

# Upper Des Plaines River and Tributaries, Illinois and Wisconsin

## Documentation of Changes to the Draft Integrated Feasibility Report and Environmental Assessment



November 2013 (Draft)

### Study Partnership

Illinois Department of Natural Resources (IDNR)  
Southeastern Wisconsin Regional Planning Commission (SEWRPC)  
Lake County Stormwater Management Commission (LCSMC)  
Lake County Forest Preserve District (LCFPD)  
Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)  
Cook County Highway Department (CCHD)  
Forest Preserve District of Cook County (FPDCC)  
U.S. Fish and Wildlife Service (USFWS)  
U.S. Army Corps of Engineers (USACE)



US Army Corps  
of Engineers®  
Chicago District

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**DRAFT January 2014**

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## **Introduction**

The following white paper is supplemental to the Environmental Assessment integrated in the Upper Des Plaines River and Tributaries, Illinois and Wisconsin Feasibility Report. As a result of the public review of the Draft Report in September and October 2013, the Aptakisic Creek Reservoir (ACRS08) was removed from the proposed plan and two alternative reservoir sites were added, Fullerton Woods Reservoir (DPRS04) in River Grove, Illinois and Harry Semrow Driving Range Reservoir (WLRS04) in Des Plaines, Illinois. Both sites are owned by the Cook County Forest Preserve. These sites were added to provide compensatory storage for the proposed levees in Des Plaines, Schiller Park, Franklin Park, and River Grove. This document is intended support public review of revisions to the Draft Integrated Feasibility Report and Environmental Assessment by highlighting the changes and the assessment of their impacts.

### **1.1 Coordination**

Consistent with Water Resources Council's Principles and Guidelines and USACE's implementing guidance, Engineering Regulation 1105-2-100, Appendix B; the feasibility study included comprehensive public involvement, collaboration and coordination, in addition to compliance with applicable Federal statues and executive orders. The President's Council on Environmental Quality (CEQ) requires that the environmental impacts of a project are identified and made available to the public and decision makers before decisions are made and actions are taken. CEQ's implementing regulations and the USACE procedures for implementing the National Environmental Policy Act (NEPA) provided the process for public participation in conjunction with the preparation of this Environmental Assessment.

#### **1.1.1 Notice of Intent**

The non-Federal sponsors and the USACE initiated the NEPA requirements of a public notice inviting the participation of affected agencies and the public after the Project Management Plan was finalized and the Feasibility Cost Sharing Agreement was approved for the Phase II feasibility study. Finalization and approval of a communications plan was followed by preparation of a newsletter, fact sheet, and poster generally describing the feasibility study process for flood damage reduction and ecological restoration within the Upper Des Plaines River watershed. These materials, along with updates, were distributed to local citizens and interested parties by mailing, internet postings, and were handed out at public meetings. As a kick-off for the feasibility study, a series of informational meetings were presented to provide background on the watershed and the feasibility study process.

The Chicago District prepared a Notice of Intent to Prepare a Draft Environmental Impact Statement, which appeared in the 31 May 2002 Federal Register. Public scoping meetings (held as part of the NEPA process) were announced in letters (dated 15 May 2002) sent to the governors of Illinois and Wisconsin; to 26 United States senators and representatives from Illinois and Wisconsin; and to over 220 state and local elected officials, state and local agencies, libraries, organizations, and interested individuals from Illinois and Wisconsin.

The Chicago District also sent a press release in May-June 2003 to the Kenosha News (Kenosha, WI), Bulletin (Salem, WI), Milwaukee Journal Sentinel (Sturtevant, WI), Racine Reporter (Racine, WI), Journal-Times (Racine, WI), News-Sun (Waukegan, IL), Daily Herald (Vernon Hills, IL), Arlington Heights Journal (Des Plaines, IL), Mt. Prospect Journal (Des Plaines, IL), Des Plaines Journal (Des Plaines, IL), Wheeling Journal & Topics (Des Plaines, IL), Libertyville Review (Libertyville, IL), Franklin Park Herald-Journal (Oak Park, IL), and Forest Park Review (Oak Park, IL).

The Notice of Intent submitted to the Federal Register on May 31, 2002 indicated the USACE would be pursuing an Environmental Impact Statement (EIS). However, after further development of the alternative plans, USACE determined that significant impacts were not obvious. Therefore, it was more appropriate to perform an environmental assessment to determine if significant impacts would result from the proposed alternatives and to issue a Finding of No Significant Impact (FONSI) if warranted rather than an environmental impact statement (EIS) and record of decision (ROD) as noted in the May 31, 2002 Federal Register.

### **1.1.2 Scoping Meetings**

#### *2002 Scoping*

Public scoping meetings for the Upper Des Plaines River and Tributaries Feasibility Study were held in June 2002. The evening meetings included a slide show, public comment opportunity, and question-answer session; the agency panel included staff from the USACE, Illinois DNR, Wisconsin DNR, Cook County Highway Department, Lake County Stormwater Management Commission, and Kenosha County Planning & Development.

- (1) June 4, 2002, 7–9 PM - Kenosha County Center, 19600 75th Street, Bristol, WI.
- (2) June 5, 2002, 7–9 PM - Byron Colby Barn at Prairie Crossing, Jones Point Road west of Route 45, Grayslake, IL.
- (3) June 6, 2002, 7–9 PM - Oakton Community College Conference Center, 1600 E. Golf Road, Des Plaines, IL.

#### *2009 Scoping*

The study was rescoped in 2009 when it was determined that an Environmental Assessment rather than an Environmental Impact Statement would be prepared. Notification letters were set out to regulatory agencies and public officials in Illinois and Wisconsin. No public meetings were held in conjunction with this 2009 scoping.

#### *2013 Public Review*

A series of meetings were held as part of the public review of the draft Environmental Assessment in the fall of 2013. A PowerPoint presentation was and each meeting included a public comment period and question and answer session.

- (1) September 23, 2013, Mt. Prospect Village Hall, Mt. Prospect, IL
- (2) September 24, 2013, Lake County Stormwater Management Commission, Libertyville, IL
- (3) September 25, 2013, Kenosha County Building, Bristol, WI

As part of the public review, the public was provided with several methods for submitting scoping comments or suggestions on the draft Environmental Assessment: an online comment form on the project Website; standard mail; or in person at the public meetings, either by testifying or submitting written comments. Nearly 600 individuals, organizations, and state and local government agencies provided scoping comments.

Based on the comments received a flood risk management project, ACRS08, was removed and two alternative sites were added, WLRS04 and DPRS04. This change is being coordinated with the public release of this revised Draft Integrated Feasibility Report and Environmental Appendix. To support the public review, documentation of the changes has been prepared and is provided as Appendix N. This Environmental Assessment has been updated to incorporate the changes and reflect the revised proposed plan.

## **1.2 Affected Environment**

DPRS04: Fullerton Woods Forest Preserve is located at 8425 Fullerton Avenue in River Grove, Illinois. The proposed reservoir site covers approximately 43 acres between North 1<sup>st</sup> Avenue to the north, North 5<sup>th</sup> Avenue to the south and North Des Plaines River Road to the west. This site had the 35 native species and 52 total species. A Native Mean C of 2.6 and a Native FQI of 15.4 indicates that the area contains no significant natural area quality.

WLRS04: The Semrow Golf Driving Range covers about 37 acres and is located at 1150 East Golf Road in Des Plaines, Illinois. The site had 22 native species and 40 total species. Native Mean C and FQI are 1.8 and 6.4 respectively.

To provide an understanding of the above numbers, sites with C and FQI values less than 2.9 and 20, respectively, are considered degraded or derelict communities.

## **1.3 Alternative Plans**

As discussed in Section 4.5.4.2 of the Upper Des Plaines River and Tributaries Main Report, the hydraulic model showed that construction of levees DPLV04, DPLV05, and DPLV09 would result in increased stages outside of the proposed levee reaches. Each levee is individually justified according to federal rules, regulations and policies even when accounting for the induced damages, however, they are not permissible according to state rules and regulations. Additional analysis was conducted to identify and evaluate mitigation alternatives (DPRS04 and WLRS04) to offset the increased river stages. Because these levees are relatively close to each other along the mainstem, they were modeled together to ensure that the impacts were fully accounted for, as discussed in Appendix A (H&H Analysis). The combined levees resulted in

compounded impacts resulting in more significant stage increases and induced damages. The increased stages, while relatively small (they were never more than three inches and were typically less than an inch), spread over miles within the watershed, impacting hundreds of properties and structures. The total induced damages for the combined levees, including transportation damages, would be \$2,855,000. Because of the large extent of the impacts, purchasing flowage easements for all impacted properties was determined to be impractical.

Four compensatory storage alternatives were evaluated for mitigating for the induced damages, however only two were selected. The four evaluated and the justification for and against are listed below.

1. Site ACRS08 is individually justified as a floodwater storage reservoir, based on flood damage reduction benefits. Because this site had been shown to be effective for reducing flood stages, it was also evaluated as a compensatory storage site to address the levee induced damages. The annualized cost of constructing the reservoir, \$819,000, is less than the total induced damages. The levees were modeled in combination with this reservoir and the combination resulted in stage increases in a very limited area. The impacts of the increased stages at three cross-sections, located between the alignments of the existing Rand Park Levee and the proposed DPLV09, would be to a parcel along the river owned by the Forest Preserve District of Cook County. The stage increases, between 0.04 and 0.05 feet, would have minimal impact on this undeveloped land. A preliminary estimate of the value of the flowage easements was prepared as discussed in Appendix I (Real Estate Plan). The estimated value is \$1,000. The net benefits of the levees when combined with ACRS08 are greater than for any of the sites individually. However, during public review of the proposed plan, the public expressed significant opposition to use of this site for floodwater storage. In addition to hundreds of letters from citizens and stakeholders, the neighboring community of Buffalo Grove passed a resolution in opposition to construction of a reservoir at the site. As a result, the site was removed from consideration not only as a compensatory storage site, but also as an element of the formulated plan.

2. DPRS15 had previously been eliminated from consideration as a reservoir, but was evaluated for compensatory storage as it is located near the impacted area. The site is located in the Forest Preserve District of Cook County's (FPDCC's) Campground Road Woods, south of Algonquin Road. The optimized storage at the site was determined to be 220 acre-ft. The total annualized estimated cost for the compensatory storage, including required fish and wildlife mitigation, was \$904,000. Although the cost of this site is much less than induced flood damages, the site was not able to mitigate for all of the induced stages. This alternative was therefore eliminated.

3. Much of the undeveloped land near the proposed levee sites is owned by the FPDCC. A search for unforested Forest Preserve District lands, reducing the likely impact of reservoir construction, led to the identification of two sites.

- DPRS04, located south of River Road between First and Fifth Avenues in River Grove, had previously been eliminated during the site identification phase due to the presence of stockpiles of stone and construction fill. However, since that time the material has been

removed. Because this site had been previously deforested it was recommended for investigation by FPDCC. Trails and picnic facilities, similar to those found at other FPDCC sites in the area, were included in the site design and costs.

- WLR04 is an existing Driving Range along Golf Road in Des Plaines that was not previously identified as a potential storage site. The site is not immediately adjacent to a waterway and is actively used as a recreation site. However, a route for a potential ditch or pipeline connecting the site to the Des Plaines River was identified. FPDCC agreed that investigation of this site would be acceptable contingent upon continued availability of the site for use as a Driving Range.

For both of these sites (DPRS04 and WLR04), FPDCC requires that compatible recreation uses be incorporated in the designs. H&H modeling showed that, while neither site could address the induced stages independently, a combination of 150 acre-feet of storage at DPRS04 and 200 acre-feet of storage at WLR04 would mitigate for the induced stages. In addition, by including recreation features in the site development, DPRS04 would provide new recreation benefits.

## **1.4 Direct and Indirect Effects**

### **1.4.1 Physical Resources**

#### **Climate**

The minor scale of the preferred flood risk management (FRM) plan would not be able to affect the regional climate. The increase in acreage of standing water would increase evaporation in a minor way, but still not great enough to affect weather patterns or rainfall within the region. No significant adverse effects to the regional climate are expected from implementing the FRM plan.

#### **Geology**

The FRM plan would have no detrimental effects on local geology upon implementation. The minor construction needed to implement the FRM plan would not disturb any significant geologic features or deposits or disrupt any geologic processes from their natural states. Most of the area in the project area has already been disturbed over the last 150-years and the current project will not alter the geology further. Because implementation of the FRM plan will not disturb significant geologic features or deposits, it is expected that no significant adverse effects to geology would result from implementing the FRM plan.

#### **Hydrology & Hydraulics**

The hydrology and hydraulics of the Des Plaines River watershed have been drastically altered by human modifications to the landscape. Most of the watersheds are now urbanized or agricultural, which allows run-off to quickly reach streams instead of draining into the soil and recharging groundwater. In order to alleviate some of the adverse cultural effects associated with

this, two reservoirs, four levees and many other small scale / low impact measures have been recommended for implementation. Originally, only one reservoir was going to be selected. However, public concern led to evaluating other sites and now two reservoir sites have been added. These all manipulate local hydrology and hydraulics to reduce economic damage to the properties and people affected.

Reservoirs – The reservoirs included in the FRM plan will provide flood relief by holding back unnatural flows until the flood pulse recedes to a non-threatening level. Because of the flashiness of the current system, the creation of reservoirs will help stabilize the hydrology and hydraulics of the watershed. Since the affected tributaries have been channelized, and their watersheds dominated by impervious surface, it has led to an unnatural flow regime that is unhealthy for both man and ecosystem. While the constructed reservoirs will help stabilize the surficial hydrology and hydraulics, there may be adverse effects to groundwater in the immediate area where the reservoirs will be constructed. It is expected that a cone of depression would form around the reservoirs; however, there are no significant natural areas within this influence to be affected. It is expected that groundwater wells would not be affected either. No significant adverse effects to the regional hydrology or hydraulics are expected to result from implementing the reservoirs identified in the FRM plan.

### **Land Use**

Whenever there is construction of new features, there is a possibility of a change in land use. Some of these changes can be detrimental to the environment, even if the new structures are intended to protect human interests; however, when features are built on ecologically degraded lands, then effects are usually negligible.

Reservoirs – Two reservoirs would be constructed as part of the FRM plan. The potential reservoirs at DPRS04 and WLRS04 will not see an impact to land use. DPRS04 and WLRS04 are owned by the Cook County Forest Preserve and are used for recreational purposes. These reservoirs will be constructed to ensure recreational activities are still possible at WLRS04 and promote recreation at DPRS04. Only short-term impacts to recreation will occur during flooding events. The construction of a reservoir in this area will not have impact to land use.

### **Fluvial Geomorphology & Topography**

The fluvial geomorphology of the Des Plaines River watershed has been negatively impacted for over a century due to human development and agricultural practices. Impacts to geomorphology include installing dams, stream channelization, mass earth moving and grading, draining and filling of wetlands, development within floodplains, urban and agricultural runoff, etc. All of the measures proposed by the FRM plan will not have major adverse affects on fluvial geomorphology and topography since the scale is minute in relation to watershed functions and the features actually aid in reducing large, uncommon flood events that ruin stream geomorphology that has formed over time.

Reservoirs –The construction of DPRS04 and WLRS04 will be constructed on highly developed and channelized sections of the Des Plaines River and will not impact fluvial geomorphic

function. No significant adverse effects to fluvial geomorphology and topography are expected to result from implementing the reservoirs identified in the FRM plan.

## **Soils**

Whenever there is construction of new features, there is a possibility of soils becoming modified from their natural state through grading, digging and filling. Some of these changes can be detrimental to the environment, even if the new structures are intended to protect human interests; however, when features are built on already modified lands, then effects are usually less damaging. Agricultural practices also have adverse effects to the top layer or A horizon of soils through carbon stripping, chemical modification and microrhizal eradication.

Reservoirs – DPRS04 and WLRS04 are all located within highly urbanized areas and the soils are already highly degraded. The extreme urban nature of the surrounding lands would never lend this site to being restored to its natural condition. The construction of these reservoirs would modify the soils; however, the action would be negligible in terms of what damage has already occurred in the watershed.

## **Air Quality**

Implementation of the FRM plan would result in negligible effects to air quality within the watershed and regionally. Mobile source emissions were estimated using USEPA guidance and models, and were found to be *de minimis* for criteria air pollutants. General recommendations to be considered during the construction phase are post-construction stabilization of earth areas to prevent water or wind erosion and dust control during construction.

## **Water Quality**

Overall water quality in the Des Plaines River is not at a level to support aquatic life, fish consumption, or primary contact 303(d) designated uses. The potential causes include elevated levels of chloride, nitrogen, phosphorous, total dissolved and suspended solids, zinc, and silver, and excessive sedimentation and siltation caused primarily from combined sewer overflows, municipal point source discharges, urban runoff, storm sewers, highway/road/bridge runoff, site clearance and land development, hydro structure flow regulation, and the presence of sediment contaminated with various chemicals. Elevated levels of fecal coliform, resulting from combined sewer overflows, urban runoff, and storm sewers have impaired primary contact recreation in many areas.

Reservoirs: All potential reservoirs may actually have benefits to water quality since it will trap sediment and excessive flows from a impervious surfaces , which may have high nutrient levels. No significant adverse effects to water quality are expected.

### **1.4.1.1 Ecological Resources**

The primary objective of any flood risk management project is to protect human lives as well as lessen or eliminate costly damages to the infrastructure or business practices. Flood risk

management can be accomplished with either structural or non-structural measures. When implementing structural measures, ecological resources can be compromised; however, if the ecological structure and function has already been compromised, than effects are usually less damaging.

## **Plant Communities**

Reservoirs – The existing conditions for reservoirs DPRS04 and WLRS04 are severely degraded, as discussed below. The sites were assessed through a field survey in October 2013.

DPRS04 – Fullerton Woods Forest Preserve is approximately 43 acres in size. The site has very little existing ecological resources. The site was previously used for spoil storage and stone stockpiling for the deep tunnel project. The storage activities effectively destroyed the hydrogeomorphic conditions of the site. While the materials have been removed, the habitat remains degraded. The area used for spoil storage is now overgrown with invasive plant species. The perimeter of the site is dominated by tree and shrub species with an abundant population of Common Buckthorn. Overall, the site is listed as a degraded plant community with approximately 32% of the species non-native and a mean C of 2.6 and FQI of 15.4 for native species. As an ecosystem, this site is most likely dominated by tolerant mammal, reptile, bird and insect species that are common in heavily urbanized areas.

WLRS04 – Harry Semrow Driving Range is approximately 37 acres. The ecological resources at this site are also degraded. The site is used as a driving range for the public and the majority of the area is mowed lawn. Mowed lawn provides no structure or function for native species. Within the driving range, a small pond exists and is dominated by Cattail and the invasive Common Reed. Much of the perimeter of the area is forested. These forested areas contain a number of non-native species mixed with some mature native trees. Pockets of mature White and Burr Oak are located within the property. However, the site is still considered a degraded ecosystem with approximately 45% of the plant species found within the study site listed as non-native and a mean C of 1.8 and FQI of 6.4 for native species. Tolerant organisms found within highly urbanized areas are expected to inhabit the study site.

Based on these assessments, no significant adverse effects to native plant communities are expected to result from implementing these reservoirs. Because the perimeters of the proposed reservoirs will be seeded, plant communities will be more diverse and consist of native plants after construction. Due to the degraded condition of the sites, no habitat mitigation would be required. This assessment is currently being coordinated with USFWS.

## **Riverine**

Reservoirs – DPRS04 would be constructed adjacent to the Des Plaines River. Under normal flow conditions the Des Plaines River does maintain some riverine function. However, unnatural flows caused by runoff from a large expanse of impervious surfaces results in degradation of these riverine processes. The reservoir would be fed through pumping stations and would not impact the riverine channel. The storage and slow release of flood waters may assist in

enhancing riverine function. No adverse impacts to riverine habitats are expected from the construction of this reservoir.

WLRS04 is in between the Des Plaines River and the tributary, Weller Creek. The reservoir could be connected to either the river or creek or to both. This would result in the construction of a pipe or ditch to connect the reservoir to the Des Plaines River watershed. Weller Creek is already highly channelized and surrounded by urban development with very little riverine function. Connecting to Weller will not result in any impact to riverine function or resources. In addition, connecting to the Des Plaines River will not impact riverine function. The reservoir will assist with minimizing the impacts from flooding events.

### **Threatened & Endangered Species**

Threatened and endangered species are discussed in Volume 3, Section 2.2.2 Ecological Resources of the Main Report. A complete list of threatened and endangered species is found in Appendix C. In addition, the two new potential reservoir sites were mapped in the Illinois Department of Natural Resources' Ecocat software. The Ecocat reports are attached to this supplemental EA.

Preliminary coordination with the USFWS and plan formulation methodologies have recognized and considered threatened and endangered species from the study's onset. USFWS and State involvement in the project has assured that the preferred plan would be in compliance with Section 7 of the Endangered Species Act. Official coordination and correspondence is expected to be closed via the finalization of this document and the ultimate signing of a FONSI for the preferred plan. Since the USFWS was part of the planning and design team there will be no Fish & Wildlife Coordination Act Report produced; however, a letter from the USFWS indicates that we are still performing due diligence and coordinating as appropriate (letter dated 03 December 2012).

Since the plan formulation of the FRM plan took threatened and endangered species' presence and critical habitats into consideration within the watershed, significant adverse effects resultant from implementing the FRM plan have been avoided. No significant adverse effects to threatened and endangered species are expected to result from implementing any features.

#### **1.4.1.2 Social, Cultural & Archaeological Resources**

##### **Archaeological & Historic Properties**

Reservoirs – DPRS04 and WLRS04 both contain undisturbed areas within the proposed sites that have not been surveyed for archaeological or historical resources, despite being located within an urban area. Prior to project construction, a phase I archaeological survey will be conducted of all of these areas. Any archaeological sites found during this survey will be avoided as possible. If avoidance of any known archaeological site is not possible, consultations will be conducted with the Illinois Historic Preservation Agency (IHPA) and if needed, a Section 106 mitigation plan will be developed that meets IHPA requirements.

In the event of accidental discovery of intact archaeological or cultural features or deposits during construction, work will cease and consultations will be conducted with the Illinois Historic Preservation Agency.

## **Social Properties**

### **Schools**

Reservoirs – There will be no direct or indirect adverse affects on local area schools from the construction of the reservoirs (DPRS04 and WLRS04).

### **Hospitals**

Reservoirs – There will be no direct or indirect adverse affects on local area hospitals from the construction of the reservoir (DPRS04 and WLRS04).

## **Hazardous, Toxic, & Radioactive Wastes**

The HTRW investigations included a preliminary screening followed by full Phase I investigation. The preliminary hazardous, toxic, and radioactive waste (HTRW) site screening is included in Appendix H. The preliminary site screening, complete in March 2010, assessed whether flood risk management and ecosystem restoration sites considered for implementation during alternative development were enrolled in any regulatory remedial program. Data obtained from the Illinois Environmental Protection Agency (IEPA), the Wisconsin Department of Natural Resources (WDNR), and the U.S. Environmental Protection Agency (EPA) suggested that none of the sites under investigation were currently, or had previously been, enrolled in any regulatory remedial program. Due to the limited scope of the preliminary HTRW screening, Phase I HTRW investigations were recommended for project sites tentatively selected for implementation during the final stages of the feasibility study.

A Phase I HTRW investigation for the flood risk management sites (reservoir, levee/floodwall, and structural modification project sites), completed in accordance with ER 1165-2-132, is included in Appendix H. These sites were considered a higher risk for HTRW due to the more extensive project work that is proposed. Results of the investigation were based on an existing information review, database research, historical topographic map and aerial photograph review, and a site visit. A list of unresolved issues, short-term actions, and future project recommendations to resolve potential environmental concerns are provided for the reservoir in Table 1.

Table 1- HTRW Results and Recommendations for Future Action: Reservoirs

Site	Issue	Short-Term Data Needs	Potential Future Actions
<b>DPRS04</b>	Database entries suggest that the site contains an unauthorized landfill, but this information could not be replicated, nor did historical maps and photographs indicate the site has ever been used for landfill.	Confirm that the landfill was mismapped and is not present onsite (FOIA request through IEPA).	Perform phase II investigation to determine scope and scale of site impacts from landfill, if confirmed present.
	Site Visit suggests that all limestone from Deep Tunnel construction has been removed from the site, but could not be confirmed.	None	Conduct borings onsite to determine the type and quality of soils present onsite, and confirm that limestone has been removed from site.
<b>WLRS04</b>	There are multiple LUSTs sites with the ASTM search distance with unknown status (EDR #L43, L44, and 52). Several of the LUSTs are presumed to be down gradient of the reservoir site; but one appears to be up gradient.	Confirm scope and scale of the LUST incidents with IEPA (FOIA request)	Perform phase II investigation to determine scope and scale of site impacts from adjacent regulated LUST activities, if required.
<b>DPRS04 WLRS04</b>	Spoil generated for reservoir construction	None	Due to the volume of material that will be generated and the unknown quality of the excavated material, management of spoil materials onsite is advised. If spoil will be removed from project site, phase II investigations may be necessary to determine the quality of the soils and disposal options.

### 1.4.2 17 Points of Environmental Quality

As specified by Section 122 of Rivers, Harbors & Flood Control Act of 1970 (P.L. 91-611), seventeen environmental quality categories of impacts were reviewed and considered in arriving at the final determination. As laid out in Table , the following categories were considered: noise, displacement of people, aesthetic values, community cohesion, desirable community growth, tax revenues, property values, public facilities, public services, desirable regional growth,

employment, business and industrial activity, displacement of farms, man-made resources, natural resources, air and water. Long term significant impacts from the preferred alternative plan to these identified points are not expected. Temporary minor impacts from constructions activities would occur on some categories.

*Table 2 – 17 Points of Environmental Quality Affects Considered*

Points of Environmental Quality	ER Affects	FRM Affects
Noise	minor & temporary	minor & temporary negative
Displacement of people	no affects	no affects
Aesthetic values	long term beneficial	see below
Community cohesion	no affects	no affects
Desirable community growth	no affects	no affects
Tax revenues	no affects	no affects
Property values	no affects	no affects
Public facilities	no affects	no affects
Public services	no affects	no affects
Desirable regional growth	no affects	no affects
Employment	no affects	no affects
Business and industrial activity	no affects	beneficial affects
Displacement of farms	no affects	no affects
Man-made resources	no affects	no affects
Natural resources	long term beneficial	minor & temporary negative
Air and water	long term beneficial	minor & temporary negative
Water	long term beneficial	minor & temporary negative

## **Environmental Justice**

Executive Order 12898 (environmental justice) requires that, to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

The proposed Ecosystem Restoration (ER) and Flood Risk Management (FRM) plans would not cause adverse human health effects or adverse environmental effects on minority populations or low-income populations.

## **Aesthetics**

Natural resources, landforms vegetation and man-made structures that generate one or more sensory reactions and evaluations by the observer, particularly in regard to pleasurable response,

are required to be assessed for adverse effects. These sensory reactions are traditionally categorized as visual, auditory and olfactory responses.

All components under the NER and FRM Plans have minimal affect on sight, sound and smells. Visual improvements at the reservoir site(s) would include the use of native vegetation and designing the reservoir to be more park-like, than just a “hole-in-the-ground”.

The proposed levees would make the adjacent forest preserve lands have more of a sense of solace, since they would block the site of homes and human activities from the Forest Preserve’s perspective; however, from a home owner’s perspective, the levee may impair the visual line of sight to the Forest Preserve.

Road raises and structural modifications have minimal affect on sight, sound and smell since these structures are maintaining their characteristics and are just being elevated. Elevating of these structures is not expected to impair any scenic or visual vistas.

## **1.5 Cumulative Effects Assessment**

Consideration of cumulative effects requires a broader perspective than examining just the direct and indirect effects of a proposed action. It requires that reasonably foreseeable future impacts be assessed in the context of past and present effects to important resources. Often it requires consideration of a larger geographic area than just the immediate “project” area. One of the most important aspects of cumulative effects assessment is that it requires consideration of how actions by others (including those actions completely unrelated to the proposed action) have and will affect the same resources. In assessing cumulative effects, the key determinant of importance or significance is whether the incremental effect of the proposed action will alter the sustainability of resources when added to other present and reasonably foreseeable future actions.

Cumulative environmental effects for the proposed NER and FRM project were assessed in accordance with guidance provided by the Council on Environmental Quality (CEQ) and U.S. Environmental Protection Agency (USEPA 315-R-99-002). This guidance provides an eleven-step process for identifying and evaluating cumulative effects in NEPA analyses.

The overall cumulative impact of the proposed Upper Des Plaines Phase II ecosystem restoration and flood risk management project is considered to be beneficial environmentally, socially and economically.

The ecological restoration portion of this project would improve hydrology by filling an estimated 13,400 feet of unnatural ditch along with disabling hundreds of thousands of feet of drain tiles. Natural stream sinuosity would be restored increasing the total length. Five dams would be removed on the mainstem Des Plaines River. Over 10,900 acres of native plant community types would be restored including: marsh (2,850 acres), meadow (808 acres), prairie (2,491 acres), savanna (1,048 acres), woodland (2,912 acres) and forest (805 acres). Ecosystem

Plan 2 increases the quality of watershed ecosystem communities by 50% of what currently exists.

The flood risk management portion of this project would provide \$6,825,000 net benefits through implementing two (2) reservoirs, four (4) levees, one (1) road raise, one (1) structural modification, and a vast array of non-structural components. Minor ecological improvements resulting from the FRM plans include reducing the flashiness of the Des Plaines River watershed and minor water quality improvements

### **1.5.1 Scope of Cumulative Effects Analysis**

Through this environmental assessment, the cumulative effects issues and assessment goals are established, the spatial and temporal boundaries are determined, and the reasonably foreseeable future actions are identified. Cumulative effects are assessed to determine if the sustainability of any of the resources is significantly affected with the goal of determining the incremental impact to key resources that would occur should the proposal be permitted.

The spatial boundary for the assessment has been broadened to consider effects of the whole Upper Des Plaines River watershed. The spatial boundary being considered is normally in the general area of the proposed ecological restoration; however, this area may be expanded on a case-by-case basis if some particular resource condition necessitates broadening the boundary. For this analysis, the spatial boundary is the entire Upper Des Plaines River watershed.

Three temporal boundaries were considered:

- *Past* – 1830s because this is the approximate time that the landscape was in its natural state, a vast prairie/wetland/woodland mosaic
- *Present* – 2014 when the decision is being made on the most beneficial ecological restoration and flood risk management features
- *Future* – 2064, the year used for determining project life end, although the ecological restoration should last until a geologic event disturbs the area

Projecting the reasonably foreseeable future actions is difficult. The proposed action (ecosystem restoration and flood risk management) is reasonably foreseeable; however, the actions by others that may affect the same resources are not as clear. Projections of those actions must rely on judgment as to what are reasonable based on existing trends and where available, projections from qualified sources. Reasonably foreseeable does not include unfounded or speculative projections. Some future projections were taken from completed watershed plans by the Lake County Stormwater Management and Southeastern Wisconsin Planning Commission. In this case, reasonably foreseeable future actions include:

- Stable growth in both population and water consumption within the watershed
- Continued urban development within the watershed
- Continued increase in tourism/recreation within open space and natural lands
- Continued application of environmental requirements such as those under the Clean Water Act

- Implementation of various programs and projects to reduce runoff, erosion and sewer overflows
- Increased value placed not only the open space but the biodiversity and water quality of the watershed

### **1.5.2 Cumulative Effects on Resources**

The plan formulation process took into account existing and planned flood risk management projects, watershed studies and known ecological restoration projects in the study area. Prior studies and reports, listed in Section 1.1.5 of the Main Report, were reviewed to ensure that the modeled conditions are the best possible representation of actual conditions. Table 3.4 in Section 3.1.1.5 of the Main Report provides a list of existing major watershed modifications, including flood risk management projects. The detailed hydrologic and hydraulic models used in this study include the listed modifications. The study team also worked with state and local agencies to coordinate ongoing flood risk management planning to address additional flood damages in the watershed. Upon approval and implementation of a recommended plan, the with-project conditions will be used to evaluate the effectiveness of future projects.

Physical Resources: The past has brought much alteration to the physical resources of the Upper Des Plaines River watershed. Geology, soils, topography, hydrology, and fluvial geomorphology have all been modified to suit man's needs for purposes of habitation, commerce and recreation. Over 86% of the landscape has been modified from its natural form and the rate of land reclamation vs. development is almost equal. As a result, water and sediment quality are impacted due to site specific and watershed-scale alterations, as well as daily activities such as road salting, industrial and municipal discharge, poor agricultural practices and the untidy nature of transportation/vehicles. It is reasonably foreseeable that agricultural land will be converted to small residential subdivisions or purchased by conservation organization for ecological restoration purposes. In some cases this can potentially improve water quality in terms of nutrient loading, but in other instances it may introduce other types of contaminants such as oils and grease, surfactants and other nutrients (sewage and lawn fertilizers). Municipalities have adopted development and stormwater management ordinances; however, they are not always utilized to their full intentions. Best management practices are not numerous enough to prevent the influx of nutrients into streams and wetlands from existing agricultural land. Given the past, current and future condition of the Upper Des Plaines River watershed, the implementation of the ecosystem restoration and flood risk management projects are minor repairs in terms of the vast array and quantity of adverse effects caused by development and agriculture; however, they are significant in terms of beginning to address all the human induced problems the watershed suffers. There are no irrecoverable loss of resources identified in terms of geology, soils, topography, hydrology, water quality and fluvial geomorphology due to implementation of the preferred NER and FRM Plans. Cumulative beneficial effects to the Upper Des Plaines River are anticipated in terms of geology, soils, topography, hydrology, water quality and fluvial geomorphology.

Ecological Resources: The ecological diversity of the Upper Des Plaines River watershed has suffered greatly as a result of previous significant physical resource alterations. The watershed

was once a diverse mosaic of marsh, prairie, savanna, woodland, glacial ponds and lakes and streams that had a steady and dependable hydrology. Extreme landscape modification has caused about 86% of the natural land use to be converted into agriculture or residential/commercial land uses. It is estimated that only about 2% of the remaining 14% of open space is considered high quality ecosystem, and that this 2% also suffers from fragmentation. No longer is there enough natural landscape to provide enough natural lands for fish and wildlife habitat or to attenuate large rainfall events. Considering these past, current and future conditions of the Upper Des Plaines River watershed, the implementation of the ecosystem restoration and flood risk management projects are minor repairs in terms of the vast array and quantity of significant effects caused by development and agriculture; however, they are instrumental in beginning to address the human induced problems the watershed suffers. Therefore, there are no irrecoverable losses of resources identified in terms of plant, insect, fish, amphibian, reptile, bird, mammal taxa or to their habitats they occupy due to implementation of the preferred NER and FRM Plans. Cumulative beneficial effects to the Upper Des Plaines River are anticipated in terms of fish and wildlife and their preferred habitats.

Archaeological & Cultural Resources: Cumulative effects are not expected to archaeological or cultural resources.

### **1.5.3 Cumulative Effects Summary**

Along with direct and indirect effects, cumulative effects of the preferred combined NER and FRM Plans were assessed. There have been numerous effects to resources from past and present actions, and reasonably foreseeable future actions can also be expected to produce both beneficial and adverse affects. In this context, the increments of effects from the proposed project are relatively minor. Assessment of cumulative effects indicates that long-term healing of the Upper Des Plaines River watershed resources is beneficial with the implementation of the preferred alternative plan; however, it will take considerable time for counties, municipalities and local organizations to continue to repair and mitigate losses caused by past hydrologic, hydraulic, and ecologic adverse effects. Based on the expectation of continued sustainability of all resources, and the magnitude of the watershed circumstances, cumulative effects are not considered significant or adverse, but highly beneficial to the environment, its people, and the economy.

## **1.6 Compliance Determination**

### **1.6.1 Federal Statues and Regulation Compliance**

This feasibility study complies with applicable environmental laws, regulations, and Executive Orders for the current stage of the study. Table provides a summary of the compliance status for the primary environmental requirements associated with the study.

*Table 3 – Compliance with Environmental Statutes and Executive Orders*

Reference	Environmental Regulation	Compliance Status*
16 USC 1531, et seq.	Endangered Species Act, as amended	C
16 USC 460 (L),(12)	Federal Water Project Recreation Act, as amended	C
16 USC 4601-4, et seq.	Land and Water Conservation Fund Act, as amended	C
16 USC 470a, et seq.	National Historic Preservation Act (NHPA), as amended	C
16 USC 661	Fish and Wildlife Coordination Act, as amended	C
16 USC 703 et seq.	Migratory Bird Treaty Act of 1918,as amended	C
16 USC469, et seq.	Archaeological and Historical Preservation Act as amended	C
25 USC 3001, et seq.	Native American Graves Protection and Repatriation Act	C
33 USC. 1251 et seq.	Clean Water Act, of 1977, as amended	C
42 USC 1962	Water Resources Planning Act of 1965	C
42 USC 1996	American Indian Religious Freedom Act of 1978	C
42 USC 201	Safe Drinking Water Act of 1986 as amended	C
42 USC 4321, et seq.	National Environmental Policy Act (NEPA), as amended	C
42 USC 4901, et seq.	Quiet Communities Act of 1978	C
42 USC 6901, et seq.	Resource Conservation and Recovery Act of 1976, as amended	C
42 USC 7401	Clean Air Act (CAA) of 1970 as amended	C
42 USC 9601	CERCLA of 1980	C
7 USC 4201, et seq.	Farmland Protection Policy Act	C
CEQ Memo Aug 11, 1980	Prime or Unique Agricultural Lands NEPA	C
E.O. 11514	Protection and Enhancement of Environmental Quality	C
E.O. 11593	Protection and Enhancement of the Cultural Environment	C
E.O. 11988 (1977)	Floodplain Management	C
E.O. 11990 (1977)	Protection of Wetlands	C
E.O. 12088 (1978)	Federal Compliance with Pollution Control Standards	C
E.O. 12898 (1994)	Federal Actions to Address EJ in Minority and Low-Income Populations	C
E.O. 13007 (1996)	Indian Sacred Sites	C
E.O. 13045 (1997)	Protection of Children from Environmental Health Risks & Safety Risks	C
E.O. 13186	Responsibilities of Federal Agencies to Protect Migratory Birds	C
E.O. 13340	Great Lakes Designation of National Significance to Promote Protection	C
PL 79-525, 60 Stat 634	Rivers and Harbors Act of 1946	C

\*Compliance Status indicated as complaint (C), non-compliant (N), or pending (P).

The National Environmental Policy Act (40 CFR 1501.6) allows the lead agency to establish a cooperating agency relationship with other Federal agencies that have jurisdiction by law or special expertise relevant to the project. The USACE established a cooperating interagency agreement with the USFWS, in which they are serving as a member on the Project Development Team (PDT), and have significantly contributed to the study.

### **1.6.2 Discussion of Major Environmental Compliance**

Section 404 of the Clean Water Act – All projects proposed under the preferred plan would comply with the regulations and statutes set forth in Section 404 of the Clean Water Act and do not impact any wetlands. There are no outstanding reasons to believe that Section 404 would not

be in compliance for any given project. A preliminary 404(b)(1) analysis has been completed for the recommended plan, included as Attachment B within the Main Report. However, each feature that requires 404 compliance would complete a Section 404(b)(1) analysis and provide the information on a per project basis during the design phase to regulating agencies. No project requiring 404 compliance would begin construction without the completion of the analysis.

Section 401 of the Clean Water Act – All projects proposed under the preferred plan would comply with the regulations and statutes set forth in Section 401 of the Clean Water Act. There are no outstanding reasons to believe that 401 WQ Certification would not be granted for any given project, seeing that they all restore the environment and subsequently water quality, or they beneficially quell those adverse water quality affects associated with unnatural flooding. Currently, the Chicago District has about 15 ecosystem restoration projects similar to the projects recommended by this study under construction or being implemented. All of these projects have been granted Section 401 certification or fall under the Regional 401 Program. Each project that requires Section 401 Certification would complete appropriate applications and provided information on a per project basis during the design phase when plan sheets are suitable for review. No project requiring Section 401 Certification would begin construction without the certificate issued.

Endangered Species Act and Fish and Wildlife Coordination Act – Preliminary coordination with the USFWS and plan formulation methodologies have recognized and considered threatened and endangered species from the study's onset. Upon completion of coordination between USFWS and USACE under Section 7 of the Endangered Species Act and the Fish and Wildlife Coordination Act Report, project documentation will be updated, if necessary, based on the results of the coordination.

Section 106 of the National Historic Preservation Act – Preliminary coordination with the State SHPOs and plan formulation methodologies have recognized and considered archaeological and cultural resources from the study's onset. The preferred plan was not identified to have affects on historic or archaeological resources. Official coordination and correspondence is expected to be closed via the finalization of this document and the ultimate signing of a FONSI for the preferred plan.

Clean Air Act Conformity Rule – The Clean Air Act (42 U.S.C. §7401 et seq.), as amended in 1977 and 1990 was established to protect and enhance the quality of the nation's air resources to promote public health and welfare and the productive capacity of its population. The Act authorizes the USEPA to establish National Ambient Air Quality Standards to protect public health and the environment. The Act establishes emission standards for stationary sources, volatile organic compound emissions, hazardous air pollutants, and vehicles and other mobile sources. The Act requires the states to develop implementation plans applicable to particular industrial sources. Title IV of the Act includes provisions for complying with noise pollution standards.

The preferred alternative is expected to be in compliance with the Act. Clean Air Act general conformity analysis (Appendix N) suggests that the proposed Upper Des Plaines River and Tributaries project will have minimal impact on air quality in the project area. Mobile source

emissions were estimated using USEPA guidance and models, and were found to be de minimis for criteria air pollutants. Based on these findings, the proposed Upper Des Plaines River and Tributaries project Feasibility Study demonstrates conformity.

Farmland Protection Policy Act – Unique and prime farmland was not identified as being part of the preferred plan’s project footprint.

Environmental Justice EO 12898 – Analysis of census and EPA environmental justice data indicates this project will have no adverse affects on minority or low income populations. No low-income agricultural communities are present in the general tri-county study area. Low-income minority populations do exist within the tri-county project area; however none are located along the Des Plaines River or in major flood zone areas; these areas consist of middle-class to upper middle-case suburban residential communities. All ecosystem projects are slated for public property, or property that would be acquired by a non-Federal public entity. The planned ecological restoration and flood management improvements will benefit everyone in the region equally. The preferred plan would not cause adverse human health effects or adverse environmental effects on minority populations or low-income populations.

Executive Order 11988: Floodplain Management – The recommended plan complies with and supports this executive order. Under this order, USACE is directed to avoid development in the floodplain, reduce the hazard and risk associated with floods, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values of the floodplain. The FRM components of the recommended plan reduce flood hazards in the study area by providing floodwater storage, flood barriers to protect potentially flooded structures, non-structural measures to avoid damages to structures, and other measures that reduce flood impacts to homes and businesses at risk of flooding. The ER components of the recommended plan restore natural floodplain structure and function and prevent development by using lands for ecosystem restoration. During the design phase, USACE will ensure that all components of the recommended plan continue to comply with this order and all other applicable laws and regulations.

Compliance with EO11988 is demonstrated through an 8-step process that agencies should carry out as part of their decision-making on projects that have potential impacts to or within the floodplain. The eight step process and the District’s determination of compliance are listed below:

1. *Determine if a proposed action is in the base floodplain.*  
The proposed action consists of several projects located throughout the watershed. Many of them are either entirely or partly located in the base floodplain. All of the ecosystem restoration sites incorporate actions in the base floodplain. The levees, structure modification, road raise, and non-structural measures are also located in the base floodplain. One reservoir site is in the base floodplain, the other is outside of this area.
2. *Conduct early public review, including public notice.*  
The general public was advised/ informed of the proposed action through public meetings, the distribution of the NEPA document for public review, Public Notice, and the District

website. Comments have been reviewed and considered as documented in Appendix L (Coordination).

3. *Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain.*

For projects located in the base floodplain, no practicable alternatives were identified that would locate the action outside of the base floodplain. The purpose of the project is to reduce the risk of flood hazards and to restore the natural floodplain. Because the damages occur in the floodplain, it cannot be accomplished through actions located outside the base floodplain.

4. *Identify impacts of the proposed action.*

Beneficial economic impacts of the proposed action include reduced flood hazards by providing floodwater storage, constructing flood barriers, and implementing non-structural measures. Beneficial ecological impacts would be the restoration of natural floodplain structure and function and the prevention of future floodplain development at restoration sites and non-structural buyout areas. Any adverse impacts to the existing base flood elevation would be mitigated through design modifications or the construction of compensatory storage. Structural flood risk management projects are located in a fully developed urban area, therefore the benefits provided by the project are only to existing development. Ecosystem restoration projects would enhance the base floodplain by restoring more natural hydrologic conditions and preventing development at these sites.

5. *Minimize threats to life and property and to natural and beneficial floodplain values. Restore and preserve natural and beneficial floodplain values.*

The proposed action will reduce the hazard and risk associated with floods; minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values of the floodplain. Since the structural flood risk management projects are located in a fully developed area, significant new development is not anticipated behind proposed flood barriers. Non-structural measures will manage flood risk at existing structures without impacting the floodplain and, in the case of buyouts, provide opportunities to restore and preserve natural and beneficial floodplain values. The establishment of restoration sites across the watershed will restore and preserve natural and beneficial floodplain values and further prevent future adverse impacts to the floodplain.

6. *Reevaluate alternatives.*

The proposed action could not be relocated outside of the base floodplain and still meet the purpose, needs, goals, and objectives of the project.

7. *Present the findings and a public explanation.*

The public has remained informed throughout the study process in accordance with NEPA. Information was disseminated through public meetings, the distribution of the NEPA document, public notices, and the District website.

8. *Implement the action.*

The Recommended Plan is the most responsive to the planning objectives established by the

study and consistent with this EO. The proposed project would be in full compliance with EO11988.

Cumulative Effects – Based on the expectation of continued sustainability of all resources, and the magnitude of the watershed circumstances, cumulative effects are not considered significant or adverse.

Public Interest – Public scoping meetings were held in 2002 in which public comment was sought on what the study scope should include. This information was utilized in the formulation of a preferred plan. This preferred plan is now in public circulation and comments and concerns will be sequestered from the public during the 30-day review period and scheduled public meetings.

## **1.7 Conclusion**

In accordance with the National Environmental Policy Act of 1969 and Section 122 of the River and Harbor and Flood Control Act of 1970, the U.S. Army Corps of Engineers (Chicago District) has assessed the environmental impacts associated with this project. The purpose of this Environmental Assessment (EA) is to evaluate the impacts that would be associated with the preferred plan.

The assessment process indicates that this project would not cause significant effects on the quality of the human environment in the areas of construction and have only beneficial impacts upon the ecological, biological, social, cultural, or physical resources of the Upper Des Plaines River watershed as a whole. The findings indicate that that the proposed action is not a major Federal action significantly affecting the quality of the human environment.