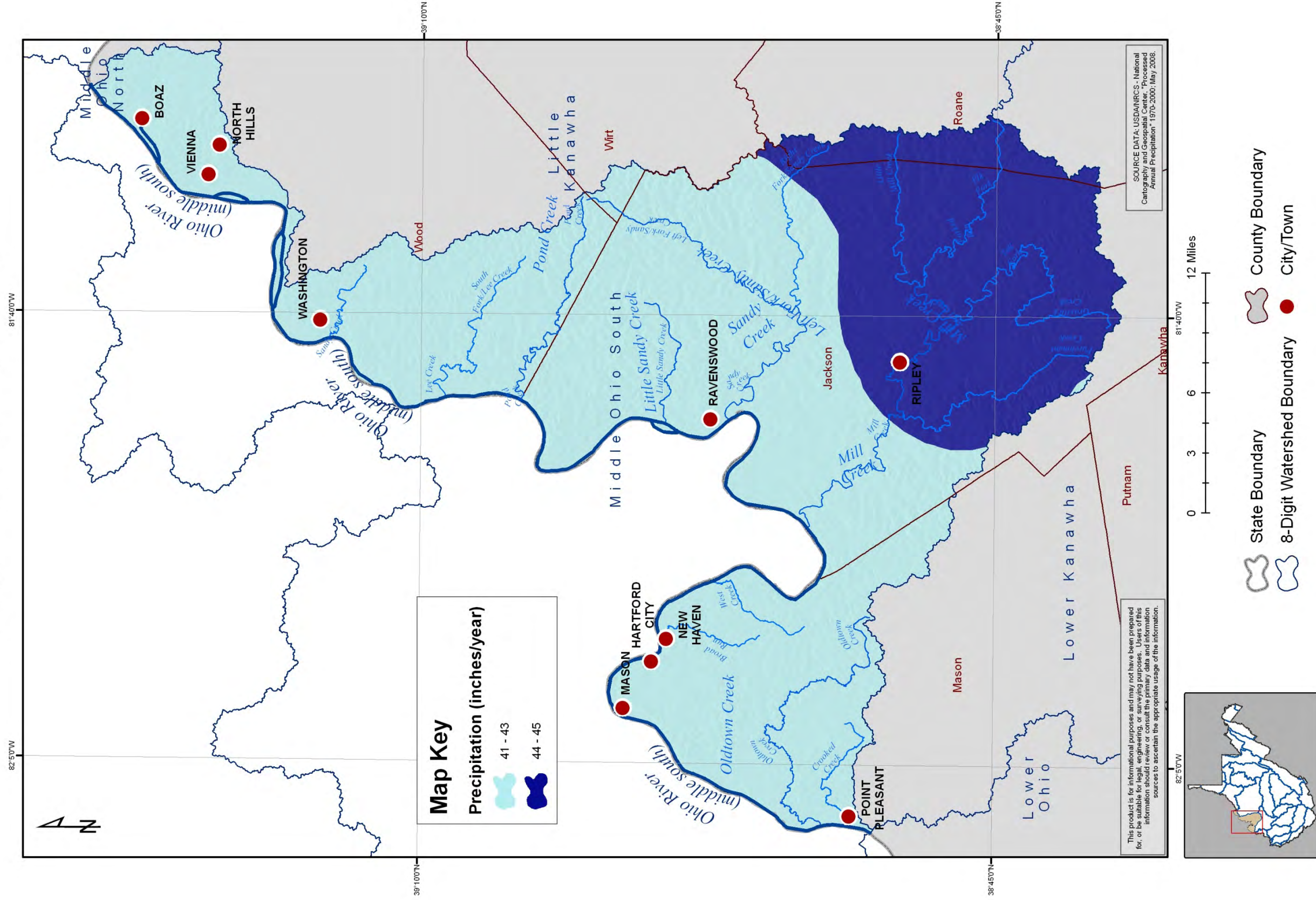
Middle Ohio South HUC-8 Watershed Permitted Dams



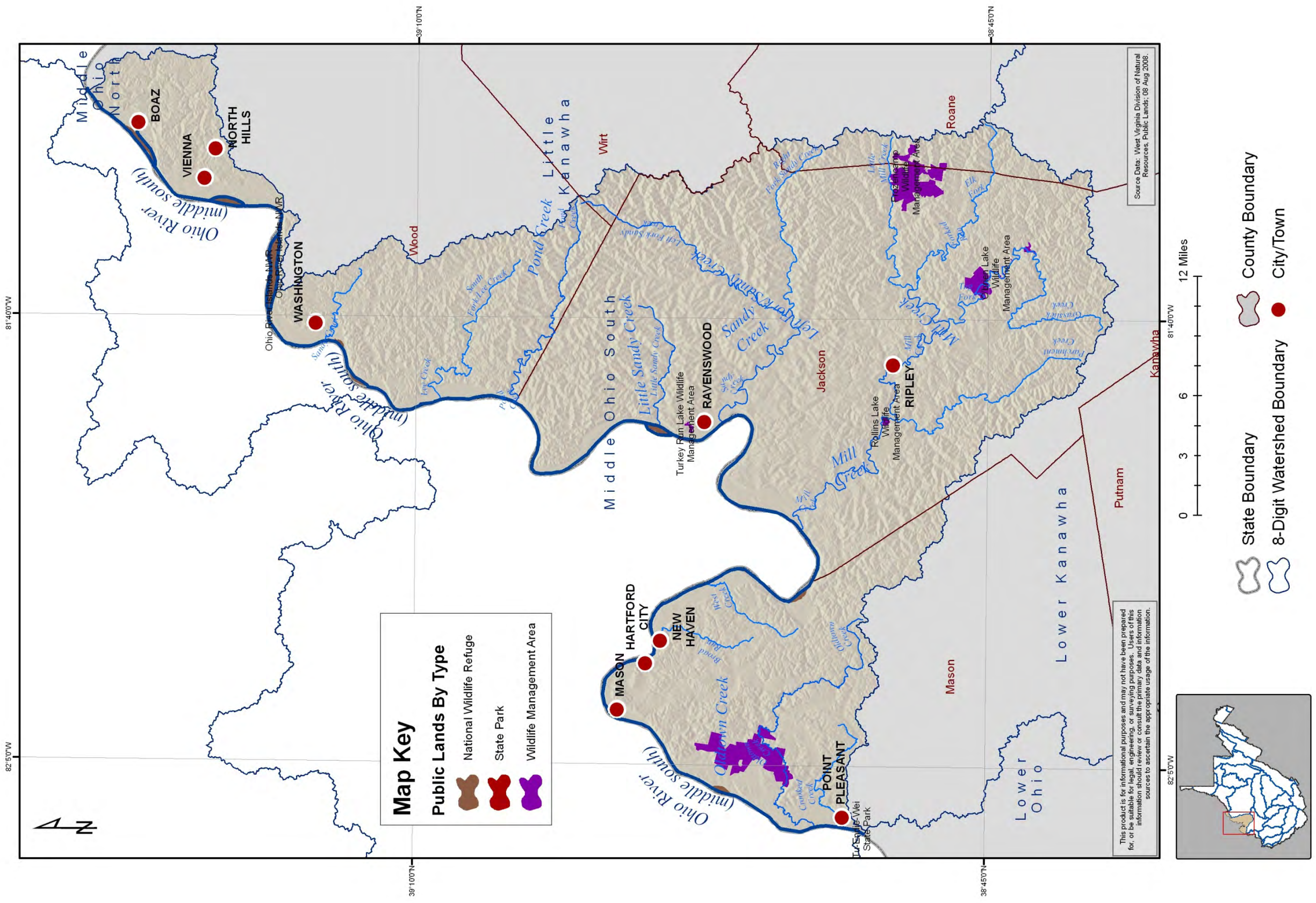
Middle Ohio South HUC-8 Watershed Non-Mining NPDES Outlets



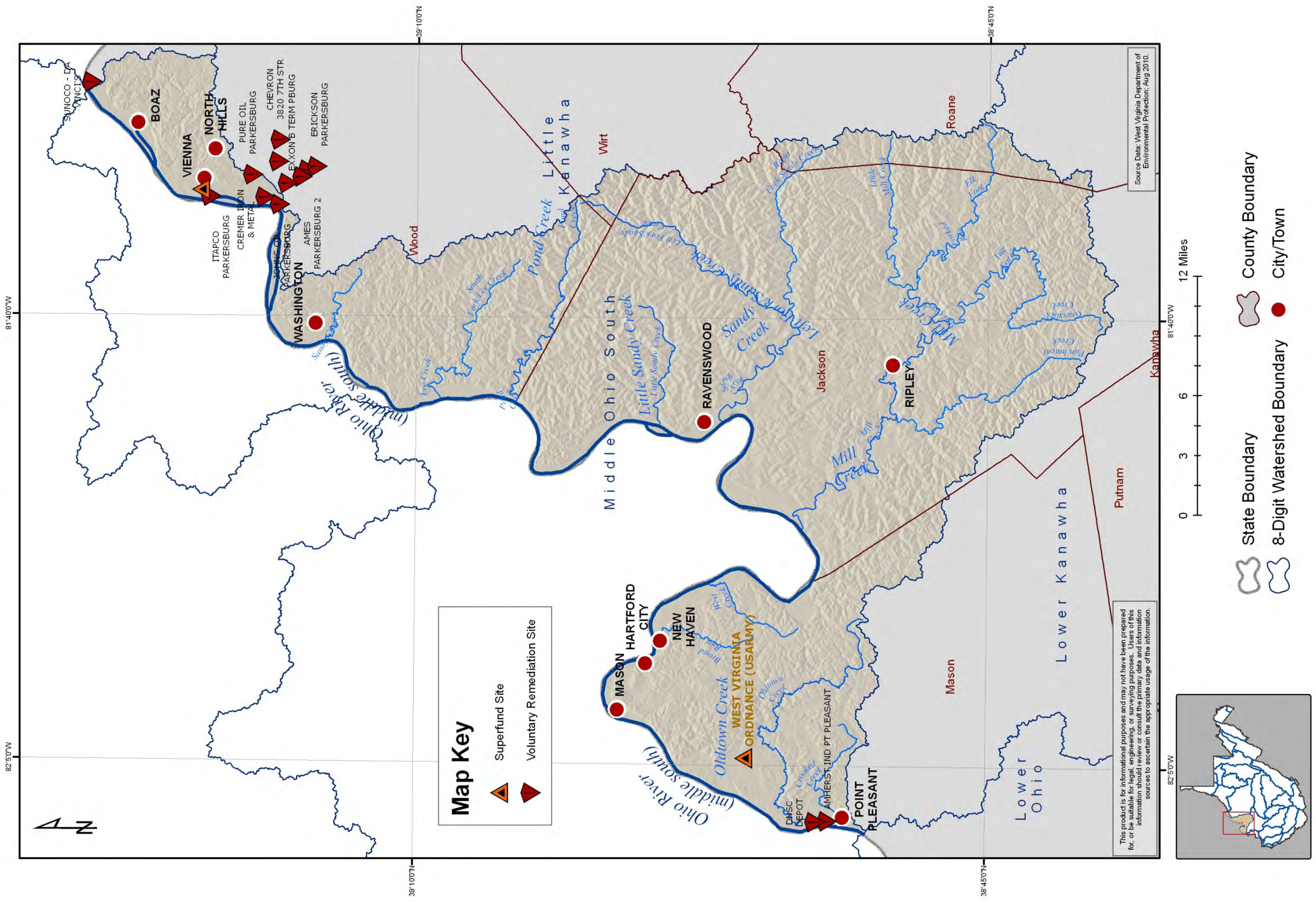
Middle Ohio South HUC-8 Watershed Average Annual Precipitation (1971-2000)



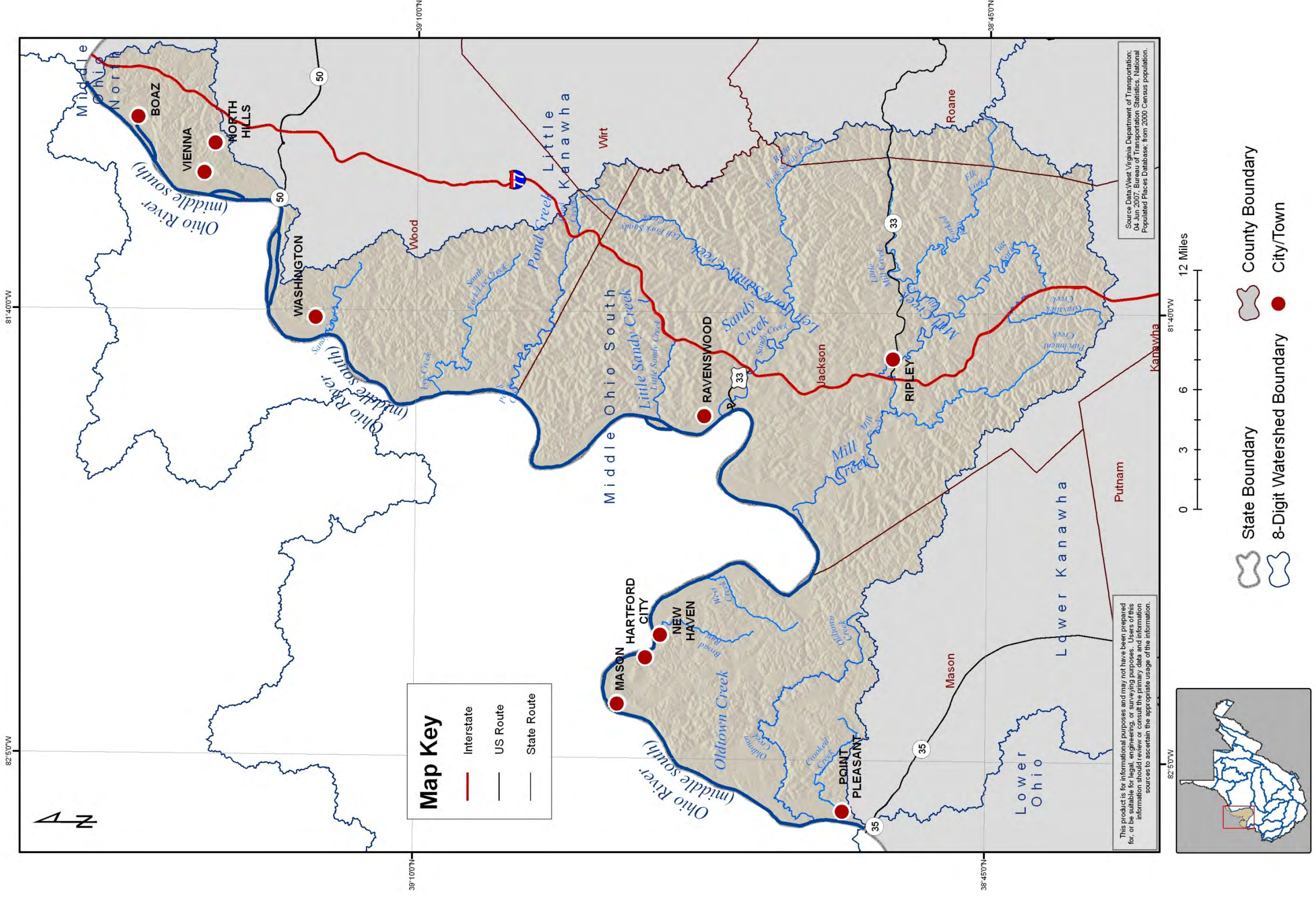
Middle Ohio South HUC-8 Watershed Public Lands



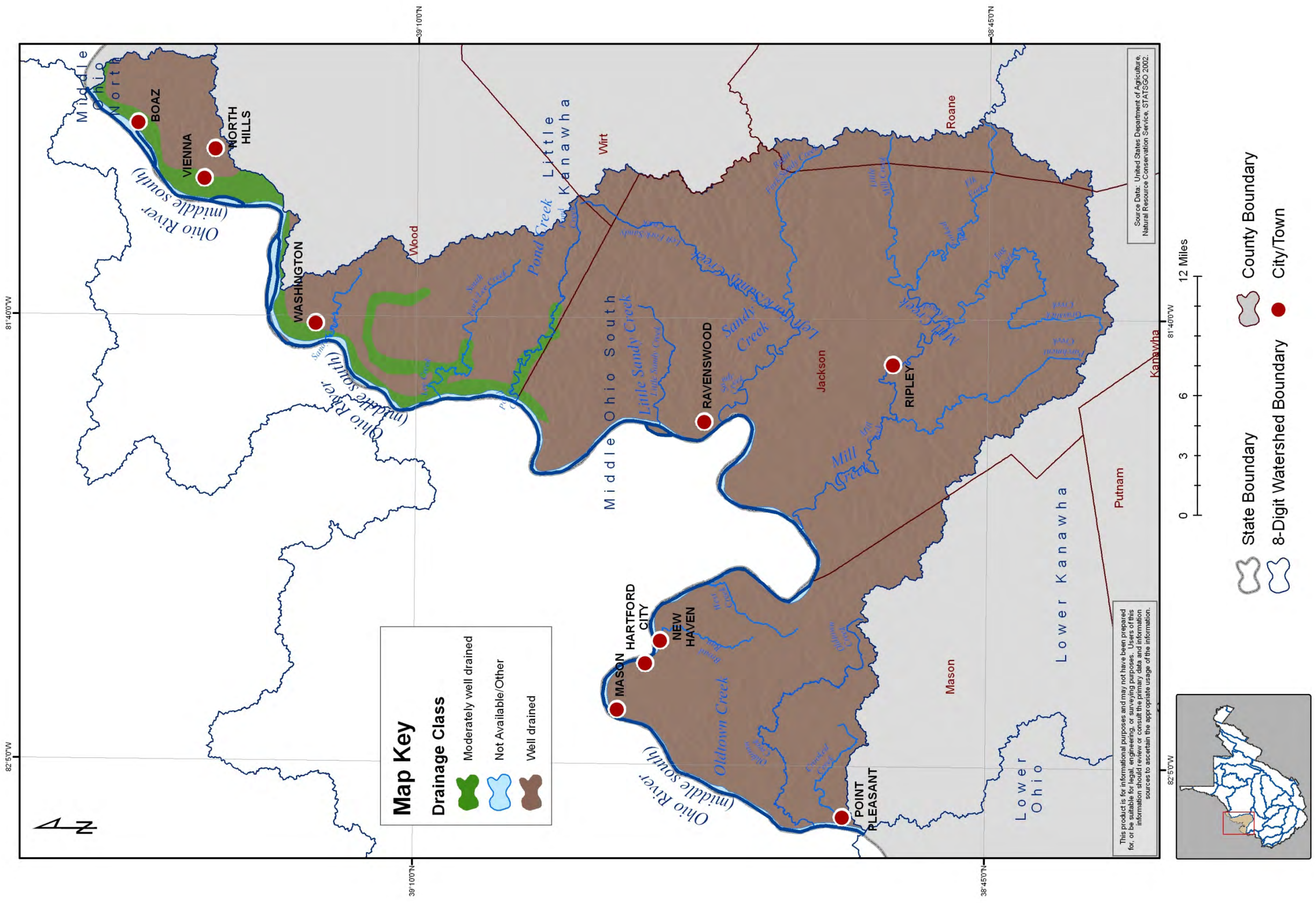
Middle Ohio South HUC-8 Watershed Remediation Sites



Middle Ohio South HUC-8 Watershed Major Roads and Cities

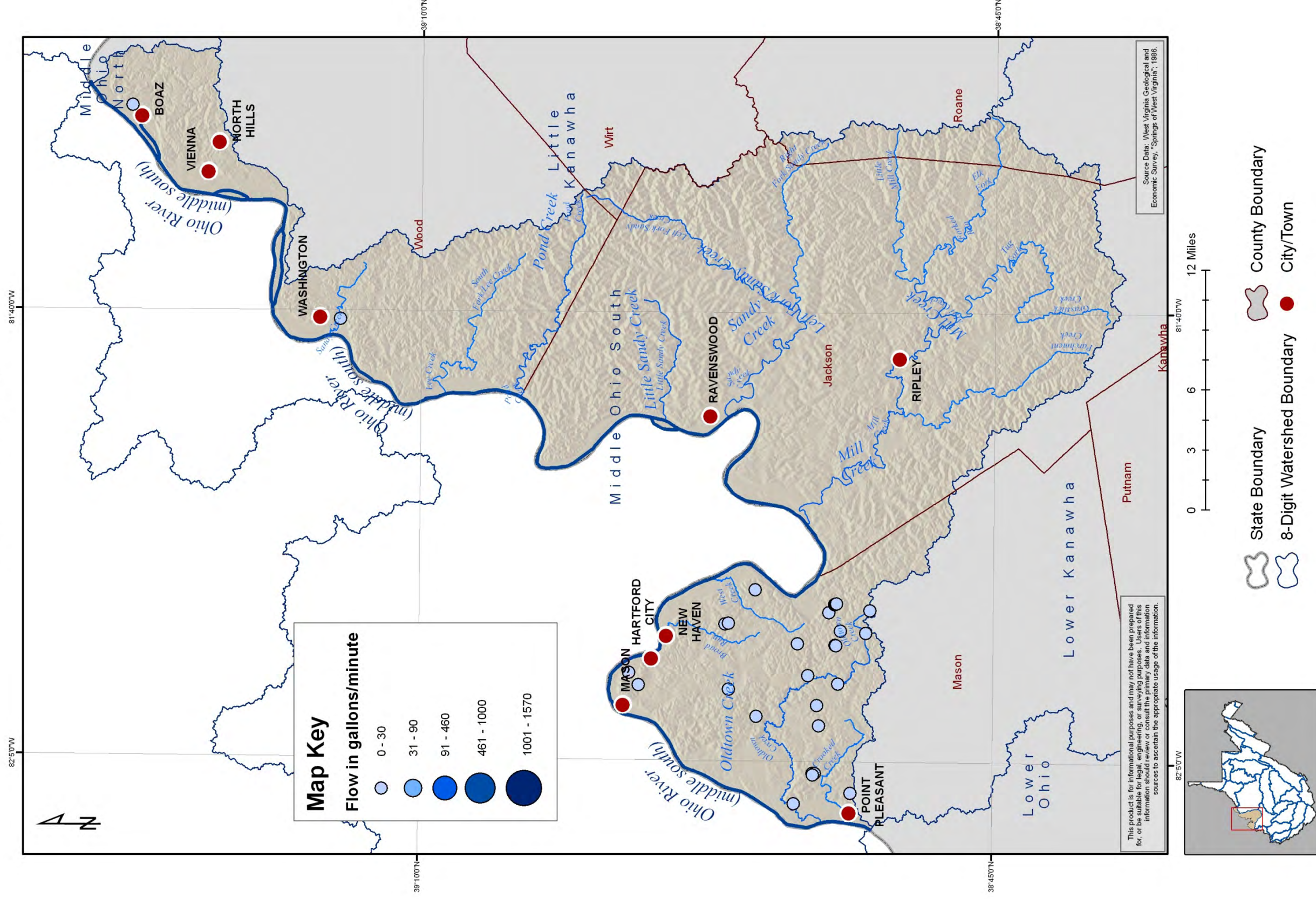


Middle Ohio South HUC-8 Watershed Soil Drainage Classes

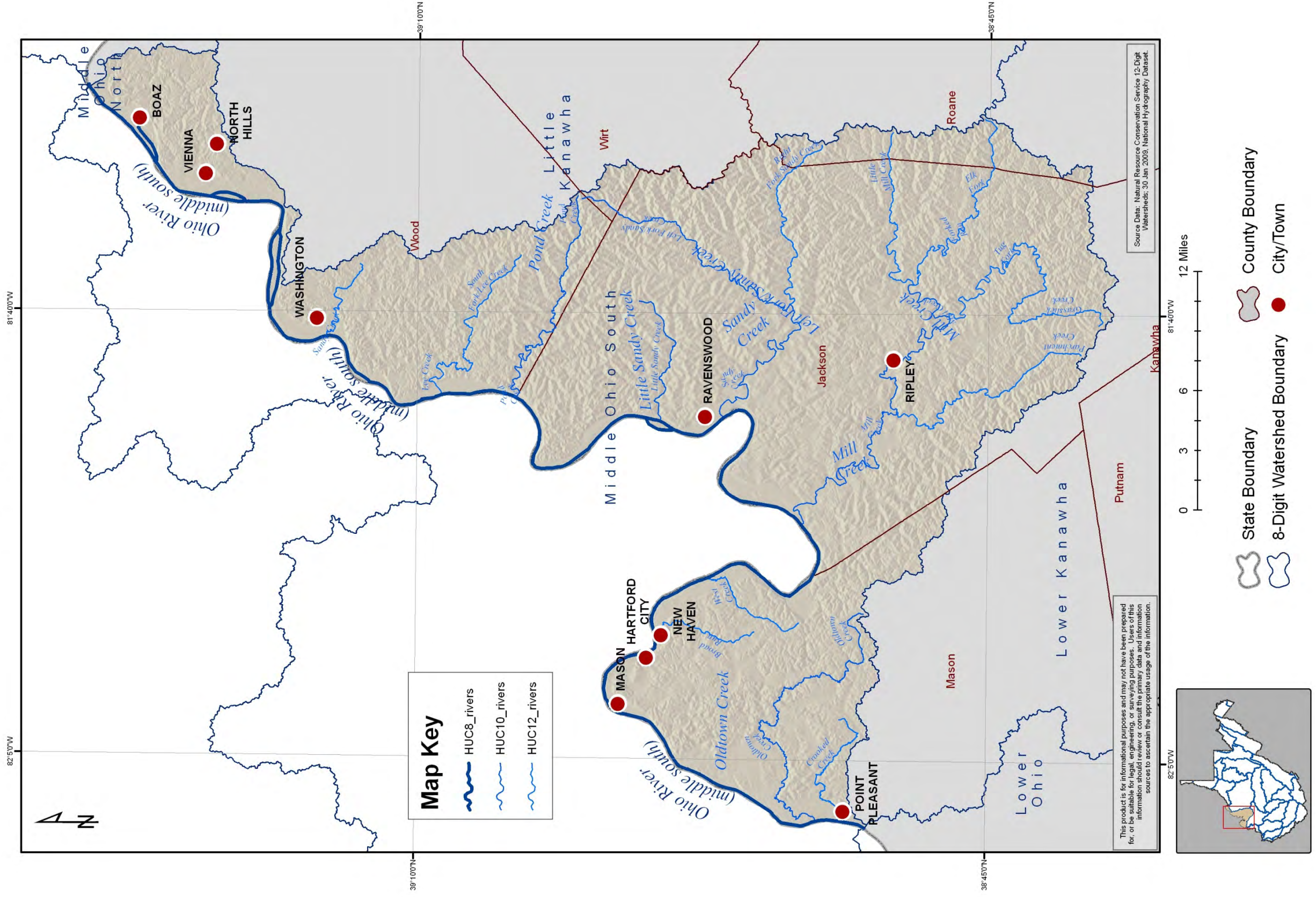


Middle Ohio South HUC-8 Watershed

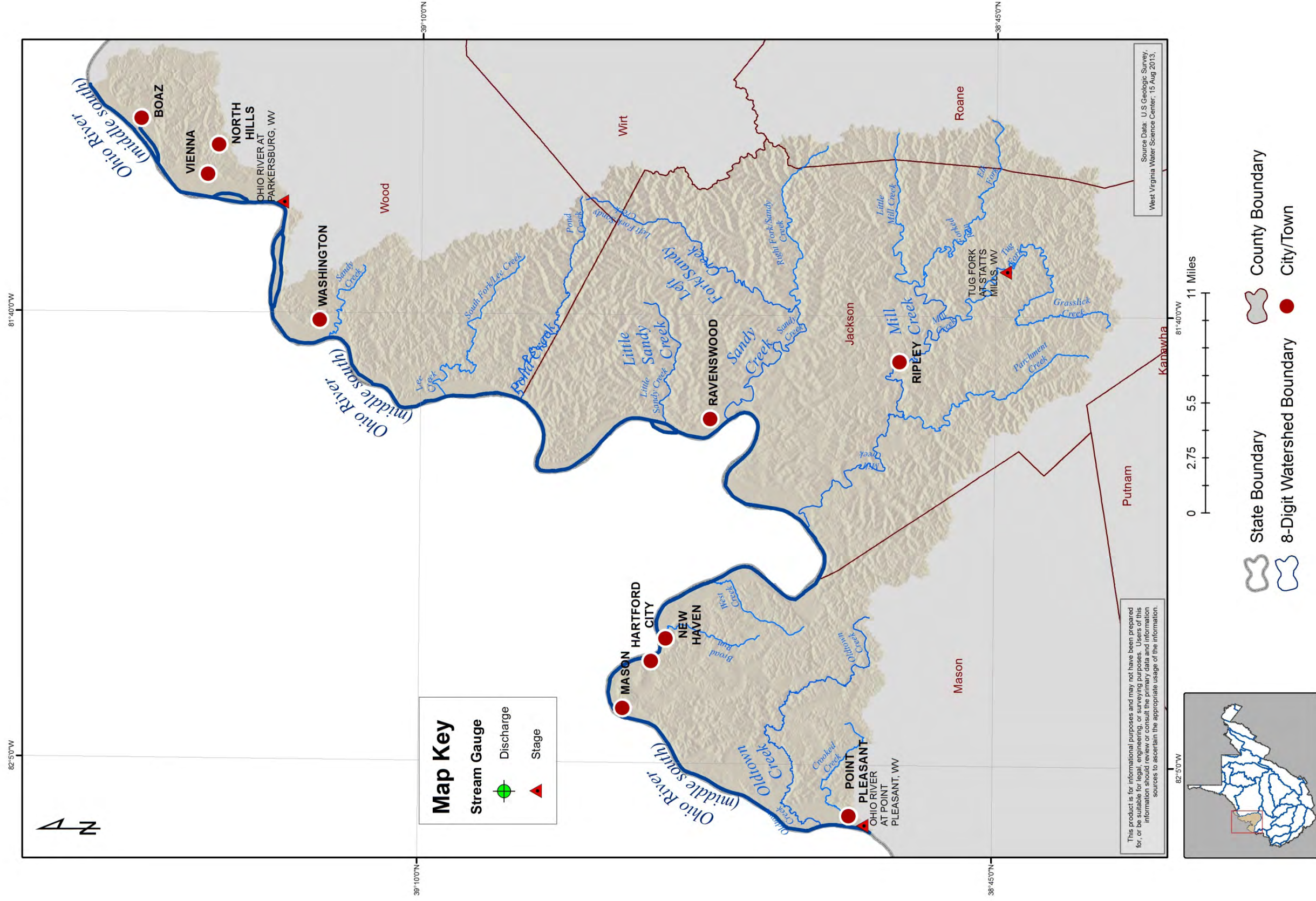
Documented Springs



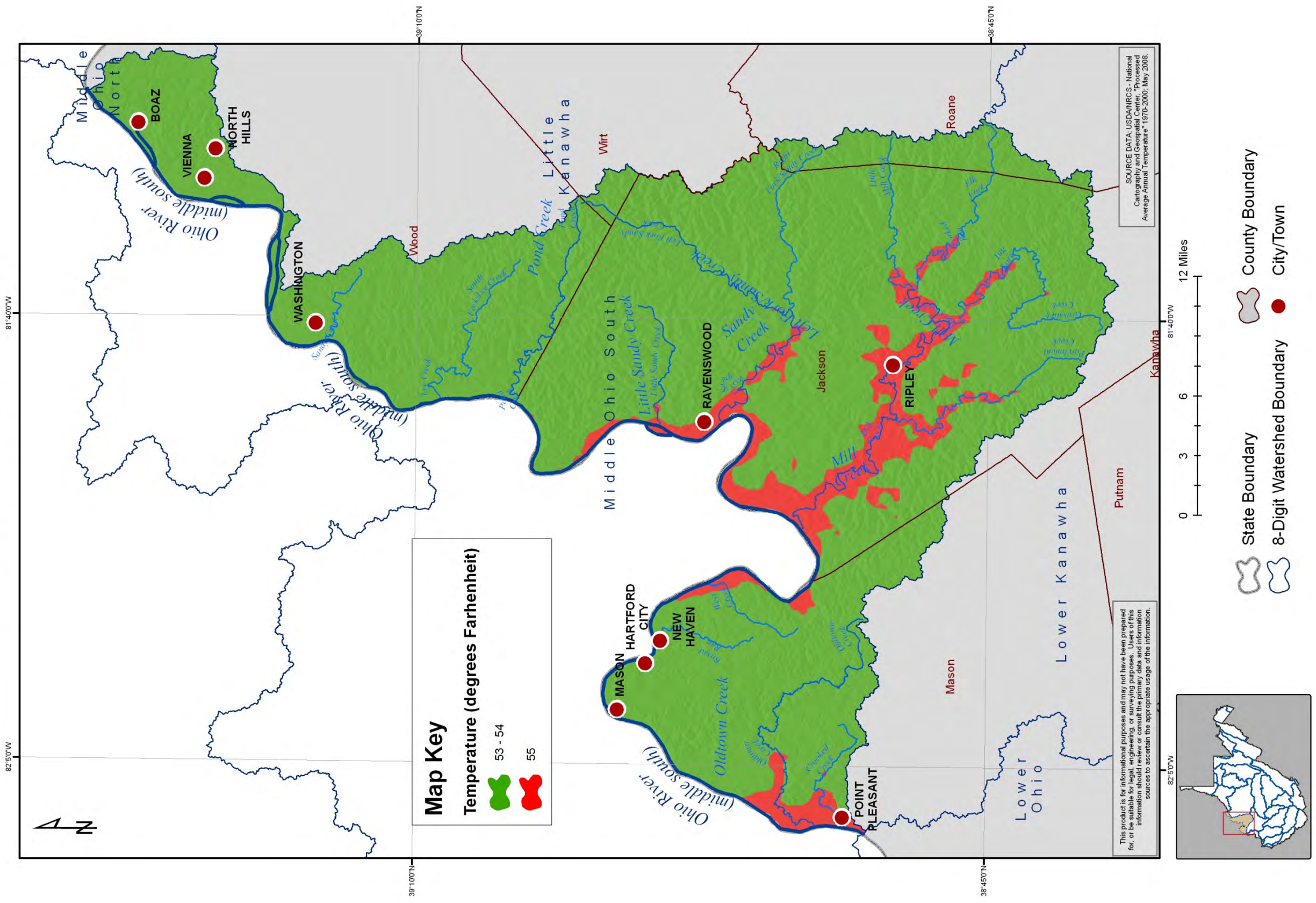
Middle Ohio South HUC-8 Watershed Stream Connections



Middle Ohio South HUC-8 Watershed Stream Gauges

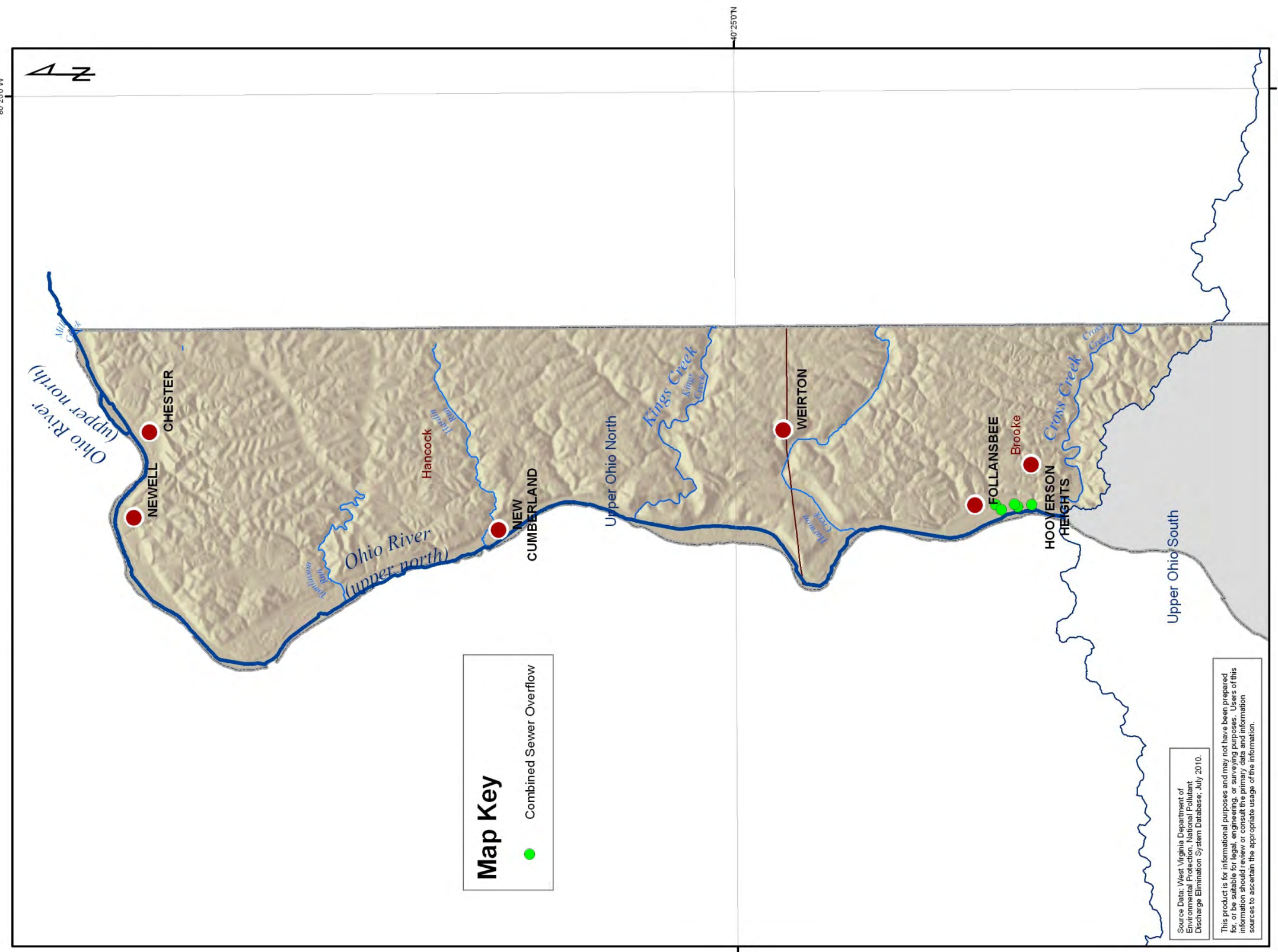


Middle Ohio South HUC-8 Watershed Average Annual Temperature (1971-2000)



Upper Ohio North HUC-8 Watershed

Combined Sewer Overflows

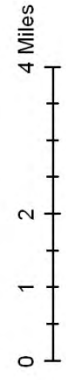


Map Key

- Combined Sewer Overflow

Source Data: West Virginia Department of Environmental Protection, National Pollutant Discharge Elimination System Database, July 2010.

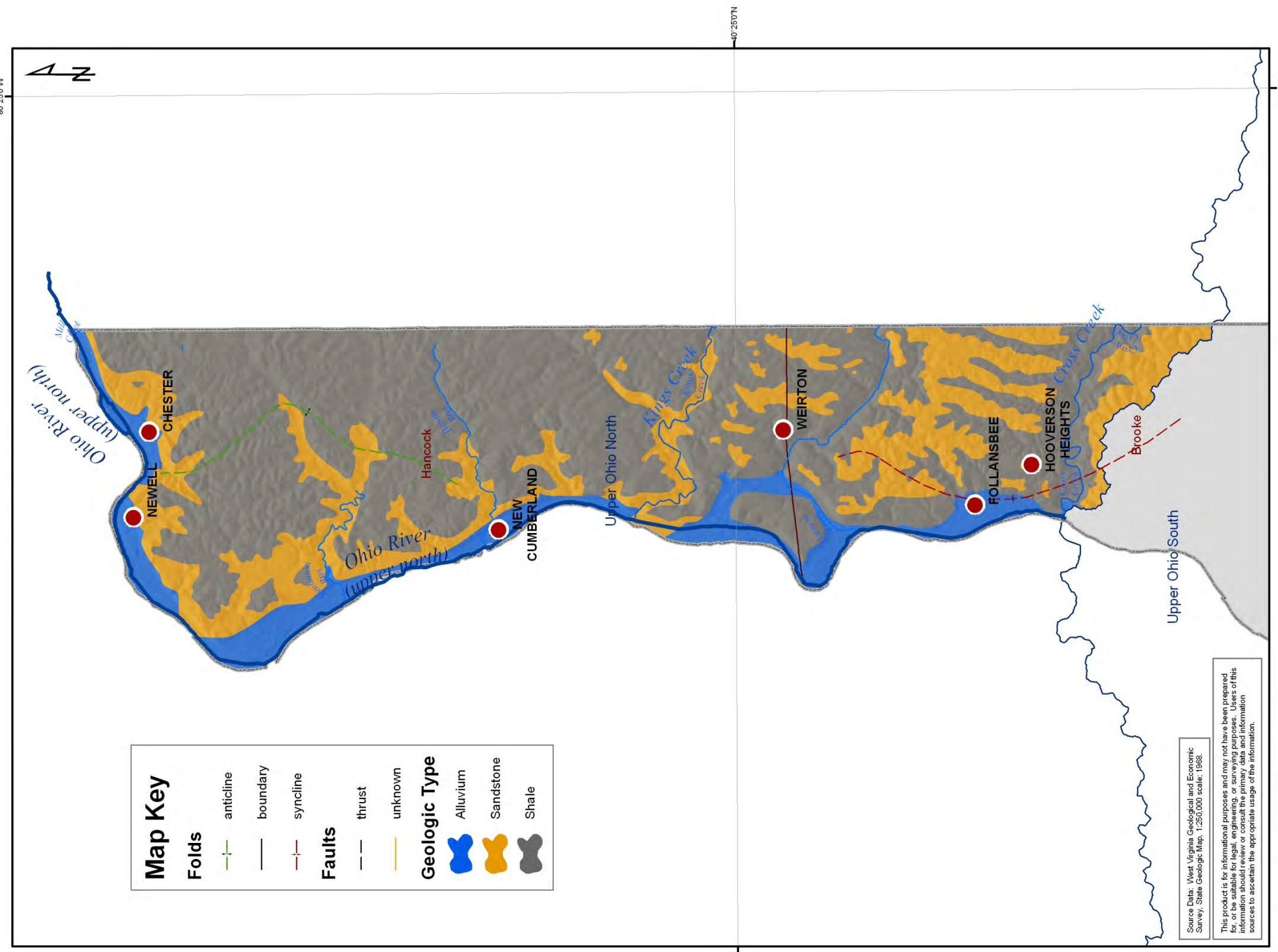
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- State Boundary
- 8-Digit Watershed Boundary
- County Boundary
- City/Town

Upper Ohio North HUC-8 Watershed

Surface Geology



Map Key

Folds

- +— anticline
- boundary
- |— syncline

Faults

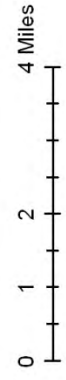
- |— thrust
- |— unknown

Geologic Type

- Alluvium (blue)
- Sandstone (yellow)
- Shale (grey)

Source Data: West Virginia Geological and Economic Survey, State Geologic Map, 1:250,000 scale, 1968.

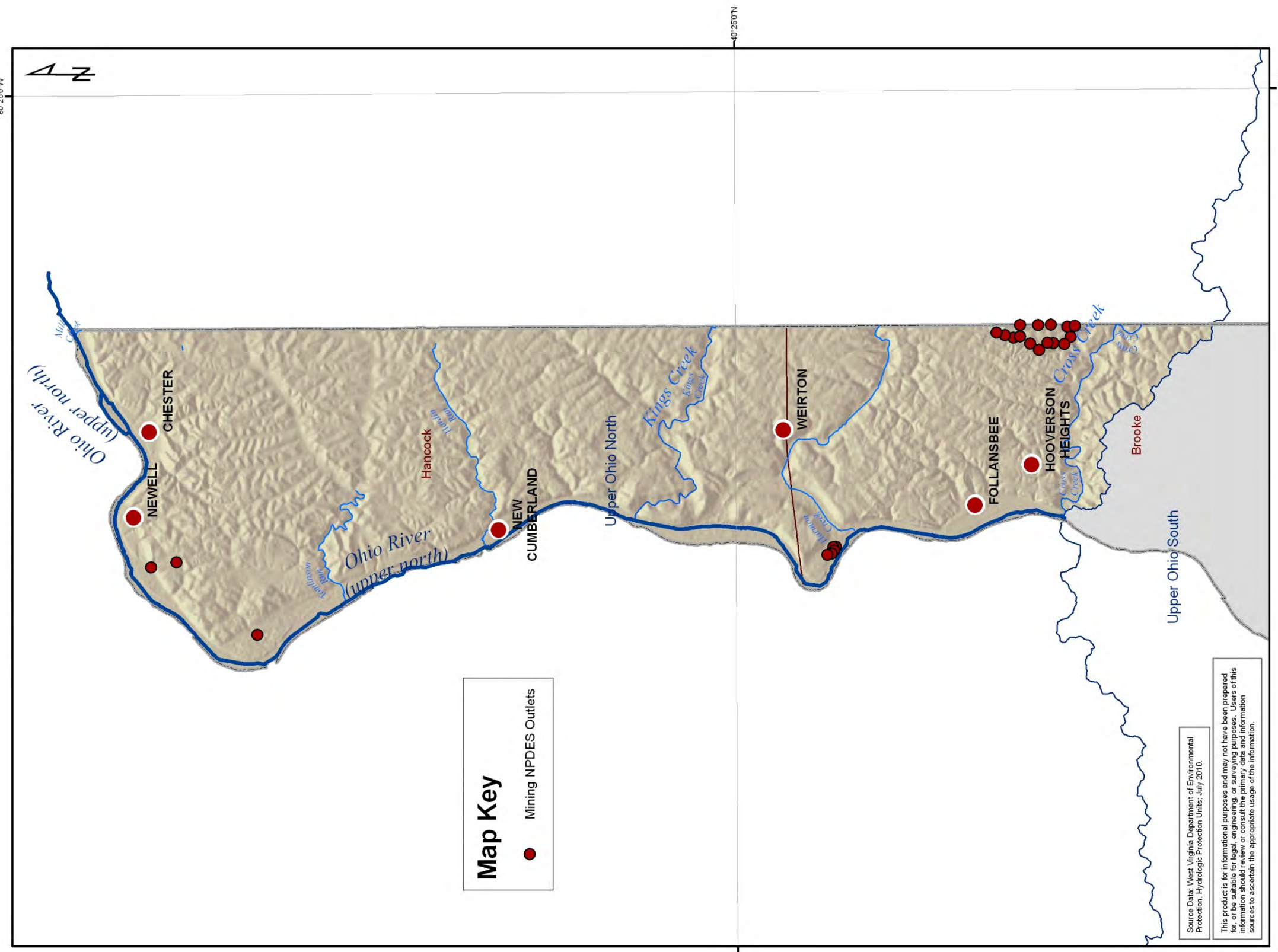
This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the appropriate usage of the information.



- State Boundary (dashed line)
- 8-Digit Watershed Boundary (thick solid line)
- County Boundary (thin solid line)
- City/Town (red dot)

Upper Ohio North HUC-8 Watershed

Mining Related NPDES Outlets

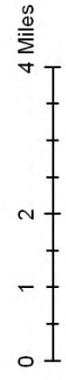


Map Key

- Mining NPDES Outlets

Source Data: West Virginia Department of Environmental Protection, Hydrologic Protection Units, July 2010.

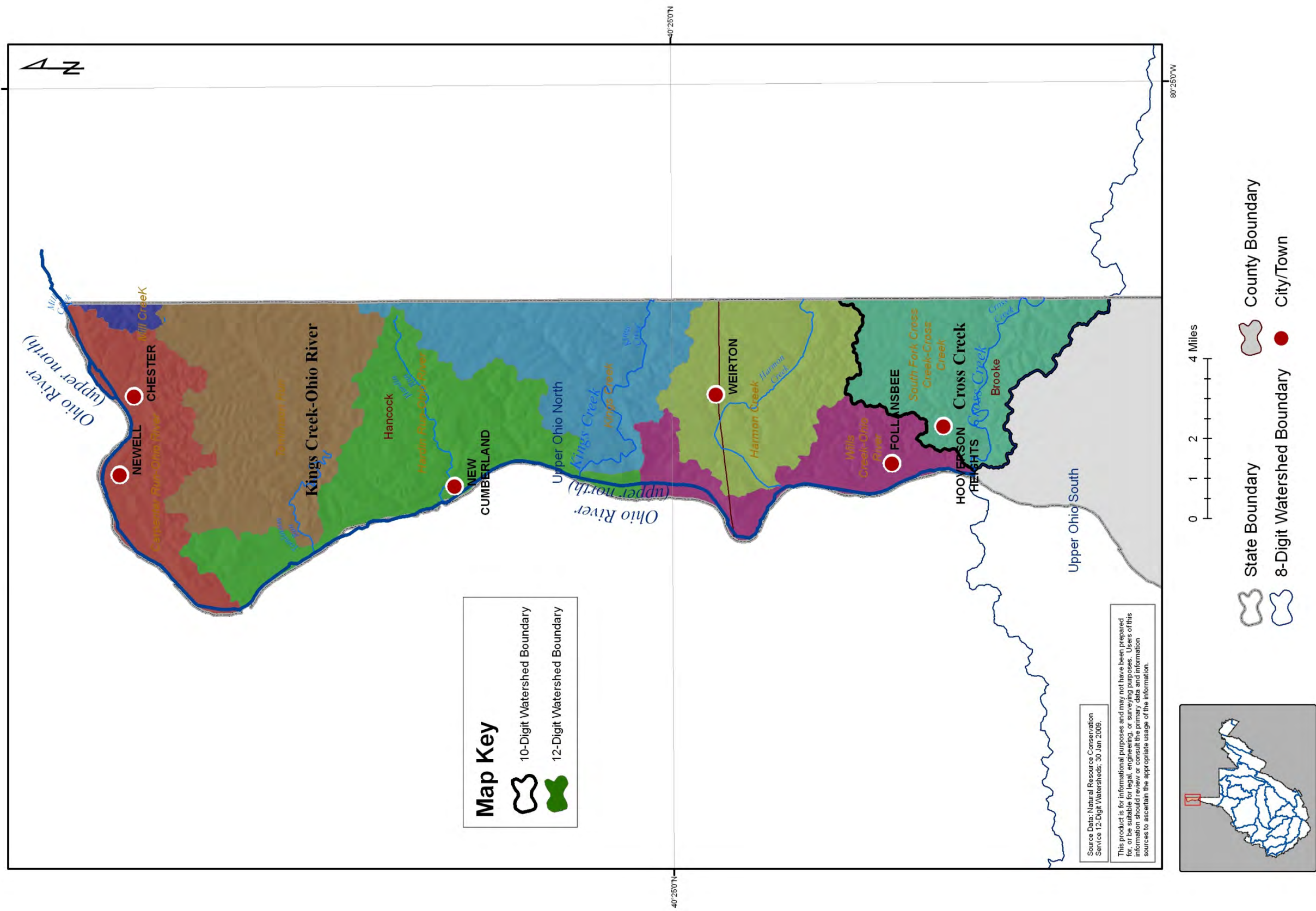
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- State Boundary
- 8-Digit Watershed Boundary
- County Boundary
- City/Town

Upper Ohio North HUC-8 Watershed

HUC 10 and HUC 12 Watersheds



Map Key

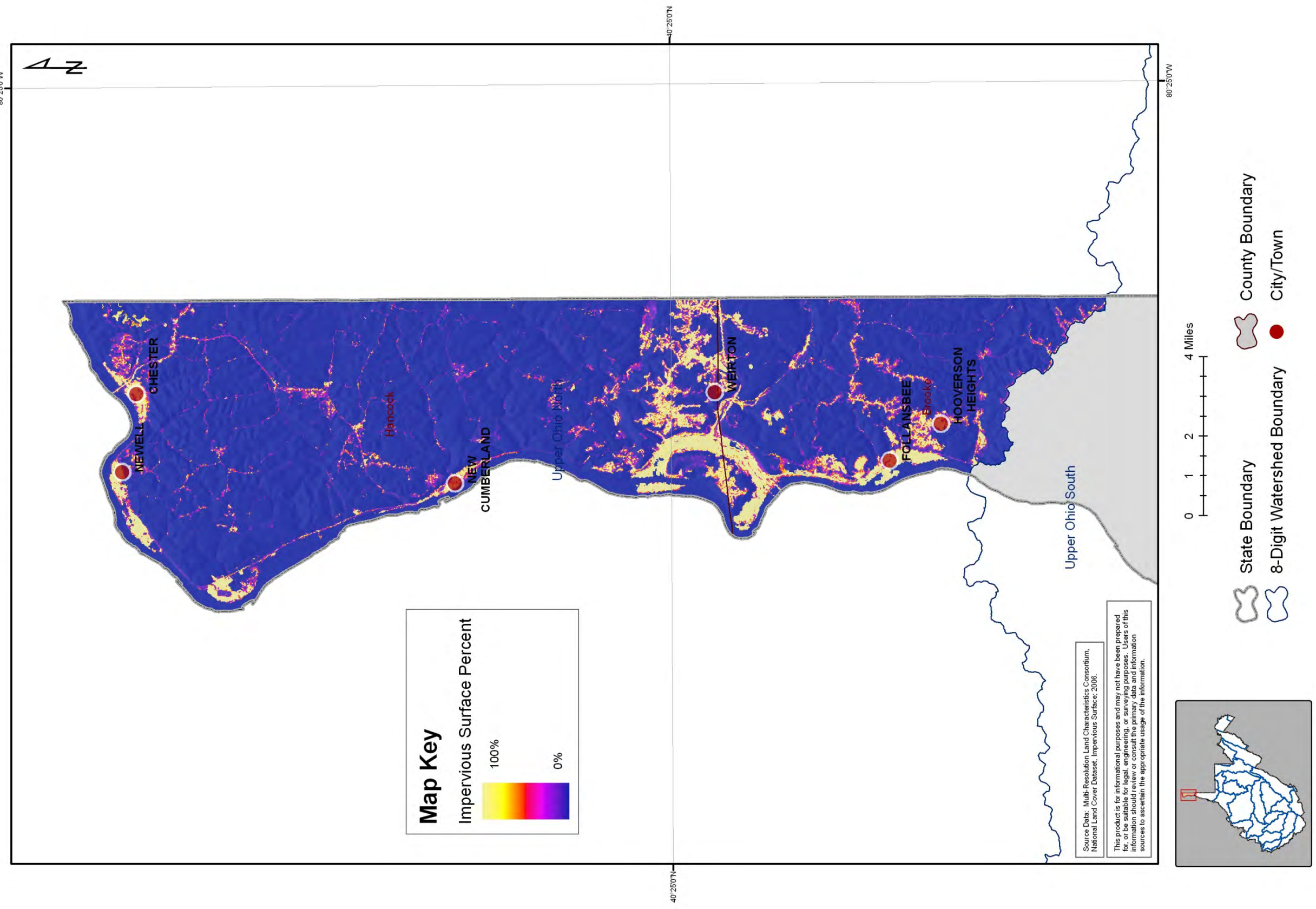
- 10-Digit Watershed Boundary
- 12-Digit Watershed Boundary

Source Data: Natural Resource Conservation Service 12-Digit Watersheds; 30 Jan. 2009.

This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the appropriate usage of the information.

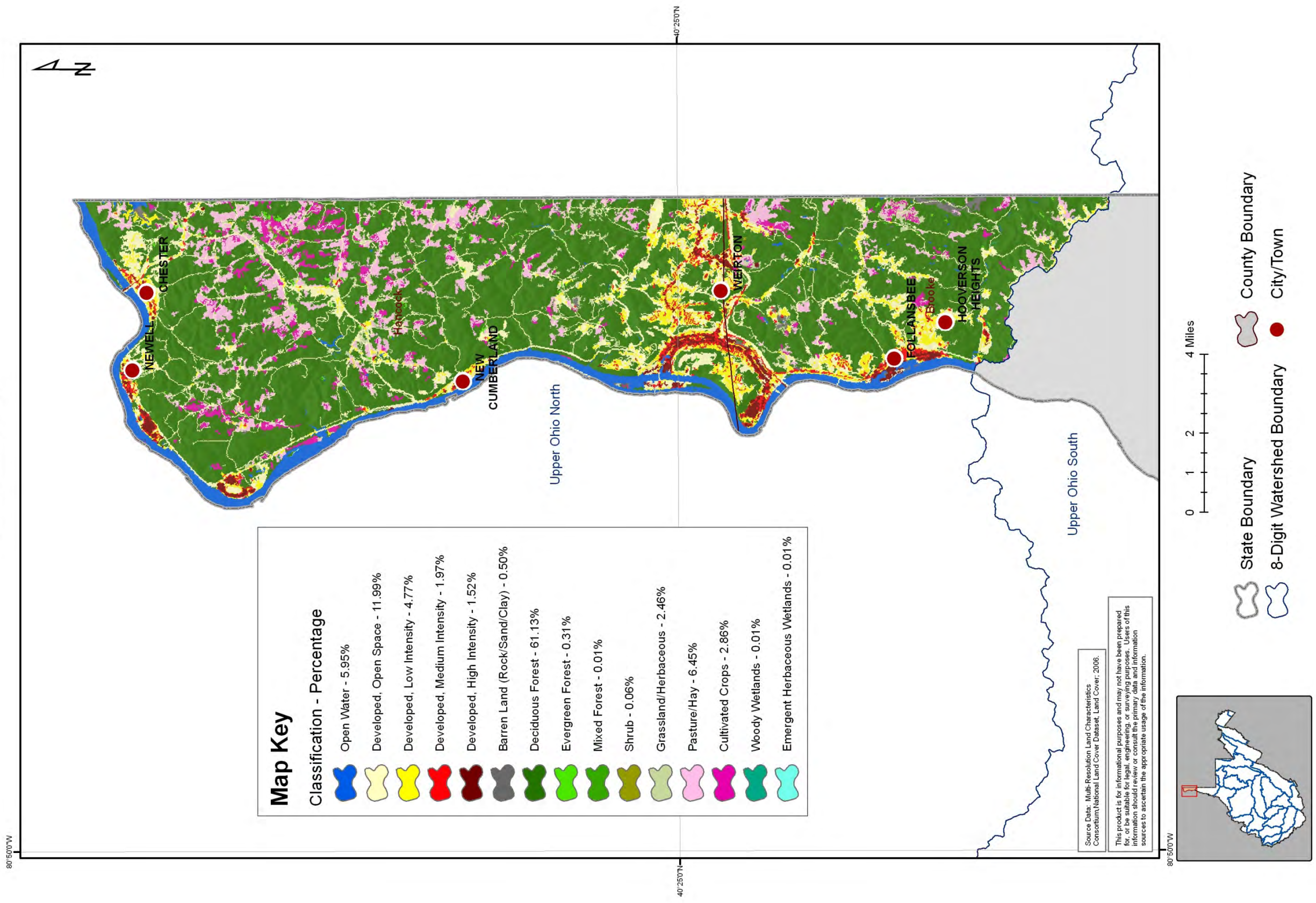
Upper Ohio North HUC-8 Watershed

2006 Impervious Surfaces



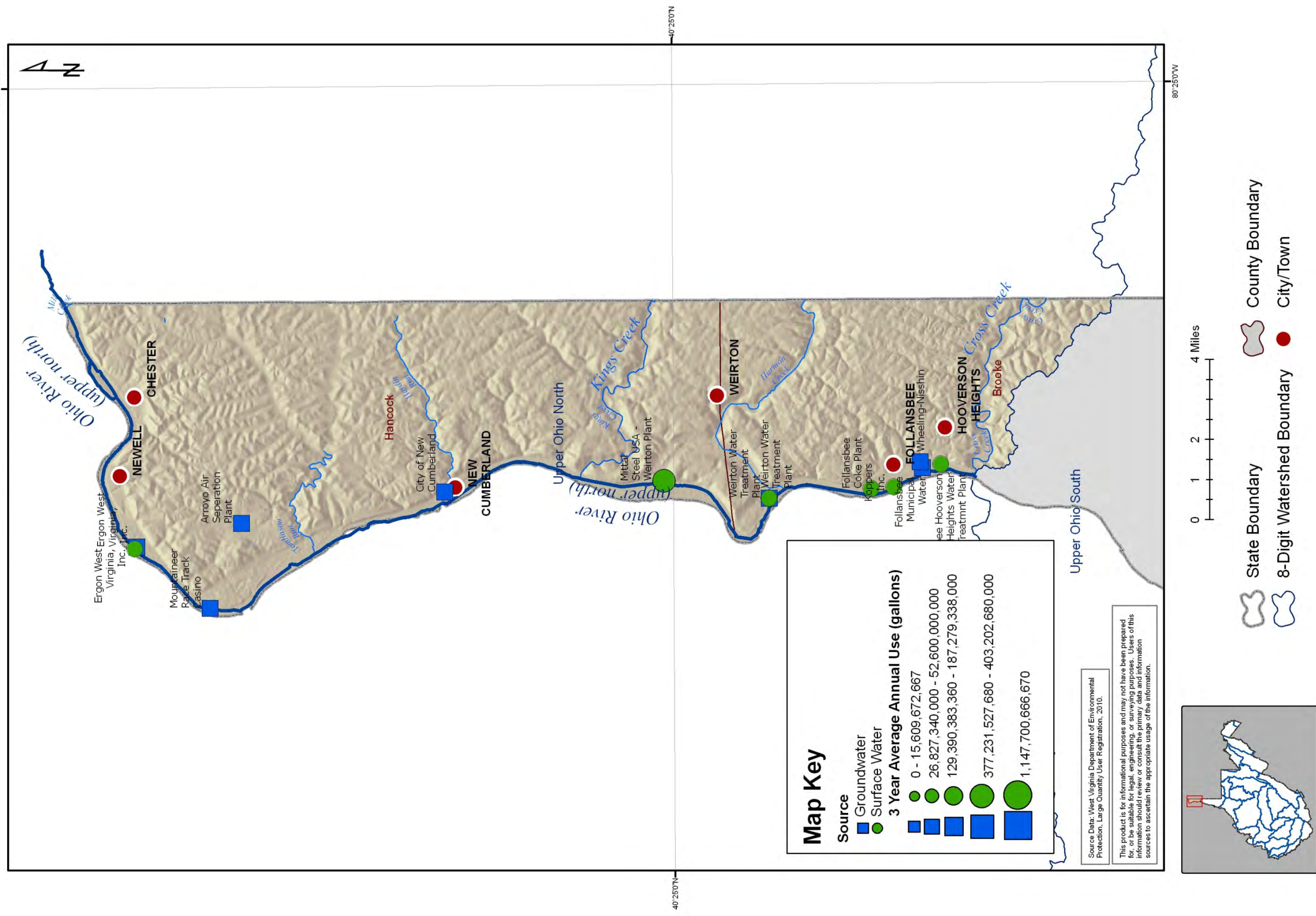
Upper Ohio North HUC-8 Watershed

2006 Land Cover



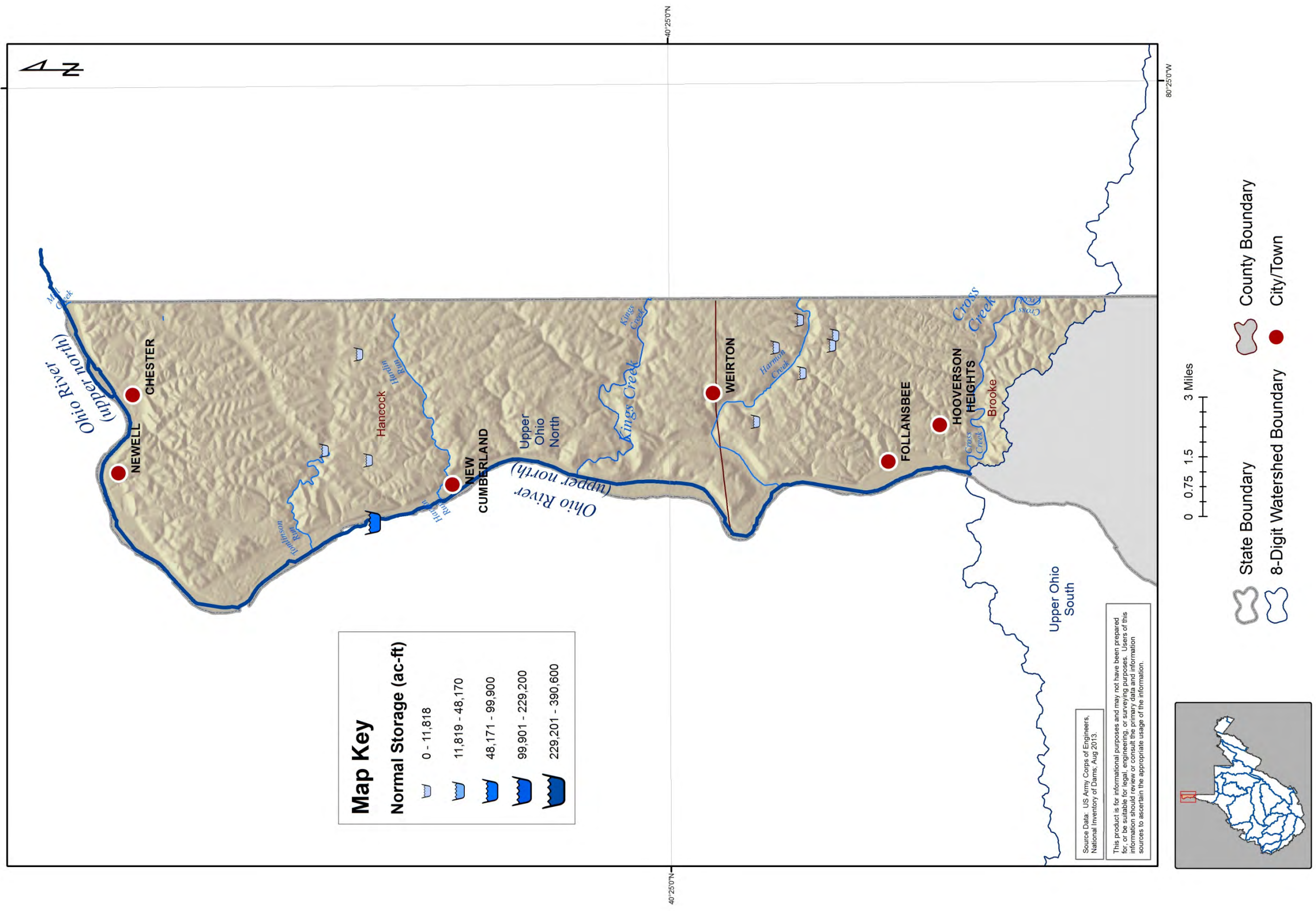
Upper Ohio North HUC-8 Watershed

Large Quantity Users



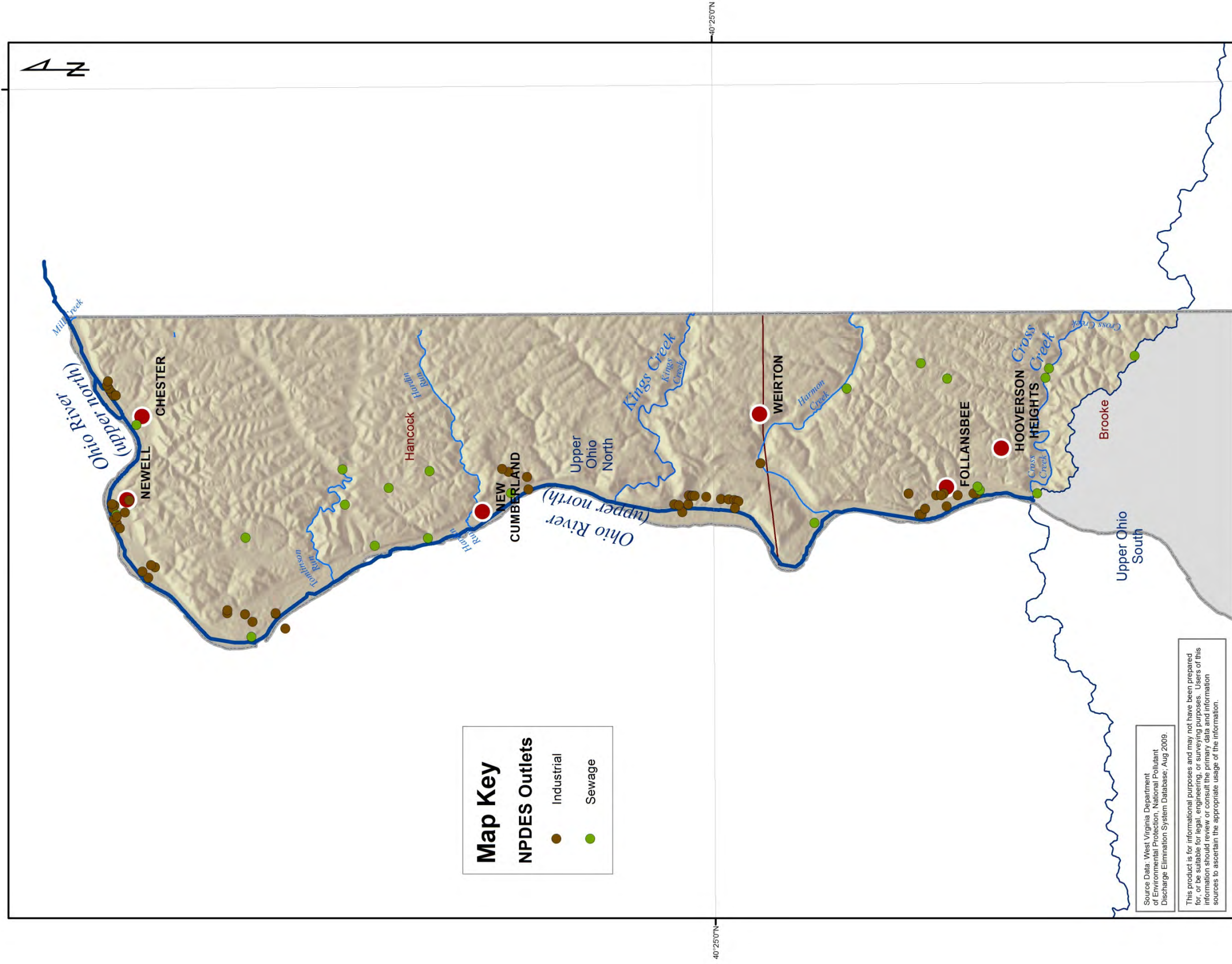
Upper Ohio North HUC-8 Watershed

Permitted Dams



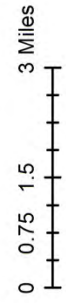
Upper Ohio North HUC-8 Watershed

Non-Mining NPDES Outlets



Map Key
NPDES Outlets
 ● Industrial
 ● Sewage

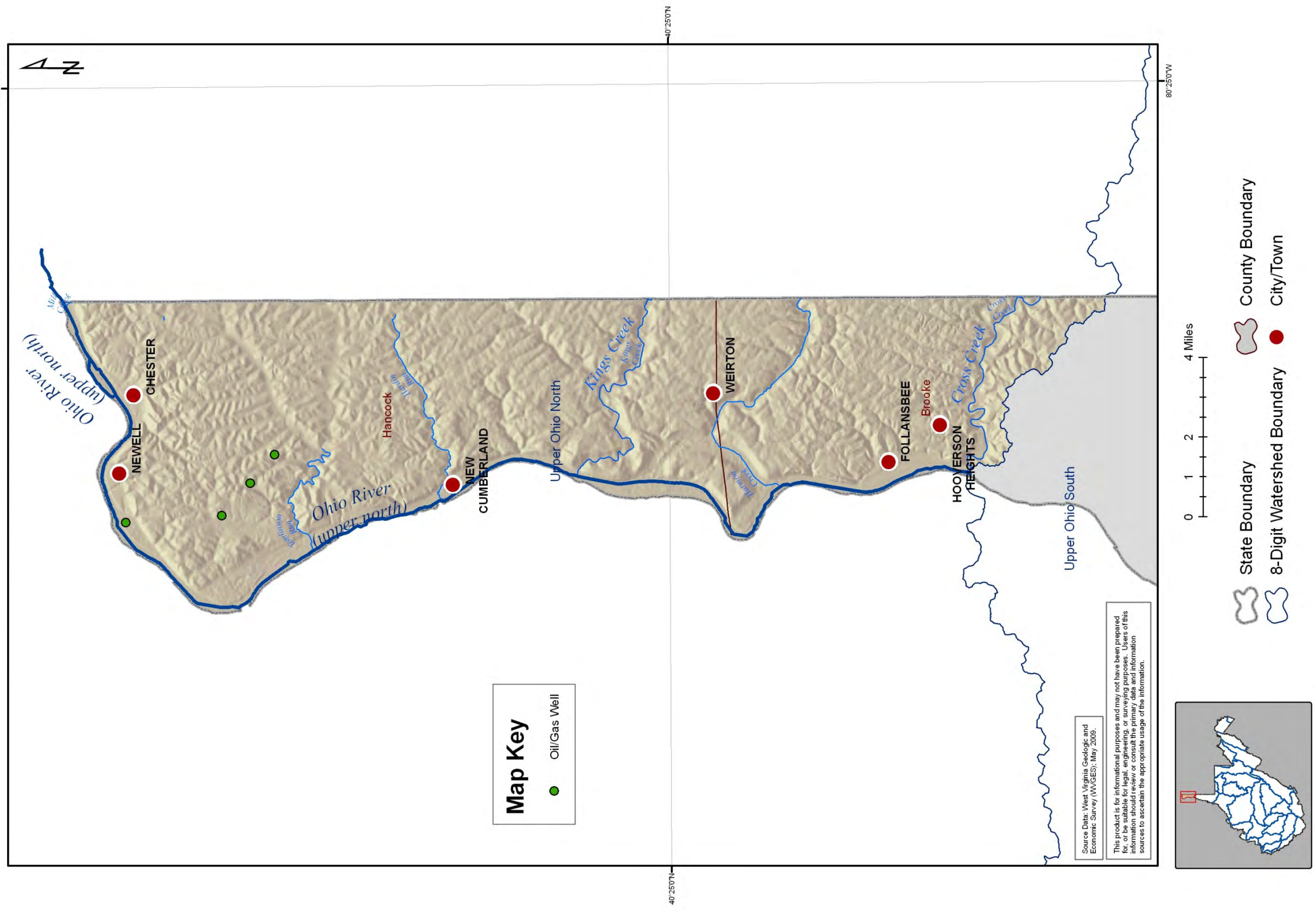
Source Data: West Virginia Department of Environmental Protection, National Pollutant Discharge Elimination System Database, Aug 2009.
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- State Boundary
- County Boundary
- 8-Digit Watershed Boundary
- City/Town

Upper Ohio North HUC-8 Watershed

Well Logs with Gamma Rays and Water Shows



Map Key

- Oil/Gas Well

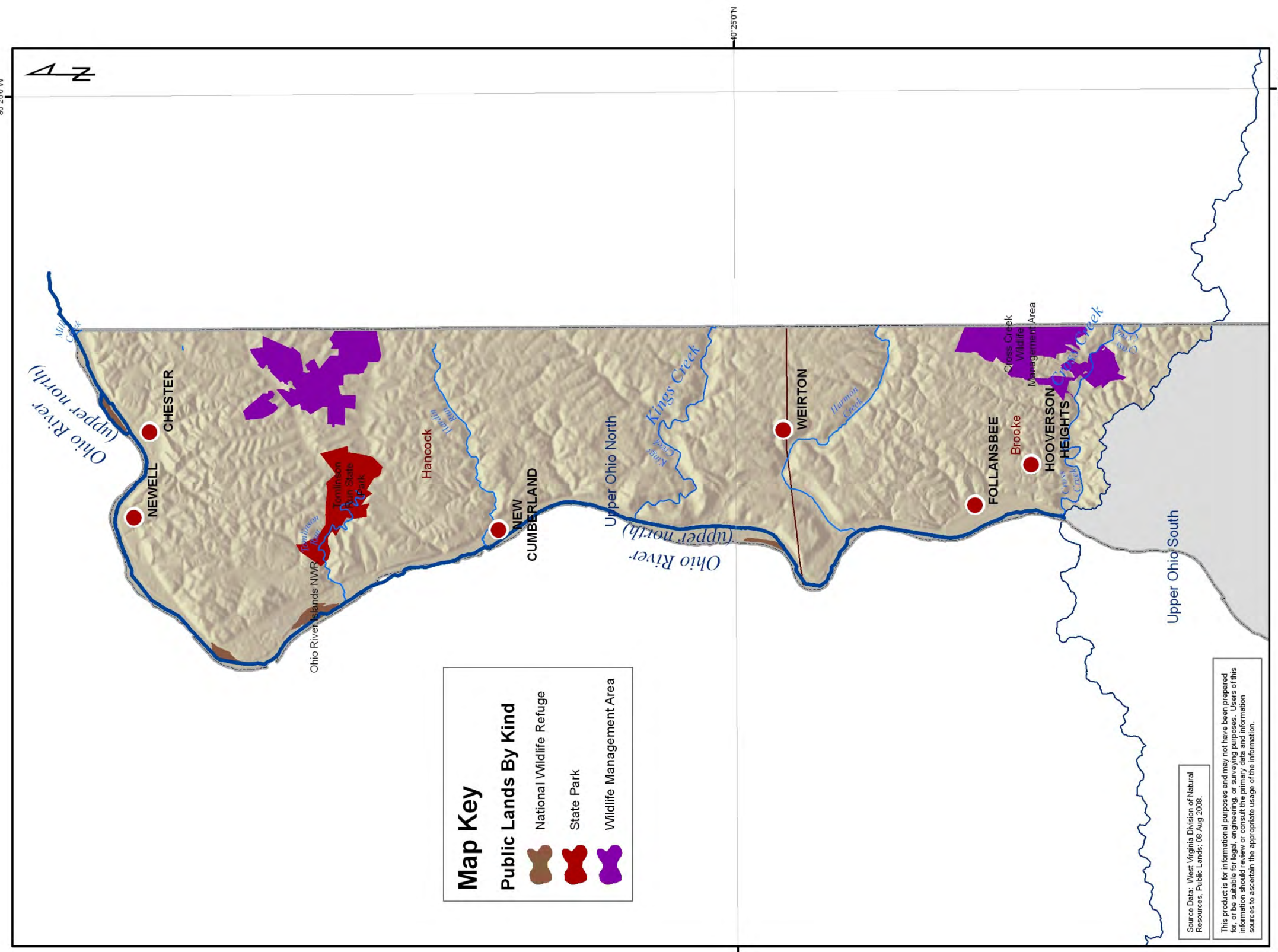
Source Data: West Virginia Geologic and Economic Survey (WVGES); May 2009.

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- State Boundary
- 8-Digit Watershed Boundary
- County Boundary
- City/Town

Upper Ohio North HUC-8 Watershed

Public Lands



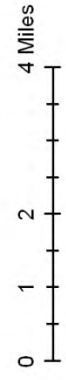
Map Key

Public Lands By Kind

- National Wildlife Refuge
- State Park
- Wildlife Management Area

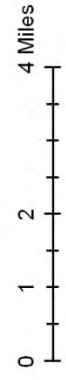
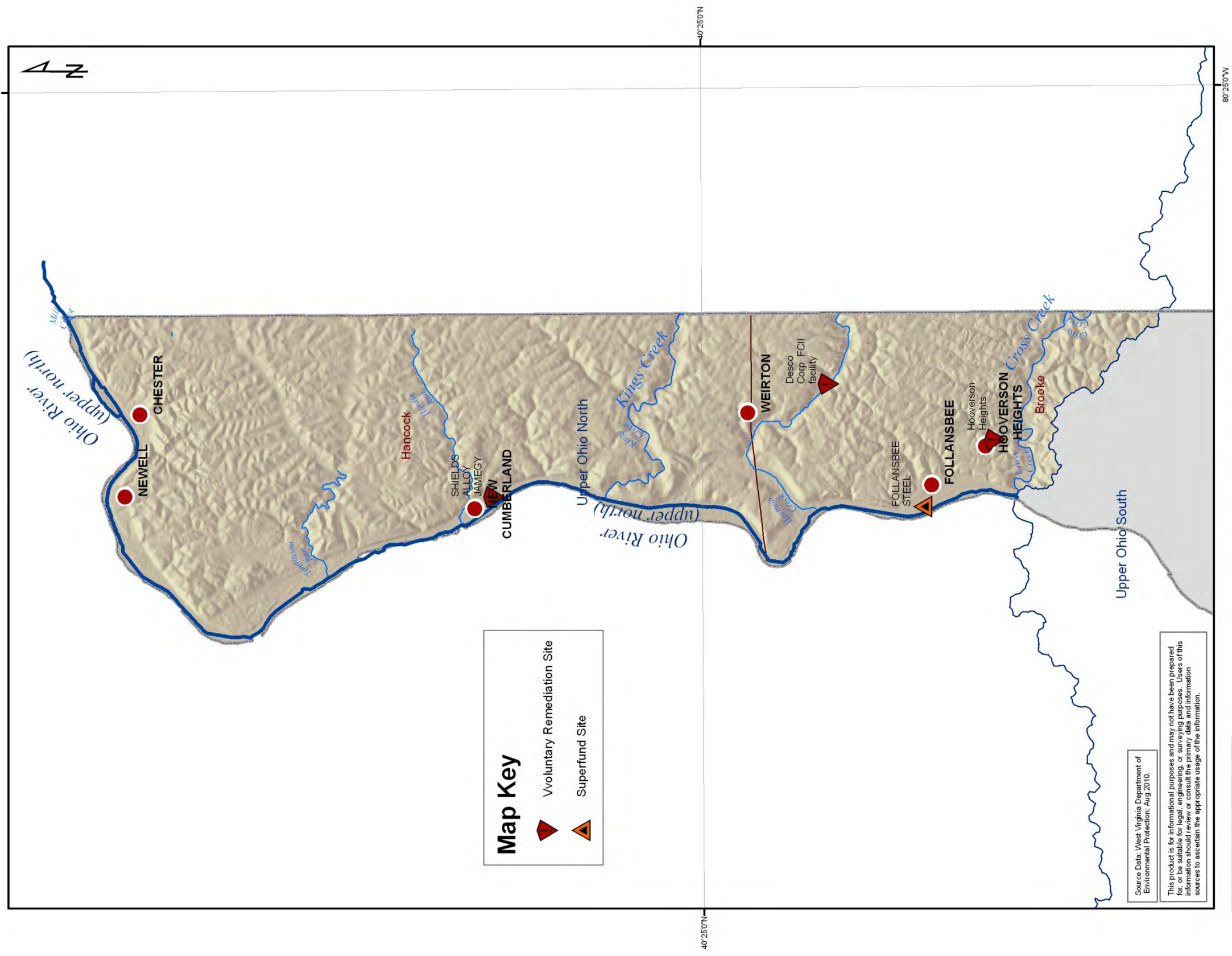
Source Data: West Virginia Division of Natural Resources, Public Lands; 08 Aug 2008.

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- State Boundary
- 8-Digit Watershed Boundary
- City/Town
- County Boundary

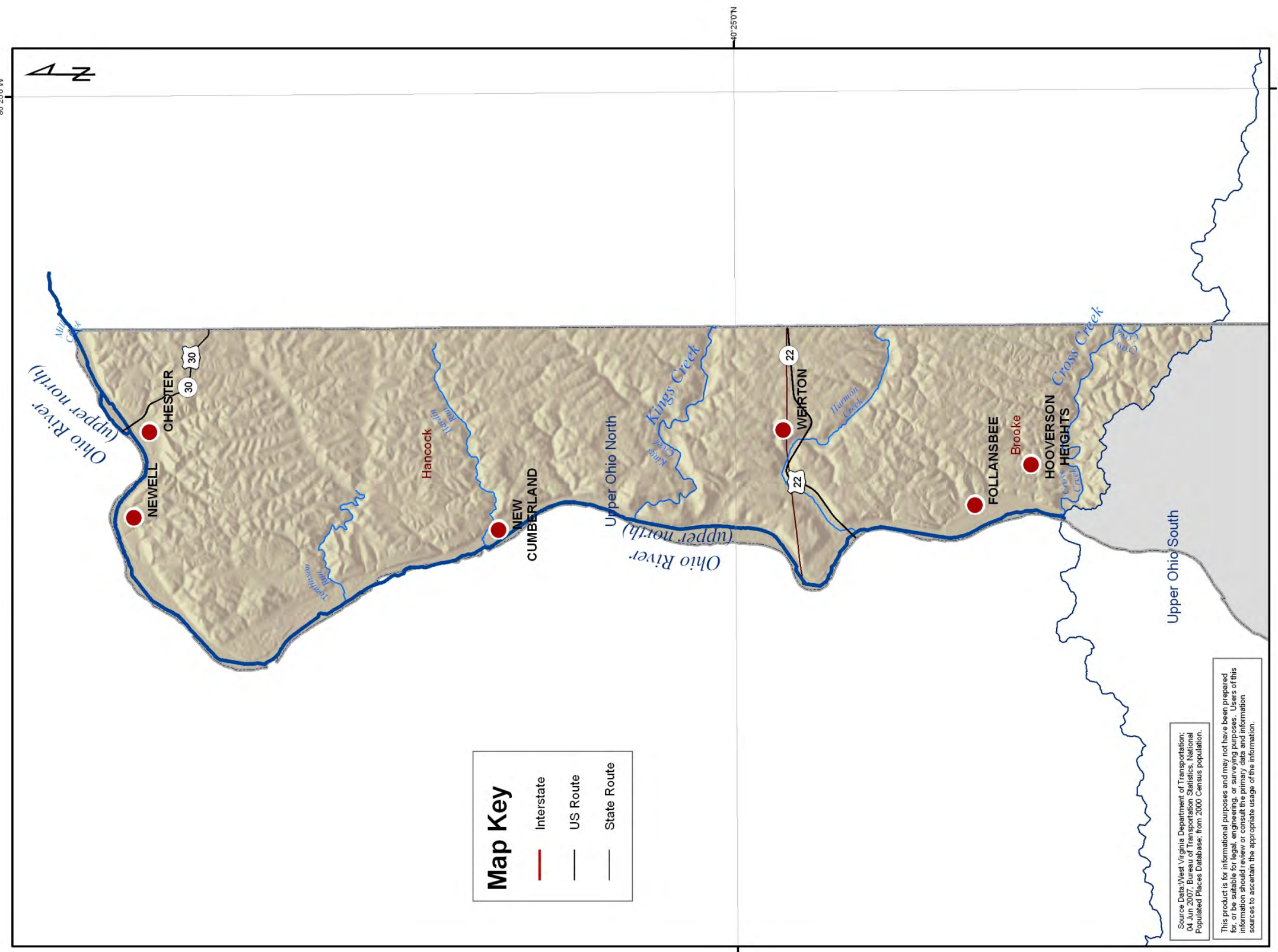
Upper Ohio North HUC-8 Watershed Remediation Sites



-  State Boundary
-  8-Digit Watershed Boundary
-  County Boundary
-  City/Town

Upper Ohio North HUC-8 Watershed

Major Roads and Cities



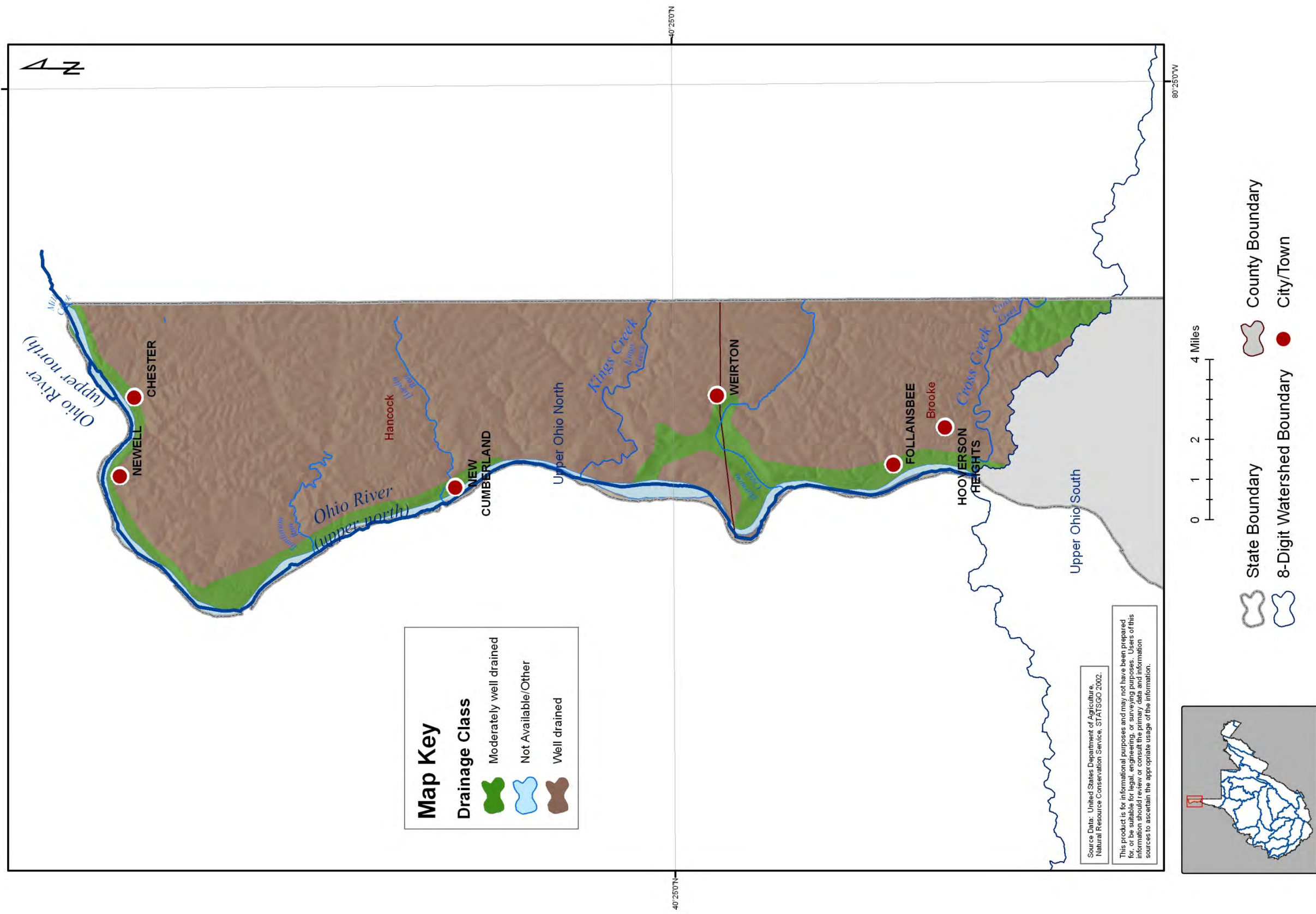
Source Data: West Virginia Department of Transportation; 04 Jun 2007; Bureau of Transportation Statistics; National Populated Places Database; from 2000 Census population.

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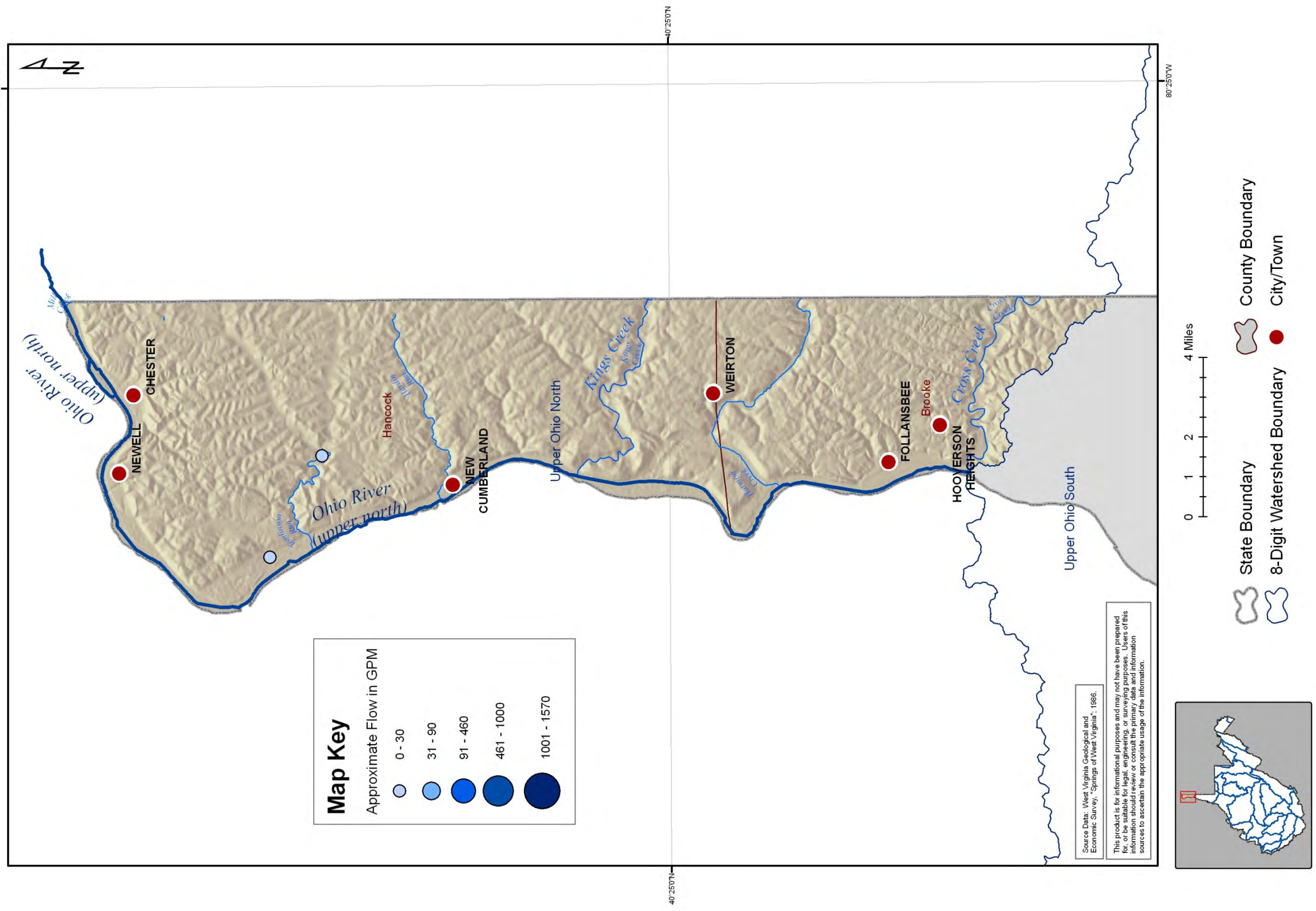
Upper Ohio North HUC-8 Watershed

Soil Drainage Classes



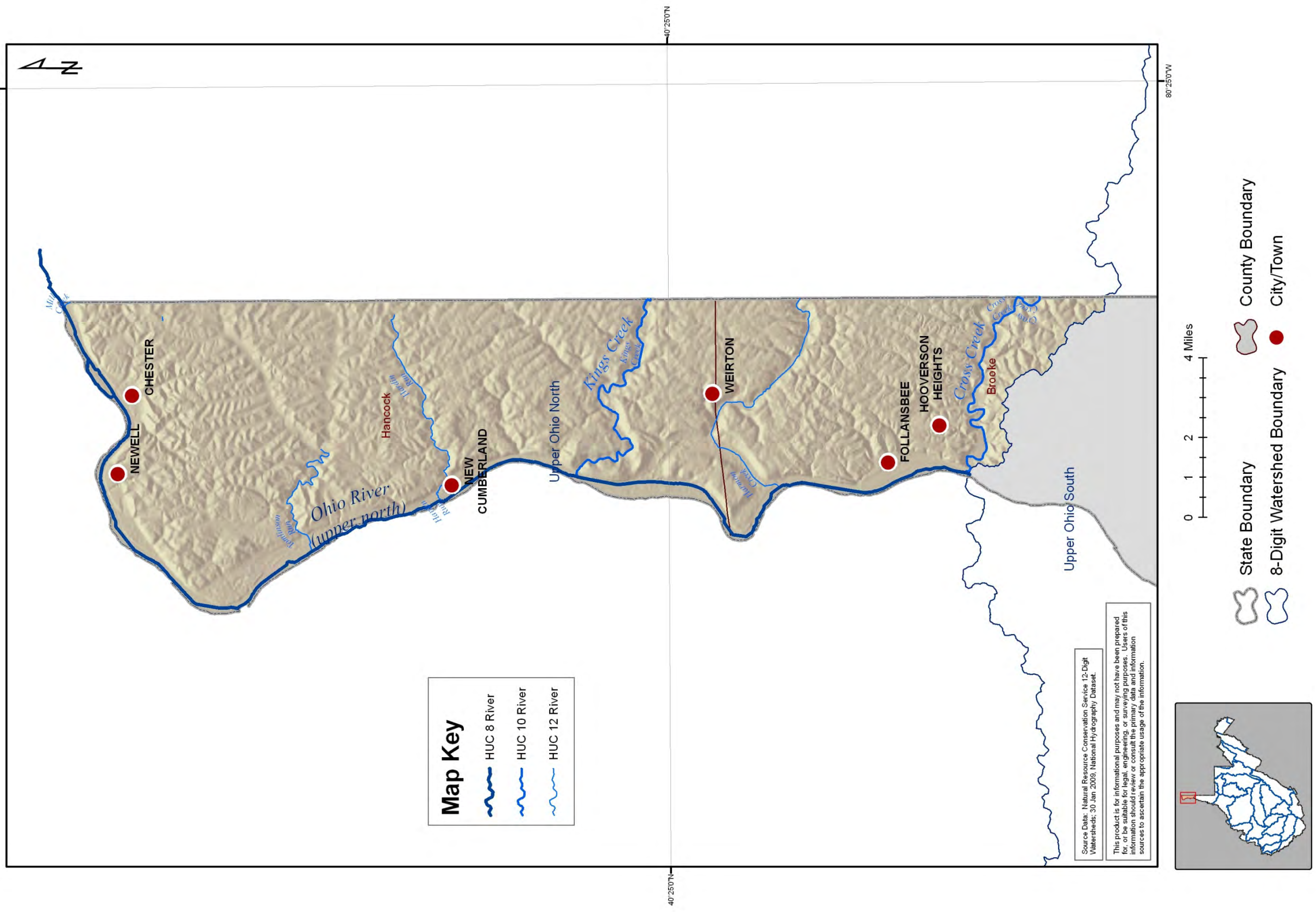
Upper Ohio North HUC-8 Watershed

Documented Springs



Upper Ohio North HUC-8 Watershed

Stream Connections



Map Key

- HUC 8 River
- HUC 10 River
- HUC 12 River

Source Data: Natural Resource Conservation Service 12-Digit Watersheds; 30 Jan. 2009; National Hydrography Dataset.

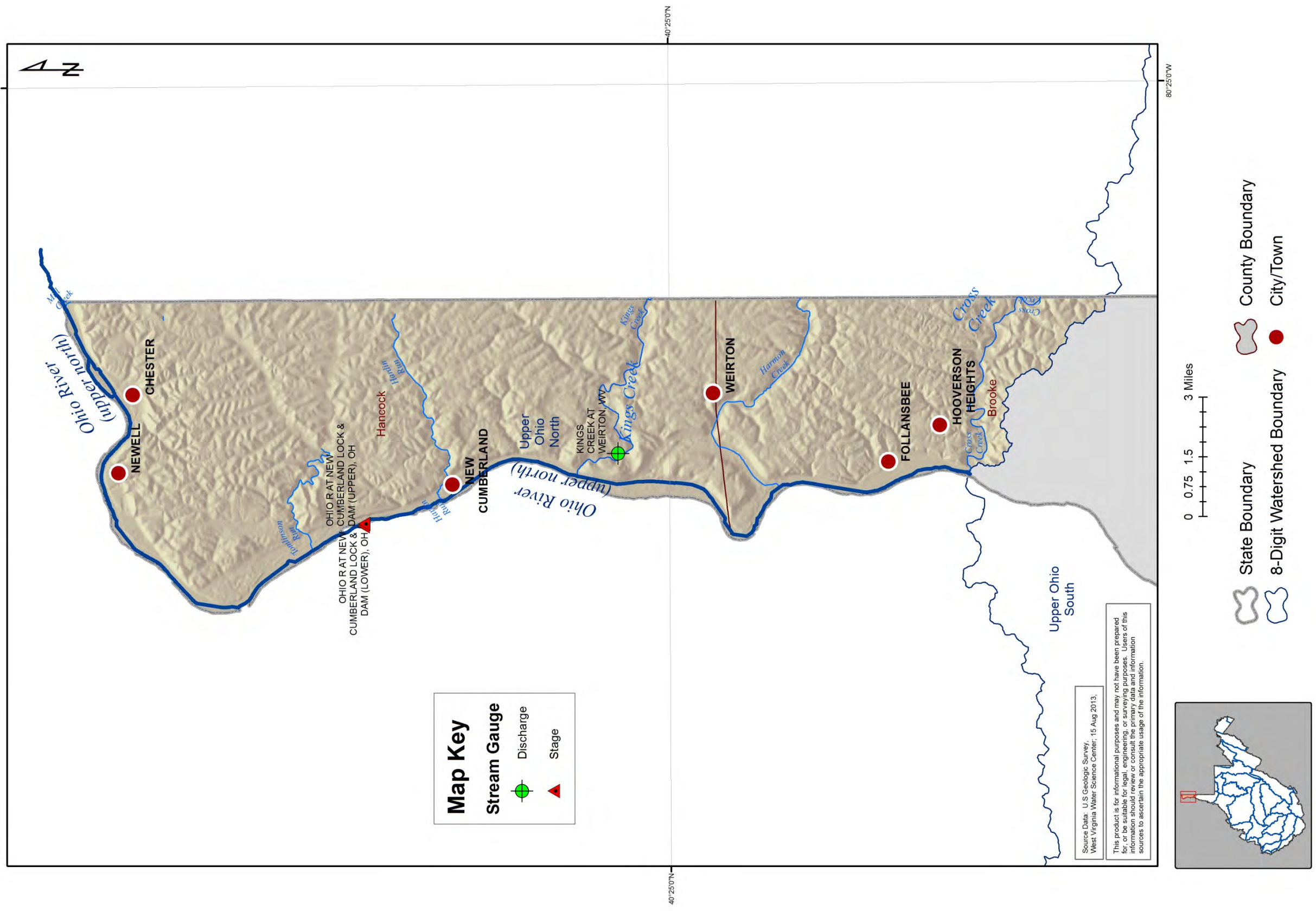
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- State Boundary
- 8-Digit Watershed Boundary
- City/Town
- County Boundary



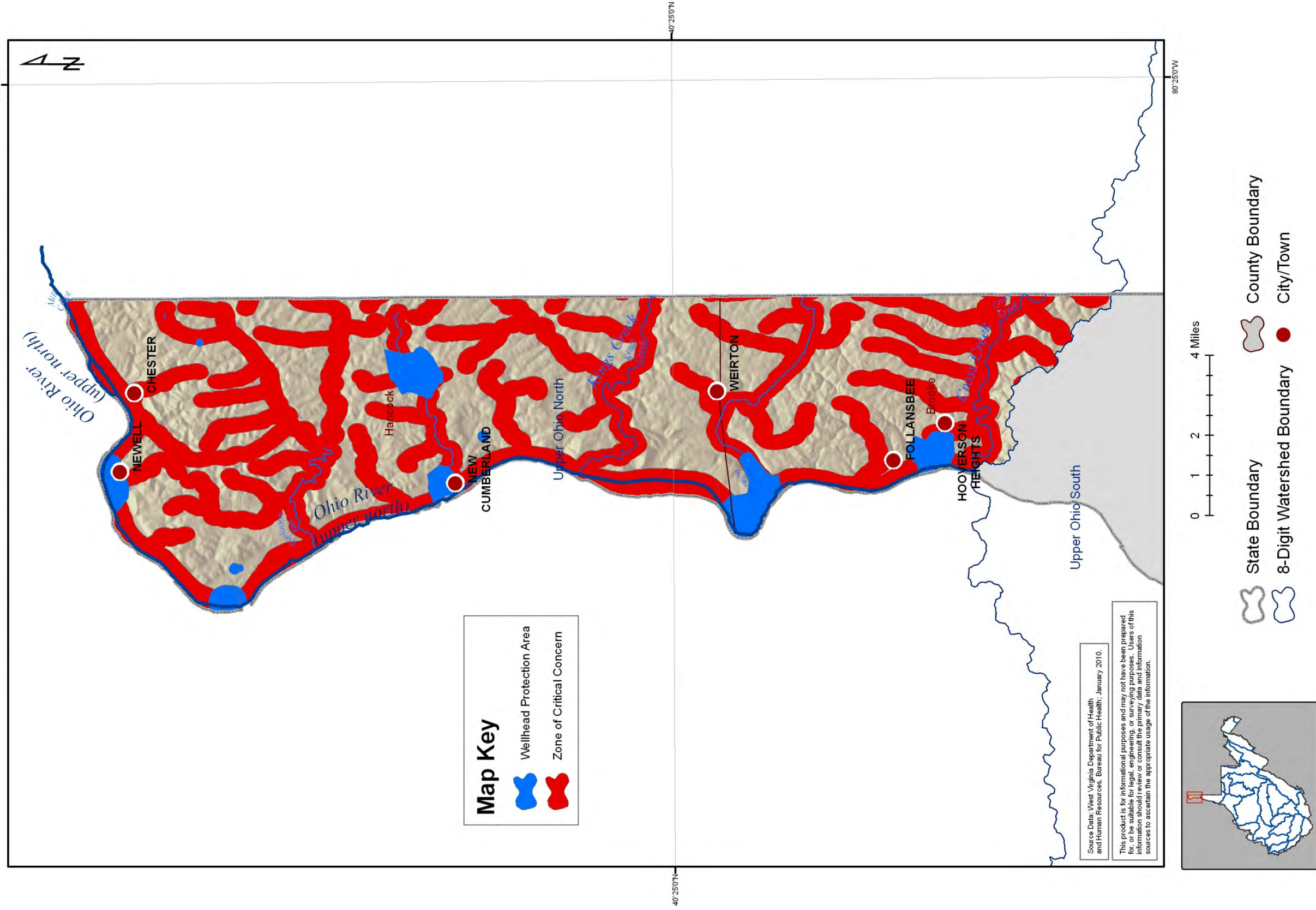
Upper Ohio North HUC-8 Watershed

Stream Gauges



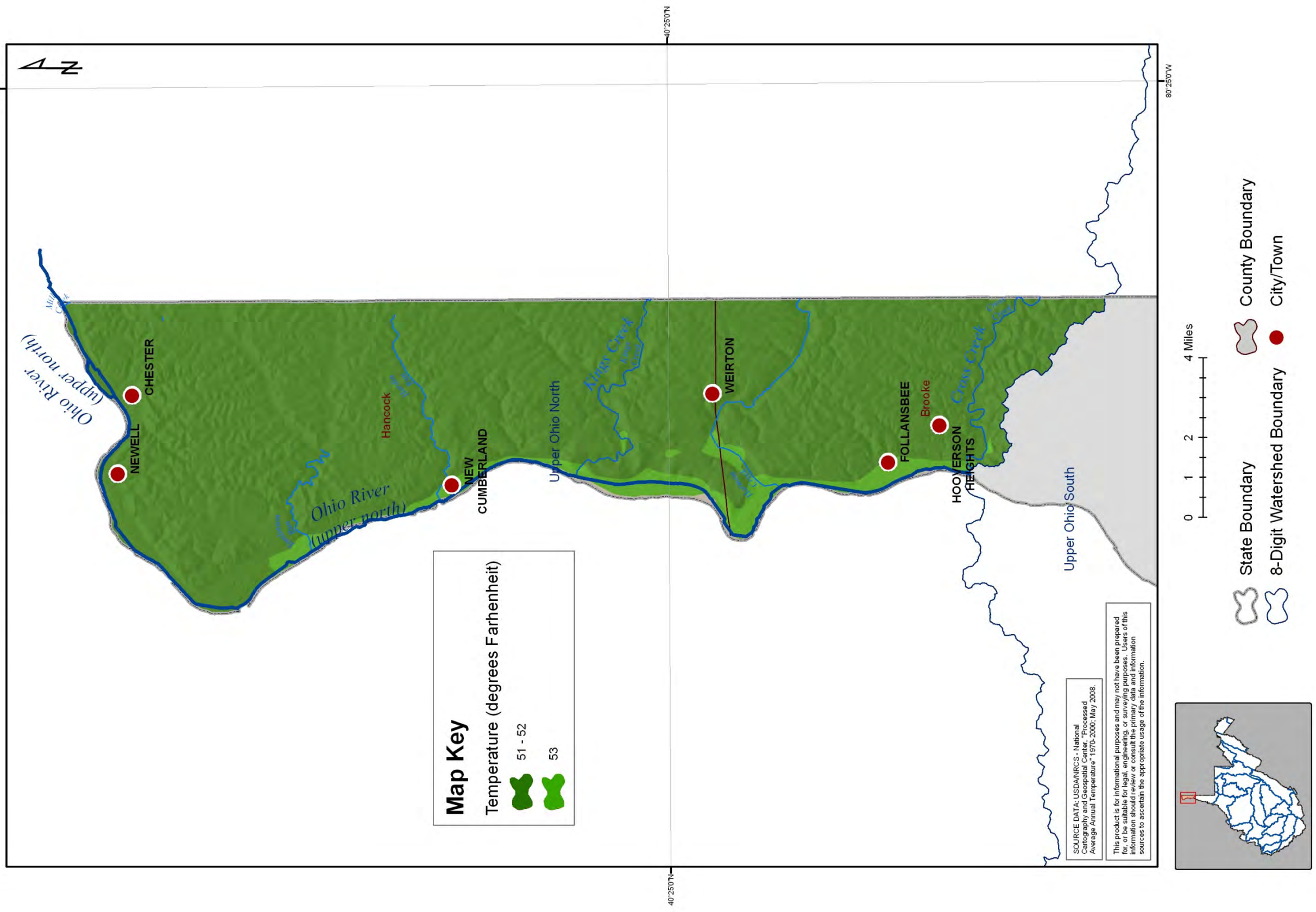
Upper Ohio North HUC-8 Watershed

Source Water Assessment and Wellhead Protection Programs



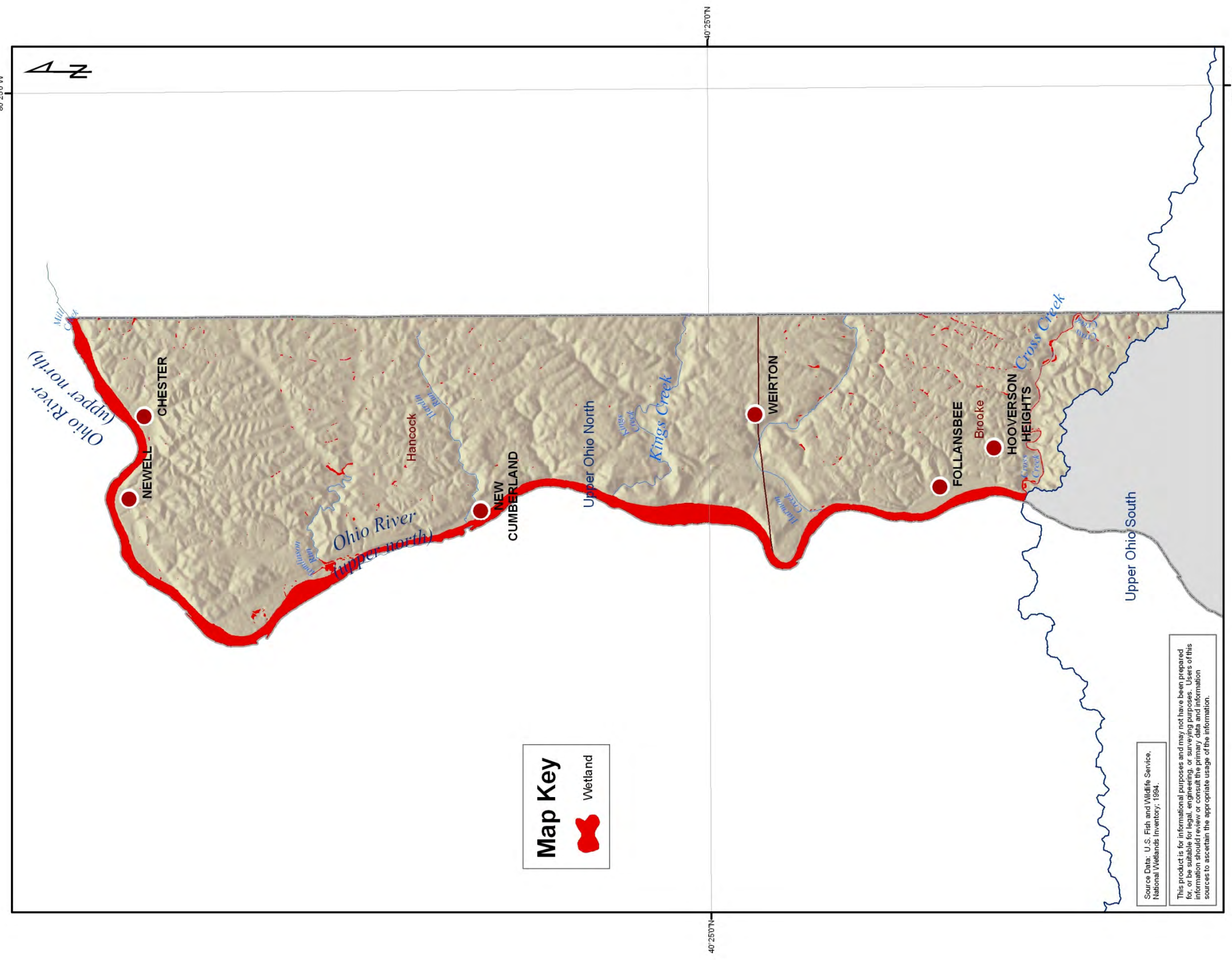
Upper Ohio North HUC-8 Watershed

Average Annual Temperature (1971-2000)



Upper Ohio North HUC-8 Watershed

Wetlands

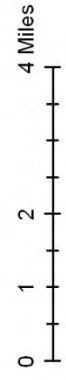


Map Key

- Wetland

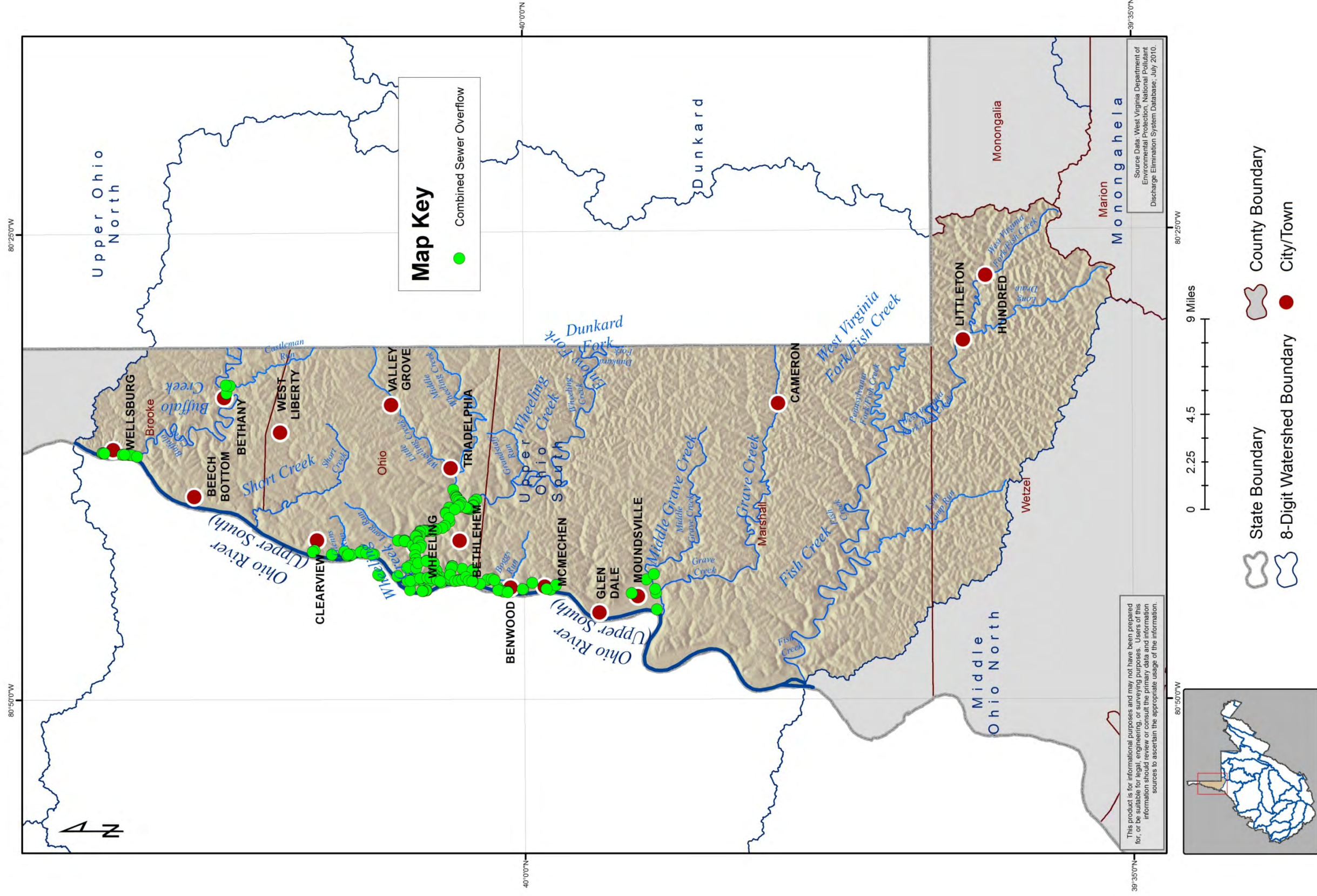
Source Data: U.S. Fish and Wildlife Service, National Wetlands Inventory, 1984.

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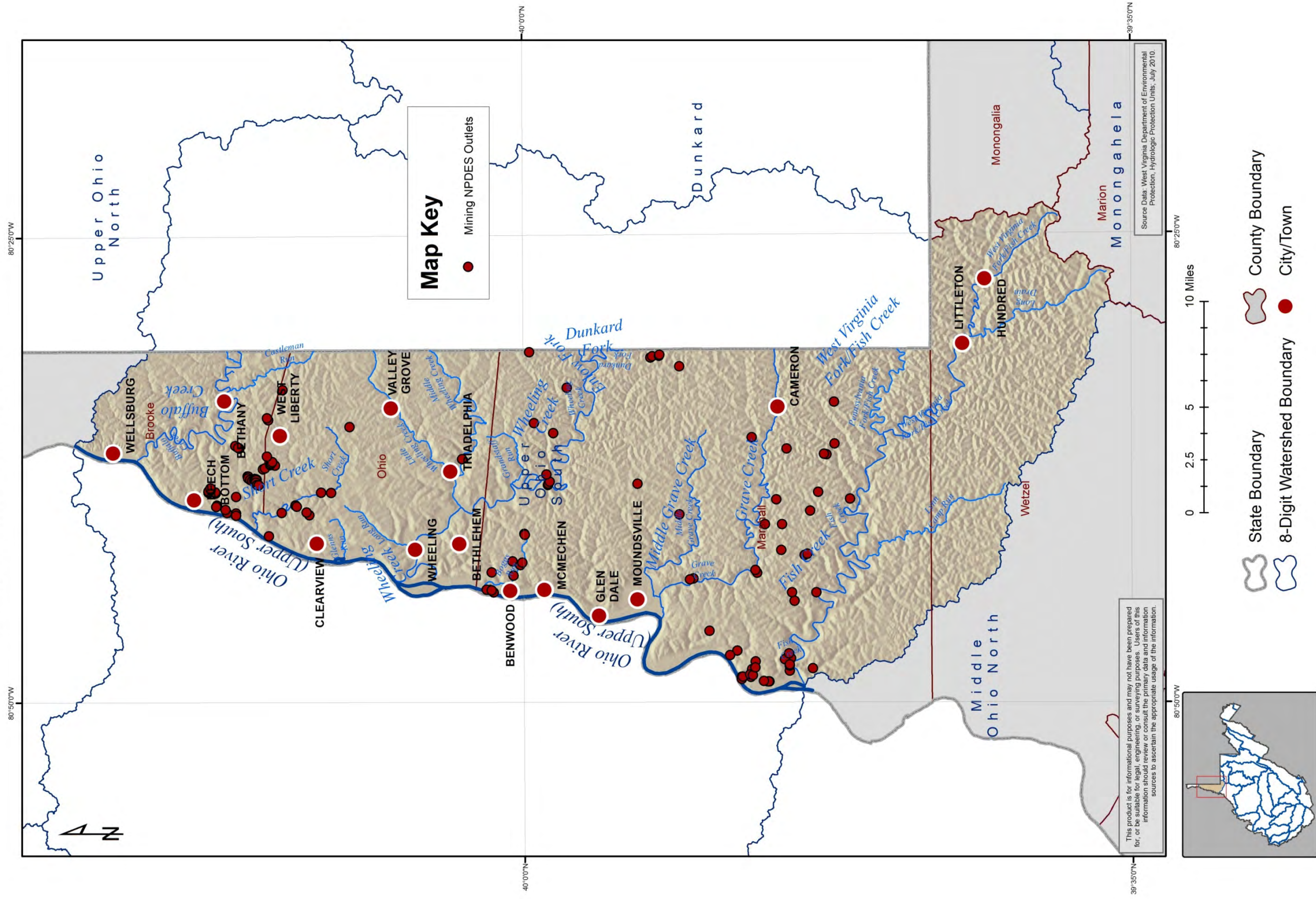
- State Boundary
- 8-Digit Watershed Boundary
- County Boundary
- City/Town

Upper Ohio South HUC-8 Watershed Combined Sewer Overflows



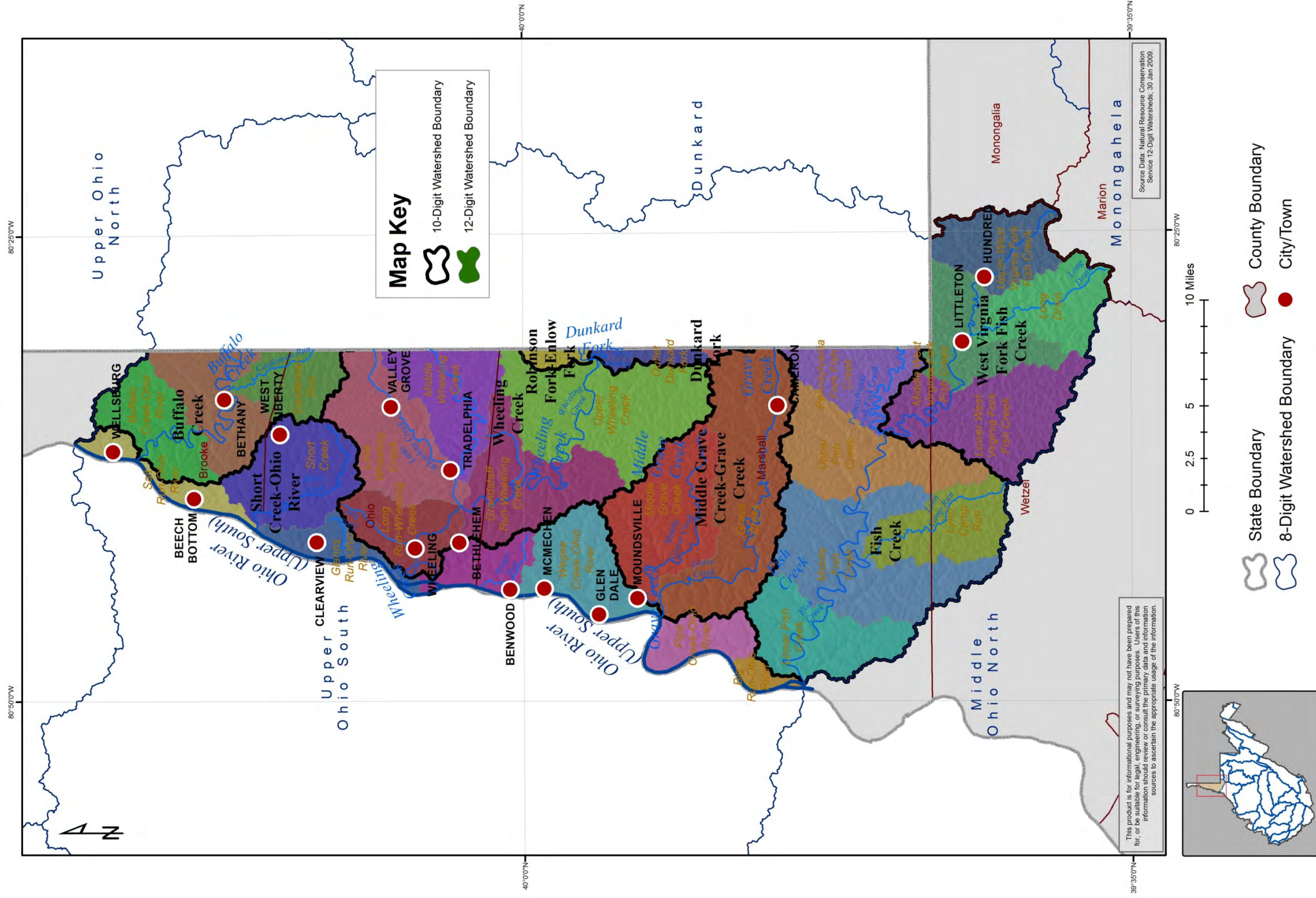
Upper Ohio South HUC-8 Watershed

Mining Related NPDES Outlets

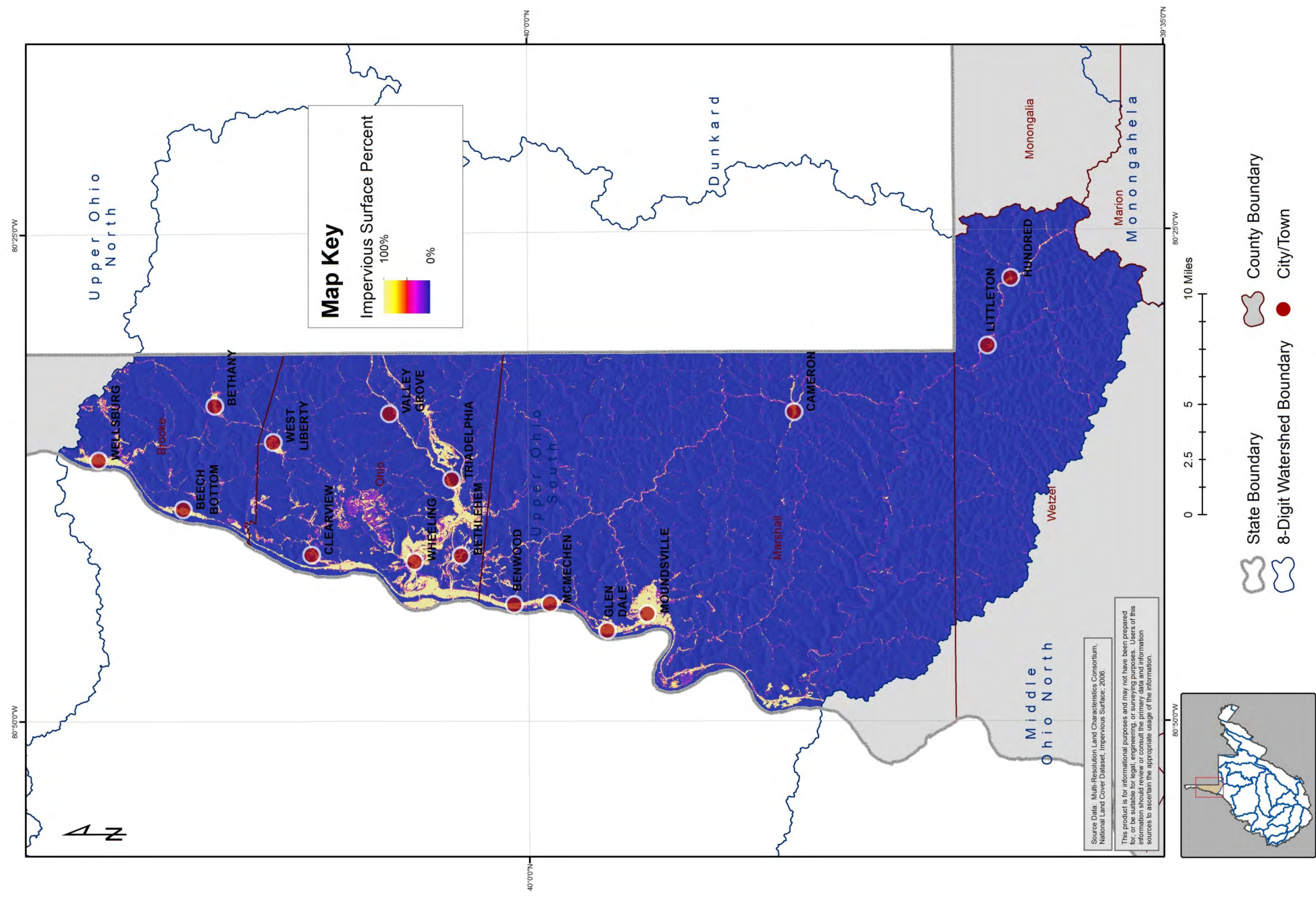


Upper Ohio South HUC-8 Watershed

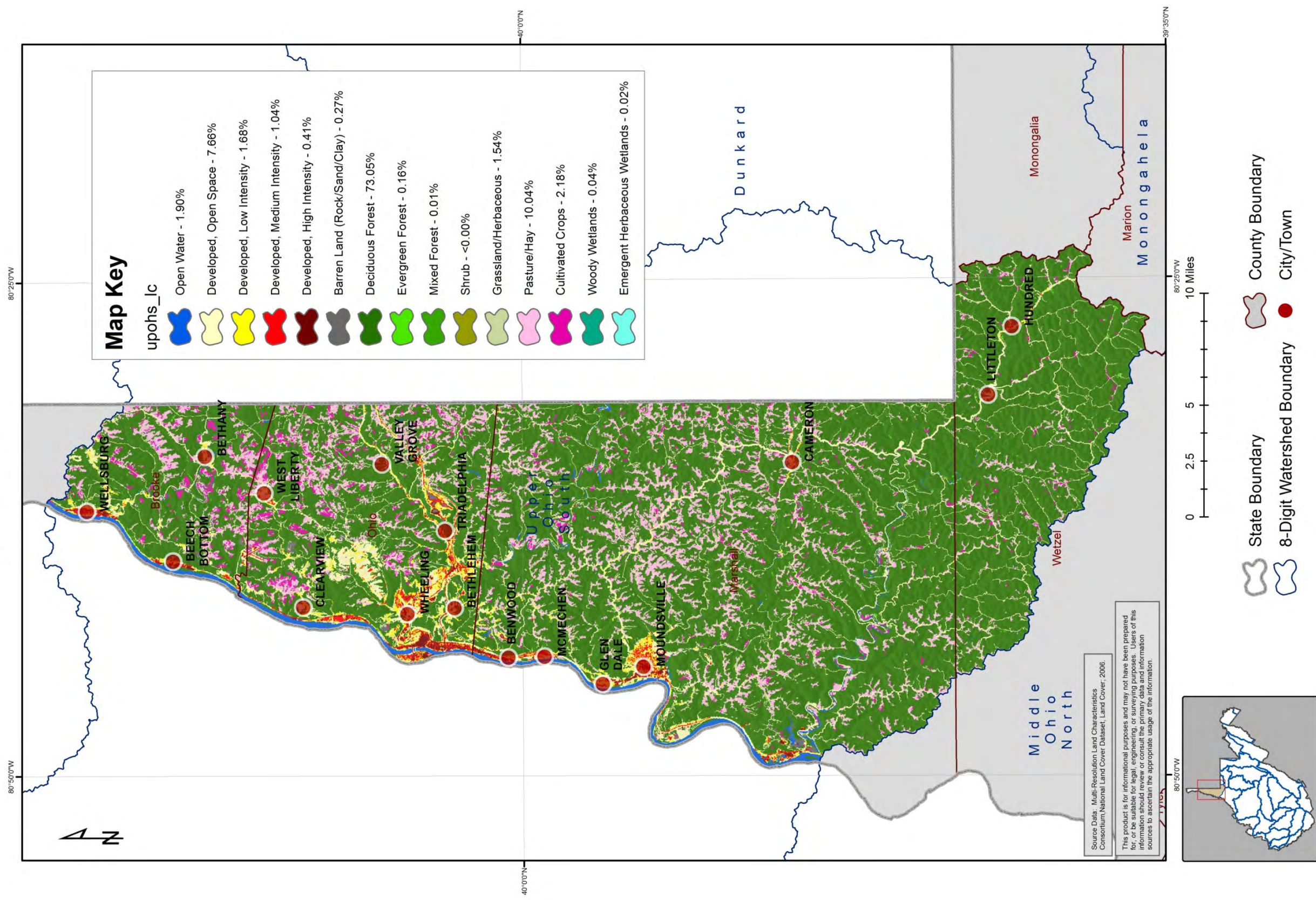
HUC 10 and HUC 12 Watersheds



Upper Ohio South HUC-8 Watershed 2006 Impervious Surfaces

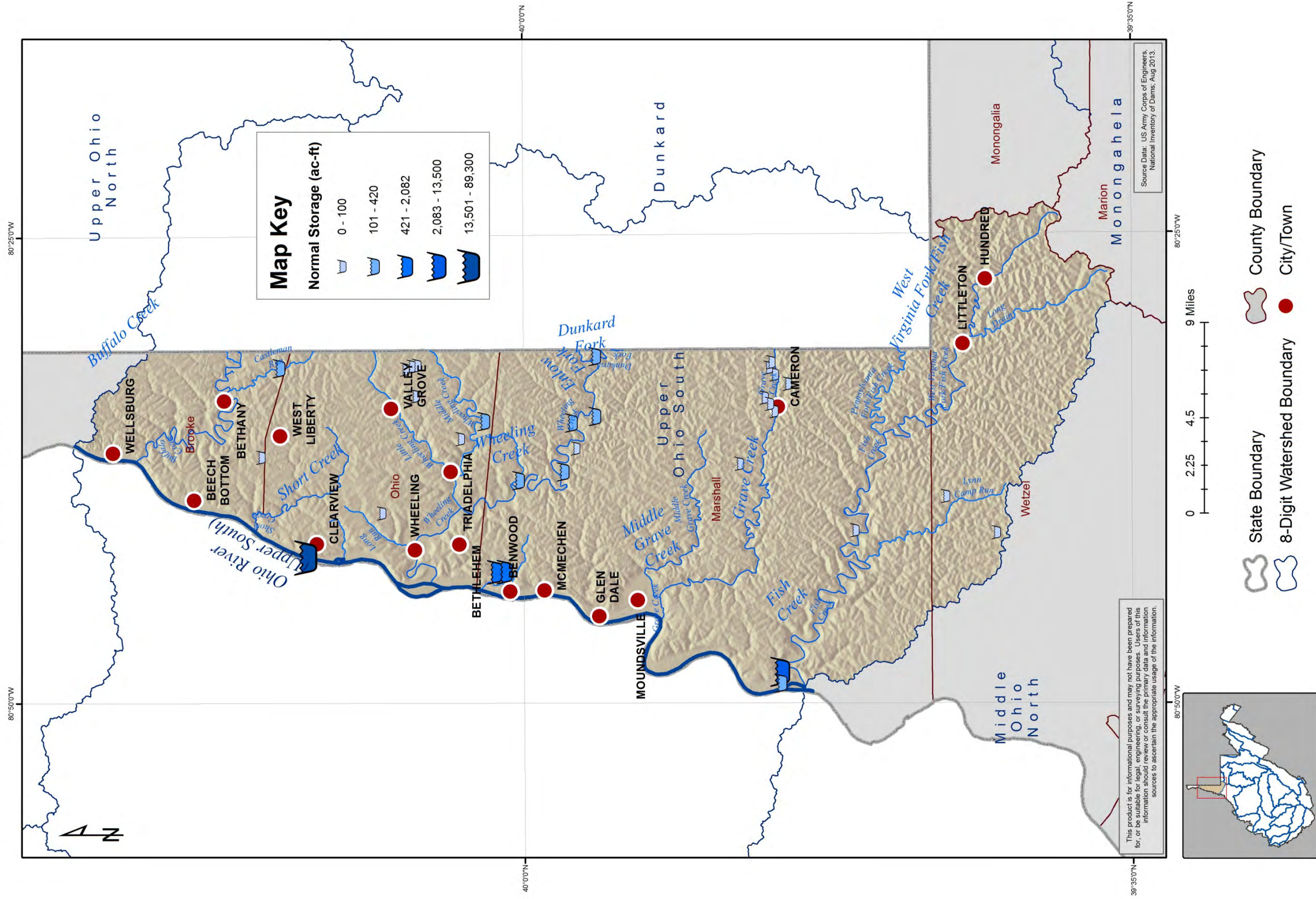


Upper Ohio South HUC-8 Watershed 2006 Land Cover



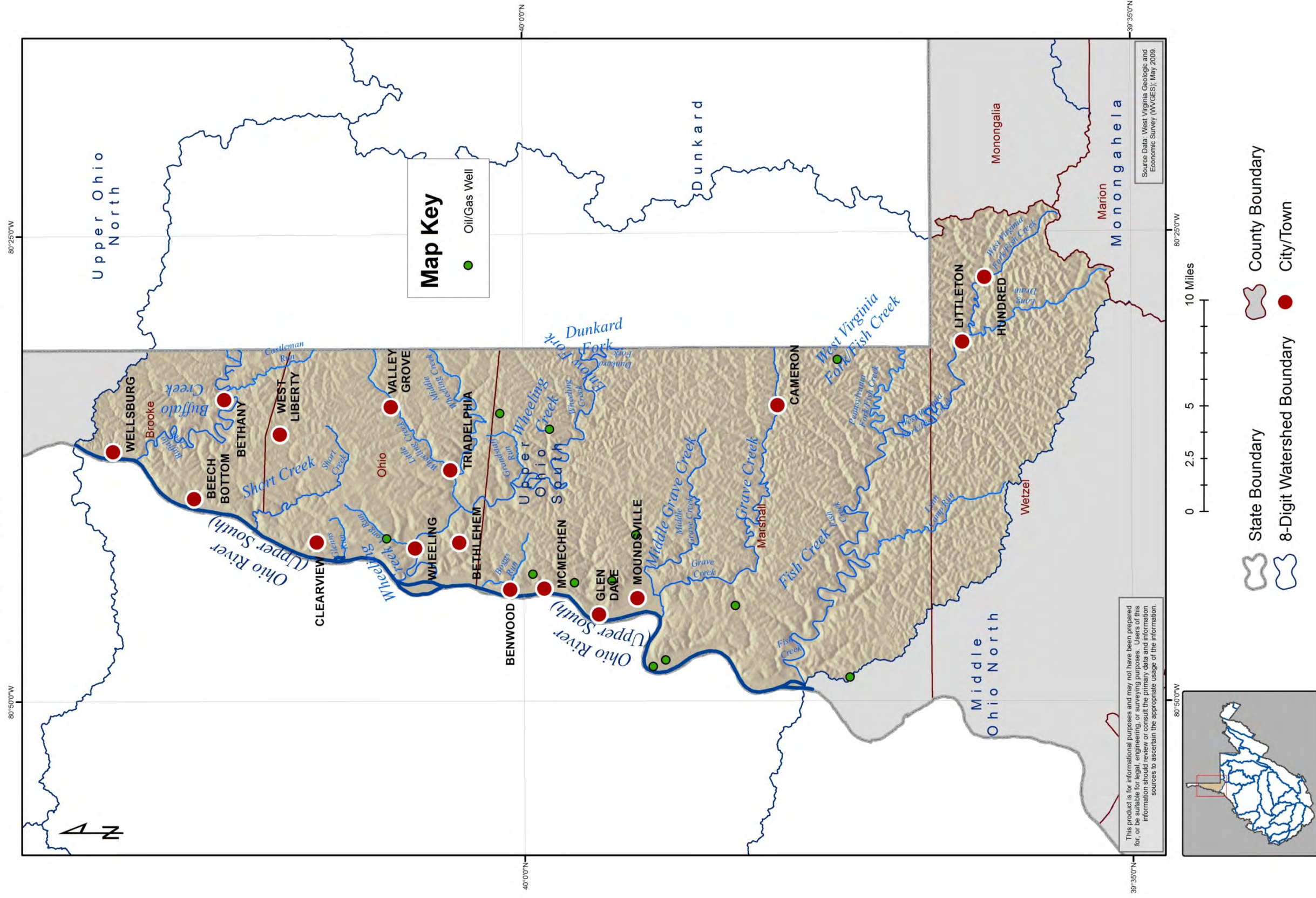
Upper Ohio South HUC-8 Watershed

Permitted Dams



Upper Ohio South HUC-8 Watershed

Well Logs with Gamma Rays and Water Shows

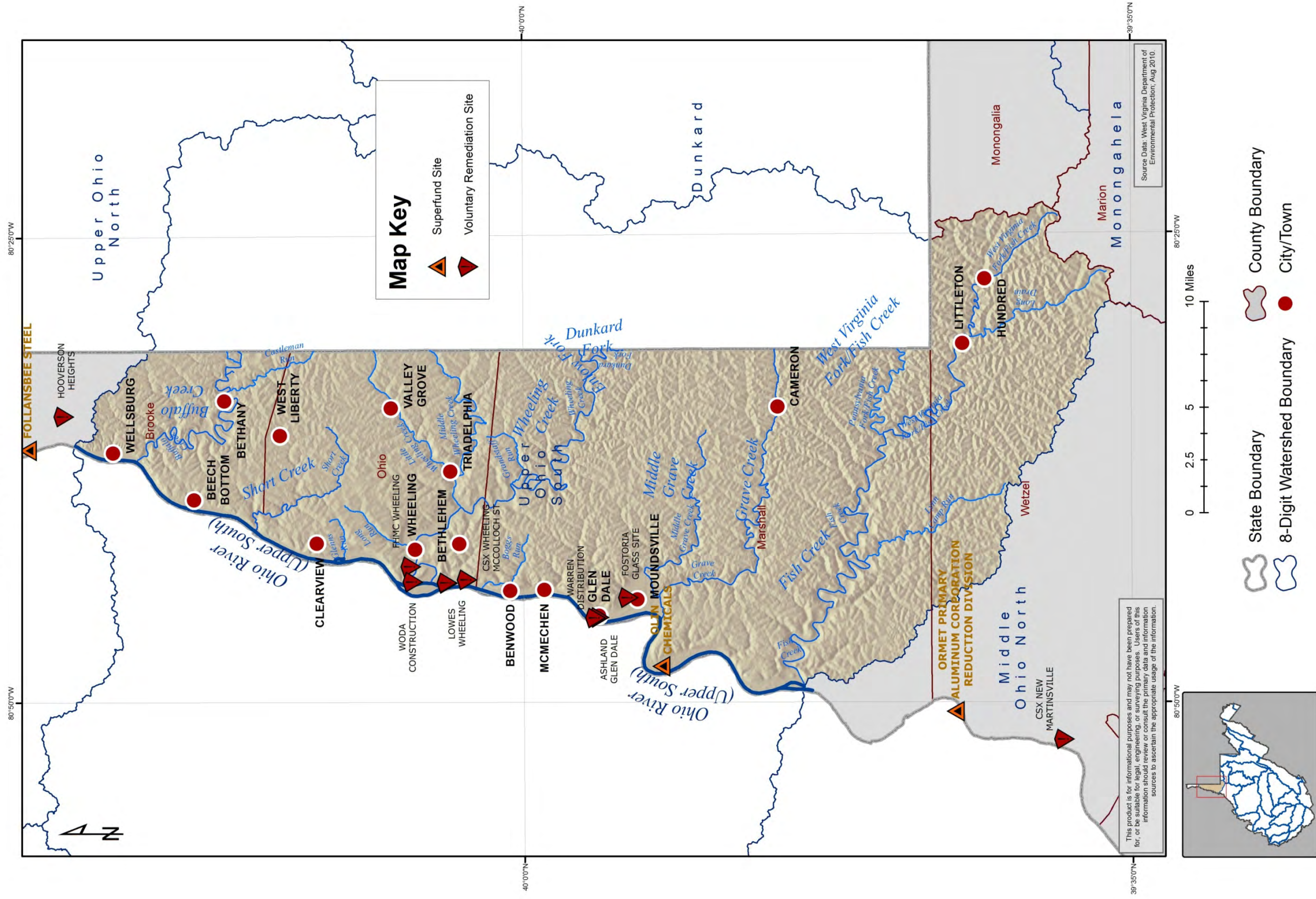


Map Key

- Oil/Gas Well

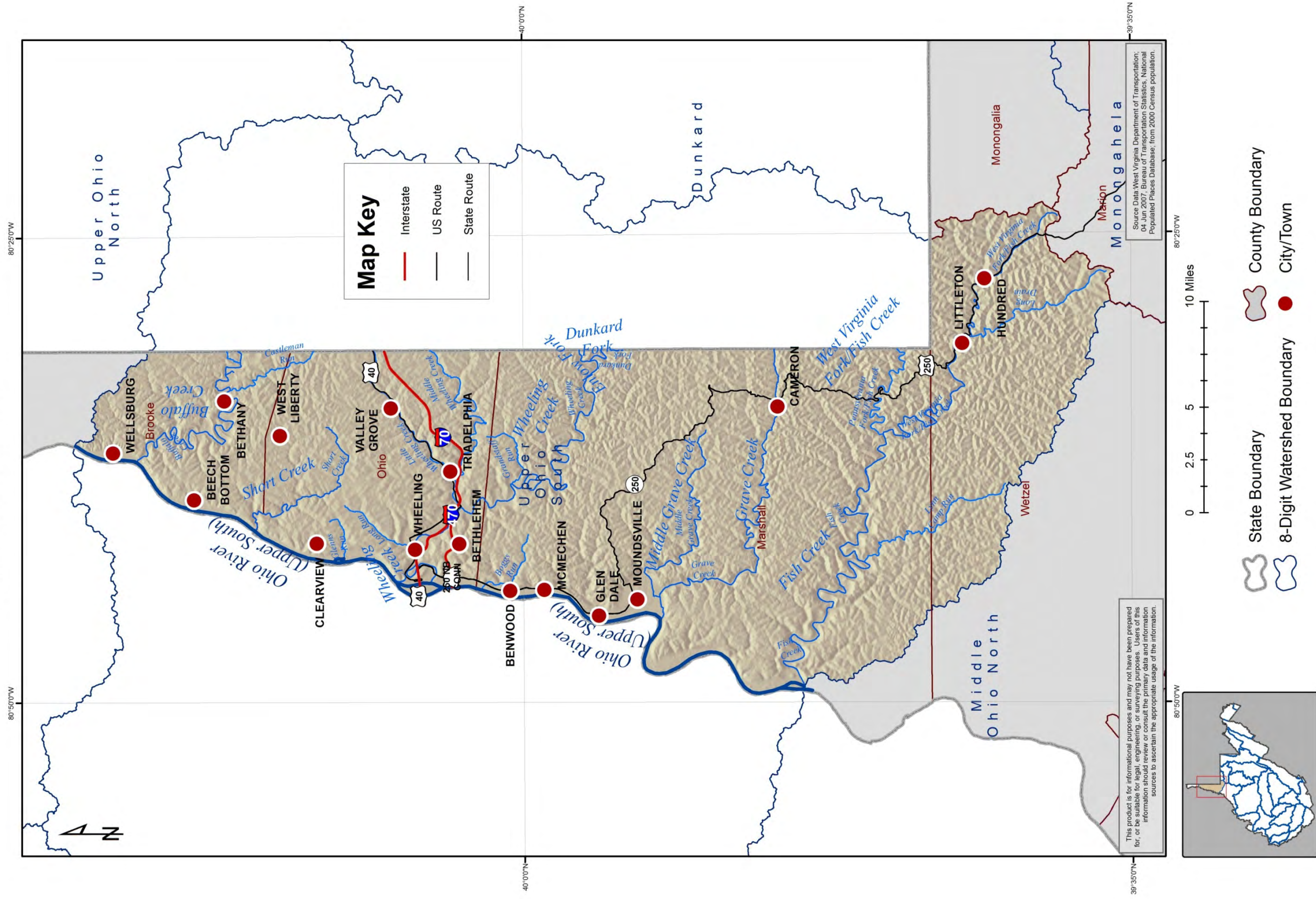
- State Boundary
- 8-Digit Watershed Boundary
- County Boundary
- City/Town

Upper Ohio South HUC-8 Watershed Remediation Sites



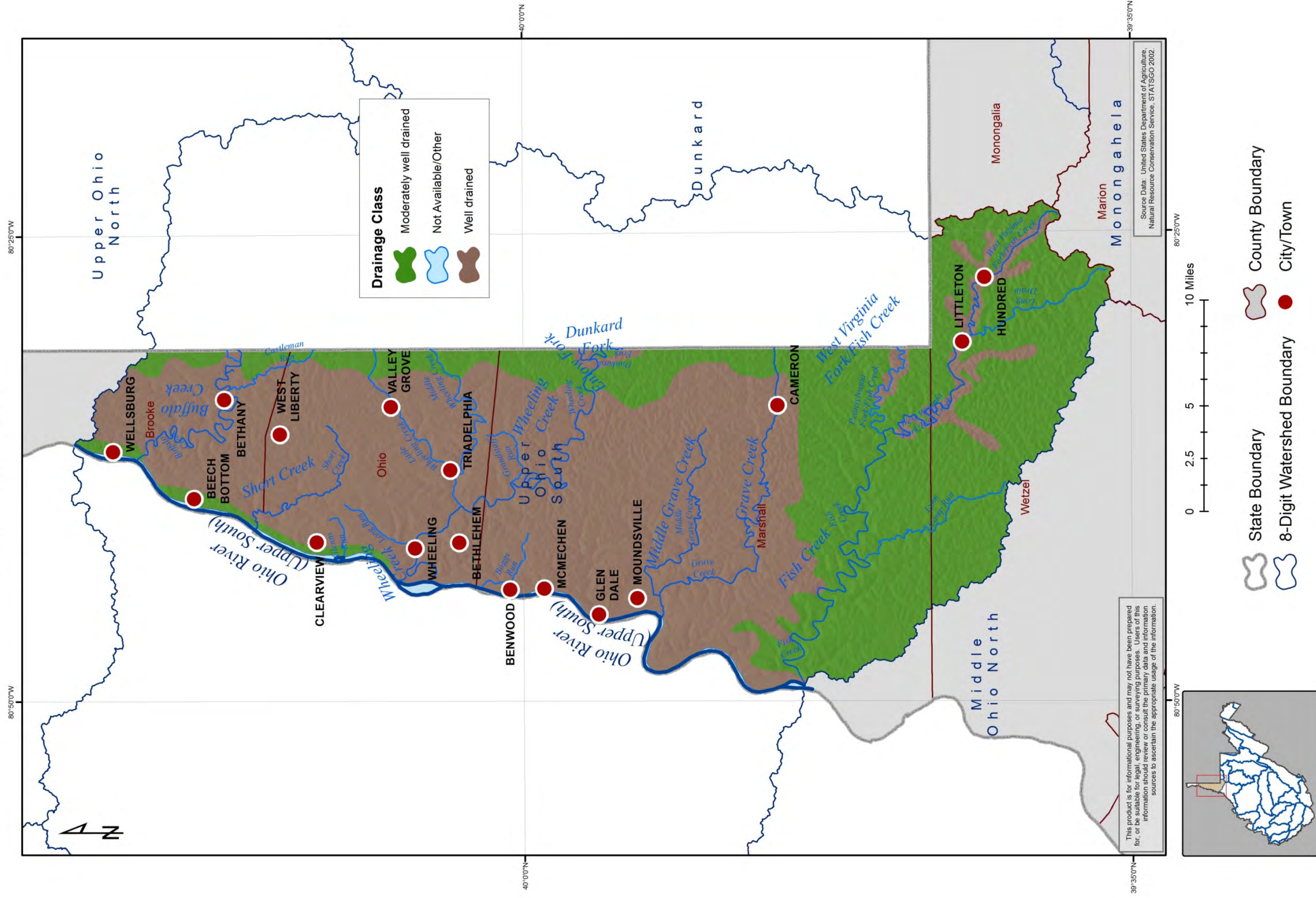
Upper Ohio South HUC-8 Watershed

Major Roads and Cities



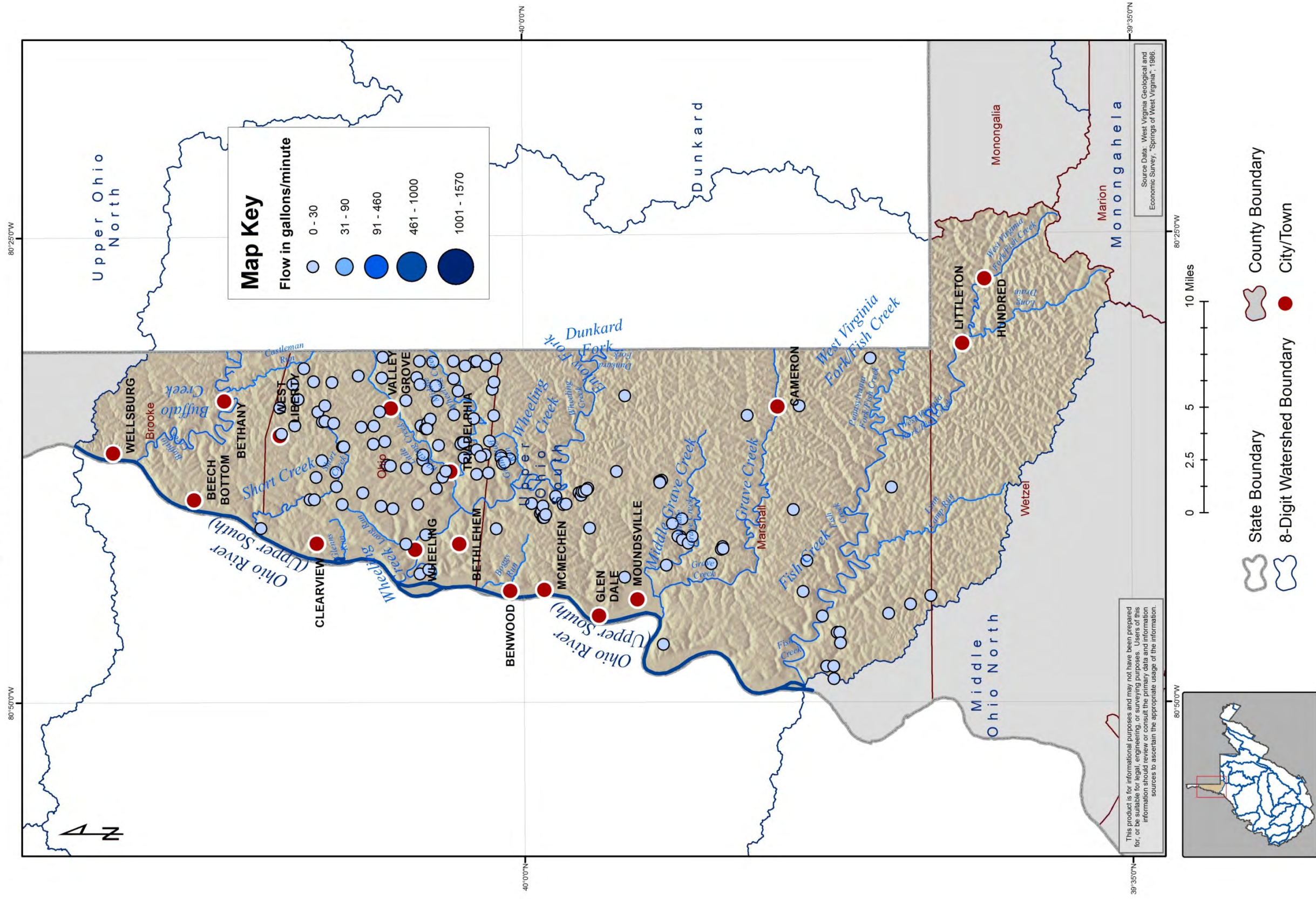
Upper Ohio South HUC-8 Watershed

Soil Drainage Classes



Upper Ohio South HUC-8 Watershed

Documented Springs



Upper Ohio South HUC-8 Watershed Average Annual Temperature (1971-2000)

