IEPA Log No.: **C-0635-14**
CoE appl. #: **LRC-2014-409**

Public Notice Beginning Date: **February 22, 2016**
Public Notice Ending Date: **March 14, 2016**

Section 401 of the Federal Water Pollution Control Act
Amendments of 1972

Section 401 Water Quality Certification to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois Environmental Protection Agency
Bureau of Water
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-3362

Name and Address of Discharger: Chicago Department of Transportation – 30 N. LaSalle Street, 4th Floor, Chicago, IL 60602

Discharge Location: Near City of Chicago in Sections 11 and 12 of Township 40N, Range 13E of the 3rd P.M. in Cook County.

Name of Receiving Water: North Branch Chicago River and North Shore Channel

Project Description: Proposed construction of stormwater diversion and detention facilities.

The Illinois Environmental Protection Agency (IEPA) has received an application for a Section 401 water quality certification to discharge into the waters of the state associated with a Section 404 permit application received by the U.S. Army Corps of Engineers. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice. The last day comments will be received will be on the Public Notice period ending date unless a commenter demonstrating the need for additional time requests an extension to this comment period and the request is granted by the IEPA. Interested persons are invited to submit written comments on the project to the IEPA at the above address. Commenters shall provide their names and addresses along with comments on the certification application. Commenters may include a request for public hearing. The certification and notice number(s) must appear on each comment page.

The attached Fact Sheet provides a description of the project and the antidegradation assessment.

The application, Public Notice/Fact Sheet, comments received, and other documents are available for inspection and may be copied at the IEPA at the address shown above between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

If written comments or requests indicate a significant degree of public interest in the certification application, the IEPA may, at its discretion, hold a public hearing. Public notice will be given 30 days before any public hearing. If a Section 401 water quality certification is issued, response to relevant comments will be provided at the time of the certification. For further information, please call Darren Gove at 217/782-3362.

DRG:C-0635-14_401 PN and FS_16Oct14.docx

Fact Sheet for Antidegradation Assessment
For Chicago Department of Transportation
IEPA Log No. C-0635-14
COE Log No. LRC-2014-409
Contact: Brian Koch (217) 785-4116
Public Notice Start Date: February 22, 2016

The City of Chicago ("Applicant") is proposing to construct a stormwater diversion tunnel below Foster Avenue in the Albany Park area of Chicago, Illinois. Construction will include a new diversion tunnel system to divert a portion of flows during flood conditions on the North Branch of the Chicago River (NBCR). The proposed 18 foot diameter rock tunnel is 5,800 feet long and will be located below the Foster Avenue right-of-way. The inlet structure of the proposed tunnel is located north of the intersection of Foster Avenue and N. Springfield Avenue on the south bank of the NBCR. The proposed outlet structure is located on the east bank of the North Shore Channel (NSC) just south of Foster Avenue. The tunnel will be approximately 110 feet below grade. Vertical shafts will connect the inlet and outlet structures to the ends of the tunnel. The project will include channel side-slope protection at the inlet and outlet structure, boater safety facilities at the inlet, and facilities at the outlet shaft to de-water the tunnel following operations.

The purpose of the structure is to divert flow from the NBCR into the diversion tunnel during storm events. The system is designed to operate approximately 3 times per year, based on historical flow data. The system will also to be operated for routine maintenance purposes to "exercise" the pumps. The tunnel design would include a slight pitch to the east to allow for gravity flow and would act as an inverted siphon at the outlet when full, passing water through the tunnel during storm events at approximately 2,300 cubic feet per second. The tunnel would be pumped empty of water within three days after a storm event to meet or exceed dissolved oxygen standards at the discharge point. The proposed outlet structure would discharge to the NSC, approximately 500 feet upstream of its confluence with the NBCR, bypassing stormwater flow around the remainder of the NBCR downstream of the inlet structure. Construction of the proposed inlet and outlet structures would require a total of 0.18 acres of fill below the Ordinary High Water Mark of the NBCR (0.114 acres of fill) and NSC (0.064 acres of fill).

Identification and Characterization of the Affected Water Body

The North Branch of the Chicago River (Segment Code IL_HCC-07) is considered a General Use water and has a 7Q10 flow of 14 cfs at this location. The segment is listed in the Illinois Integrated Water Quality Report and Section 303(d) List 2014 as impaired for Aquatic Life Use (causes = aldrin, alteration in stream-side or littoral vegetative covers (non-pollutant), chloride, DDT, hexachlorobenzene, dissolved oxygen, phosphorus, and total suspended solids (TSS)), Fish Consumption Use (cause = polychlorinated biphenyls), and Primary Contact Recreation Use (cause = fecal coliform). It is listed as fully supportive for Aesthetic Quality Use. It has not been assessed for Secondary Contact Use. The segment is not listed as biologically significant, however it has been given an integrity rating of "E" and a diversity rating of "D" in the 2008 Illinois Department of Natural Resources Publication *Integrating Multiple Taxa in a Biological Stream Rating System*. The segment is not enhanced in regards to the dissolved oxygen water quality standard.

The North Shore Channel (Stream Segment Code IL_HCCA_04) is considered a Secondary Contact and Indigenous Aquatic Life Use water and has a 7Q10 flow of 265 cfs at this location. The segment is listed in the Illinois Integrated Water Quality Report and Section 303(d) List 2014 as impaired for Fish Consumption Use (causes = mercury and polychlorinated biphenyls). It is listed as fully supportive for Indigenous Life Use and has not been assessed for Secondary Contact Use. The segment is not listed as biologically significant, however it has been given an integrity rating of "D" and a diversity rating of "D" in the 2008 Illinois Department of Natural Resources Publication *Integrating Multiple Taxa in a Biological Stream Rating System*. The segment is not enhanced in regards to the dissolved oxygen water quality standard.

The two above-mentioned waterways confluence at the North Branch Chicago River (Stream Segment Code IL_HCC-02) which is considered a Secondary Contact and Indigenous Aquatic Life Use water and has a 7Q10 flow of 270 cfs at this location. The segment is listed in the Illinois Integrated Water Quality Report and Section 303(d) List 2014 as impaired for Fish Consumption Use (causes = mercury and polychlorinated biphenyls) and Indigenous Aquatic Life Use (causes = dissolved oxygen and total dissolved solids (TDS)). The segment is not listed as biologically significant, however it has been given an integrity rating of "D" and a diversity rating of "D" in the 2008 Illinois Department of Natural Resources Publication *Integrating Multiple Taxa in a Biological Stream Rating System*. The segment is not enhanced in regards to the dissolved oxygen water quality standard.

Segments IL_HCCA-04 (NSC) and IL_HCC-02 (NBCR), currently classified as Secondary Contact and Indigenous Aquatic Life Use waters, have recently been upgraded by the Illinois Pollution Control Board to Chicago Area Waterway System Aquatic Life Use A waters. However, these changes have not become official since they have not yet been approved by USEPA. Once promulgated, the water quality standards of the Chicago Area Waterway System Aquatic Life Use A waters will be more stringent that the current Secondary Contact and Indigenous Aquatic Life Use waters and will be similar to General Use waters.

Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses

The pollutant load increases that would occur from this project include possible increases in suspended solids locally during construction. The inlet and outlet structures will permanently fill approximately 0.18 acres of Waters of the United States (WOUS). Pollutant loading increases will occur at the new outlet location in the NSC from waters of the NBCR during storm events and normal maintenance. The applicant predicts that during a 100-year storm event approximately 55 percent of the flow in the NBCR will be diverted through the diversion tunnel, while the remaining 45 percent of the flow will persist in the NBCR banks and flow downstream to the North Branch Dam, where it crests the dam.

During a flood event or normal maintenance, fish entrained into the diversion tunnel when it is beginning to fill will likely be killed as result of the 110 foot drop to the bottom of the tunnel. When the tunnel is full, entrained fish will experience a rapid increase in hydrostatic pressure to approximately three atmospheres during transport down the inlet shaft and increased pressure during transport through the tunnel, then experience a rapid decrease from that pressure during

transport up the shaft to the outlet. The total transport time is estimated at 10 minutes during a 100-year storm event. Those fish that survive the pressure changes will exhibit loss of equilibrium when discharged in the NSC, where they will likely be consumed by predators. During pumping of excess water from the outlet, fish entering the pumping system will likely be killed as a result of contact with the pump impeller and pressure changes. An annual loss of 565 fish is expected due to entrainment from the diversion tunnel.

Fate and Effect of Parameters Proposed for Increased Loading

The diversion tunnel outlet on the NSC will be approximately 500 feet upstream of the confluence with the NBCR. The diversion tunnel is predicted to be utilized on an intermittent basis approximately four to six times a year (estimated by the applicant for potential storm events and normal maintenance). Because of the infrequency of use and the proposed maintenance of the diversion tunnel, water quality is not anticipated to be adversely impacted by the proposed project. The 0.18 acres of fill impacts would be offset through the purchase of 0.27 acres of credits from the Lily Cache Wetland Mitigation Bank, located in the Des Plaines River watershed. On-site mitigation was considered, but was deemed impractical due to the anthropogenic alterations previously made to the watershed along with the urban/residential development along the river.

The Illinois Department of Natural Resources (IDNR) has requested the applicant seek an Incidental Take Authorization (ITA) for loss of the state-threatened banded killifish. IDNR also requested a Fisheries Resource Mitigation Plan be established to mitigate the loss of fishery resources, as well as dissolved oxygen monitoring at the tunnel outlet for three years to ensure compliance with the water quality standard. The applicant has agreed with these requests and has summarized their plans in the document *Mitigation Plan*, which was received by the Agency on February 2, 2016. A fish stocking program will be implemented to offset mortality resulting from tunnel entrainment, and two instream riffle structures and/or four boulder clusters will be installed in the NBCR approximately ¼ to ¾ mile upstream of the inlet structure to provide habitat, substrate, and low-velocity shelter for aquatic life. The Agency is aware that the United States Army Corps of Engineers will make the final determination on the mitigation required including potential increases in the amount of fill required for the proposed habitat structures. However, the Agency believes the currently proposed plans will appropriately mitigate the impacts associated with the diversion tunnel.

Purpose and Social & Economic Benefits of the Proposed Activity

The purpose of the project is to alleviate overbank flooding along the NBCR in the Albany Park neighborhood. The neighborhood has experienced overbank flooding three times since 2008, damaging hundreds of structures and costing millions of dollars in repairs and clean-up. The City of Chicago seeks to reduce the potential for future NBCR overbank flooding and associated damages in the Albany Park neighborhood**.**

Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation

Several alternatives were considered to address flooding problem issues in the Albany Park neighborhood, including providing supplemental conveyance capacity, reducing flood levels, flood-proofing structures, and buying-out vulnerable properties.

Specific alternatives that were considered are as follows:

- Ridgeway Bridge Modification: This would involve modifying a bridge that is a known hydraulic restriction on the NBCR. However, the extent of benefit would only be limited to a few blocks immediately upstream, and only a one-foot reduction in water surface level at the 100-year flood elevation.

- North Branch Dam Modification: Replacing the dam, or reducing the dam height and adding an operable control gate, would not adequately relieve flood elevations in the Albany Park neighborhood.

- North Branch Dam Removal and Channel Dredging: Removing the North Branch Dam and dredging the channel upstream to Foster Avenue and lining both streambanks with sheetpile would likely reduce flood elevations in the Albany Park neighborhood. However, the cost would be very high and there would be significant environmental and social impacts.

- Construction of Upstream Flood Storage Reservoir: Both a 25-year and 100-year flood storage reservoir were considered. While a reservoir would likely reduce flood elevations in the Albany Park neighborhood significantly, the cost for the reservoir and appurtenant structures (e.g., floodwalls, levees, modifications to roads and other infrastructure) would be very high and there would be significant environmental and social impacts.

The alternatives were removed from further consideration based on being ineffective, too costly, or having unacceptable environmental and social impacts.

Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities

IDNR sent a consultation terminated determination on August 21, 2015 and concluded that adverse effects to State threatened and endangered species (with the exception of the banded killifish) are unlikely from the project. IDNR has requested an ITA for the banded killifish, as well as dissolved oxygen monitoring and a mitigation plan to offset fish mortality. The Applicant has agreed to all of these additional requirements.

Agency Conclusion

This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard)

and was based on the information available to the Agency at the time this antidegradation review summary was written. We tentatively find that the proposed activity will result in the attainment of water quality standards; that all existing uses of the impacted waters will be maintained; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this project will alleviate overbank flooding along the NBCR and reduce damage to structures in the Albany Park neighborhood. Comments received during the 401 Water Quality Certification public notice period will be evaluated before a final decision is made by the Agency.