

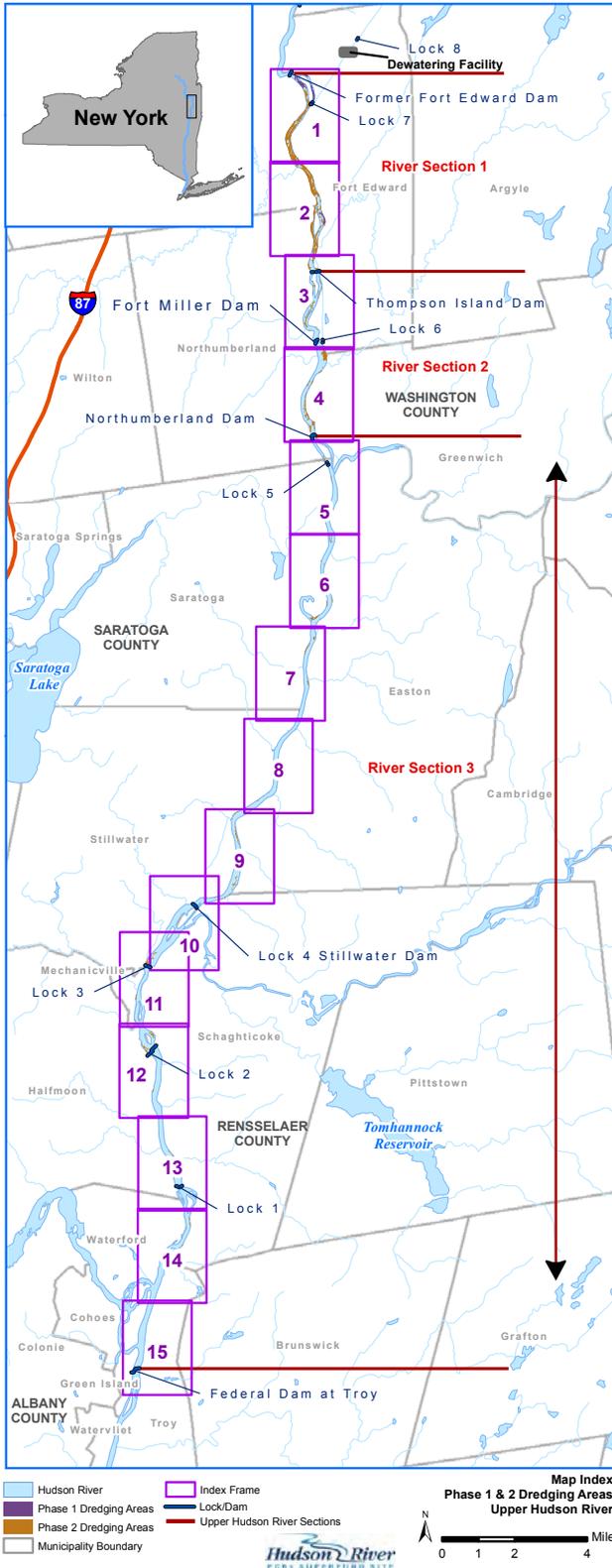


Hudson River PCBs SUPERFUND SITE

Region 2: NJ, NY, PR, VI • 290 Broadway, New York, NY 10007

Phase 2 Phase 2 Overview Factsheet

2014



Phase 2 Overview

In February 2002, the U.S. Environmental Protection Agency (EPA) issued a Record of Decision (ROD) for the Hudson River PCBs Superfund site that calls for targeted environmental dredging of approximately 2.65 million cubic yards of PCB-contaminated sediment from a 40-mile section of the Upper Hudson River. PCBs, or polychlorinated biphenyls, are considered probable human carcinogens and are linked to other adverse health effects. The primary goal of the Hudson River PCBs cleanup is to protect people and the environment from unacceptable risks due to PCB-contaminated sediments in the Upper Hudson River.

The cleanup of the Hudson River is occurring in two phases. Phase 1 of the project was conducted by General Electric Co. (GE) with oversight by the EPA from May to November 2009. During this phase, approximately 283,000 cubic yards of PCB-contaminated sediment was removed from a six-mile stretch of the Upper Hudson River near Fort Edward, New York. After an extensive evaluation by an independent panel of scientists and input from a broad range of stakeholders, the EPA developed plans for the second part of the cleanup. Phase 2 began in June 2011 and is being conducted at full production to remove the remainder of the contaminated river sediment targeted for dredging.

Where will the dredging be done?

The cleanup covers three sections of the Upper Hudson River: River Section 1 (from the former Fort Edward Dam to the Thompson Island Dam); River Section 2 (from the Thompson Island Dam to the Northumberland Dam); and River Section 3 (from the Northumberland Dam to the Federal Dam at Troy). Within the River Sections (see Map Index on page 4), dredging is conducted in areas of approximately five acres each, called “certification units” (CUs).

Phase 1 dredging was conducted in portions of River Section 1. Phase 2 dredging began with the areas that were not completed in Phase 1 and will continue downstream through River Sections 2 and 3.

During the initial years of the project, the areas targeted for dredging were close together and generally extended from shoreline to shoreline. In future years, as the project continues to move southward toward Troy, the dredging areas will be further apart. Several areas will also need to be dredged that are logistically challenging, including those near dams, shallow areas behind islands and the landlocked section of river located between the Thompson Island Dam and Fort Miller Dam.

Dredge areas are depicted in the attached maps by year.

How were the dredge areas selected?

The dredge areas were identified using the results of a multi-year sediment sampling program conducted by GE that began in 2002 and generated more than 60,000 sediment samples taken from the bottom of the Upper Hudson River. The sampling data allowed the EPA and GE to determine the distribution of the

PCBs in the sediment, refine estimates of the amount of PCBs in the sediment, and establish river sediment characteristics (e.g., silt, sand, gravel). Phase 2 of the project was designed using the Phase 2 Dredge Area Delineation report (including the Phase 2 Intermediate and Final Design reports) and knowledge gained during Phase 1. In addition, before the start of the 2011 dredge season, 3,900 additional samples were taken from the river bottom in River Section 1 to more accurately determine the depth and location of PCBs. Some additional sediment sampling will occur in River Sections 2 and 3 as the project continues. Various project design reports are available on the project Web site at www.epa.gov/hudson.

How is PCB-contaminated sediment removed, processed and disposed of?

Dredging is typically conducted between May and November when the Champlain canal is open for the season. Dredging occurs 24 hours a day, six days a week. Mechanical dredges are used to remove sediment from the river bottom. Dredges mounted on deck barges use environmental clamshell buckets to place dredged sediments into barges. Tugboats then push the filled barges to a dewatering and sediment-processing facility located on the Champlain Canal in Fort Edward, New York. Once there, the most contaminated sediment is processed first. Debris is removed and sediment is mechanically dewatered; the water is treated on-site before being returned to the Champlain Canal. The dewatered sediment and debris are loaded onto railcars for transport to a permitted off-site disposal facility. Dredging and processing operations are continually monitored and evaluated to determine if changes are needed to improve

Data and operations are constantly evaluated to ensure that the momentum of cleanup work in the river continues and that the biggest sources of ongoing contamination are addressed. After an extensive review of the first phase of dredging in 2010, the EPA modified a number of requirements for dredging. These refinements include:

- **Improved sampling:** Improved sampling methods provide more complete information on the extent of contamination in the targeted dredge areas.
- **Improved dredge design and fewer dredge passes:** By dredging deeper than the expected depth of contamination, fewer bucket bites or dredge “passes” are needed to remove PCBs. These refinements account for the high degree of variability in the sediment layer and help to minimize sediment re-deposition.
- **Less capping:** Capping is limited to 11% of the dredged area, excluding areas that must be capped due to considerations such as encountering bedrock. In some locations capping of the river sediments is necessary to isolate small amounts of PCBs remaining after dredging.

operations. Prior to the 2012 season, improvements were made at the processing facility to support operations and increase productivity (see Figure 1).

Performance Standards

The performance standards were designed to ensure dredging operations are done safely and public health is protected. Three engineering performance standards were created to protect water intakes and the environment: resuspension (transport of PCBs down river); residuals (PCBs left behind); and productivity (complete the project efficiently). Five quality of life performance standards were developed (air quality, noise, lighting, odor, and navigation) for the purpose of minimizing the effects of dredging on people, businesses, and communities. These standards are re-evaluated and may be adjusted, as needed, as dredging operations move from the uppermost portions of the river into areas much further downstream.

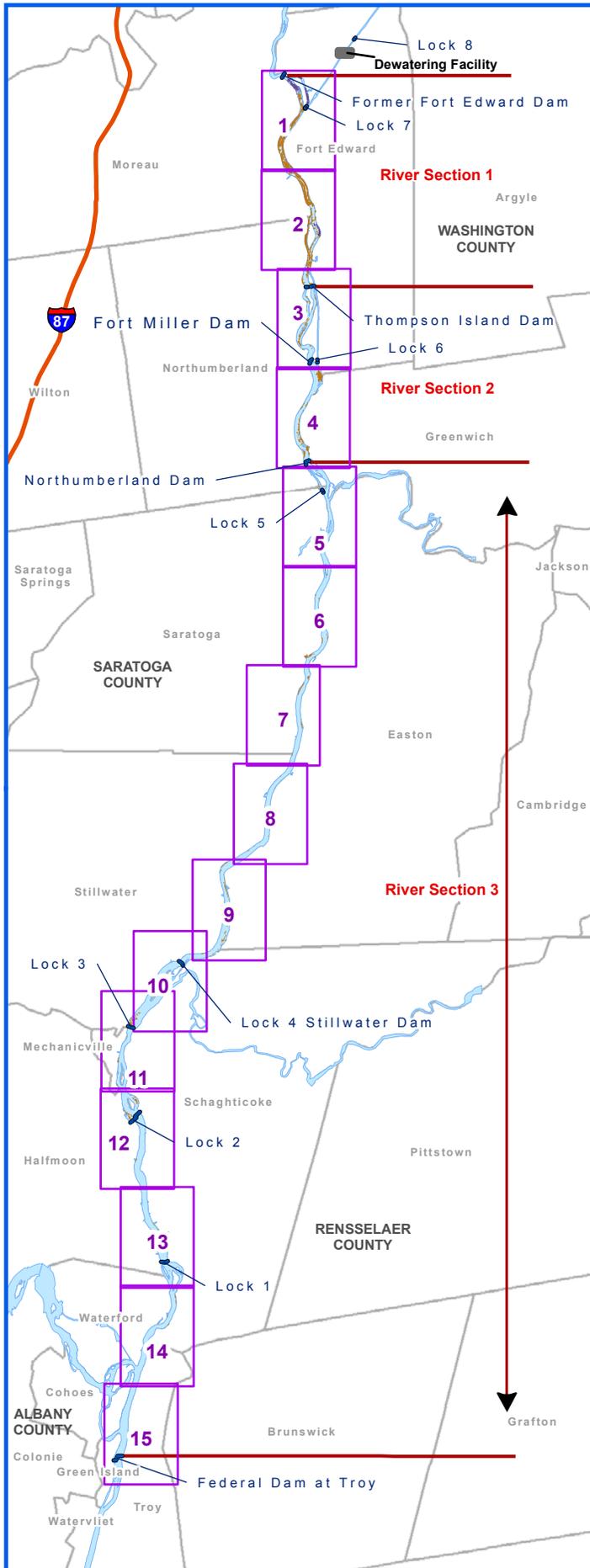
In-River Monitoring

The Federal Safe Drinking Water Act standard of 500 parts per trillion (ppt) is used as the resuspension standard for the project. Compliance with this standard is monitored through an extensive river quality monitoring program at upstream, near-field (within 300 meters downstream of dredging), mid-field (approximately 1-2 miles downstream), and at far-field (greater than 2 miles downstream) locations. When resuspension or other performance standards are not met, GE will be required to conduct evaluations and adjust dredging operations. Air monitoring also occurs 24/7 during dredging operations. For quality of life issues such as odor, noise, or lighting, monitoring will occur regularly, as well as in response to complaints; and GE will be required to take action to address the issue.

Performance standard monitoring data is available on the EPA's Hudson Dredging Data web site: www.hudsondredgingdata.com



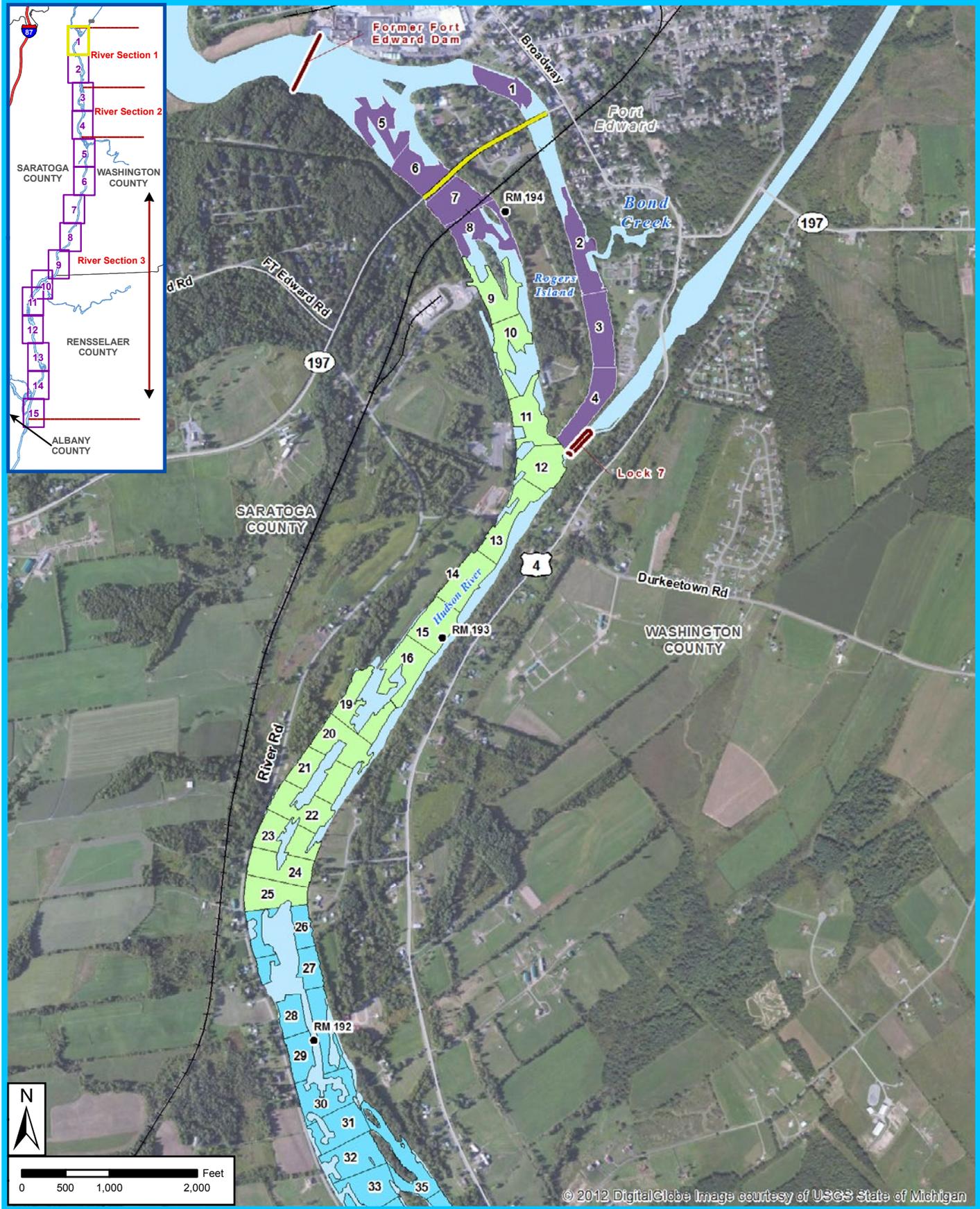
Figure 1: Prior to the 2012 season, improvements were made at the Processing Facility which included expansion of the coarse material staging area and construction of a second barge unloading station, additional size separation equipment, and a second gravity thickener.



LEGEND

- Index Frame
- Lock/Dam
- Upper Hudson River Sections
- Hudson River
- Phase 1 Dredging Areas
- Phase 2 Dredging Areas
- Municipality Boundary

0 1 2 4 Miles

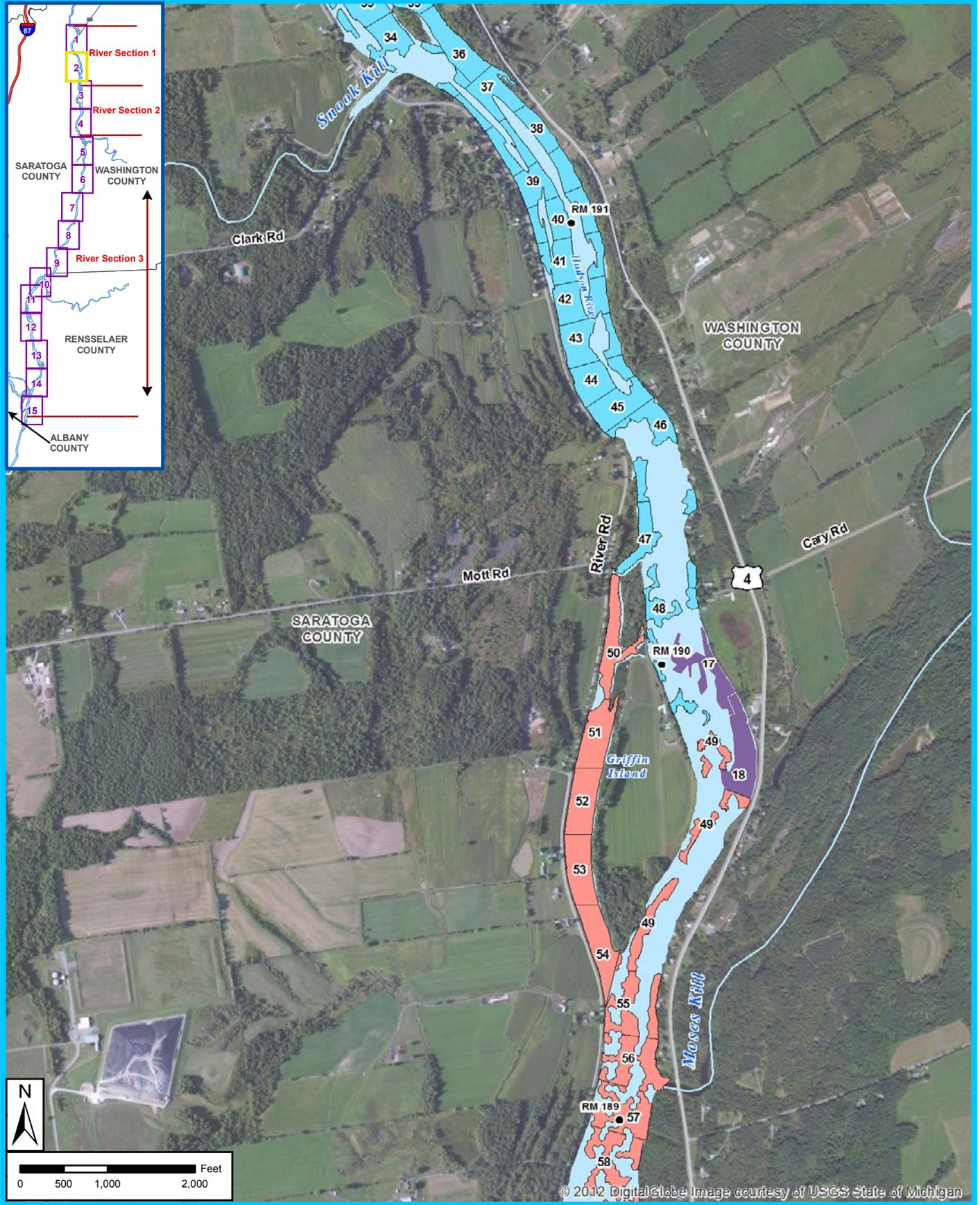


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Phase 1 and 2 Dredge Areas Map 1

- River Mileposts
- USA Major Roads
- Stream/River
- Hudson River
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas

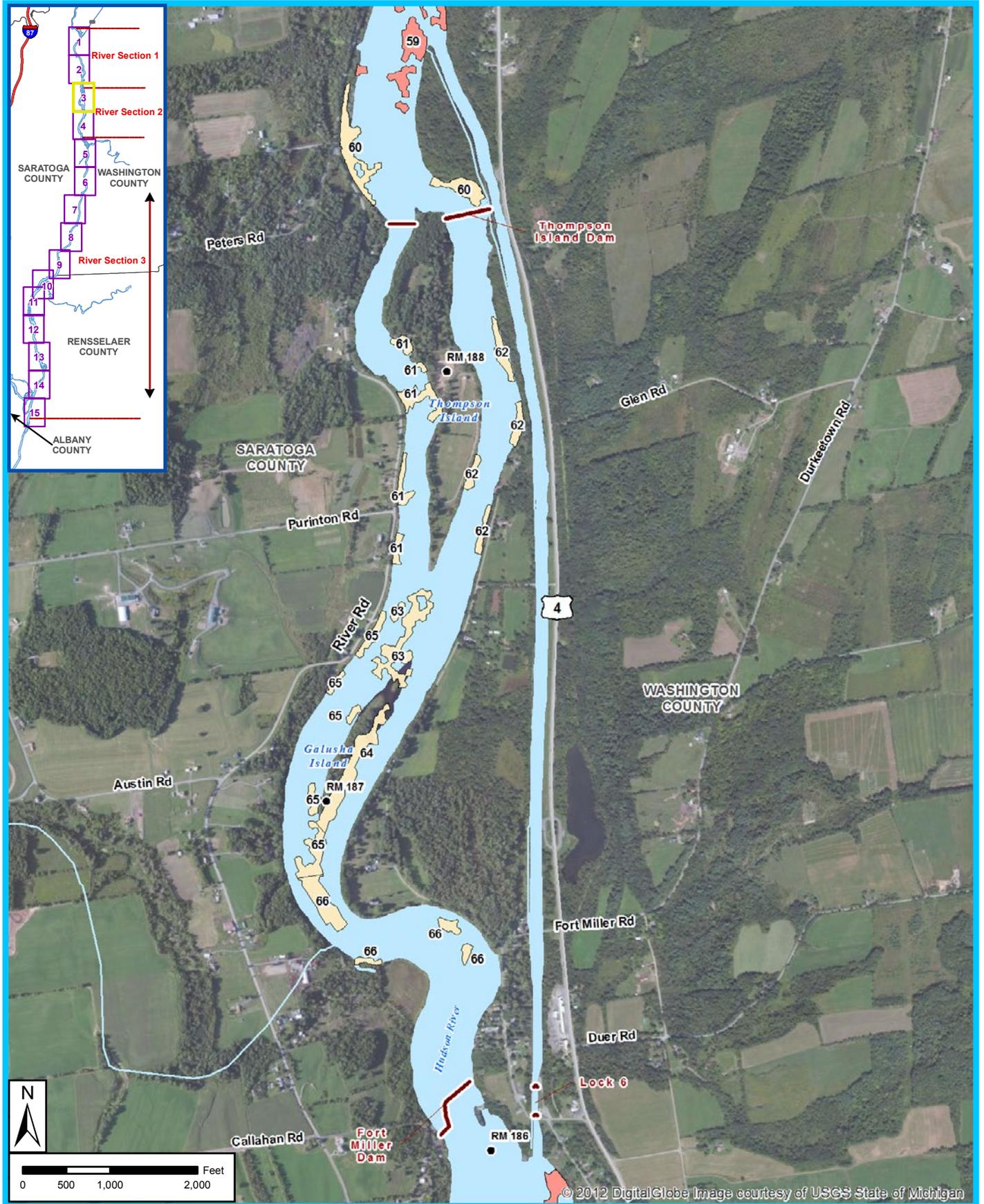




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Phase 1 and 2 Dredge Areas Map 2

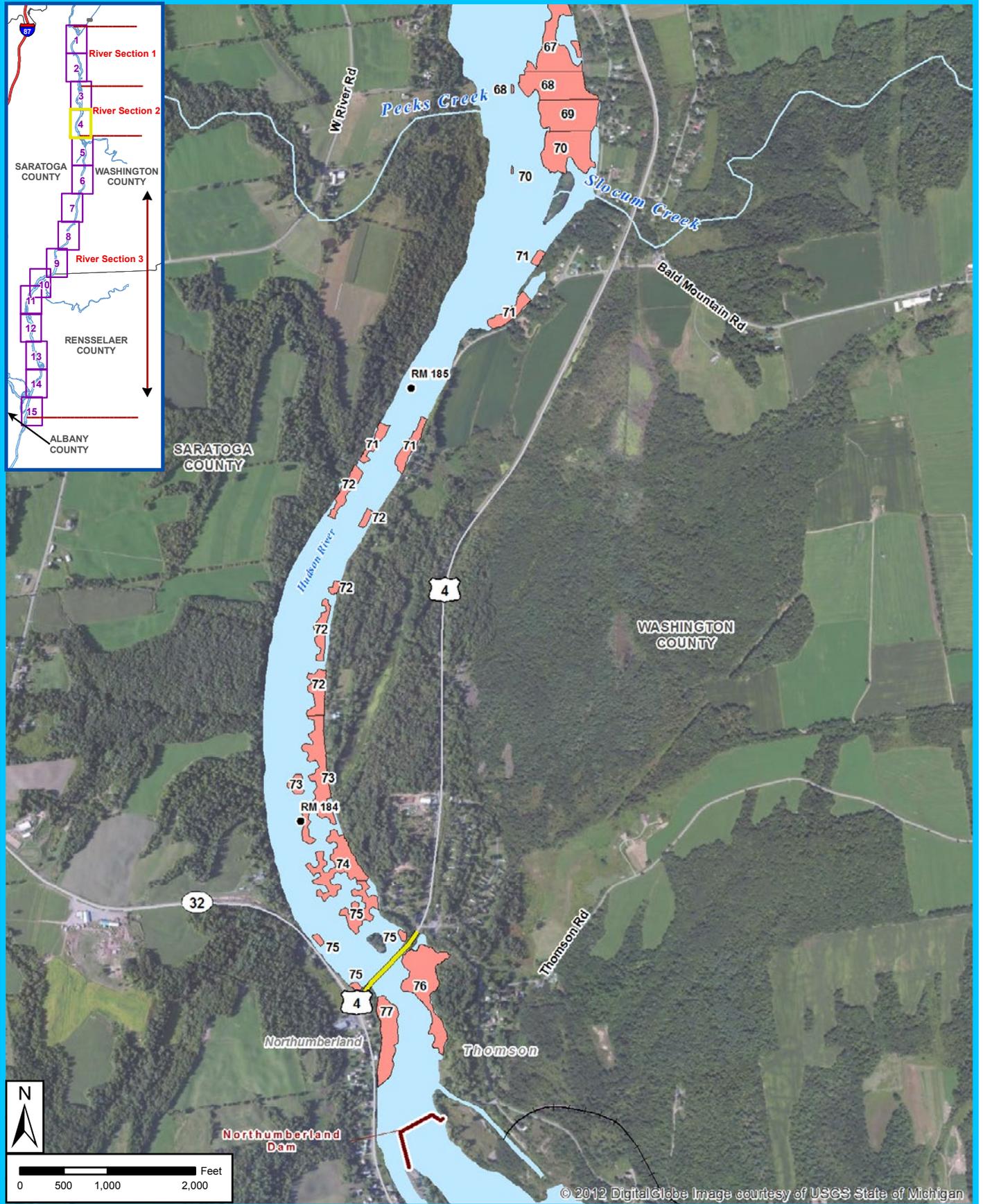
- River Mileposts
- USA Major Roads
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
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- Stream/River
- Hudson River



Phase 1 and 2 Dredge Areas
Map 3

- River Mileposts
- USA Major Roads
- Stream/River
- Hudson River
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
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- Phase 2 Year 4 (2014) and Future Dredging Areas
- Bridges
- Primary Railroads
- Lock/Dam

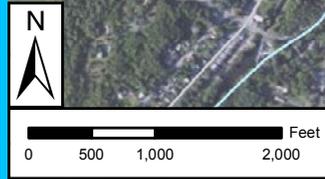
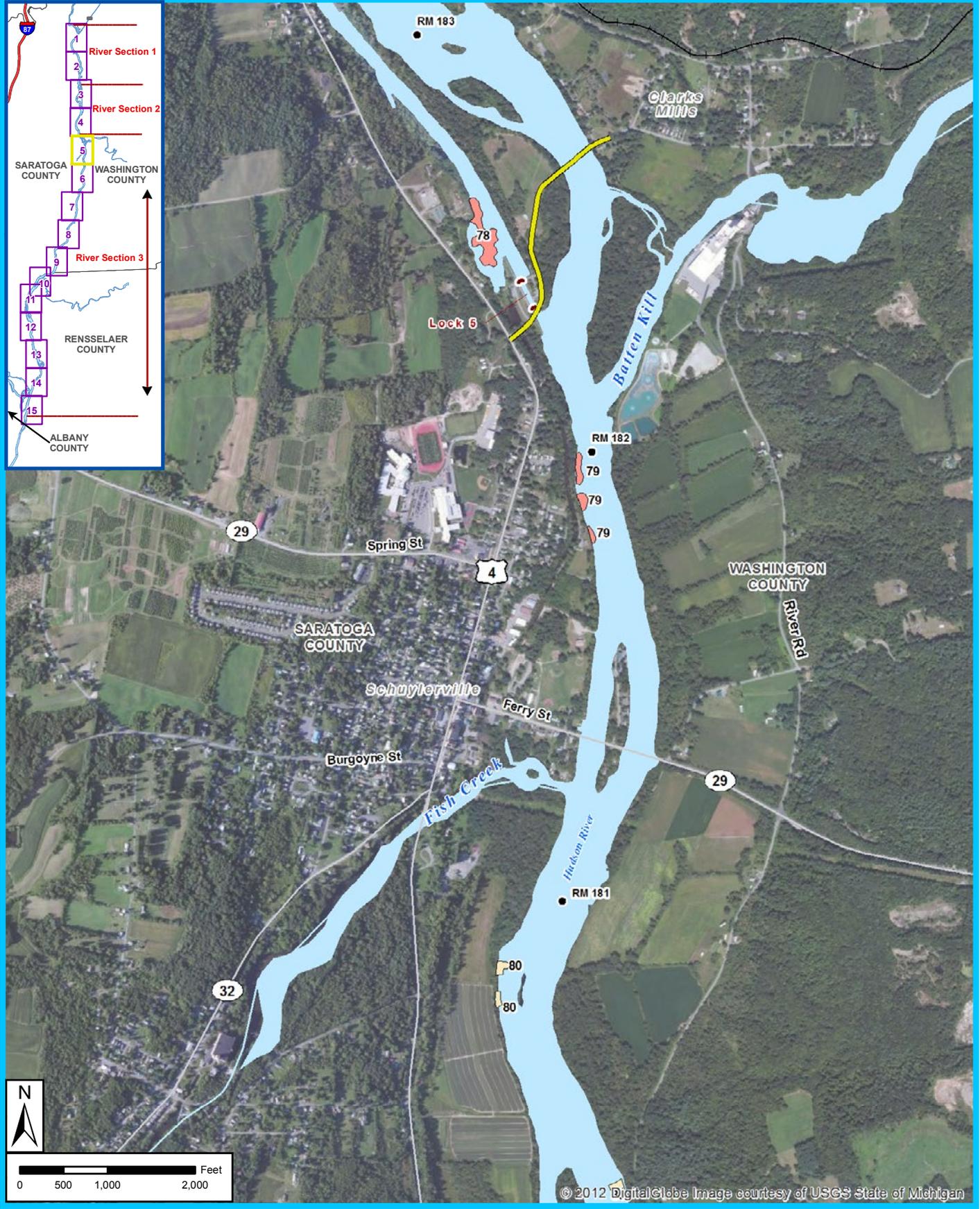




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Phase 1 and 2 Dredge Areas Map 4

- River Mileposts
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- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
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- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas

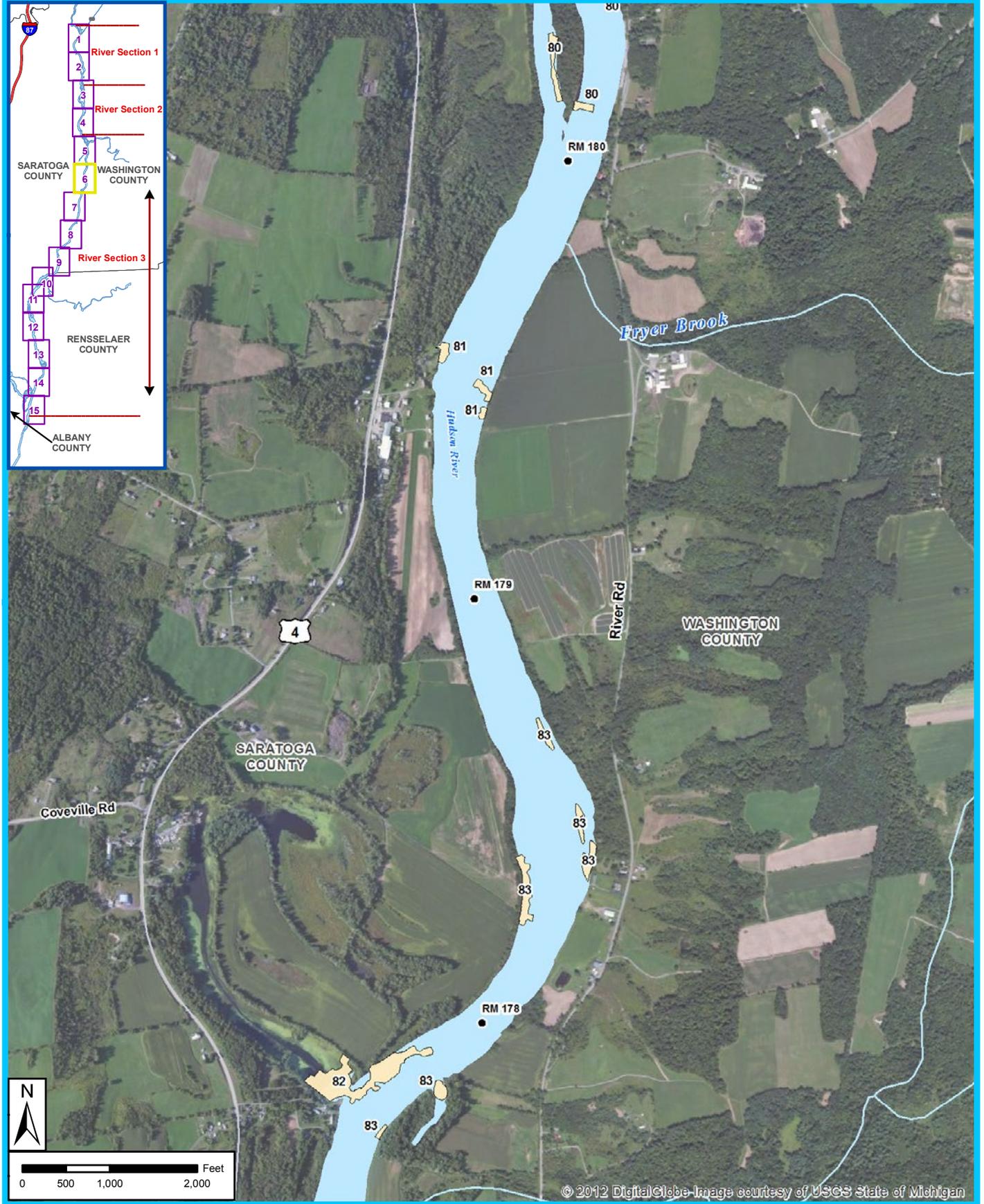


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- Hudson River

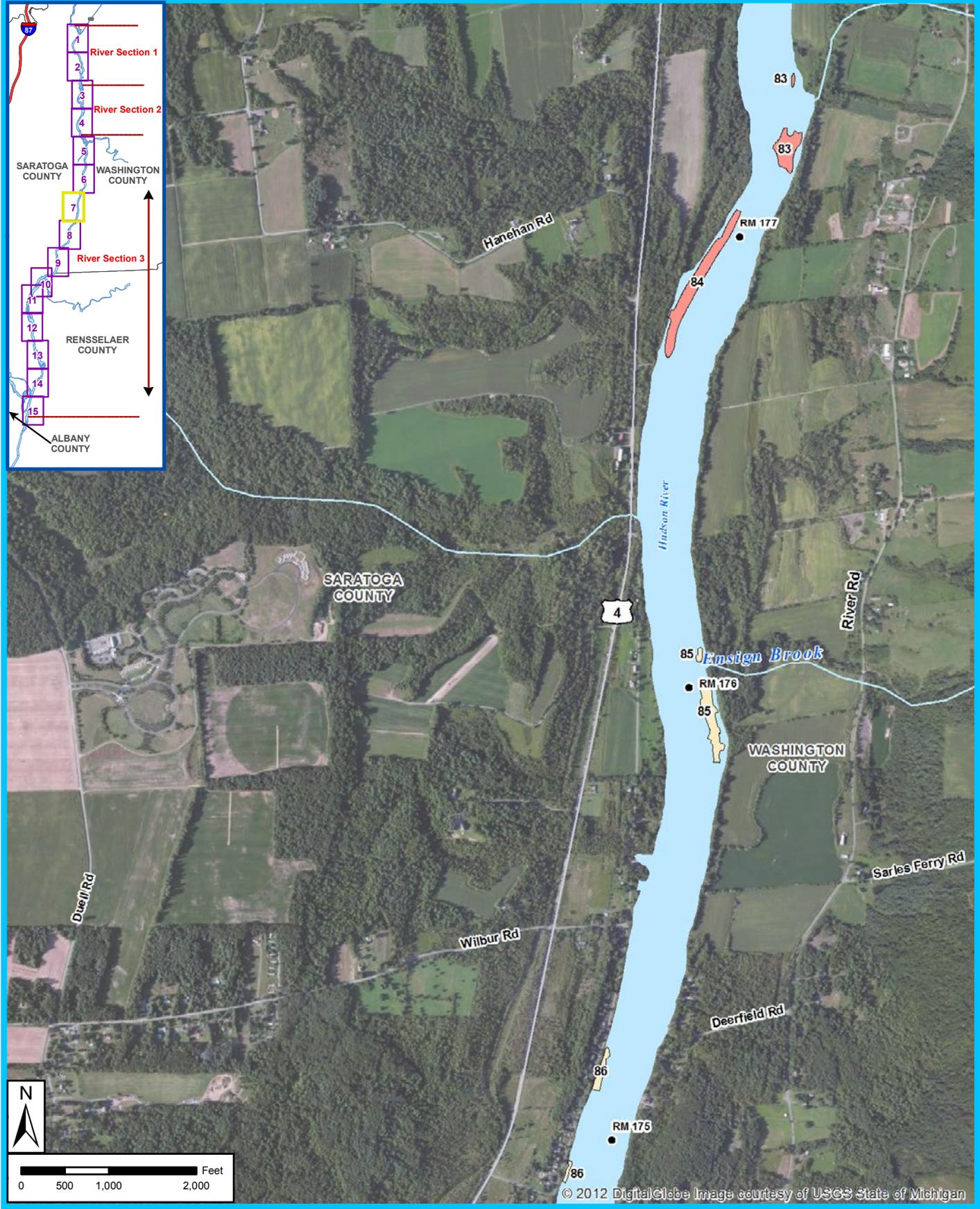
Phase 1 and 2 Dredge Areas Map 5





**Phase 1 and 2 Dredge Areas
Map 6**

- River Mileposts
- USA Major Roads
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Stream/River
- Hudson River
- Phase 2 Year 1 (2011) Dredged Areas
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- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas

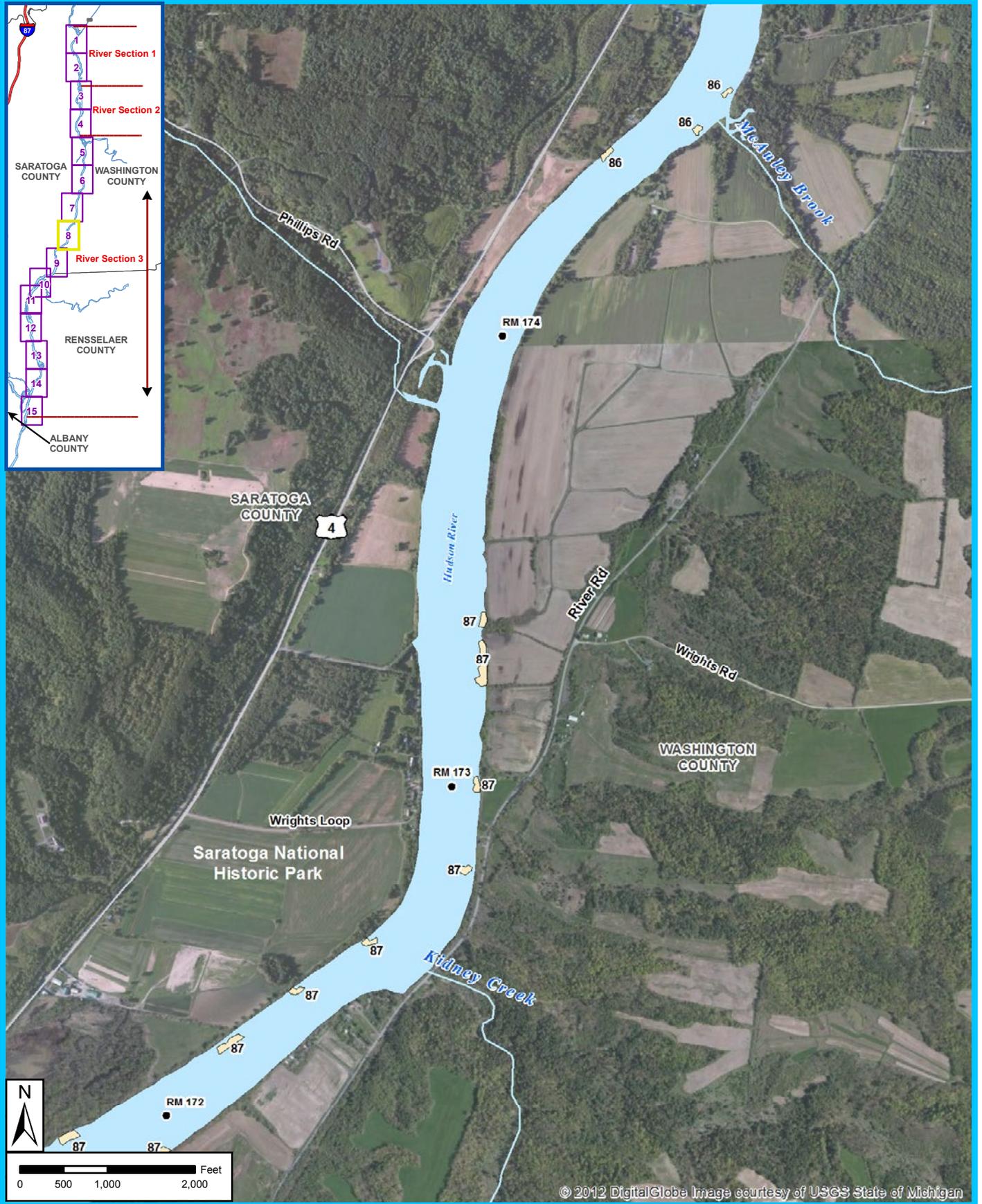


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Phase 1 and 2 Dredge Areas Map 7

- River Mileposts
- USA Major Roads
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
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- Phase 2 Year 4 (2014) and Future Dredging Areas
- Stream/River
- Hudson River





Phase 1 and 2 Dredge Areas
Map 8

- River Mileposts
- USA Major Roads
- Stream/River
- Hudson River
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas

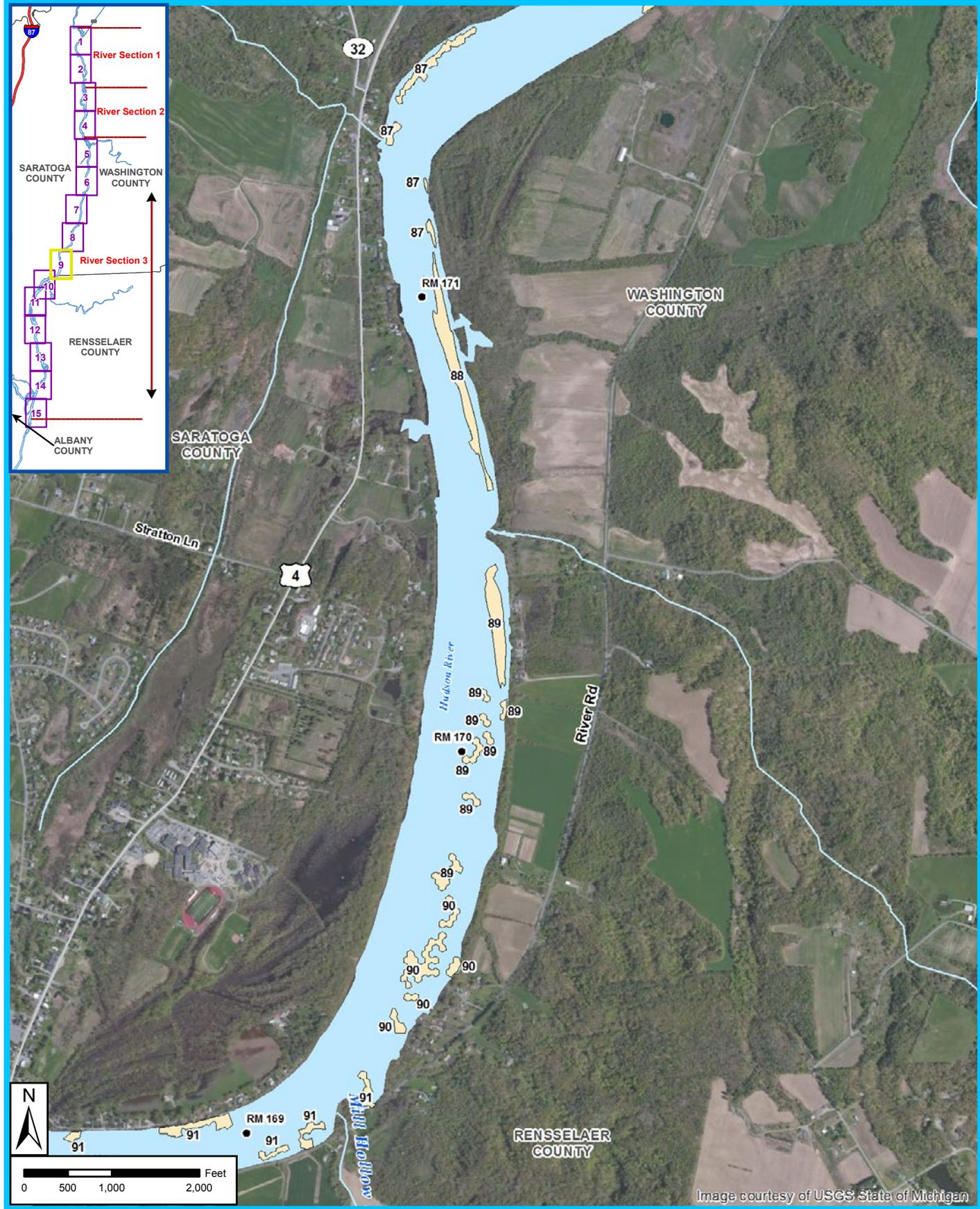
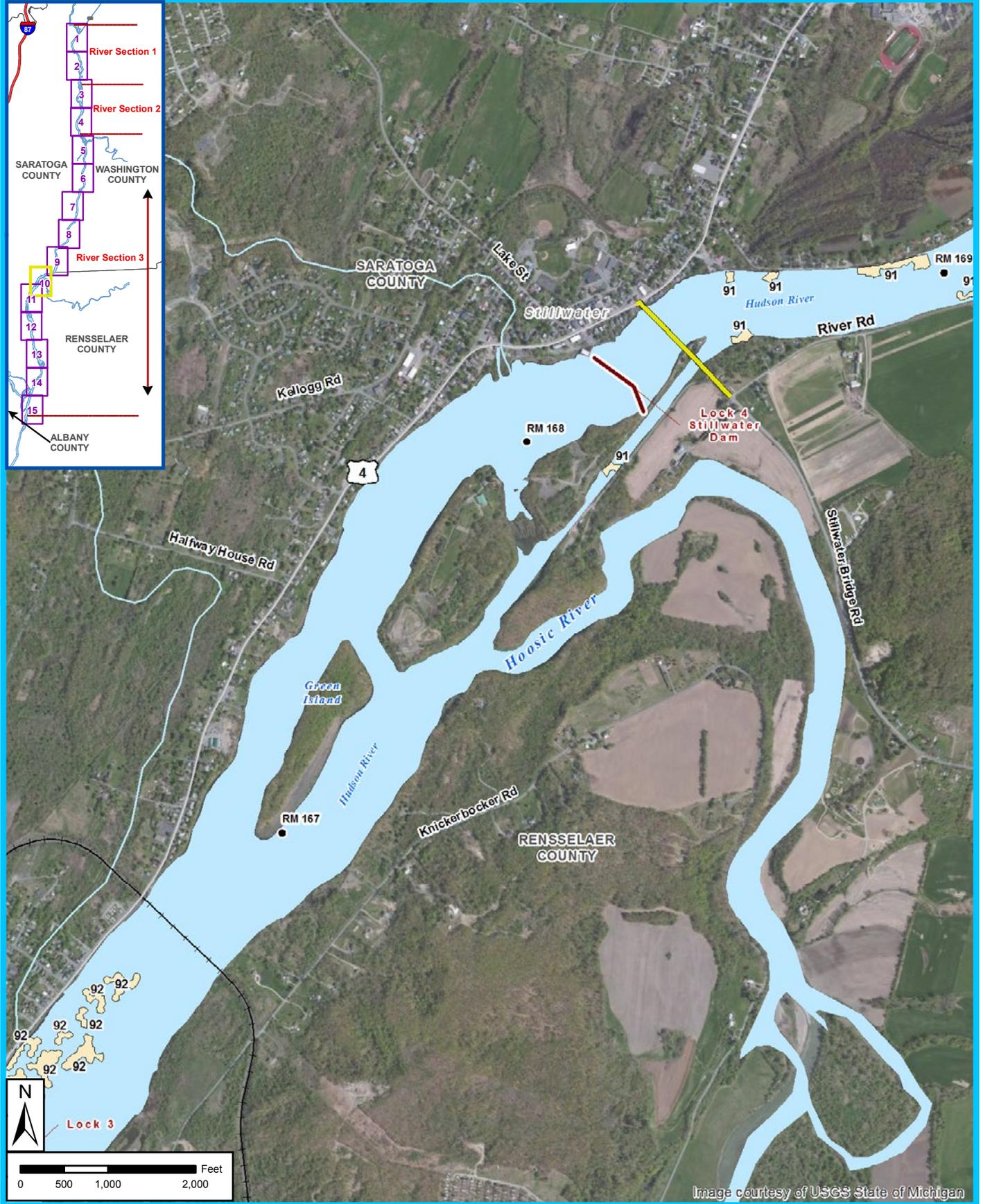


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**Phase 1 and 2 Dredge Areas
Map 9**

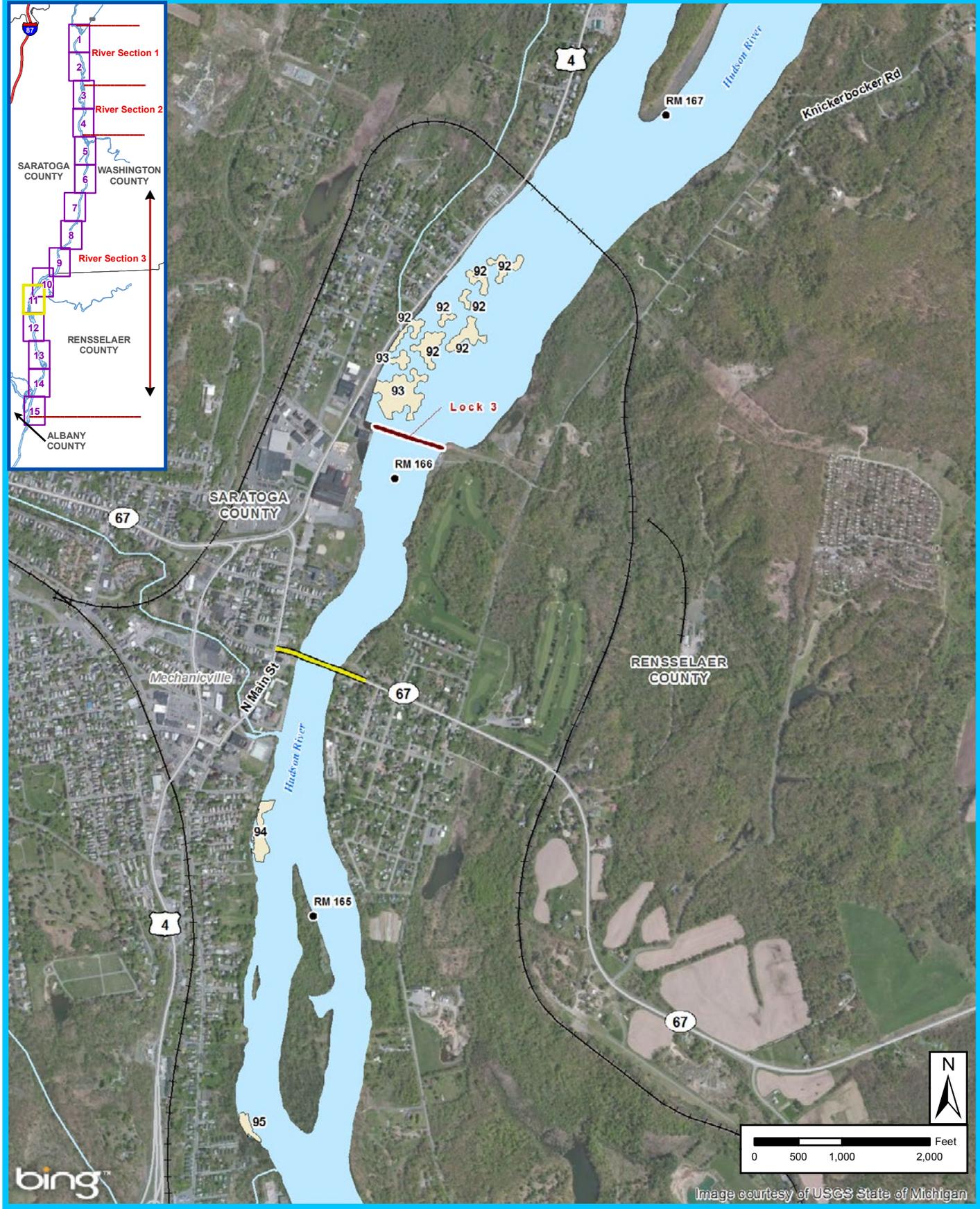
- River Mileposts
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- Bridges
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- Phase 2 Year 3 (2013) Dredged Areas
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Phase 1 and 2 Dredge Areas
Map 10

- River Mileposts
- USA Major Roads
- Stream/River
- Hudson River
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas



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Image courtesy of USGS State of Michigan

- River Mileposts
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Bridges
- Hudson River
- Phase 2 Year 2 (2012) Dredged Areas
- USA Major Roads
- Stream/River
- Phase 2 Year 3 (2013) Dredged Areas
- Primary Railroads
- Phase 2 Year 4 (2014) and Future Dredging Areas
- Lock/Dam

Phase 1 and 2 Dredge Areas

Map 11



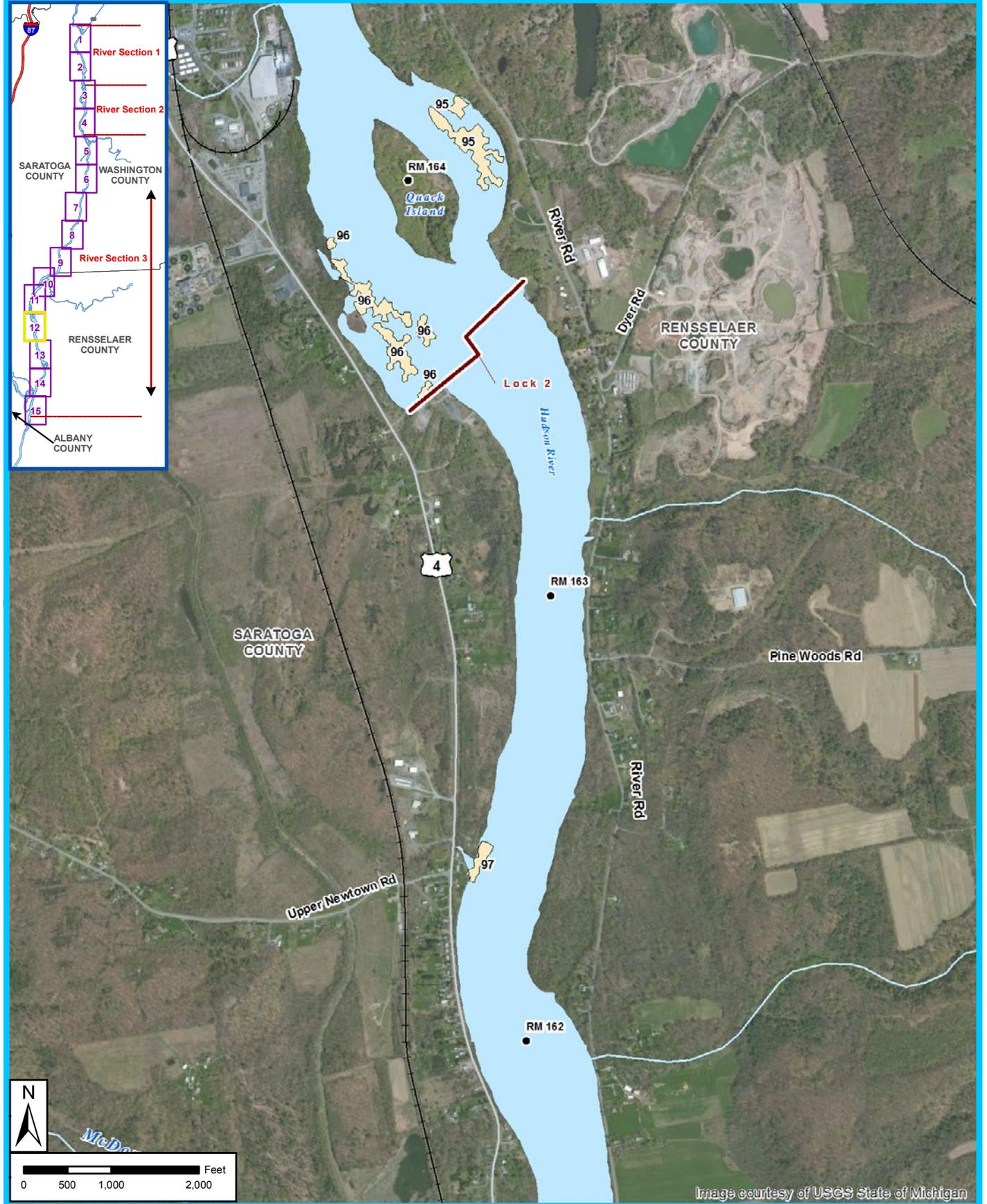


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Phase 1 and 2 Dredge Areas Map 12

- River Mileposts
- USA Major Roads
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas



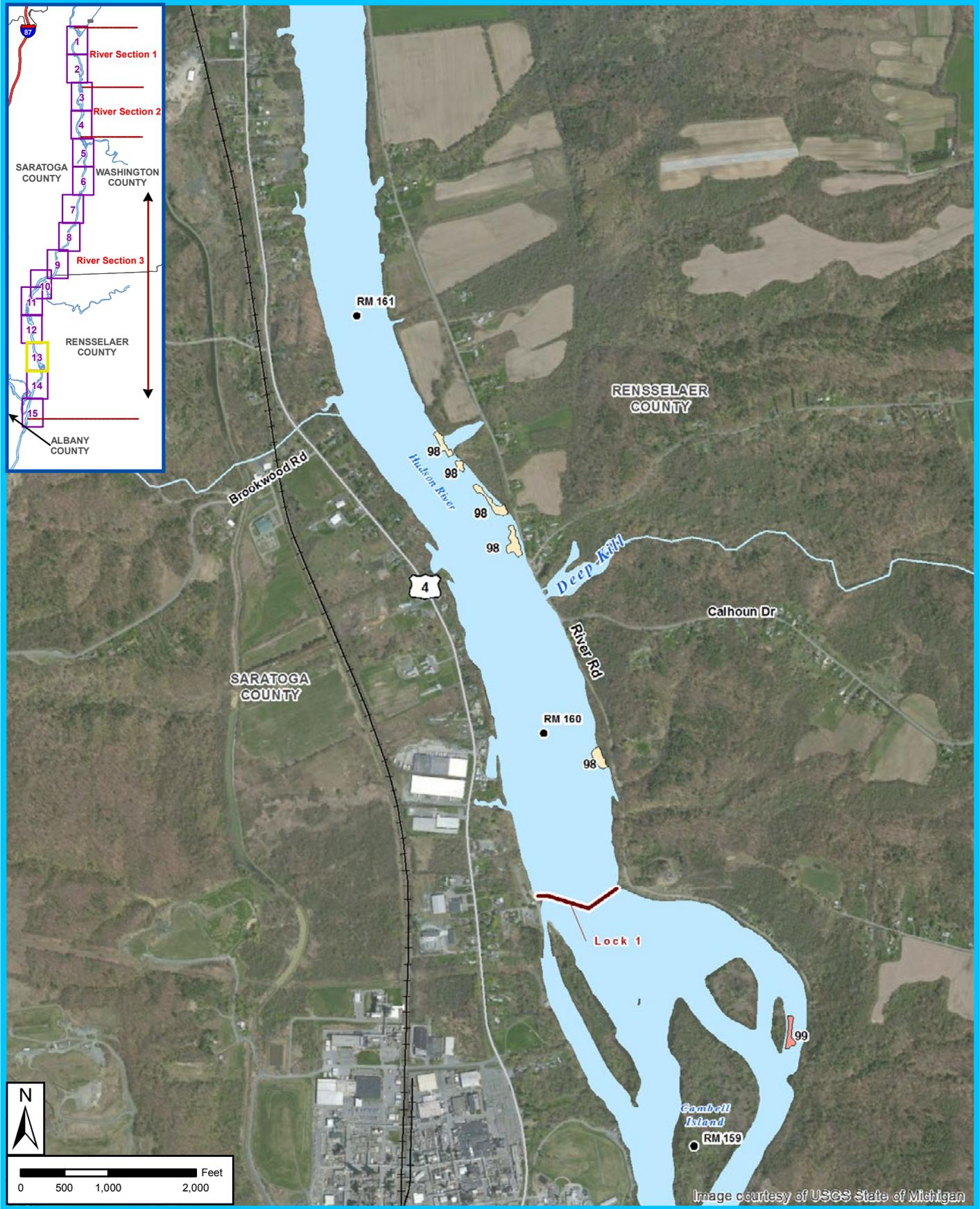


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Phase 1 and 2 Dredge Areas Map 13

- River Mileposts
- USA Major Roads
- Stream/River
- Hudson River
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
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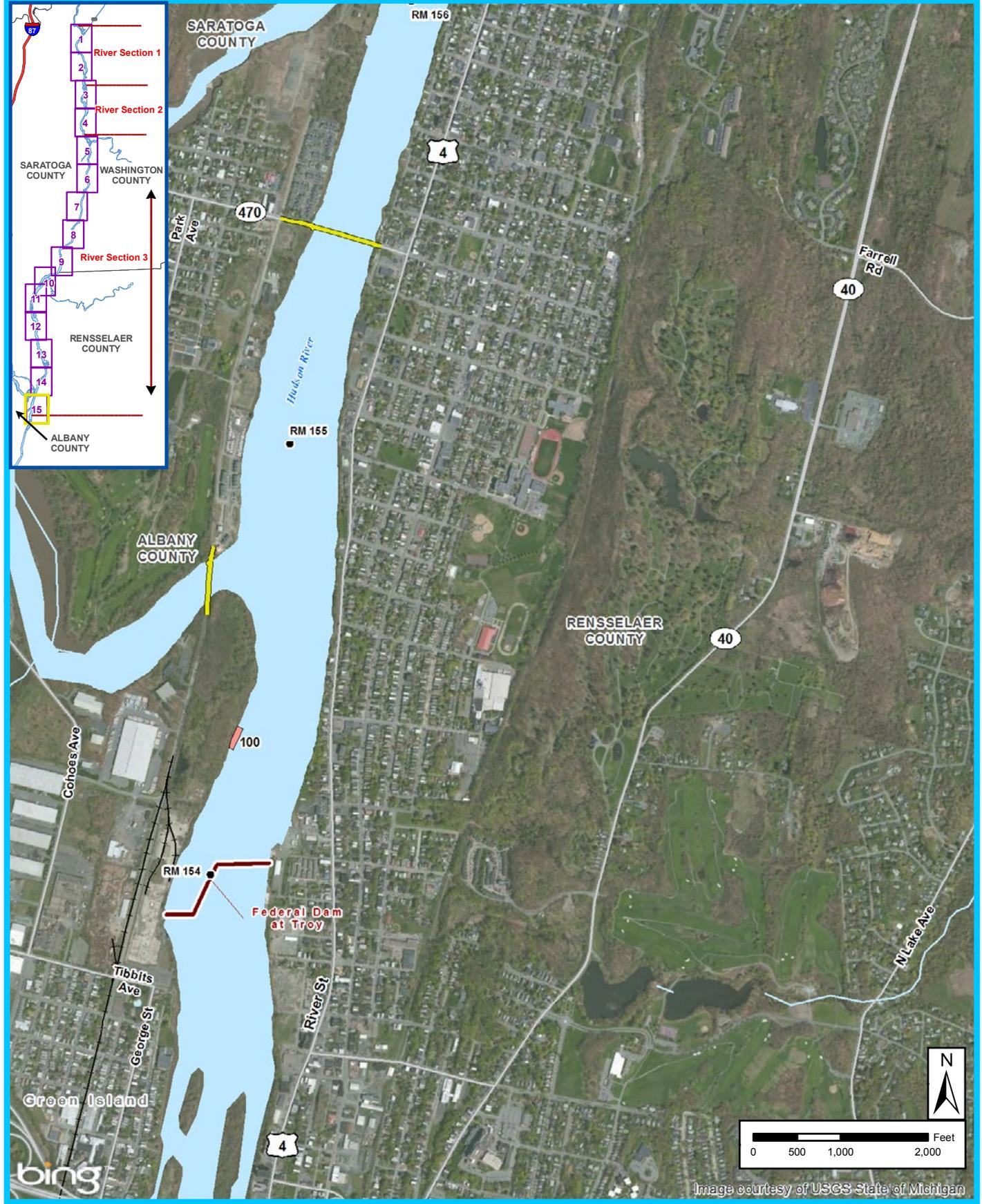




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Phase 1 and 2 Dredge Areas Map 14

- River Mileposts
- USA Major Roads
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas
- Hudson River
- Stream/River



- River Mileposts
- USA Major Roads
- Bridges
- Primary Railroads
- Lock/Dam
- Phase 1 Dredging Areas
- Phase 2 Year 1 (2011) Dredged Areas
- Phase 2 Year 2 (2012) Dredged Areas
- Phase 2 Year 3 (2013) Dredged Areas
- Phase 2 Year 4 (2014) and Future Dredging Areas
- Hudson River
- Stream/River

Phase 1 and 2 Dredge Areas Map 15



For More Information

The EPA will continue the public outreach program for this project. The program includes maintaining the Hudson River Field Office, providing project information and meeting with riverfront residents living near the dredging areas. Visit*, call toll-free, or write to the Hudson River Field Office at the address below for more information.

EPA Contacts:

🔗 **Gary Klawinski, Remedial Project Manager**

Hudson River Field Office
421 Lower Main Street
Hudson Falls, NY 12839
(518) 747-4389 or (866) 615-6490 Toll-Free
hrfo@roadrunner.com

🔗 **Larisa Romanowski, Community Involvement Coordinator**

Hudson River Field Office
421 Lower Main Street
Hudson Falls, NY 12839
(518) 747-4389 or (866) 615-6490 Toll-Free
hrfo@roadrunner.com

**The Field Office hours are Monday - Friday, 8:00 am - 4:30 pm, with evening hours by appointment.*

River residents with specific concerns relating to dredging activities when work is being performed should call GE's dedicated 24-hour phone line at (518) 792-4087 or (888) 596-3655.

Regional Public Liaison:

If you would like information on general environmental concerns or the federal Superfund hazardous waste program, have concerns or complaints about the Superfund program, or if you seek assistance in resolving site-specific issues that were not fully addressed by the EPA, please contact: George Zachos, U.S. EPA, Regional Public Liaison, (732) 321-6621, zachos.george@epa.gov, or toll free at (888) 283-7626.