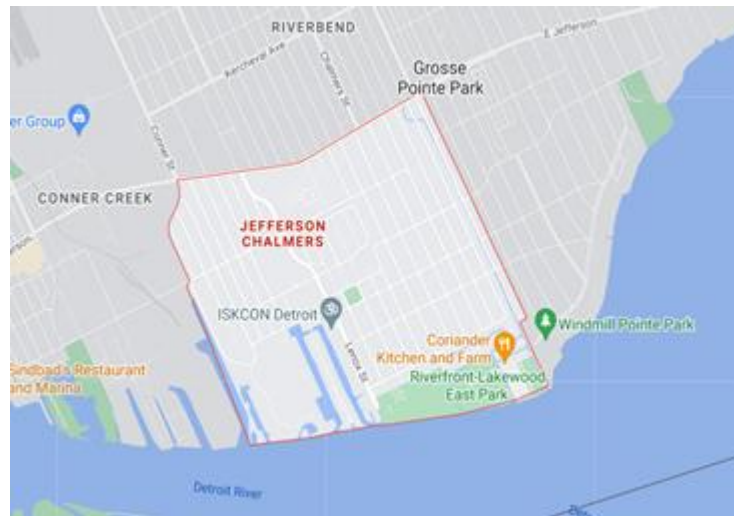




Jefferson Chalmers Flooding Update

May 25, 2022





AGENDA

- 2022 Plans for Temporary Flood Control Measures (BSEED/GSD)
- US Army Corps of Engineers (USACE) Flood Plain Management Study (FPMS) Report
- Long-term Flood Control and Flood Plain Designation Relief Strategy



CRITICAL PROPERTIES

- Dozens of properties have shoreline elevations at or below 2022 forecasted water levels
- Many properties still feature walls or shorelines in disrepair allowing water through
- Water level was at annual low in February, but increased 1.5 feet in 3 weeks
- Tiger Dams and sandbags still required to prevent potential flow into sewer system
- GSD to repair damaged or removed Tiger Dams
- For residents that have old, deteriorated sand bags, DPW will pick those up from you on June 20, 2022



CRITICAL PROPERTIES - ASHLAND

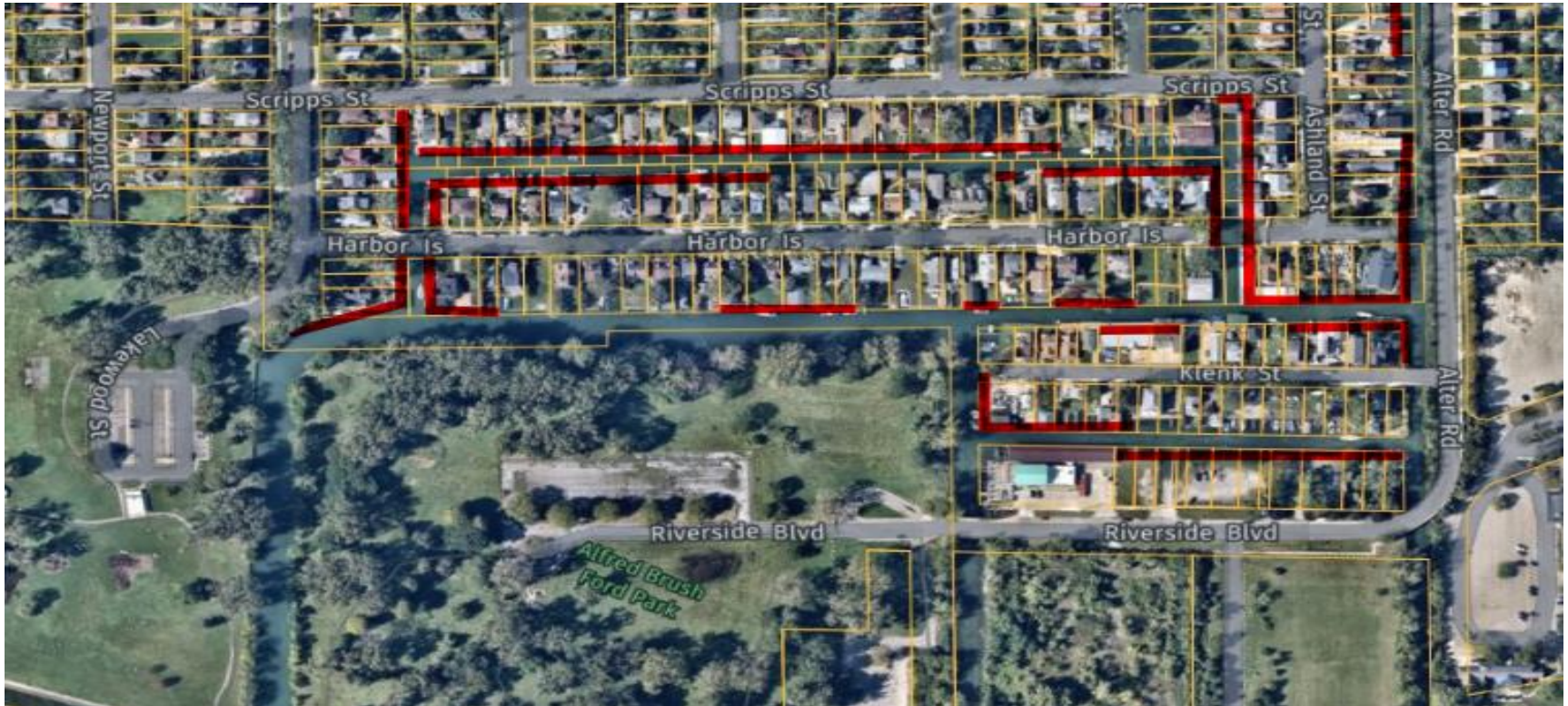


— Properties below 577.50

Note – The 577.50 value is based on observed 2019 elevations where that information was available/obtainable.



CRITICAL PROPERTIES KLENK AND HARBOR ISLANDS



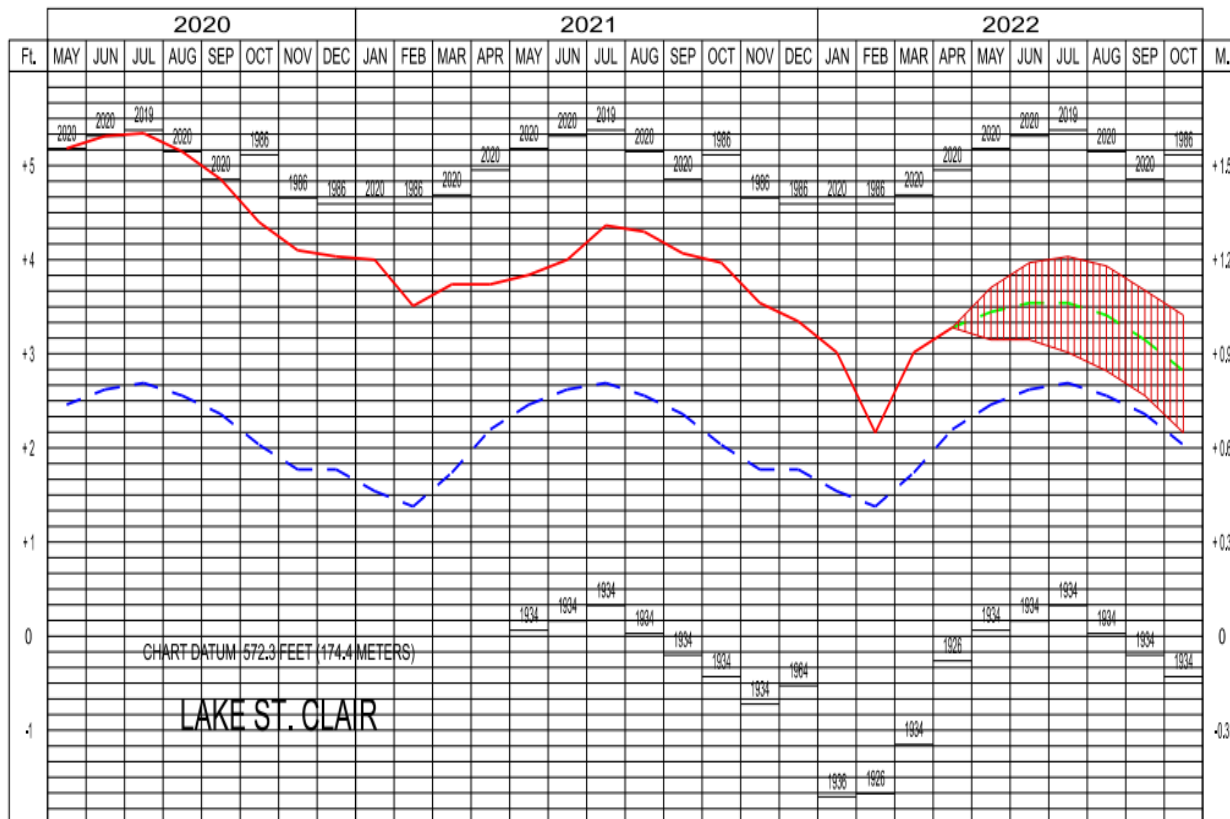
— Properties below 577.50

Note – The 577.50 value is based on observed 2019 elevations where that information was available/obtainable.

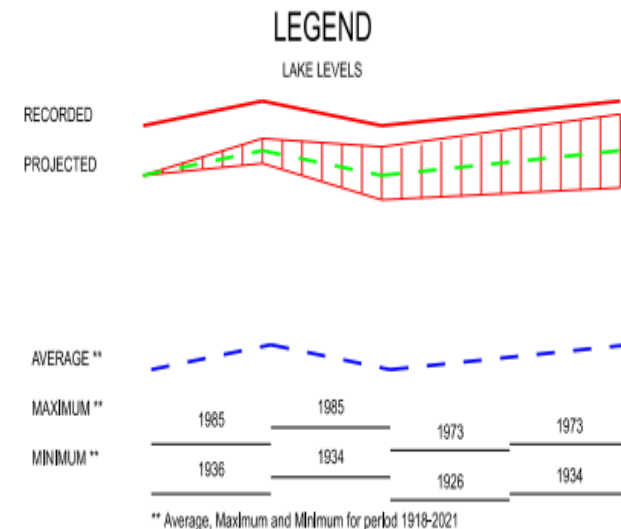


2022 FORECASTS – USACE TRENDS – IGLD 1985 DATUM

LAKE ST. CLAIR WATER LEVELS - MAY 2022

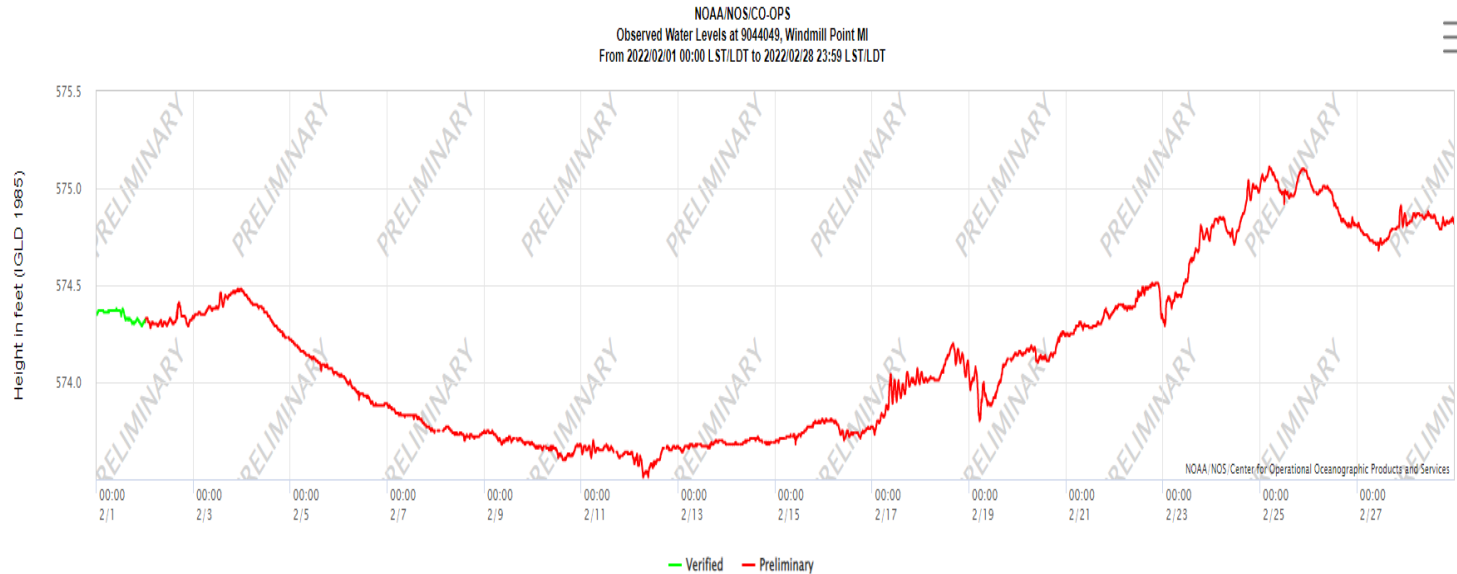


- Worst case prediction plus 1 foot freeboard = 577.35
- Median prediction plus 1 foot freeboard = 576.80
- Significant drop and rise in February 2022 – weather related





FEBRUARY 2022 VOLATILITY



- Low of 573.50 on February 12
- High of 575.10 on February 25
- Increase of 1.6 feet in only 13 days
- February historically will be lowest month during annual trends
- 2022 drop and subsequent rise much steeper than previous years



TIGER DAM/SANDBAG FAQ

- Q1: The canal water level is way down; why can't the Tiger Dams and/or sandbags be removed from my property?
- A1: 2022 forecasts predict water levels that could again threaten local/regional sewerage assets and potentially impact dozens of properties.
- Q2: I have already removed the Tiger Dam on my property. What happens now?
- A2: The City will visit your property and determine if the flood measures should be reinstalled and will perform that work if necessary.
- Q3: What is the City doing to fix this problem permanently?
- A3: We are working on a multifaceted project with the goal of permanently removing the LES from the floodplain, eliminating the need for flood insurance and keeping the water in the canals. Property owners are still responsible for repairing failing seawalls along their canal frontage. (Minimum recommended elevation is 579' - Base Flood Elevation 578' +1' free board)



US ARMY CORPS of ENGINEERS / FEMA

- USACE Flood Plain Management Study Report – Garrett Ray
- FEMA comments – James Sink

LAKE ST CLAIR FLOOD RISK REDUCTION STUDY

USACE Detroit District FPMS Program Manager

25 May 2022



**US Army Corps
of Engineers®**



FLOOD PLAIN MANAGEMENT SERVICES PROGRAM



Flood Plain Management Services (FPMS)
Authority: Section 206 of Flood Control Act of 1960


Advises, recommends, educates, informs, and provides technical support in response to state, regional or local governments; other non-Federal public agencies and Indian tribes

Provides USACE expertise to address flood plain and off flood plain use changes, flood risk and flood hazards

Full Federal cost (but cost-recovery basis for other Federal agencies or private persons), with potential for additional voluntary contributions

Excludes:

- USACE execution of FPMS outputs
- Detailed planning, design and economic analysis
- Detailed and extensive mapping



Corps Planning:
Floodplain Management Services

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BUILDING STRONG.

The Floodplain Management Services Program

The U.S. Army Corps of Engineers is the federal government's largest water resources development and management agency. Through the Floodplain Management Services (FPMS) program, the Corps provides information on flood hazards to local interests, state agencies, and other federal agencies to guide development of the floodplains of the rivers of the United States.

The FPMS program addresses the needs of people who live and work in floodplains to know about flood hazards, and the actions they can take to reduce property damage and prevent the loss of life caused by flooding. The program's objective is to foster public understanding of the options for dealing with flood hazards and to promote prudent use and management of the nation's floodplains. The FPMS program provides a full range of technical services and planning guidance that is needed to support effective floodplain management.

Under the FPMS Program, the Corps is authorized to compile and disseminate information on floods and flood damages, including identification of areas subject to inundation by floods of various magnitudes and frequencies, and general criteria for guidance of federal and non-federal interests and agencies in the use of floodplain areas; and to provide advice to other federal agencies and local interests for their use in planning to ameliorate the flood hazard.

Authorized by Section 206 of the Flood Control Act of 1960, as amended (33 U.S. Code § 709a), FPMS is sometimes referred to as the "Section 206" program.

Elements of the FPMS Program

Floodplain management services cover the full range of information, technical services, and planning guidance and assistance on floods and floodplain issues within the broad umbrella of floodplain management. Technical services and planning guidance under the FPMS Program are provided to state, regional, and local governments without charge, within program funding limits. FPMS services for federal agencies and private persons are on a cost-recovery or fee basis. The Corps may also accept voluntarily contributed funds to expand the scope of services requested.

Under FPMS, the Corps can provide:

- General Technical Services. Flood and floodplain data are obtained, developed, and interpreted, using available data whenever practical. The Corps will use data from all appropriate sources, including hydrologic and hydraulic information developed within the Corps, but also other federal, state, or local agencies. Outreach to communities, localities, and other public entities may be provided on request.
- General Planning Guidance. On a broader scale, assistance and guidance in the form of "Special Studies" are provided on all aspects of floodplain management planning, including the possible impacts of off-floodplain use changes on the physical, socioeconomic, and environmental conditions of the floodplain.
- Guides, Pamphlets, and Supporting Studies. Flood and floodplain data/information are disseminated to states, local governments, federal agencies, and private citizens to convey the nature of flood hazards and to foster public understanding of options for dealing with flood

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www.usace.army.mil

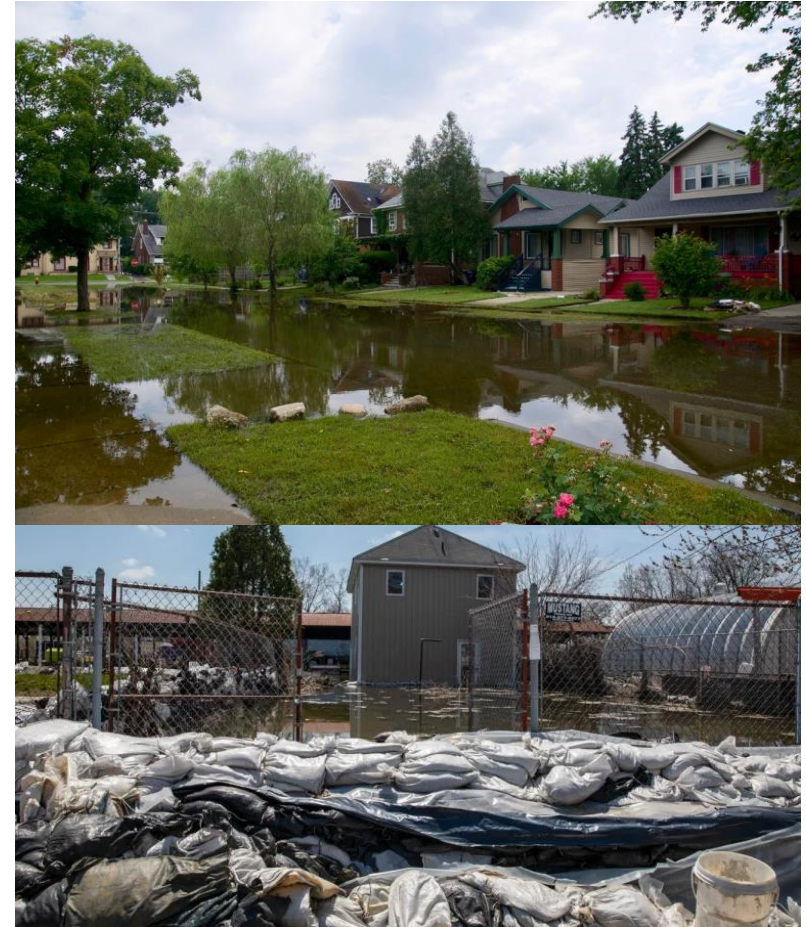
https://planning.erdc.dren.mil/toolbox/library/FactSheets/fpmsfactsheet_June2017.pdf



DETROIT JEFFERSON-CHALMERS BACKGROUND



- ❑ Water levels have risen over five feet the past seven years.
- ❑ December 2018, FEMA Flood Information Rate Maps (FIRM) updated to include the JC neighborhood in the 100-year floodplain (1% annual chance of flooding).
- ❑ Heavy precipitation in the winter and spring of 2019 caused significant flood damages to the neighborhood. Flood emergency declared.
- ❑ City of Detroit employed temporary flood protection defenses, including HESCO barriers and Tiger Dam structures, along with sandbag structures, to provide additional protection to residences, public infrastructure, and public health in general.
- ❑ July 2019, Giffels Webster Floodplain Study.
- ❑ August 2019, City of Detroit requests USAC FPMS assistance.





FPMS STUDY OBJECTIVES



- ☐ Perform coastal engineering analysis to identify components of overland flooding.
- ☐ Develop conceptual flood risk mitigation alternatives to overland flooding impacts caused by extreme precipitation and heightened lake levels combined with wave run-up overtopping of physical barriers based on coastal levee 'freeboard' requirements.
 - Structural measures include levees, floodwalls, seawalls, floodgates, lock systems, stoplogs, and canal fill.
 - Non-structural measures include flood-warning systems, removing property that can be damaged from a flood-prone area, floodproofing, elevating homes and other actions.
- ☐ Reduce impact of coastal flood water overwhelming residential storm sewers causing property damage along with decreasing discharges of untreated water into the Detroit River.
- ☐ Provide recommended flood mitigation measures to remove the Jefferson-Chalmers area from high-risk floodplain designation.

NOTE: This study does not include stormwater risk assessment, the development of complete design plans or specifications, nor the funding of construction activities.



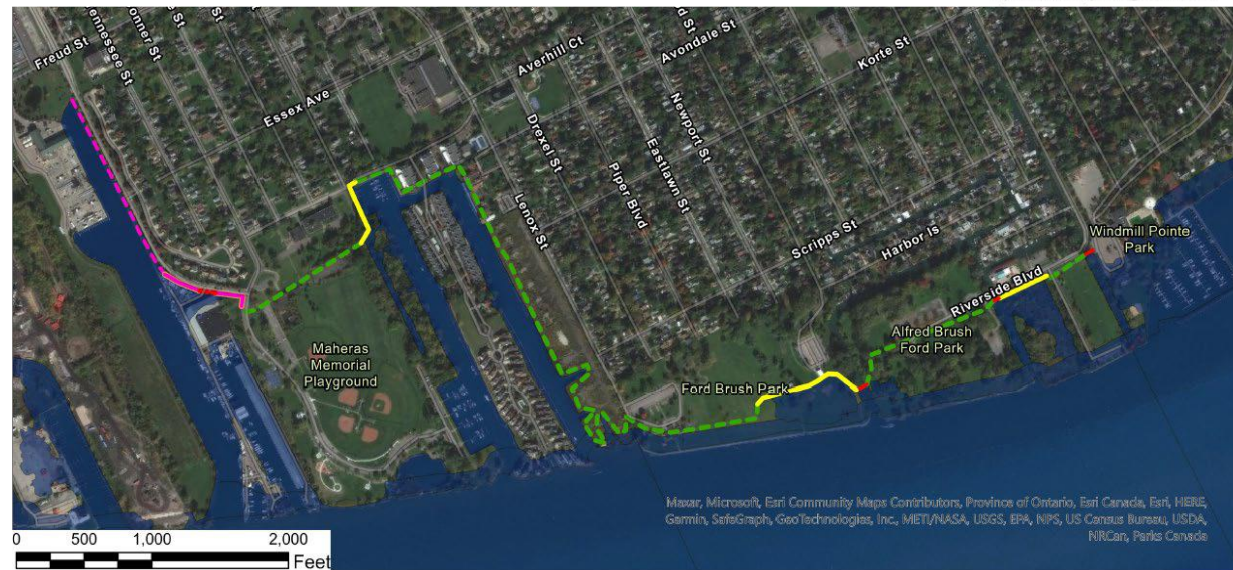
STUDY RESULTS/RECOMMENDATIONS



ALTERNATIVE 1 (3 Configuration Options): Closed canal, levees and floodwalls *outside of* the wave run up zone

- 560 linear feet of upland steel sheet pile floodwall (shown in purple)
- 1700 linear feet of earthen levee (shown in yellow)
- 3 canal closure structures (shown in red)
- Stop log closure or gate at KAM Marine/ Bayview Yacht Club entrance
- Interior drainage upgrades

- FeatureType
- High Ground
 - Levee
 - Existing Floodwall
 - Upland Floodwall
 - Canal Closure
 - Upland Stop Log Closure

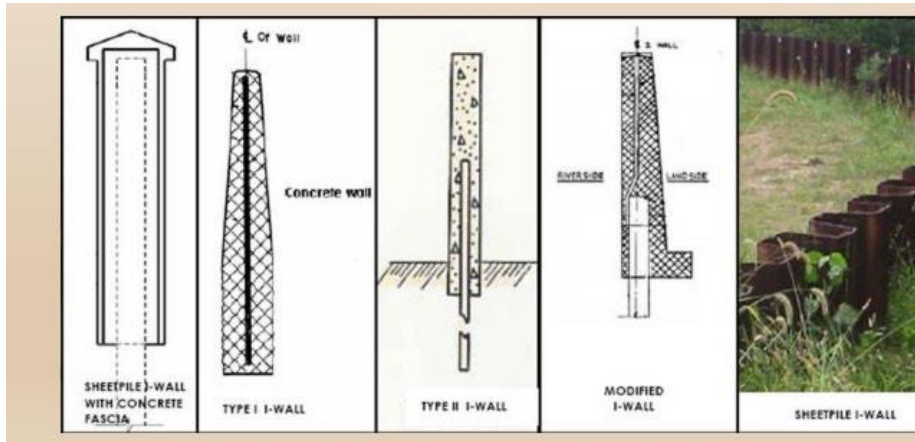


STUDY RESULTS/RECOMMENDATIONS CONT.

ALTERNATIVE 2 (1 Configuration Option): Open Canal with Extensive Floodwalls

- 560 linear feet of upland steel sheet pile floodwall (shown in purple)
- 15,800 linear feet of steel sheet pile seawalls along *all properties* along the canals between Fox Creek and Klenk Island.
- 1600 linear feet of earthen levee
- *No canal closure structures*
- Stop log closure or gate at KAM Marine/Bayview Yacht Club
- Interior drainage upgrades

- Closure
- Floodwall
- High Ground
- Levee





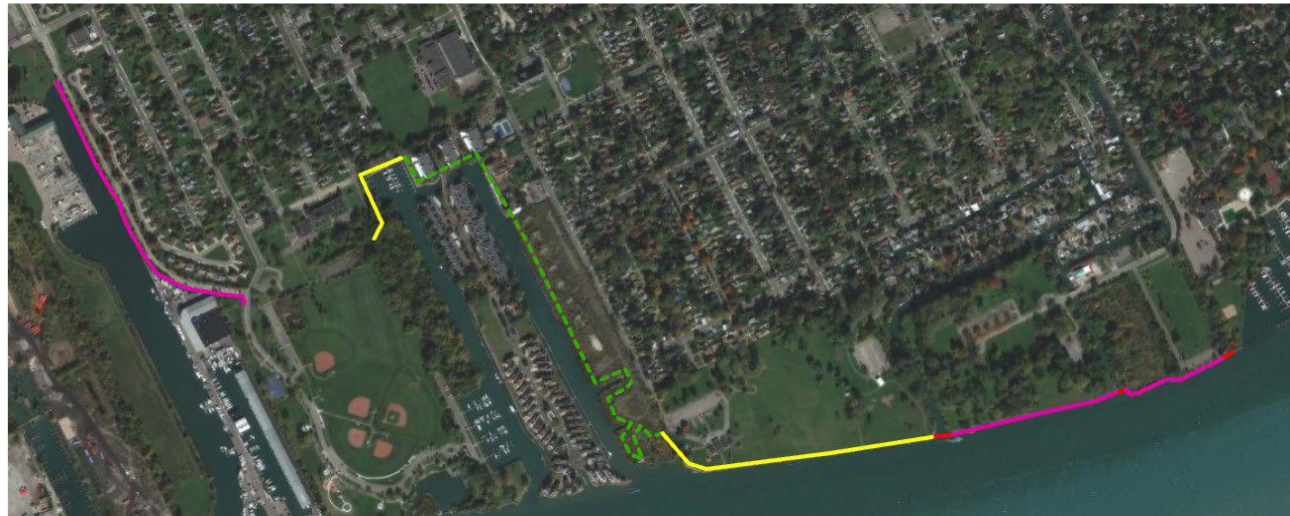
STUDY RESULTS/RECOMMENDATIONS CONT.



ALTERNATIVE 3 (3 Configuration Options): Closed Canal, levees & floodwalls *within* the wave run up zone

- 560 linear feet of upland steel sheet pile floodwall (shown in xxx)
- 1800 linear feet of riverfront floodwalls
- 2,600 linear feet of earthen levee (shown in yellow)
- 3 canal closure structures (shown in red)
- Interior drainage upgrades
- Upland stop-log closure or gate at KAM Marine/Bayview Yacht Club entrance (shown in orange)

- Closure
- Floodwall
- High Ground
- Levee





SUMMARY



- ☐ Associated canals (6) are the primary source for inland flooding. Each of these canals are characterized by different features and different flooding impacts.
- ☐ The three structural flood reduction alternatives included in this study are conceptual. Further feasibility analysis is recommended prior to design implementation.
- ☐ Each mitigation alternative would result in flood risk reduction by preventing storm surge/wave run-up from overtopping the canal walls, which results in inland surface flooding that has historically overwhelmed storm and sanitary sewer drainage systems.
- ☐ Each mitigation alternative would warrant the Jefferson-Chalmers area to be removed from the 100-year (1% annual chance of flooding) floodplain (currently listed as a high-risk flood zone) within the limits of the study area detailed in this report, resulting in less cost and more grant opportunities for flood insurance coverage.

QUESTIONS?



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FLOOD PROTECTION PLAN- NEXT STEPS

- The goals are to prevent future overland flooding due to high Great Lakes levels AND to remove all properties in the neighborhood from floodplain designation - coordination with federal and state agencies is required.
- City's preferred alternative is based on concepts identified in the USACE FPMS report.
- Permanent closure of Fox Creek and Phillip Canals, construct stop log feature across Lakewood Canal, construct levee, seawall and flood wall elements. (No access to Detroit River via the canals when stop logs are in place.)
- City will procure consultant services this summer to perform feasibility study and design services.
- Expected 2024 construction
- Property owners still must maintain, repair, and/or raise seawalls, even when stop logs are in place, in order to remove temporary flood control measures (i.e., Tiger Dams and/or sandbags).



FLOOD PROTECTION PLAN: FOX CREEK TO A.B. FORD PARK



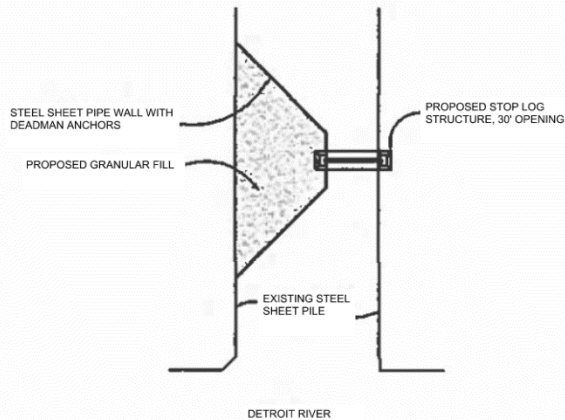
Legend

- Existing High Ground
- Closure Levee: Fox Creek & Phillip Canal to 580.00 ¹
- Stop Log: Lakewood Canal ²
- Earthen Levee ³





STOP LOG IN CANALS



- Reduce canal width from approximately 75' to 30'
- Stop logs could be steel, aluminum, or fiber-reinforced plastic (FRP)
- Requires crane and detailed plan for operation and maintenance
- Would close access to Detroit River when Great Lakes levels are high and shoreline overtopping is predicted



Earthen Levee



- Low impact to property
- Can incorporate into park plan
- Minimal maintenance



DPW WILL PICK UP OLD SANDBAGS

- If you have sand or busted sandbags that you would like to discard, DPW will pick it up.
- Please bring all old sand to the curb by **Monday June 20, 2022**.
- DPW will have specialized equipment that will pick up the loose sand and clean the street.
- This will be one day only!





JEFFERSON CHALMERS NEIGHBORHOOD MEETING

QUESTIONS?