

Project Name: Herbert Hoover Dike Rehabilitation (HHD)
Project ID: 3700
Lead Agency: USACE
Authority: Central and Southern Florida (C&SF) Project for Flood Control and Other Purposes in the Flood Control Act of 1948, 1954, 1958, 1960, 1965 and 1968; Authorization in 1970 under Section 201 of the Flood Control Act of 1965; the Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 2007; and the Rivers and Harbors Act of 1930. WRDA 2007 (*report requirement and authorization*)
Funding Source: USACE

Strategic Plan Goal(s) Addressed: 3-B.2

Measurable Output(s): 143 miles of rehabilitated dike for adequate levels of flood protection

Project Synopsis: The Herbert Hoover Dike system consists of nearly 143 miles of levees surrounding Lake Okeechobee, with 19 culverts, hurricane gates and other water control structures. The first embankments around Lake Okeechobee were constructed by local interests from sand and muck, circa 1915. Hurricane tides overtopped the original embankments in 1926 and 1928 causing over 3,000 deaths. The River and Harbor Act of 1930 authorized the construction of 67.8 miles of levee along the south shore of the lake and 15.7 miles of levee along the north shore. The USACE constructed the levees between 1932 and 1938 with crest heights ranging from +32 to +35 feet, NGVD.

A major hurricane in 1947 prompted the need for additional flood protection work. As a result, Congress passed the Flood Control Act of 1948 authorizing the first phase of the Central and South Florida (C&SF) Project, a comprehensive plan to provide flood protection and other water control benefits in central and south Florida. By the late 1960's the new dike system was completed, raising the elevation of the levees to +41 feet, NGVD. This provides protection to the Standard Project Flood level, approximately an event occurring once in 935 years.

Investigations conducted in the 1980's and early 1990's of the dike system's potential seepage and stability problems resulted in the identification of two major areas of concern: the seepage and embankment stability at the culvert locations, and the problematic foundation conditions of the dike. During high water events, piping is experienced thru the levee. In 1999, the Corps developed a plan to rehabilitate HHD and the plan was approved in 2000. This rehabilitation work covers the entire dike system. Areas of work are defined as Reaches 1 – 8, with Reach 1 further divided into four sub-reaches (A through D).

The Preferred Alternative design offers the best technology in the industry to reduce seepage and piping immediately along the dike alignment as well as to offer stability and protection for the long-term. The cutoff wall will block any pre-existing pipes or defects in the embankment foundation, while the landside rehabilitation feature will serve to provide stability by reducing uplift pressures caused by seepage. This landside rehabilitation feature may consist of one or more of the following: a seepage berm, relief trench, relief well, sand drain, or soil replacement wedge. The landside rehabilitation features are being determined based on the specific hydrogeologic conditions of the specific site.

WRDA 2007 authorized funding (\$1.5 M) for the Secretary to publish a supplemental report to the Major Rehabilitation Report for the HHD system approved by the Chief of Engineers in November 2000. The supplemental MRR is to include the review done by the SFWMD in April 2006, evaluate conditions of the HHD system, identify additional flood risks and evaluate the potential for integrating Corps projects for flood protection, potential for water storage north of the lake and analyze other features also contained in the CERP. Action items have been coordinated through USACE HQ.

Current Status: Construction activities are ongoing within HHD Reaches 1A, 1B and 1D and include full scale production of cut-off wall within these reaches as well as filling of quarry in Reach 1D. Additional cut-off wall task orders are being prepared for proposal and award in Reaches 1B and 1C.

Design activities including continuing Reach 1 A, B, C and D land side design plans and specifications both by in-house and Architect Engineering firms. Field investigations and initial land side design options are ongoing in support of the Major Rehabilitation Report for Reaches 2 and 3.

NEPA activities include a draft Supplemental Environmental Impact Statement (SEIS) for Reach 1A land side design and structural solutions is scheduled for public release in June 2010; and the release of a draft SEIS of a supplemental Environmental Impact Statement for Reach 1 B, C and D land side rehabilitation and structural solution features is scheduled for the fall of 2010.

The Major Rehabilitation Report (MRR), for Reaches 2 and 3 activities, is expected to be completed and approved by the end of February 2011. The MRR itself includes development of system alternatives, risk assessment and associated filed work data collection.

Est. Cost: \$ 1,781,855,000

Project Schedule:

- 2010 Award cut-off wall construction task orders for Reach 1B and 1C
 Construction award task order for the removal of Culvert 14
 Finalize NEPA requirements for Reach 1A, 1B, 1C & 1D Landside design and structural solutions
- 2014 Reach 1 construction completed.
- 2017 Reaches 2 and 3 construction completed.
- 2026 All Reaches completed.

Detailed Project Budget Information (rounded):

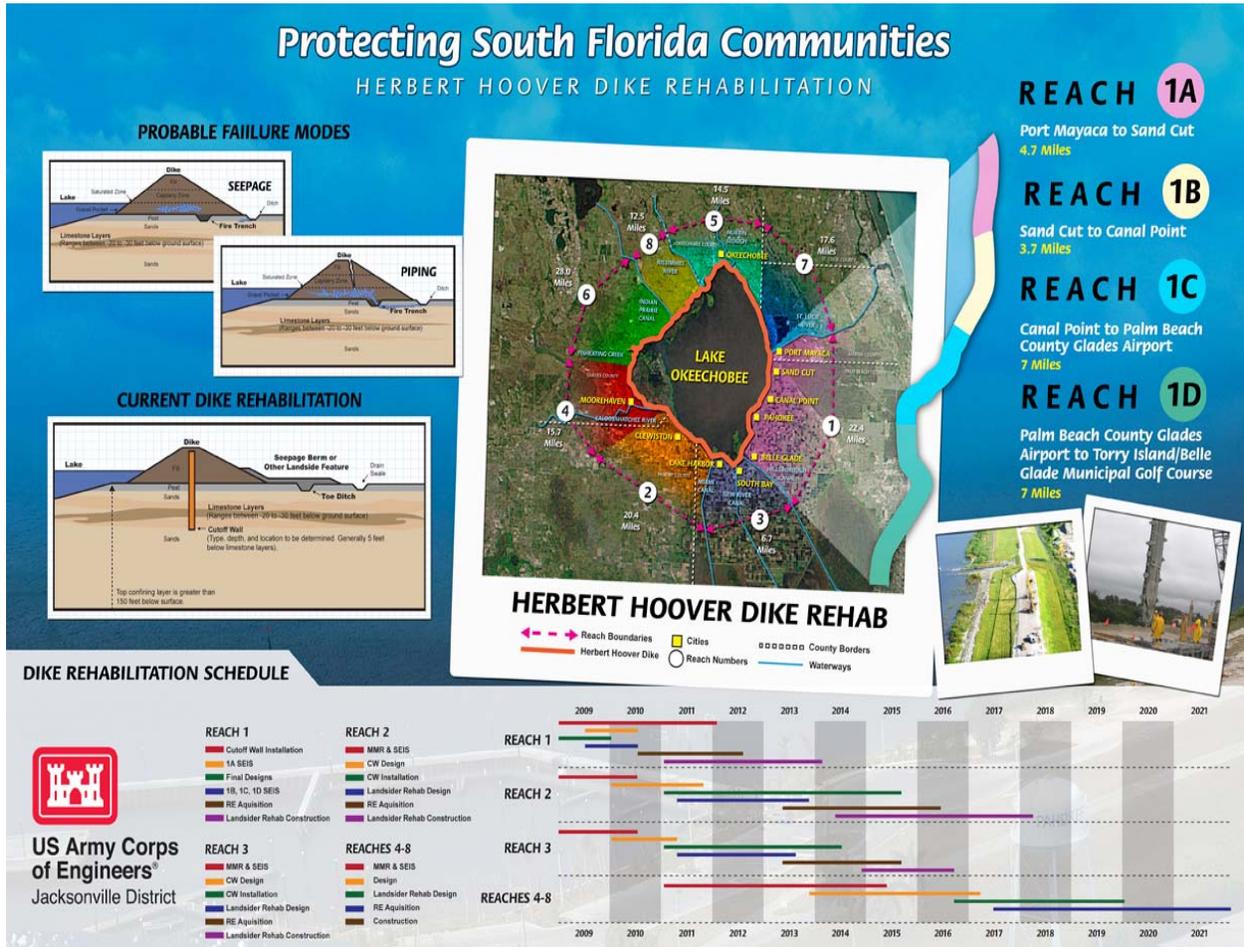
HHD	Expenditures Thru FY 2009
USACE	\$111,508,000
SFWMD	N/A
Total	\$111,508,000

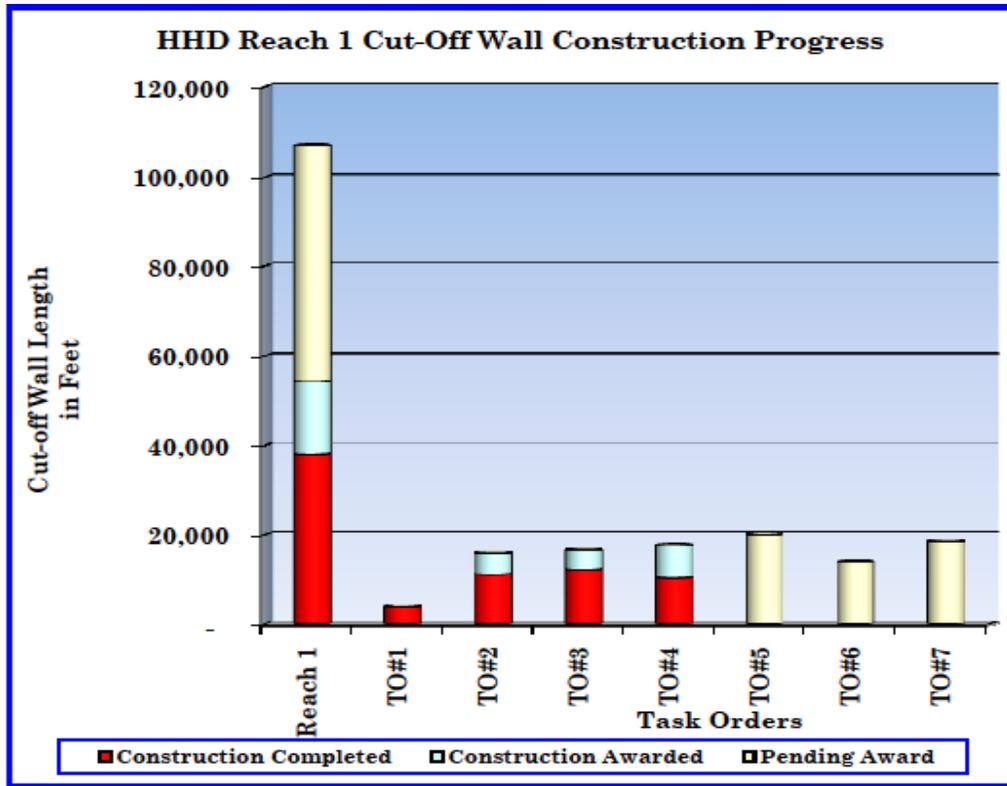
Hyperlink: <http://www.saj.usace.army.mil/Divisions/Everglades/Branches/HHDProject/index.htm>

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Source: MRR description is excerpted from WRDA 2007. Current status and estimate was provided by the project manager. Cost estimate information is updated to reflect current price levels in October 2009 dollars. Schedule is updated based on the approved *Integrated Delivery Schedule Through 2020* (as of February 2010) and the current project schedule.

Additional Information:





Cutoff Wall Task #2 (July, 2009):



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