

Project Name and Location

Indianapolis Local Flood Protection Project
Indianapolis, IN

Project Description

The Indianapolis Local Flood Protection Project (ILFPP) is a levee system located on the east bank of White River and south bank of Fall Creek that provides flood protection to areas near downtown Indianapolis. The original federally-constructed levee consists of portions of two contiguous segments known locally as Levee WR-17 and Levee WR-18. Levee WR-17 begins just south of Washington Street and continues to New York Street. Levee WR-18 begins at New York Street and extends upstream to 10th Street. Levee FC-01 is located on the south bank of Fall Creek from its confluence with White River to natural high ground near west 13th Street. Levee WR-17, Levee WR-18, and Levee FC-01 provide a continuous line of protection and are collectively considered the ILFPP. The ILFPP is a critical levee system that provides protection to areas near downtown Indianapolis, which include medical, academic, and residential areas. The Sidney and Lois Eskenazi Hospital is located in this area. Riley Hospital for Children, the Richard L. Roudebush VA Medical Center, and IU Health University Hospital are adjacent to the protected area. Portions of the IUPUI campus are in the protected area, including some student housing.



Project History

The ILFPP was constructed in response to the record March 1913 flood on White River. This flood caused unprecedented damage. Approximately six square miles of Indianapolis were inundated, resulting in approximately 4,000 families being displaced with most of their homes and belongings lost. The floodwaters and debris load caused the failure of several bridges and a breach of the levee protecting the western portions of Indianapolis. Five deaths were attributed directly to the flooding, although it is thought that the number may have been higher. After the 1913 flood, a comprehensive plan was developed to protect Indianapolis. The portion of the ILFPP from the old Washington Street bridge to 10th Street was constructed by the U.S. Army Corps of Engineers between 1940 and 1941. The design protection grade is one foot above the observed March 1913 flood stage. Levee FC-01 was constructed by the City of Indianapolis in the early 1960s based on general plans previously developed by the USACE in the 1940s. The design protection grade is a minimum of one foot above the observed March 1913 flood stage.

In 2015, Burke completed an evaluation of the levee system's expected performance during flood stages equivalent to the March 1913 flood. This evaluation included interior drainage on the Central Canal, evaluation of the protection grade, closures, embankment stability and seepage, embankment protection, and a hydraulic evaluation, and was used to support later design efforts. The design also relied on previous work performed by Burke and its subconsultants including a levee inspection, topographic survey, closed-circuit television (CCTV) inspections of storm sewer penetrations, wetland delineation, geotechnical field and laboratory testing, geotechnical evaluation, and structural evaluation. In addition, Burke provided technical support to the City of Indianapolis to obtain right-of-way for ongoing operation and maintenance of the levee including within White River State Park.

Project Purpose and Details

This project was completed to rehabilitate and restore Levee WR-17, Levee WR-18, and Levee FC-01 and, in so doing, improve the reliability of the ILFPP levee system, provide continued flood protection, and restore “Active” status in the Rehabilitation Program administered by the USACE for over two miles of levee since the USACE had rated the overall condition as “Unacceptable” according to their rating criteria. The Rehabilitation Program provides for inspection and rehabilitation of levees under the authority of Public Law 84-99, the Flood Control and Coastal Emergency Act. The principal benefit of the program is rehabilitation of flood control works by the USACE to their pre-disaster conditions and level of protection if damaged or destroyed by a flood. A flood control project must be in “Active” status in the program at the time of the disaster to be eligible for assistance.

Although bid as one project, the project was divided into two distinct sets of plans: one for the levees along White River and the other for the levee along Fall Creek. The scope of work included floodwall concrete repairs (spalling, cracking, and expansion joints), replacing storm sewer pipes through the levee (including a trenchless installation), outfall maintenance and improvements (installation of headwalls, flap gates, and erosion control mat), filling animal burrows, tree removal, replacing selected floodwall monoliths for stump removal and storm sewer work, concrete trail repair and replacement along the White River Greenway (including within White River State Park), and erosion and sediment control.

Permitting for this project was extensive and included the following permits:

- Section 401/404 permitting from the Indiana Department of Environmental Management and USACE
- Construction in a Floodway from the Indiana Department of Natural Resources
- Floodplain Development Permit from the City of Indianapolis
- Letter of No Objection for Levee Alteration from USCAE
- Rule 5 from IDEM

Design of this critical project proceeded through the peak of the COVID-19 pandemic and was performed to meet USACE levee standards. Design plans were issued for bid in December 2020, with construction initiated in 2021 and substantially complete in summer 2022. Following construction, the USACE upgraded the overall condition rating of the levee and reinstated “Active” status in the Rehabilitation Program, making the City of Indianapolis eligible for financial assistance.

Project Costs

The project was awarded for \$3.15 million.

Name and Address of Engineer

Christopher B. Burke Engineering LLC
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Indianapolis, IN 46204

Name and Address of Owner

City of Indianapolis
Department of Public Works
1200 Madison Avenue, Suite 200
Indianapolis, IN 46225

Name and Address of Contractor

Calumet Civil Contractors, Inc.
4898 Fieldstone Drive
Whitestown, IN 46075

Unique Characteristics of the Project

With the levees ranging from approximately 60 to over 80 years old, careful examination of records and verification of existing conditions was necessary to avoid unforeseen conditions during construction to the extent possible. Extensive permitting was required from several agencies including IDNR, IDEM, USACE, and the City of Indianapolis. Separate permits were obtained for the White River and Fall Creek segments.

Due to the location of the levees in a high-profile area along the White River Greenway and close to or within White River State Park, the Indiana University-Purdue University Indianapolis campus (including the adjacent Carroll Stadium), and the Richard L. Roudebush VA Medical Center, coordination was necessary to communicate the project impacts, establish necessary right of way, and ensure continued operation and minimal impact to adjacent facilities. Portions of the White River Greenway adjacent to the levee within White River State Park were replaced. A trenchless pipe installation was designed and implemented for a storm sewer outfall at the VA Medical Center to avoid a temporary closure of Porto Alegre Street during construction.

Through extensive collaboration between the City, consultants, and contractor, as well as local, state and federal agencies, the challenges inherent due to the age of the levee system, coordination and communication with adjoining properties, permitting, and the COVID-19 pandemic were overcome. This project reinforces the City's commitment to reduce the risk of flooding in downtown Indianapolis by extending the life of this critical structure for years to come.

Plaque Recipients

Owner

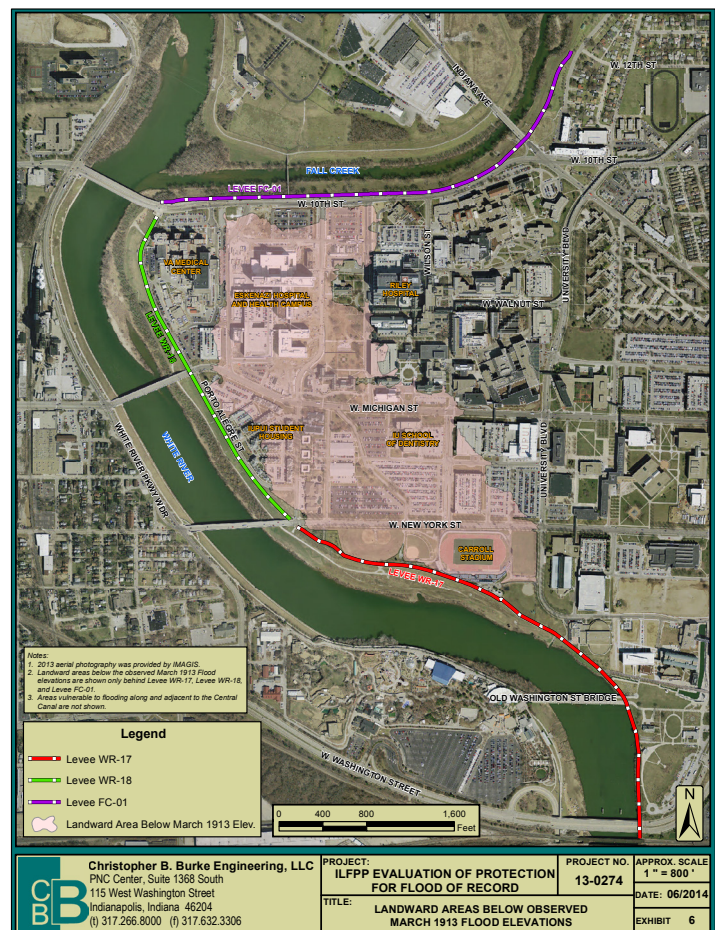
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Erosion Protection at Outfalls



Rehabilitated Levee Along Fall Creek



New Greenway Paving at White River State Park



Trenchless Storm Sewer Installation