

**FINAL RESTORATION PLAN**

**for the**

**FORMER GM NORTH TARRYTOWN ASSEMBLY PLANT SITE,  
TARRYTOWN, WESTCHESTER COUNTY, NEW YORK**

**AUGUST 2018**

*Prepared by:*

**New York State Department of Environmental Conservation**

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## **A. Introduction**

In 2010, the New York State Department of Environmental Conservation (NYSDEC, The Department), the Trustee, resolved a natural resource damages claim with General Motors LLC (GM) pertaining to injured natural resources of the lower Hudson River, and adjacent ecosystems from the Former GM North Tarrytown Assembly Plant Site (Site) located in the Village of Tarrytown, Westchester County, New York. The affected site is in the immediate vicinity of the eastern portion of the former Tappan Zee Bridge.

This Final Restoration Plan (RP) was prepared by the Trustee pursuant to its authority and responsibilities as natural resource Trustee under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 United States Code (USC) § 9601, et seq., the Federal Water Pollution Control Act, 33 USC § 1251, et seq. (also known as the Clean Water Act), and other applicable laws, including Subpart G of the National Oil and Hazardous Substances Contingency Plan, at 40 Code of Federal Regulations (CFR) §§ 300.600 through 300.615, the Oil Pollution Act of 1990, 33 USC § 2700, et seq., Article 12 of the New York State Navigation Law, CERCLA natural resource damage assessment regulations at 43 CFR Part 11 (Natural Resource Damage Assessment and Restoration [NRDAR] regulations) which provide guidance for this restoration planning process under CERCLA, and NYSDEC Natural Resource Damages Policy CP-44.

The Trustee sought a monetary settlement with GM as compensation for the injuries to natural resources due to releases of environmental contaminants from the Site into the Hudson River. The Trustee is required to use settlement funds to compensate for those injuries by restoring natural resources, supporting habitat, and/or services provided by the injured resources. CERCLA (43 CFR Part 11), requires that before settlement monies can be used for such activities, trustees must develop and adopt an RP, which provides for/allows adequate public notice, an opportunity for hearing and consideration of all public comment. Accordingly, the Trustee will prepare and distribute this RP and seek public comment.

## **B. Background**

In 1914, General Motors Corporation purchased property ("the West Parcel") at 199 Beekman Avenue, in the Village of Sleepy Hollow, County of Westchester, New York. General Motors Corporation increased the West Parcel's acreage over the years by filling in portions of Pocantico Bay and the Hudson River adjacent to the original acreage which now comprises 66.2 acres. In the 1920s, General Motors Corporation demolished most of the industrial buildings that were on the West Parcel at the time of purchase. General Motors Corporation constructed and operated an automotive assembly complex on the West Parcel that continued to expand and operate until active operations ceased in July 1996.

General Motors Corporation purchased approximately 28.3 acres of additional property ("the East Parcel") at 199 Beekman Avenue in 1960. The former Village of North Tarrytown (currently designated the Village of Sleepy Hollow) operated a municipal refuse and ash landfill on the East Parcel in the 1920s and 1930s. General Motors Corporation purchased approximately

1.7 acres of additional property ("the South Parcel") at 199 Beekman Ave. in 1959. The West, East and South Parcels of 199 Beekman Ave. comprise approximately 96.2 acres on the eastern shore of the Hudson River and within the Village of Sleepy Hollow. This complex is known as 'the Former GM North Tarrytown Assembly Plant' ("the Site").

In 1985, the Town of Mount Pleasant Industrial Development Agency took ownership of the Site under an agreement related to bond financing and leased the Site back to General Motors Corporation. On or about November 22, 2002, General Motors Corporation and Roseland/Sleepy Hollow, L.L.C. signed a Voluntary Cleanup Agreement with NYSDEC with respect to the Site, under Title 13 of ECL Article 27, and that was assigned Voluntary Cleanup Agreement No. V00598 (with an effective date of December 2, 2002). Between 2004 and 2005, the Site transitioned from the Voluntary Cleanup Program ("VCP") to the Brownfield Cleanup Program ("BCP"). During the transition, separate Brownfield Cleanup Agreements ("BCAs") were developed for the East and West Parcels and were signed in May 2005 (Index Nos. A3-0513-0305 and A3-0514-0305, respectively). The BCA for the West Parcel encompasses the South Parcel and identifies the Hudson River as an off-site area of interest. On April 1, 2009, Roseland/Sleepy Hollow, L.L.C. terminated its participation in the BCP. Following the bankruptcy of General Motors Corporation, General Motors LLC entered into two BCAs with the Department for the East and West Parcels in December 2010 (both BCAs sharing Index No. C360070-12-10). The Site was later divided into two BCP sites tracked under site numbers C360070 for the West Parcel and C360070B for the smaller East Parcel. Multiple developer parties joined General Motors LLC on the BCAs for these sites in early March 2014. NYSDEC issued a Certificate of Completion for C360070 and C360070B on March 28, 2014.

### **C. Natural Resources and Impacts to those Resources**

The Hudson River is a tidal estuary stretching approximately 153 miles from the river's mouth in New York Harbor northward to Troy, NY. Estuaries are centralized around the river's many tributaries, including that of the Pocantico River, which meets the Hudson River adjacent to the Site. The Hudson River's estuarine systems are vital, due to their complex ecosystems and varied human use. The habitats and associated biota function in concert, with the significant underlying support of the rivers rich sediments. These sediments provide services that benefit the overall health of the river, primarily by promoting an active benthic community, and by serving as a spawning and nursery ground for important fish and shellfish species. This benthic community is an integral part of the river's ecosystem, providing critical services which support higher level predators such as birds and game fish. Such robust environment supports the mixed industrial, residential, and recreational activities that the local municipalities rely upon. The estuary of the Lower Hudson River in the immediate vicinity of the site has long been recognized as a valuable natural resource, and an integral part of New York State's coastal environment.

Significant impacts to fish and wildlife resources are derived from the discharge of hazardous substances from the Site to the adjacent Hudson River. General Motors Corporation's operations at the Site resulted in the release of hazardous substances, including chromium, copper, lead, mercury, and zinc (collectively, "the Contaminants"), into the Hudson River, where they impacted river sediments.

The Department evaluated the levels of the Contaminants in the Hudson River sediments adjacent to the Site. Based on this evaluation, the Department determined that the Contaminants have impaired benthic organisms and, therefore, that General Motors Corporation's releases of the Contaminants have resulted in injury to natural resources and a loss of ecological services and benefits provided by those resources.

#### **D. Natural Resource Damage Settlement**

The Trustee has determined that actual injuries to natural resources under its jurisdiction have occurred as a result of releases of hazardous substances at and from the Site. These injuries prompted development of a natural resource damage assessment by the Trustee for the impacted section of the Hudson River in Westchester County, New York.

In developing the claim, the Trustee focused on benthic injury in Hudson River sediments adjacent to the Site. The assessment area encompassed 77.55 acres. To scale the claim of restoration of injured river sediment, the Trustee employed the Habitat Equivalency Analysis (HEA) method first described by Unsworth and Bishop (1994). Use of this method involves knowledge of the affected ecosystems to determine how much credit could be realized from restoration projects, such as enhancing degraded environments or preserving existing environments. The analysis resulted in a total restoration goal of 166 acres of similar habitat, or the equivalent, to compensate for the Trustee's natural resource damages claim under CERCLA. The Trustee has determined that habitat has been injured resulting from releases of hazardous substances at and from the Site includes nearby stream, wetland, riparian, and upland habitat in the Hudson River watershed.

The natural resource damages settlement was formalized in a Stipulation and Administrative Settlement signed by NYSDEC and GM in December 2010. The Trustee received approximately \$875,000 to compensate for the natural resource injury. A small portion of the settlement will be needed for restoration plan development, project planning, and restoration oversight and monitoring.

In August of 2015, the Trustee issued a Request for Restoration Project Ideas to identify potential restoration projects. The document described the settlement, provided the format for submission of project ideas for consideration, and described the criteria and factors to be used by the Trustee in evaluating projects. The Trustee posted the Request for Restoration Project Ideas form to the NYSDEC Hudson River Estuary website and sent the form to multiple parties, including local nonprofit organizations and local government officials. The Trustee received seven responses to the Request for Restoration Project Ideas containing 15 unique project proposals. Project ideas received to date deal with fishery restoration, wetland restoration, and riparian restoration. All completed Restoration Project Idea forms are included in Appendix A. The Trustee received a subsequent project proposal in 2018; in total, 16 restoration project proposals were received.

## **E. Proposed Restoration**

### **1. Goals of the Restoration Projects**

According to the guidance provided by Federal NRDAR regulations, 43 CFR § 11.82(d), the selected alternative is to be feasible, safe, cost-effective, address injured natural resources, consider actual and anticipated conditions, have a reasonable likelihood of success, and be consistent with applicable laws and policies. The selected restoration actions also must not conflict with any ongoing cleanup projects at the Site.

Generally, restoration actions should be consistent with the hierarchy of “restore, replace, acquire.” “On-site” or “in-kind” restoration is generally preferable to replacement with like resources. Where restoration is impracticable, replacement is generally preferable to acquisition of equivalent resources. This hierarchy serves to ensure where practicable the implementation of restoration projects with the greatest “nexus to injury”. See Criterion #2 below.

To determine the best restoration alternatives, each proposal should be weighed for the relative ability to meet applicable criteria. The exact criteria to consider may vary depending on the unique circumstances and characteristics present. Criteria may include:

1. Resource or service improved – The alternatives that provide improvement to the resource or service most similar to the injured resource or service are generally preferred.
2. Nexus to injury – The alternatives that replace similar resources closer to the location of the injury should be given a better score. Projects that have no link in watershed, geographic area, species population, or affected user group to the injured resource should not be carried further in the assessment.
3. Feasibility – For each alternative, consideration should be given to technological, administrative, legal, and regulatory constraints. Projects that are not feasible or do not meet minimal legal requirements (including limitations set by the settlement) should be removed from further consideration.
4. Relative cost – Sufficient cost analysis should be done to provide a general estimate of cost for each alternative. Projects that can have a greater effect through leveraging with matching funds should be noted and match opportunities should be described. Cost analysis should include consideration of costs to maintain and monitor project success.
5. Likelihood of success – The likelihood of success may include a number of considerations that may vary with project type. Projects that use experimental or innovative techniques may have a lower likelihood of success than those that use standard techniques. The likelihood of success for each project should be described.
6. Other Criteria – e.g. Site-Specific Criteria – Depending on the projects being considered, other criteria can be added. These additional criteria can include: permanency of project benefits, time for project benefits to be achieved, contribution to resource management goals, public support, or the relationship between remedial actions and the injured resources. Site specific criteria are discussed below.

## 2. Site Specific Criteria

In order to ensure the appropriateness and acceptability of restoration options addressing losses, the Trustee evaluated each option against site-specific restoration requirements. These site-specific requirements were developed through discussions with natural resource managers at NYSDEC. Projects that satisfied these site-specific requirements were then evaluated in relation to the restoration criteria listed in the Department of the Interior (DOI) damage assessment regulations.

These criteria include:

- Linkage to injured resources or associated services.
- Proximity to injured resources.
- Habitat connectivity (e.g., result is larger individual habitat parcels rather than multiple, smaller, disconnected parcels).
- Proximity to lands with protected status.
- Potential contamination or other issues that might preclude project selection.
- Benefits to protected species, sensitive, unique habitats.
- Public enjoyment or use of natural resources.
- Likelihood of success as determined by project objectives and methodologies, land protection, and maintenance.
- Viability and sustainability of project.
- Part of larger local or regional restoration plan or vision.

### 2.1 Restoration Categories and Alternatives

#### *Restoration Alternatives Considered*

The Trustee considered a broad set of restoration alternatives that could potentially restore injured resources and/or improve ecological services relevant to the injured area. In addition to alternatives proposed by the Trustee, alternatives were solicited from the public through a request for restoration ideas that was distributed directly to local governments, conservation organizations, and academic researchers, as well as to the broader public through a public notice distributed in the Environmental Notice Bulletin. Amongst others, the broad categories of proposed restoration alternatives included:

- *Wetland Acquisition, Enhancement, and/or Restoration.* This project category focuses on protection, enhancement, and/or restoration of wetlands that have some hydrologic or resource connection to the aquatic habitat of the Hudson River. Wetlands provide benefits to a wide array of birds, amphibians, reptiles, mammals, and fish and may also serve as floodwater retention and groundwater recharge areas.
- *In-stream and Streambank Enhancement/Restoration.* This project category improves riparian zones and in-stream sections along the Hudson River and its tributaries, and ranges from exclusion fencing to natural channel design projects. These project types benefit small mammals, birds, amphibians, reptiles, and fish and serve to improve water quality by reducing erosion and runoff.

- *Fisheries Enhancement/Restoration.* This project category encompasses a range of project types in order to address the needs of various fish species in the assessment area. Projects may include improvements to fish passage (e.g., dam removal, fish ladders, tributary culvert improvements); creation of, enhancement of, or access to spawning or nursery habitat for various species (e.g., river herring and American eel);. These projects have ancillary benefits to a variety of wildlife species.
- *Submerged Aquatic Vegetation Restoration.* This project category includes restoration efforts focused on enhancing/improving existing areas of submerged aquatic vegetation (SAV) in the Hudson River, as well as creating new areas of SAV to benefit both the benthic and pelagic communities.
- *Recreational Use:* Projects in this category focus on activities such as fishing, hiking, enjoyment of nature, and providing shore access and opportunities for trail connections along the Hudson River. All of these activities would be enhanced through the provision of new public access to sections of the Hudson River and its tributaries that are currently inaccessible and/or improvements to existing river access, including application of nature-based features for sustainable shorelines.

#### *No Action Alternative*

The Trustee also considered a restoration alternative of no action. Under this alternative, the Trustee would rely on natural recovery and would take no direct action to restore injured natural resources or compensate for lost natural resource services. This alternative would include the continuation of ongoing monitoring programs, such as those initiated by NYSDEC for fish, but would not include additional activities aimed at enhancing ecosystem biota or processes. Under this alternative, no compensation would be provided for interim losses in resource services.

## **2.2 Preferred Restoration Alternatives**

The Trustee's preferred restoration alternatives include a suite of restoration projects from restoration alternative categories that compensate for interim losses and satisfy the site-specific and regulatory criteria listed above. Specific restoration projects, including the project proposals set forth in Appendix A, require further vetting and consideration by the Trustee. This will include scoring by a team of staff at NYSDEC that ensure the project meets all applicable criteria. The individuals that submitted the project proposals listed in Appendix A will have the opportunity to apply for funding through existing Departmental grant request for application (RFA) processes, after finalization of the Restoration Plan. All restoration project proposals will be evaluated against the site specific and regulatory criteria, as noted above, as to sufficiently compensate for ecological losses. As of the finalization of this RP, the general restoration alternative categories include:

- *Wetland Enhancement/Restoration,*



- *In-stream and Streambank Enhancement/Restoration, and*
- *Fisheries Enhancement/Restoration,*
- *Recreational Use*

### *2.2.1 Wetland Enhancement/Restoration*

Wetland Enhancement and Restoration consists of improving and restoring wetlands along the shorelines of the Hudson River and its tributaries. Proposed restoration actions include marsh and tidal cove enhancement and increased hydrologic connection to wetland areas. Restoration actions may also include methods to restore natural habitat patchiness and topographic and vegetative complexity. Wetlands provide benefits to a wide array of birds, amphibians, reptiles, mammals, and fish and also serve as floodwater retention and groundwater recharge areas.

### *2.2.2 In-stream and Streambank Enhancement/Restoration*

In-stream restoration consists of restoring the functional relationships between stream dimension, pattern, and profile to create a natural stable channel. Streambank restoration consists of enhancing riparian buffers along the shoreline of the Hudson River and tributaries. Proposed restoration actions include reestablishing oyster reefs, establishing/enhancing riparian buffers, natural channel design, and/or re-vegetation. In-stream and streambank restoration provides benefits to birds, mammals, reptiles, amphibians, benthic invertebrates, and fish by improving shoreline habitat, reducing soil erosion and runoff, and enhancing water quality.

### *2.2.3 Fisheries Enhancement/Restoration*

Projects may include improvements to fish passage (e.g., dam removal, fish ladders, tributary culvert improvements); and creation of, enhancement of, or access to habitat for migratory fish species of the estuary that are in need of conservation-- specifically herring (*Alosa spp.*) and American eel (*Anguilla rostrata*). Proposed restoration actions may include dam removal, culvert removal or right-sizing, and eel ladders. These projects have ancillary benefits to a variety of other fish and wildlife species. Because such opportunities are very limited, especially those that provide habitat for herring, and because such projects are extremely beneficial for the restoration of such species, projects on Hudson River tributaries within 15 miles of the site of injury are deemed to have close nexus.

### *2.2.4 Recreational Use*

Projects may include capital projects which provide new or improved access for activities such as fishing, hiking, enjoyment of nature or for shore access and opportunities for trail connections along the Hudson River, with a focus on 1-mile proximity to the location of natural resource damage. All such projects would be enhanced through the provision of new public access to sections of the Hudson River and its tributaries that are currently inaccessible and/or improvements to existing river access to promote enjoyment of natural

resources. Enjoyment of nature may include park improvements on parks adjacent to tidal waters. Capital projects may include a design phase. Shore access may include application of nature-based features for sustainable shorelines where park shorelines are eroding as well as measures to absorb and direct flood waters on the site during storms.

### **2.3 Environmental Benefits from Preferred Restoration Alternatives**

Implementation of the preferred restoration alternatives are expected to generate long term benefits to fish and wildlife resources that are substantially greater than any potential short-term adverse impacts that may occur during construction. For example, short-term impacts arising from the project types listed above could include minor disruption of riverine and streambank habitats during project implementation (e.g., streambank enhancement activities may result in a decrease in vegetative cover prior to restoration planting activities). The preferred restoration alternatives are aimed to directly benefit the sediments and biota that were most impacted by the injury, including American eel (*Anguilla rostrata*), river herring (*Alosa spp.*) and Eastern oyster (*Crassostrea virginica*). The proposed eel ladders, and dam removal projects will support the life cycle of North America's only catadromous<sup>1</sup> fish, as well as river herring, thus supporting and reestablishing a healthy aquatic community for the riverine ecosystem to thrive upon. As discussed above, the Trustee prefers a suite of projects that will generate environmental benefits, as well as benefits to the local community. The Trustee expects a number of projects will be selected as the preferred alternative.

### **3. Compliance with Other Potentially Applicable Laws**

Coordination and evaluation of required compliance with specific federal and state laws, executive orders, and other policies for the preferred restoration plan is achieved, in part, through the dissemination of this document to, and review by, appropriate agencies and the public. All ecological restoration projects will be in compliance with all applicable federal and state statutes, executive orders, and policies. Compliance with applicable laws, and any necessary permitting, will be undertaken during the planning stages of specific restoration projects.

The Trustee is also committed to identifying and addressing any policy or planning impacts that disproportionately affect health and the environment in low income and minority populations. Since the restoration alternatives will result in changes that benefit trust resources throughout the Hudson River watershed the Trustee has concluded that there would be no adverse impacts on low-income or minority communities due to implementation of the restoration alternatives. Adjacent to the Site is an EJ (Environmental Justice) community; NYSDEC will endeavor to identify and fund an appropriate project in size and scale that would provide access to the natural resources in the area.

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<sup>1</sup> Catadromous fishes spawn in the ocean, and migrate to freshwater lakes, rivers, and streams as juveniles. As they mature into adults they return to the ocean to mate and spawn. American Eels (*Anguilla rostrate*) are the only catadromous fish native to North America.

#### **4. Monitoring and Site Protection**

As discussed in Section 2.2, included in the RFA will be a monitoring requirement. Each successful bidder will be responsible for developing monitoring plans and performing monitoring to record the status of their project. The specific performance criteria, monitoring period, frequency of monitoring, and associated reports will vary depending on the type of project, and will be determined on a case-by-case basis. Draft monitoring plans will be included in the bid packages submitted to NYSDEC for review and approval prior to the award and transfer of funding.

Prior to receiving funding, each successful bidder must ensure that the restoration project will be maintained and protected for a length of time commensurate with the funding and project purpose. For example, the Trustee anticipates that wetland acquisition and restoration projects, as well as all other land acquisition projects, will be placed under a protective land covenant (e.g., conservation easement, deed restriction) in perpetuity. Lesser terms of maintenance and protection may be appropriate for other projects and will be determined on a case-by-case basis.

#### **F. References**

Unsworth, R.E., and R.C. Bishop. 1994. Assessing Natural Resource Damages Using Environmental Annuities. *Ecological Economics*. 11:35-41.



# Figures



Figure 1. Site location, adjacent to the Hudson River, in Tarrytown, New York.



**FIGURE 3**  
Conceptual Illustration of  
Selected Remedial Alternative

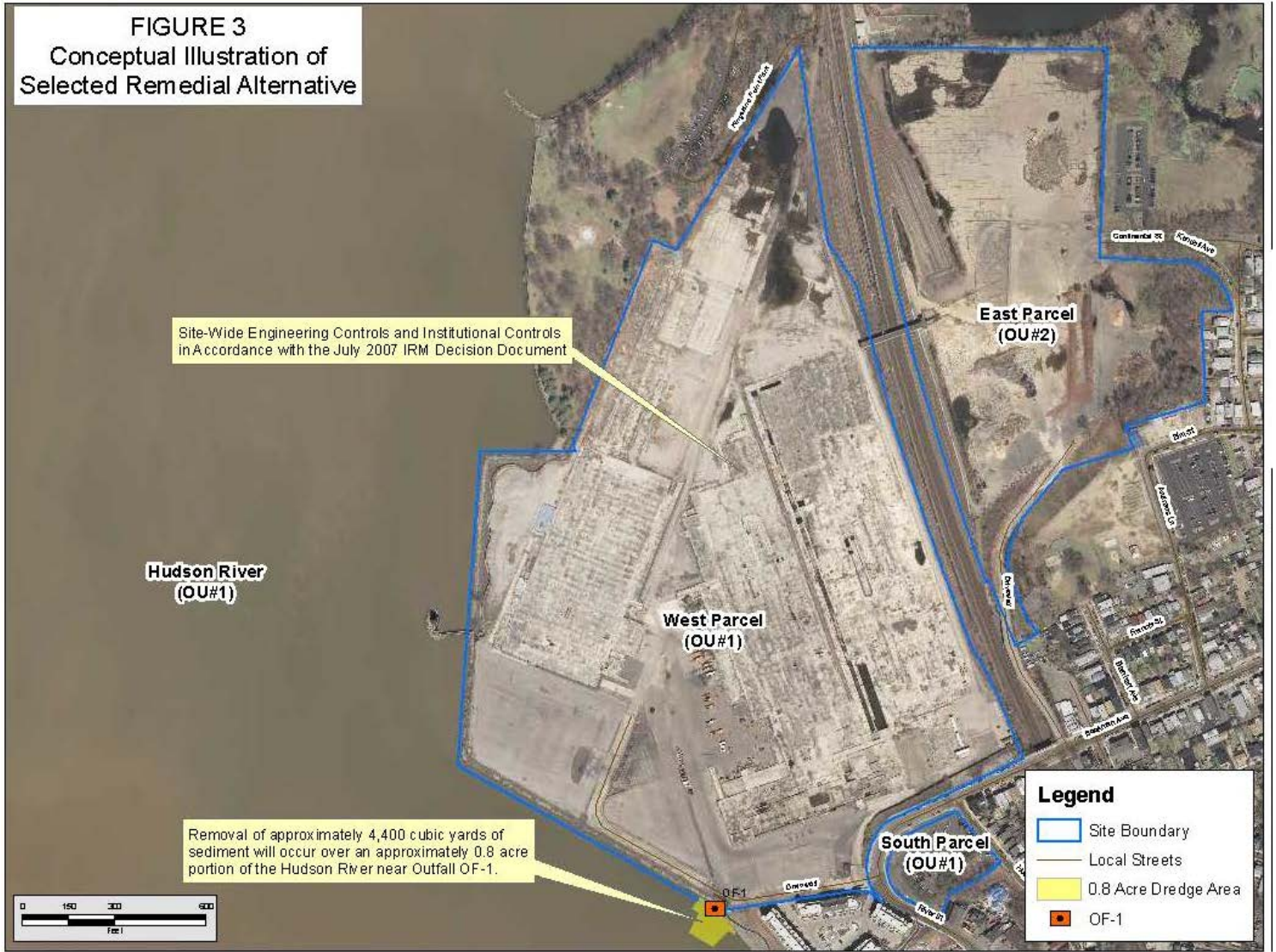


Figure 2. Selected Remedial Alternative at Site, showing West and East Parcels

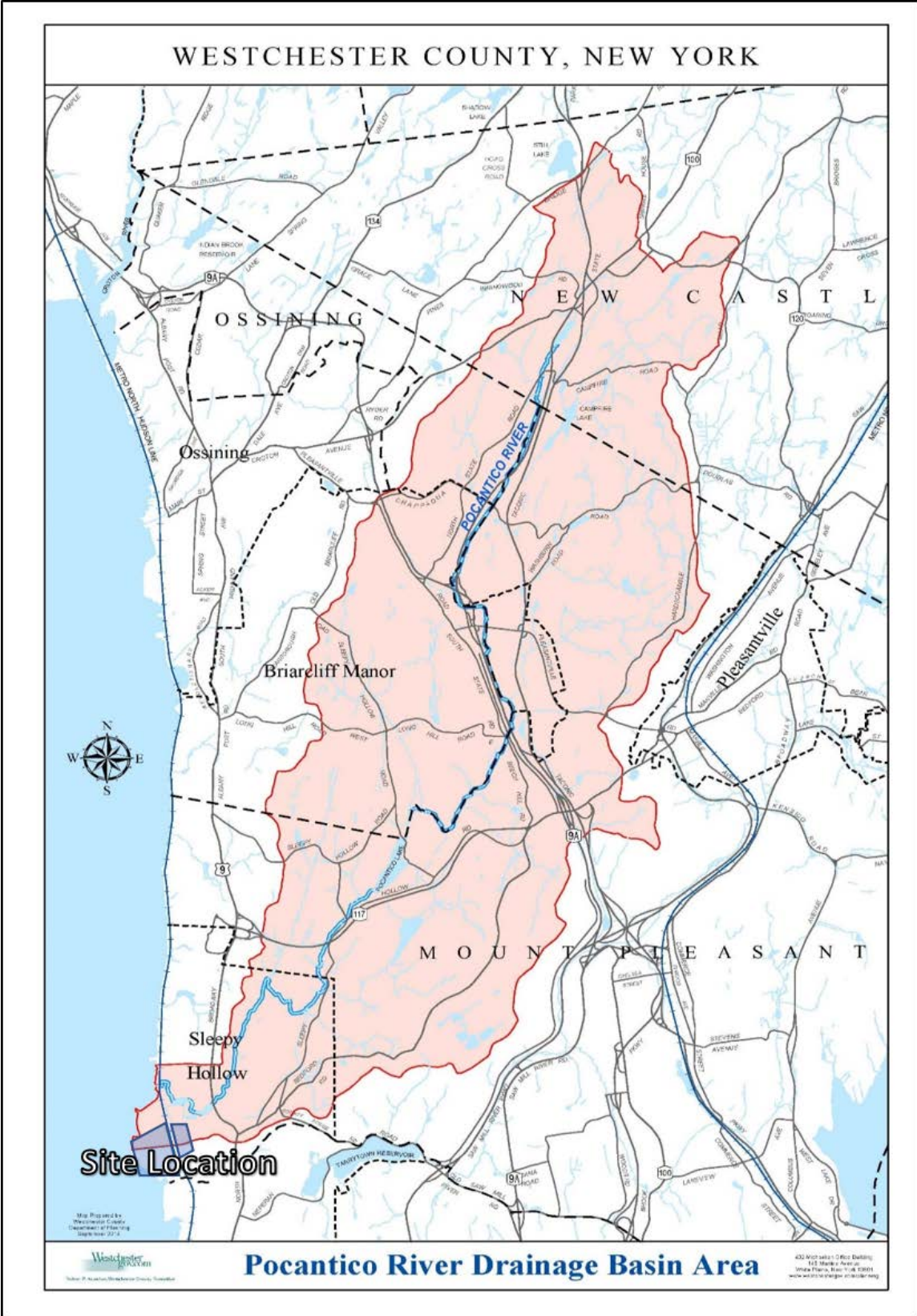


Figure 3. New York Pocantico River Watershed Map







Figure 5. Map of EJ Community in relation to Site



**Final Former GM North Tarrytown Assembly Plant Site Restoration Plan Approval**  
Village of Tarrytown, Westchester County, New York

By the signatures below, the Former GM North Tarrytown Assembly Plant Site Final Restoration Plan is hereby approved.

Approved:



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Thomas S. Berkman  
Deputy Commissioner and General Counsel

New York State Department of  
Environmental Conservation

**Appendix A. Completed Restoration Project Idea forms**

## **Appendix B. Comments on Draft Restoration Plan & Responses to Comments**