Creating A Flood Strategy Takes A Village!

Past and Concurrent efforts

Heinz Nature-based Solutions

Near-term efforts:

- HESCO Barriers
- Henderson Marsh Pre-Construction
- Turkey Foot Marsh Pre- and Post- Construction

City of Philadelphia Flood Resilience Strategy

U.S. Army Corps of Engineers Levee Assessment

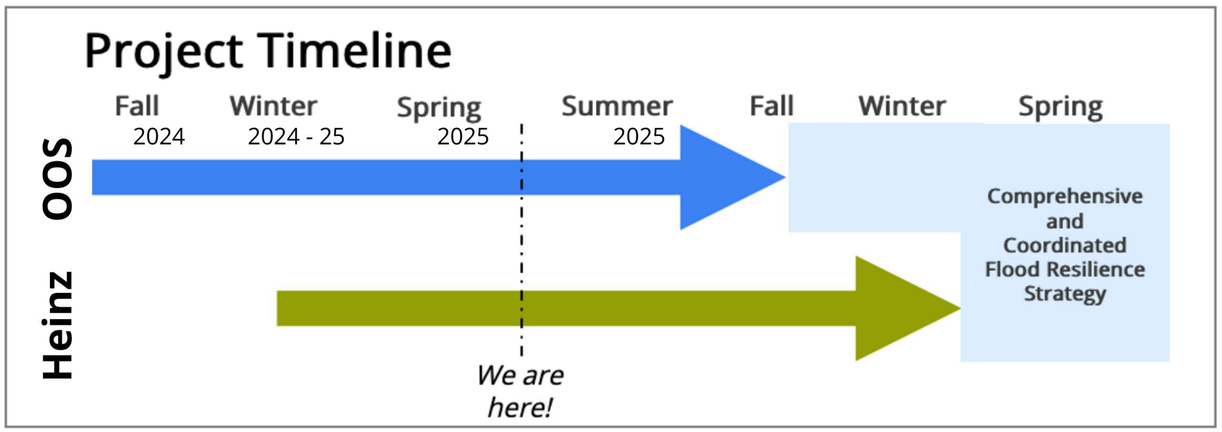
Why We're Here

Today's Goals

At the stations you will:

- Get a sense of the progress on the evaluation of measures being explored in Eastwick.
- Learn about the types of storms and flooding that Eastwick may experience.
- Understand what Eastwick residents think of the types of measures being considered.
- Ask questions and share feedback.

Direct input from community members will guide which measures make up the selected flood resilience strategy.



Heinz

Phila OOS

Visit the project webpages to stay updated on the latest project news.

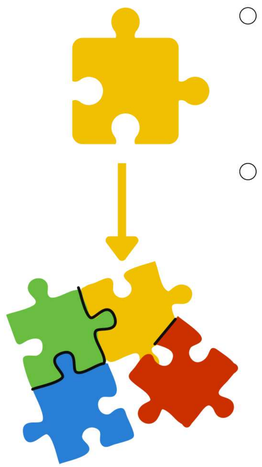
A community-driven and collaborative effort between John Heinz National Wildlife Refuge, The Flood Mitigation Council of Eastwick, the City of Philadelphia Office of Sustainability (OOS), and local organizations to reduce current and future flood risk in Eastwick.

These efforts are collaborating on and exploring multiple flood resilience measures across Eastwick to reduce impacts from river, coastal, and storm sewer flooding. Measures are an action, structure, or strategy that helps reduce or prevent flooding.

Photo of flooding in Eastwick

What Are We Doing Today?

We're sharing how we came up with the best flood mitigation strategy for Eastwick by showing how measures work together.



- **What's a Measure?** An action, structure, or strategy that helps reduce flood risk.
- **What's a Scenario?** A group of measures that work together to protect Eastwick from flooding.

We looked at several scenarios and compared them using criteria developed by the project team and the Flood Mitigation Council of Eastwick—a group of local residents.

How do we know which flood mitigation measures are best?

Community Evaluation Criteria

Eastwick residents shared what matters most to them:

- **Health & Safety:** Eastwick is a healthy and safe place to live.
- **Community Connection:** Eastwick has a strong sense of community.
- **Leadership and Governance:** Eastwick has strong and effective local leadership.
- **Thriving Neighborhoods:** Eastwick is a great place to live and stay.
- **Community Inclusion:** Eastwick is welcoming to families and children.

Feasibility and Effectiveness Criteria

These help us understand how practical and effective each scenario is:

- **Flood Reduction:** How well it reduces flooding.
- **Time to Implement:** How long it will take to design, build, and maintain.
- **Cost:** How much it will cost.

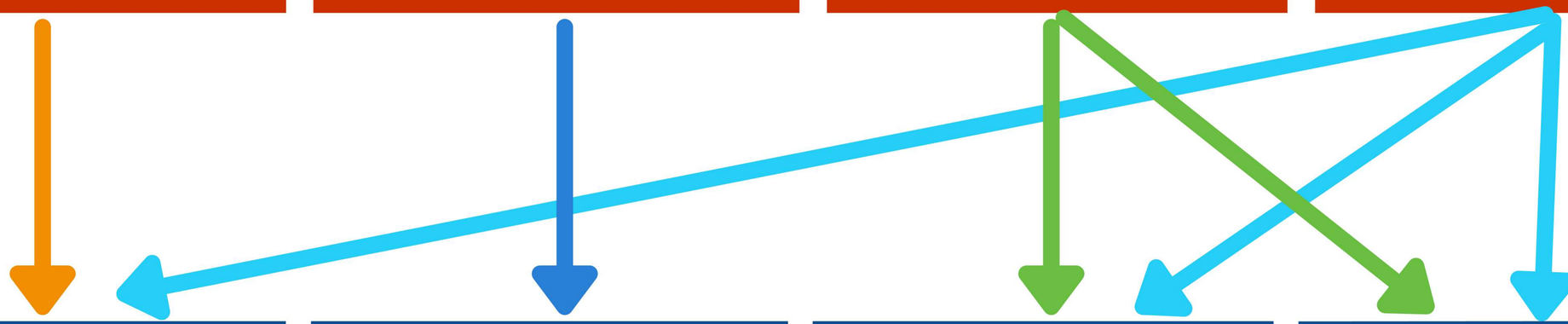
These Future Storms...

River

Storm Sewer

Coastal

Combined Coastal and River



River Flooding

Heavy rain upstream causes the Cobbs and Darby Creeks to overflow their banks. **This is the most urgent type of flooding in Eastwick today.**

Storm Sewer Flooding

Heavy rain can overwhelm drains and pipes, especially in low areas. This causes water to back up and flood streets.

Coastal Flooding: Storm Surge

Big coastal storms push ocean water onto land. This happens when storms are strong and sea levels rise.

Coastal Flooding: Tides

Low areas near the coast can flood when high tides push water above the land. This happens when sea levels rise.

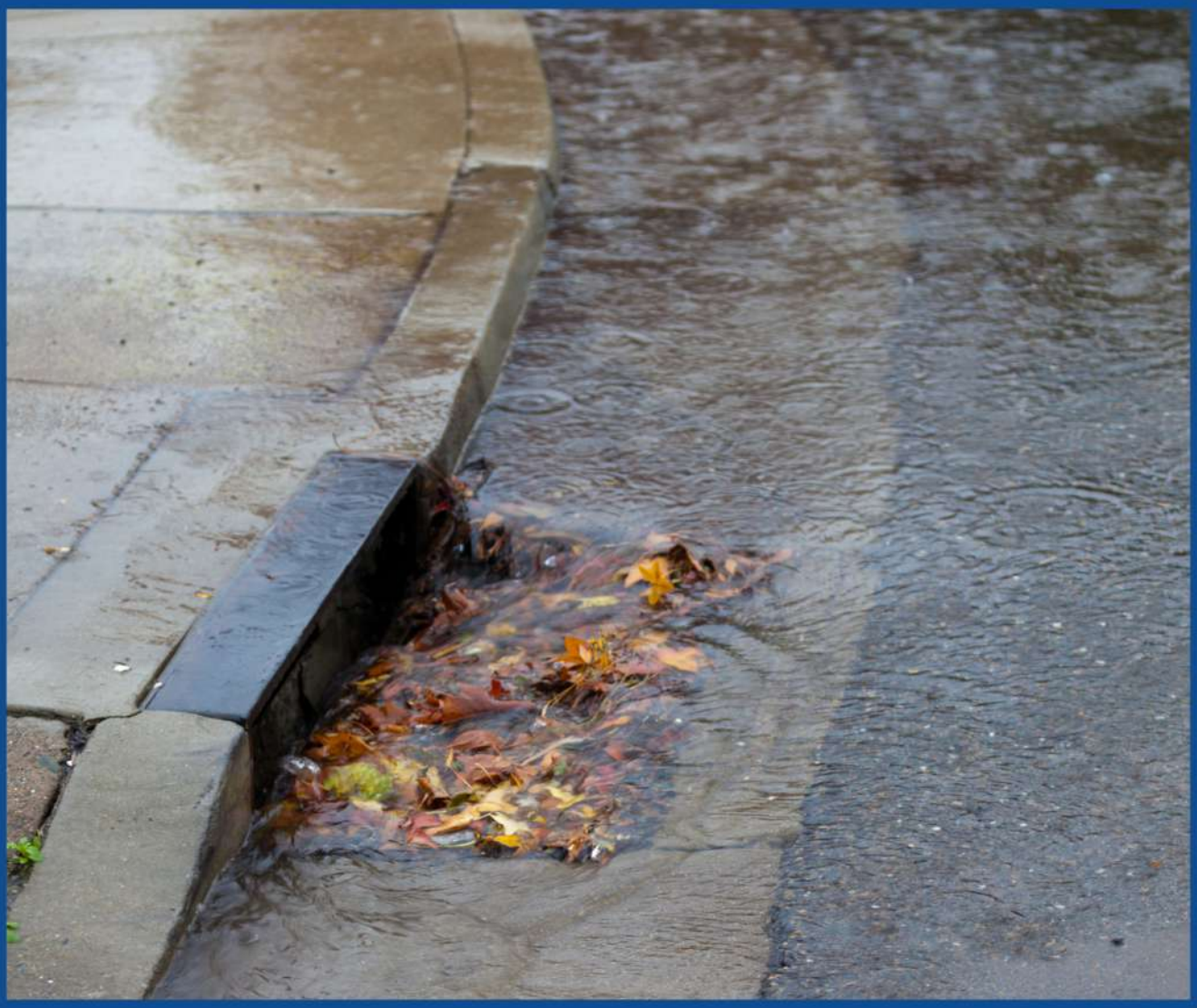
...Would Cause These Types of Flooding.

River Flooding

Heavy rain causes the Cobbs and Darby creeks to overflow. Water from upstream collects in the creeks and can rush into Eastwick. This can happen after short, intense storms or longer, steady ones.

Storm Sewer Flooding

Heavy rain overwhelms streets and low areas, causing water to build up even if rivers or creeks don’t overflow.

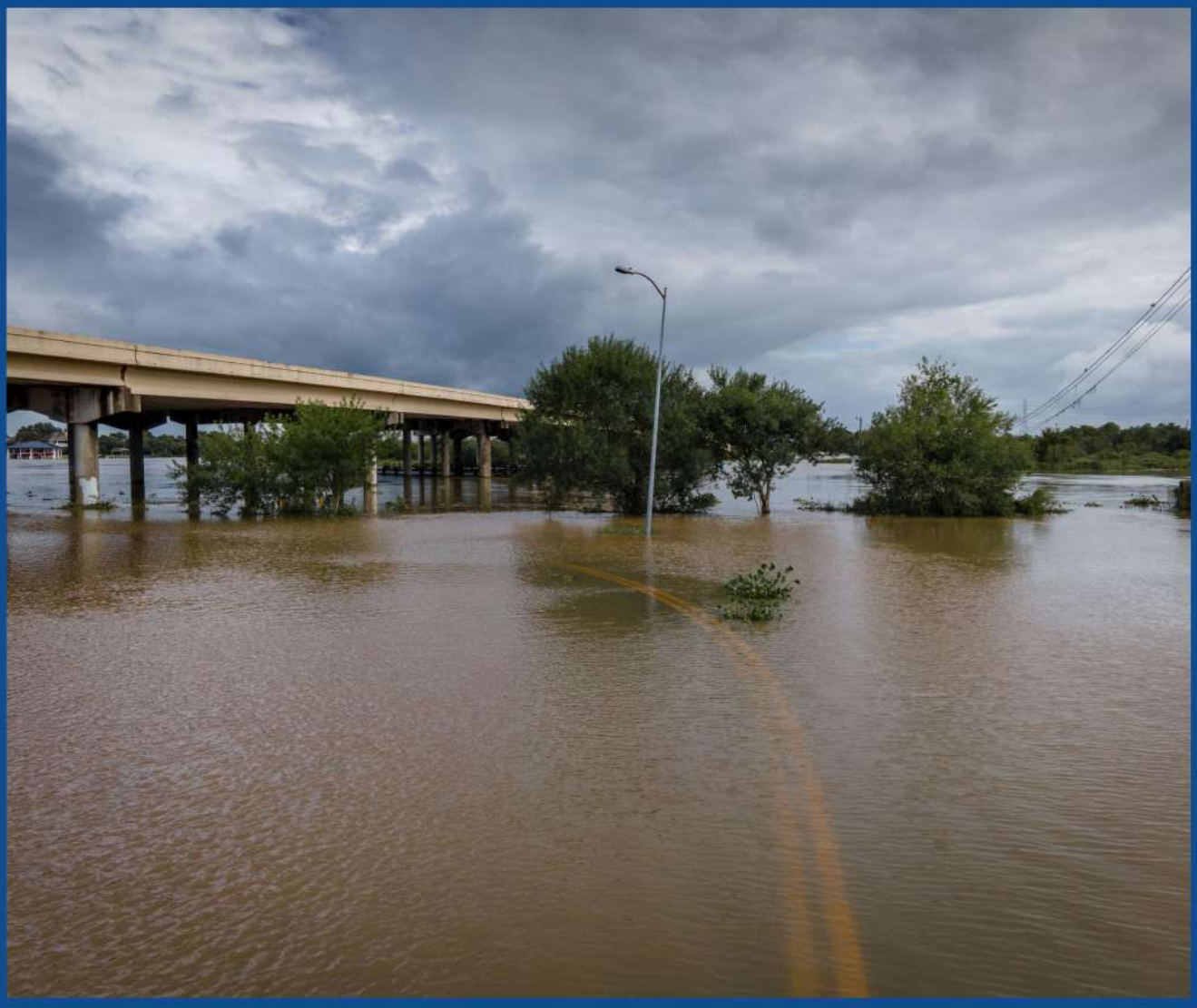


Coastal Flooding, Tidal

Tidal river water from the Darby and Cobbs Creeks or Delaware and Schuylkill Rivers rises and covers land, during very high tides or big storms or in places that experience “Sunny Day Flooding”.

Coastal Flooding, Surge

During large storms, the combination of high tides and strong winds can flood tidal waterbodies like the Schuylkill River, Delaware River, and tidal Darby Creek. Eastwick hasn't seen this recently, but models show it's at risk now and in the future.



Levees, Berms & Barriers Measures

Levees, Berms & Barriers Measures

What it is: Walls or raised land by a river or creek made from dirt or concrete to block rising water.

How it helps: Keeps river and coastal water from flooding homes and streets.

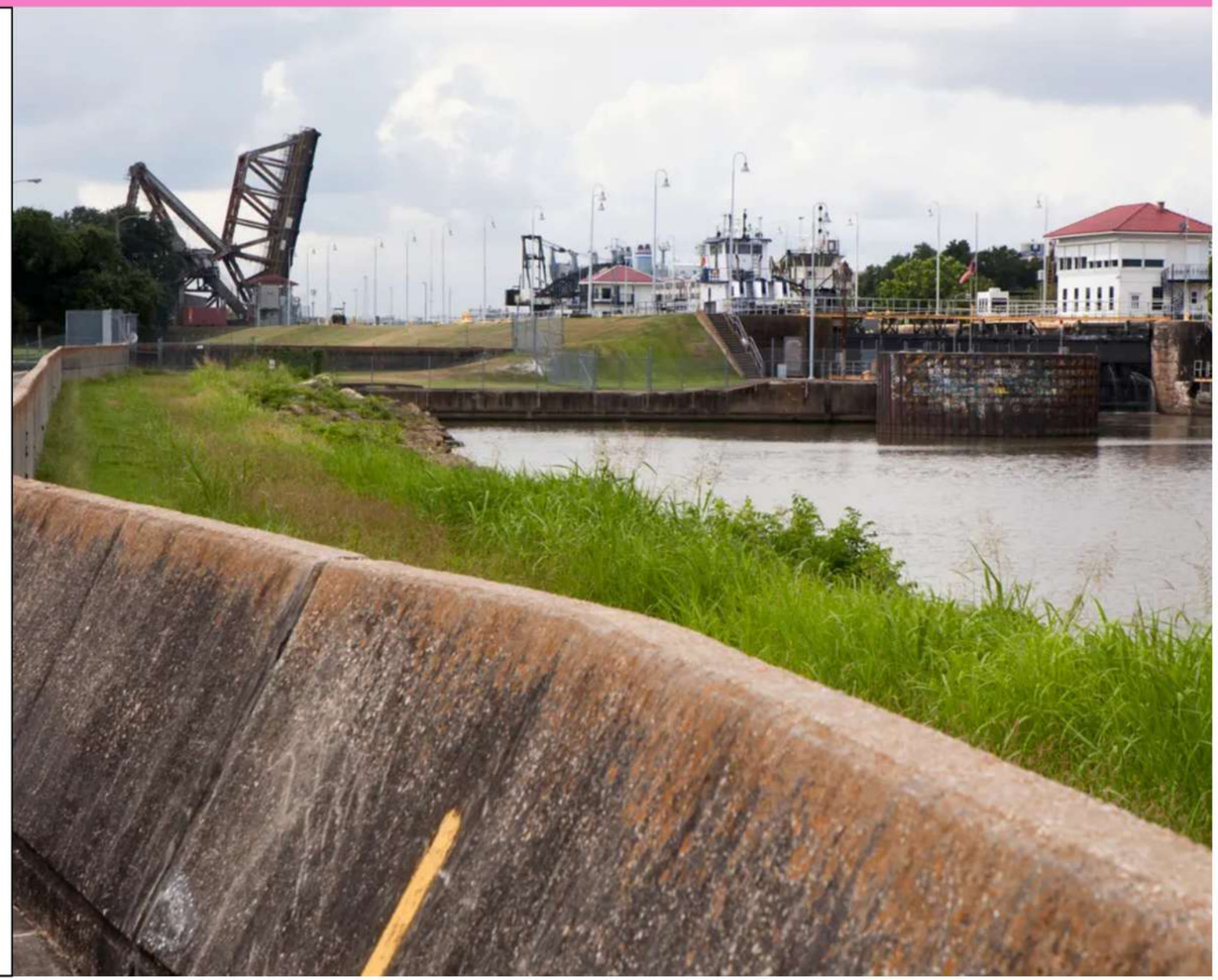
Potential Eastwick Location: Along Cobbs Creek upstream of Clearview Landfill.

Levees, Berms & Barriers Measures

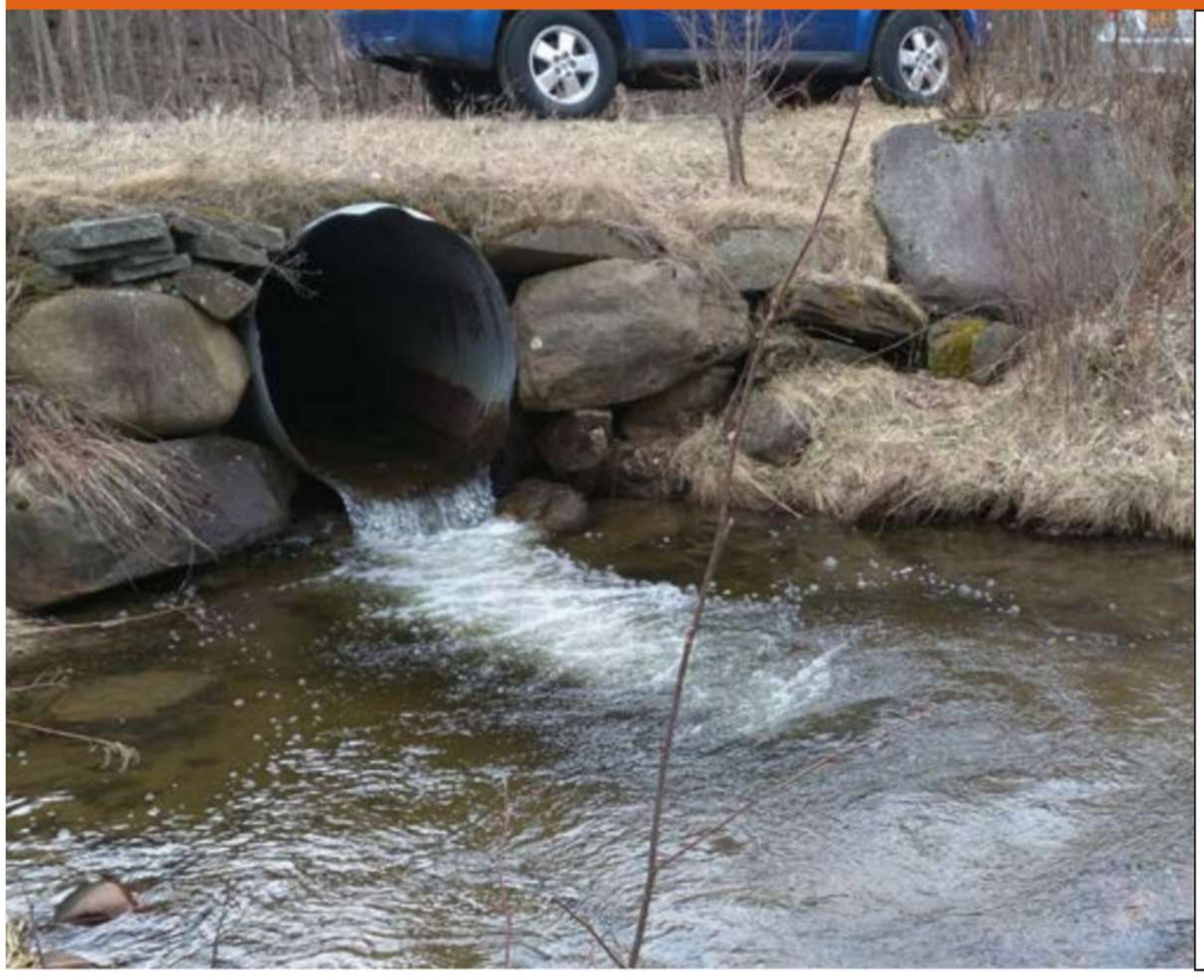
Challenges:

- Causes floodwaters to get pushed to other areas.
- Might not work if water rises higher than the structure.
- Needs coordination with landowners to implement.
- Ownership and maintenance of the levee.

Levees, Berms & Barriers Measures



Storm Sewer Improvements Measures



Storm Sewer Improvements Measures

What it is: Building bigger pipes and pumps, and putting pipes and pumps in new places.

How it helps: Helps water move out of Eastwick more quickly during storms.

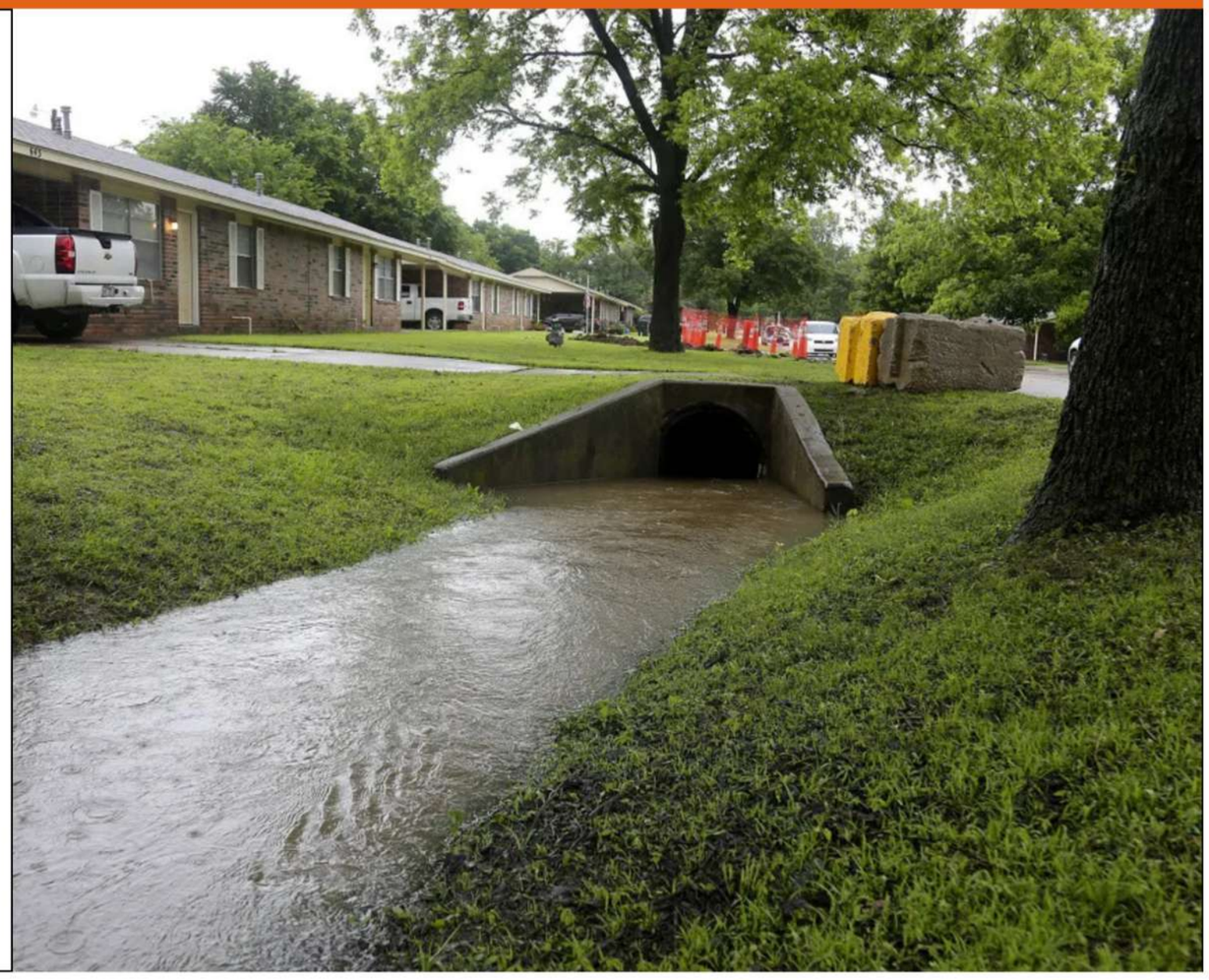
Potential Eastwick Location: Pipes that feed into the Pepper Bowl.

Storm Sewer Improvements Measures

Challenges:

- Does not stop flooding from entering but helps it move quicker.
- Building a big enough system to make a difference.
- Construction would close roads.

Storm Sewer Improvements Measures



Nature Based Solutions Measures

Nature Based Solutions Measures

What it is: Restoring or creating natural landscape features to move, store, and absorb floodwaters and provide the community open space.

How it helps: Gives floodwater a natural place to go, keeping it away from homes and roads.

Potential Eastwick Locations:
Pepper School and Heinz Impoundment.

Nature Based Solutions Measures

Challenges:

- Some solutions can be implemented with a single landowner, but others would require teamwork from different municipalities.

- A single NBS may not stop larger floods, but combining multiple NBS with other solutions would give the greatest protection.

Nature Based Solutions Measures

Voluntary Buyouts, Relocation, and Property Level Measures

Voluntary Buyouts, Relocation, and Property Level Measures

What it is: People living in high-risk flood areas offered payments to move, and the land is turned back into open space.

How it helps: Removes homes from dangerous flood zones and lets nature absorb the water.

Potential Eastwick Location: Flood prone areas like the Planet Streets.

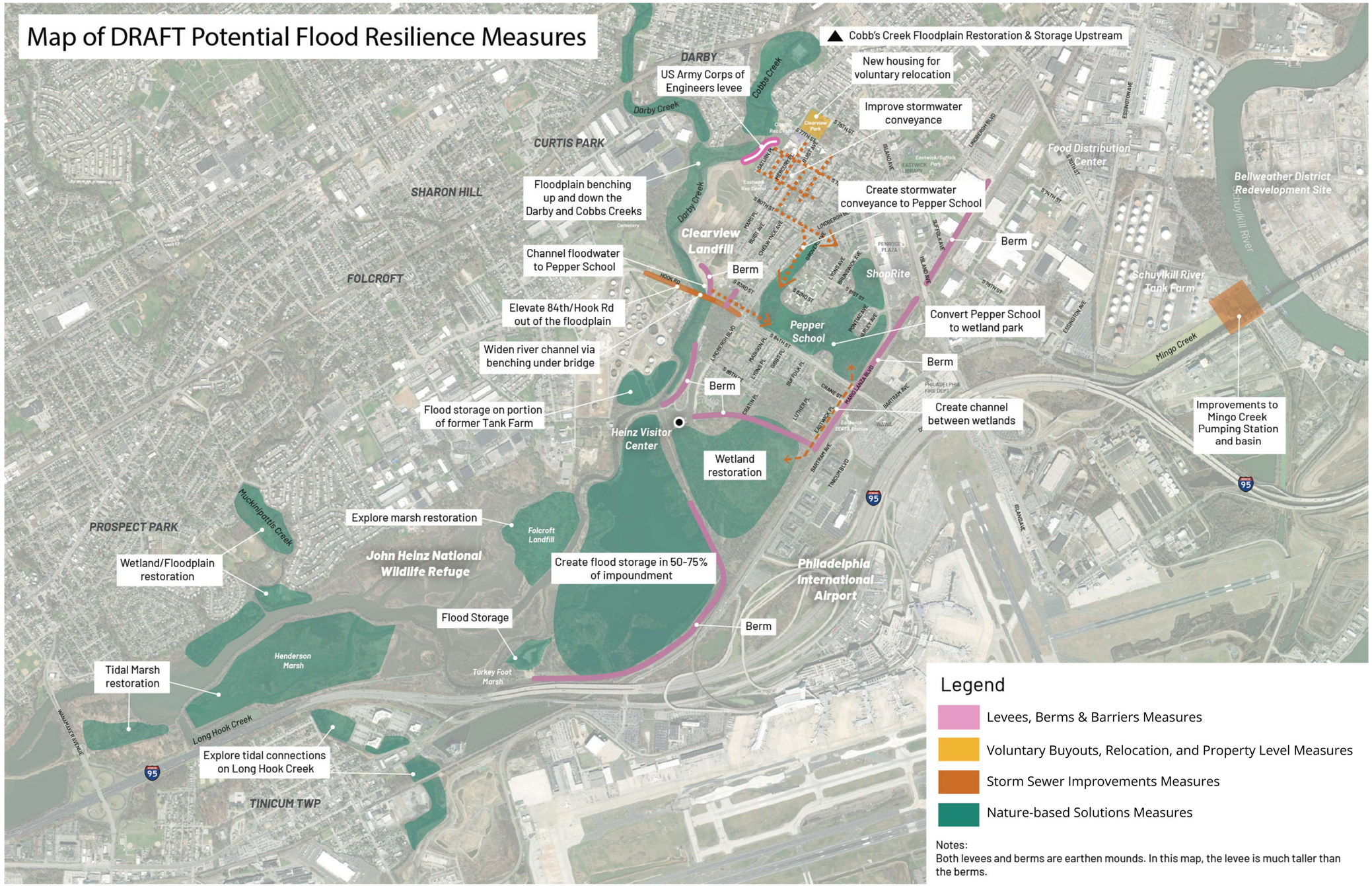
Voluntary Buyouts, Relocation, and Property Level Measures

Voluntary Buyouts, Relocation, and Property Level Measures

Challenges:

- Neighbors have to agree to move together.
- It is hard to rebuild housing and keep communities together.
- Difficulties in acquiring land and funding for the program.

A Combined Strategy for Eastwick

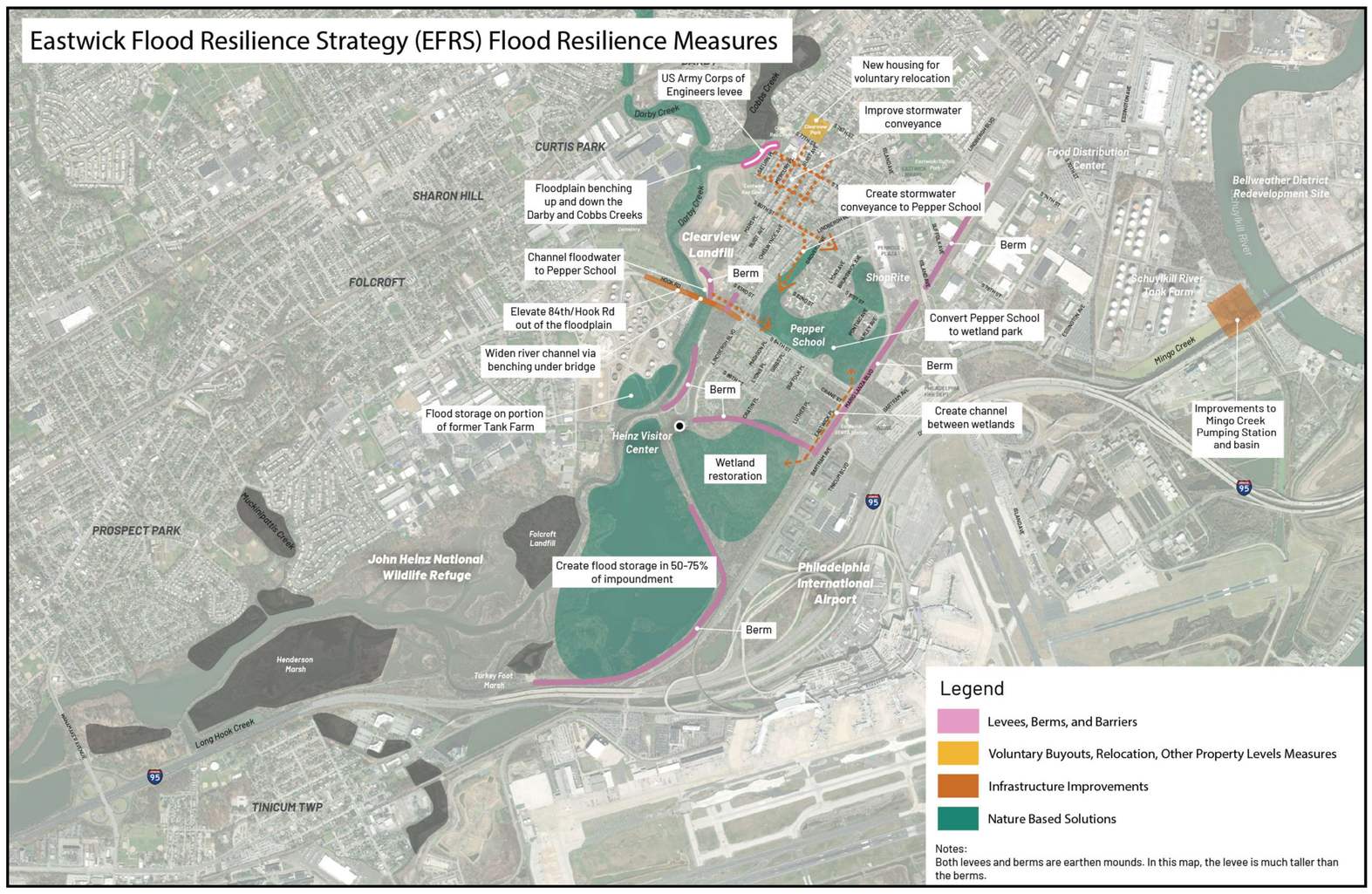


Picking the Best OOS Flood Resiliency Measures

Different combinations of measures do better or worse at protecting Eastwick from flooding

1

The OOS Team reviewed all possible measures that ***could*** work in Eastwick as reflected in this map.



2

Then the OOS team looked at different combinations of measures. These are **not** current front runners, even though they each show some benefits:

Perimeter Defense

Levees and Berms at the perimeter of Eastwick.

- Not enough community benefits

We rate it: 👍👍

Potential Cost : $

Store & Convey

Nature-Based Solutions in strategic places in Eastwick to better absorb and move water.

- Too costly
- Not enough flood risk reduction
- Longer to implement as a whole

We rate it: 👍

Potential Cost : $$$

Comprehensive

Nature-Based Solutions and levees, berms, and barriers across Eastwick to block, store, and move water.

- Too costly
- Not enough flood risk reduction
- Longer to implement as a whole

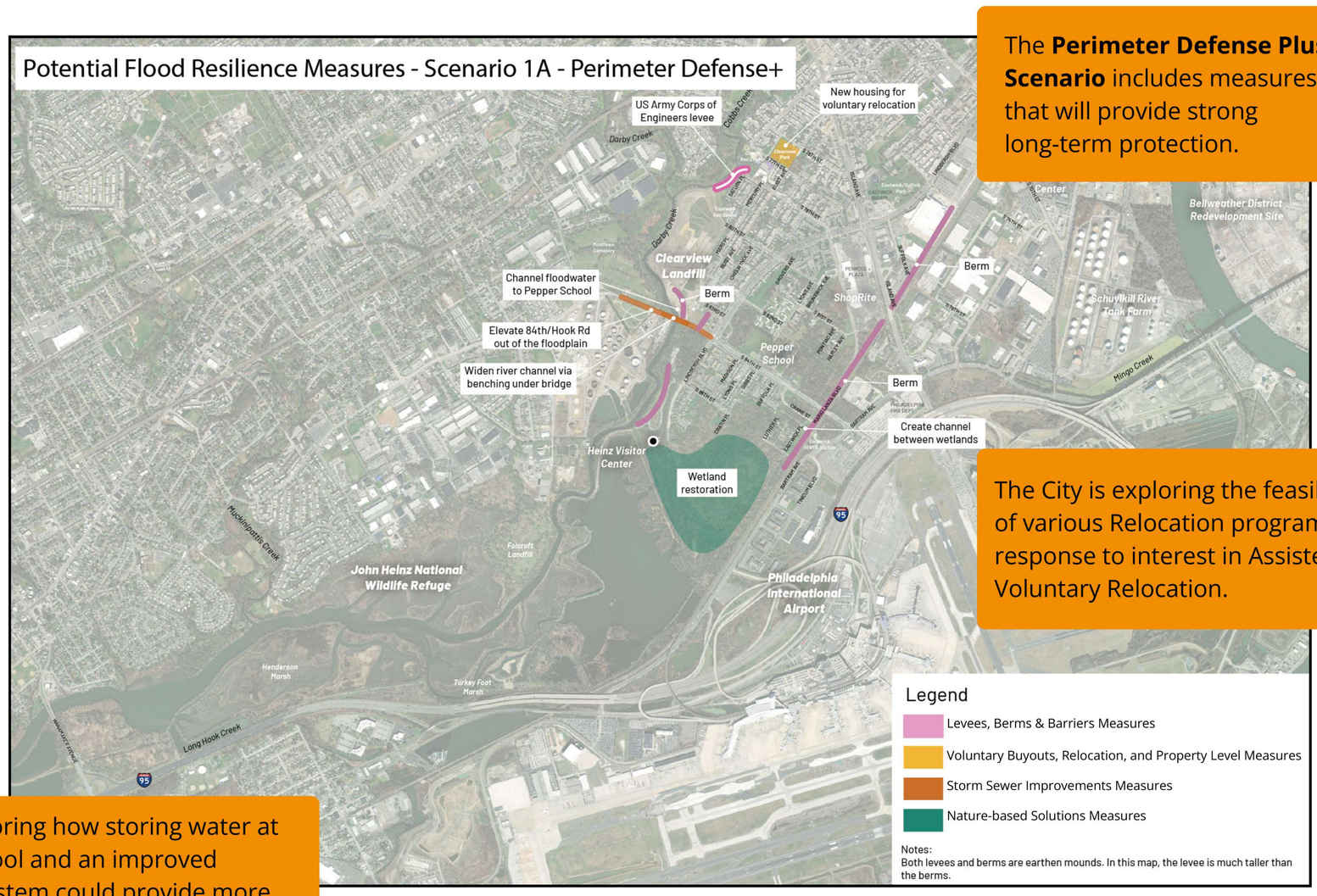
We rate it: 👍👍

Potential Cost : $$$$

3

The OOS Team thinks this combination of measures does the best job at:

- ✓ Reducing flooding
- ✓ Meeting community evaluation criteria
- ✓ Lower relative cost



The **Perimeter Defense Plus Scenario** includes measures that will provide strong long-term protection.

The City is exploring the feasibility of various Relocation programs in response to interest in Assisted Voluntary Relocation.

We're also exploring how storing water at the Pepper School and an improved Storm Sewer System could provide more interim flood benefits and long-term community amenities.

We rate it: 👍👍👍

Potential Cost : $$

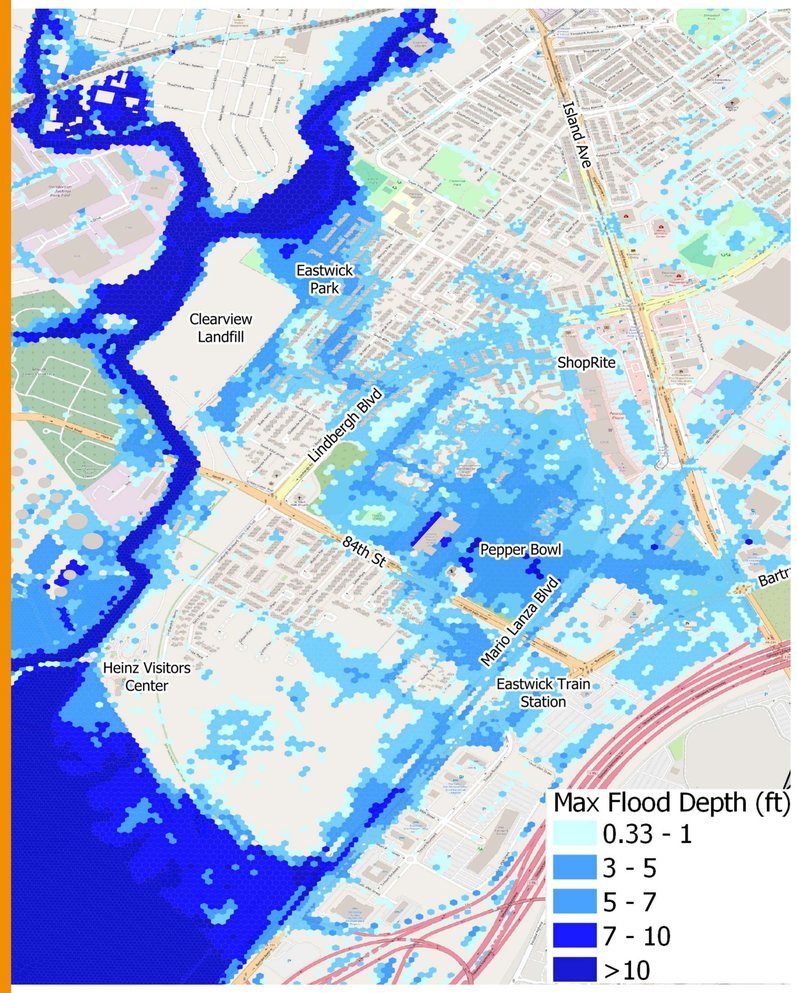
How Flood Protection Makes a Difference!

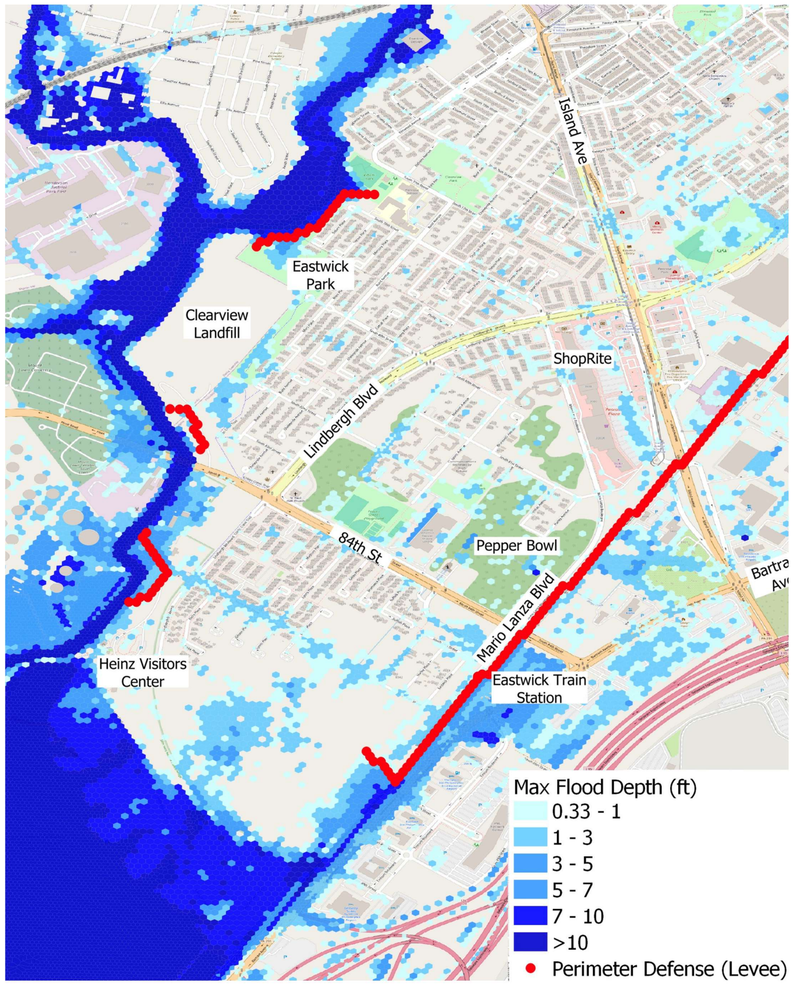
Future River Flooding Storm

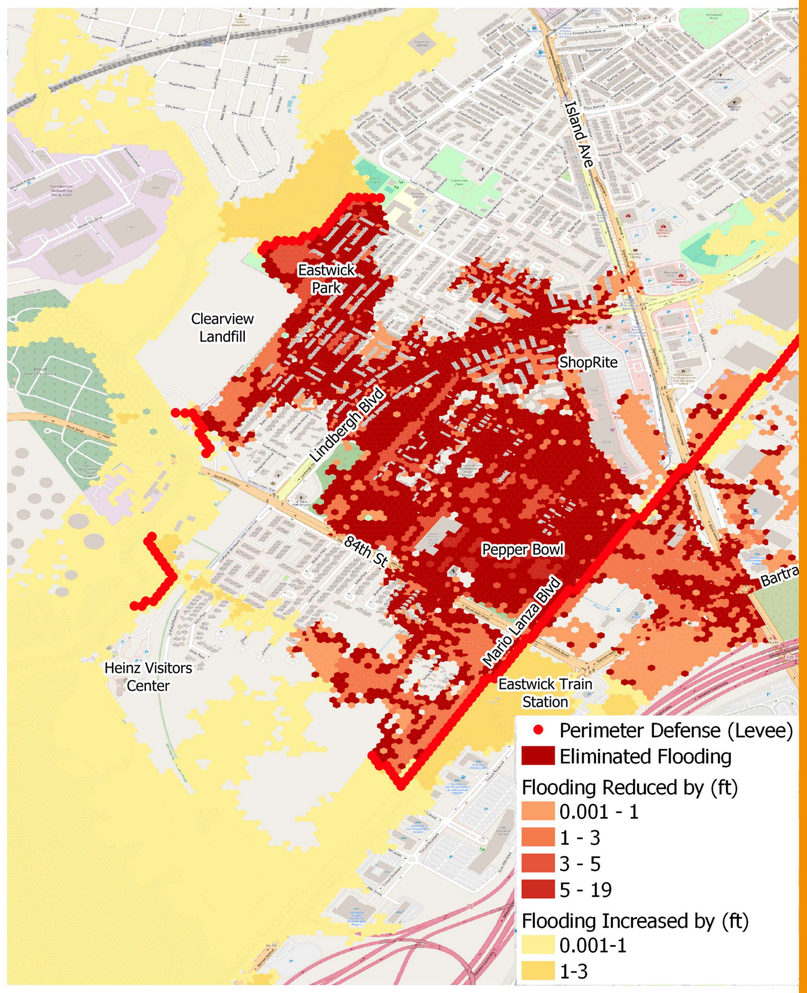
This is flooding in Eastwick **without** any Perimeter Defense Plus measures.

This is flooding in Eastwick **with** Perimeter Defense Plus measures.

With Perimeter Defense Plus measures, this is the amount of flooding **reduced** or **eliminated** in Eastwick.







387 acres of flooding reduced and 171 acres of flooding eliminated.

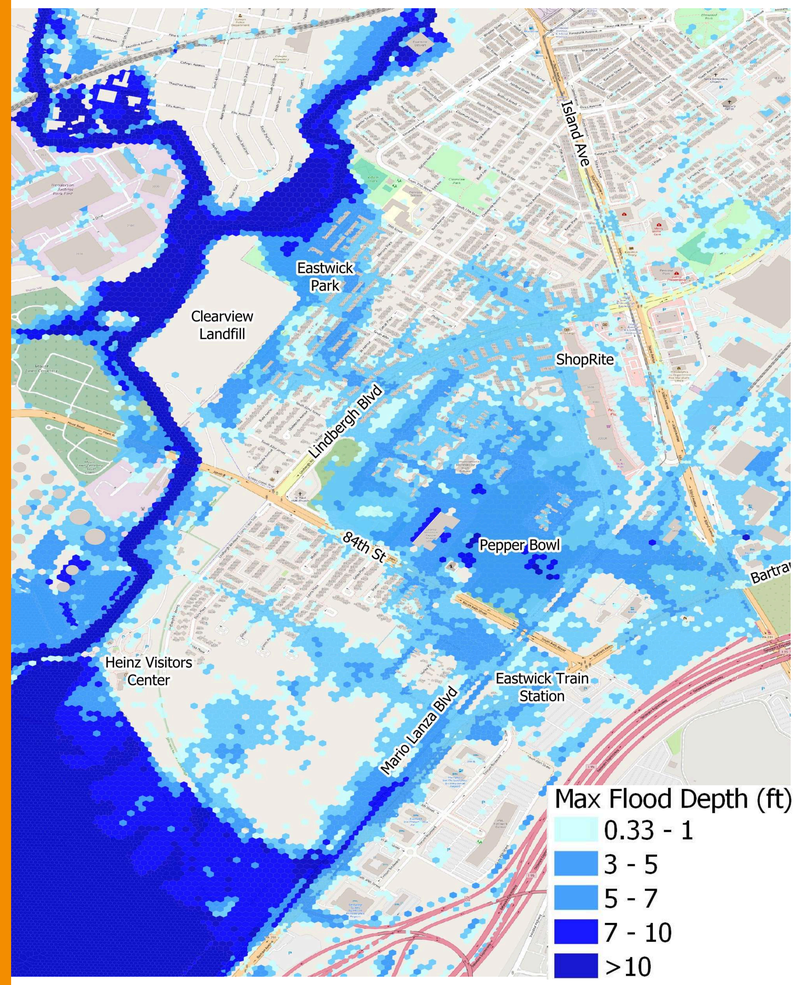
How Flood Protection Makes a Difference!

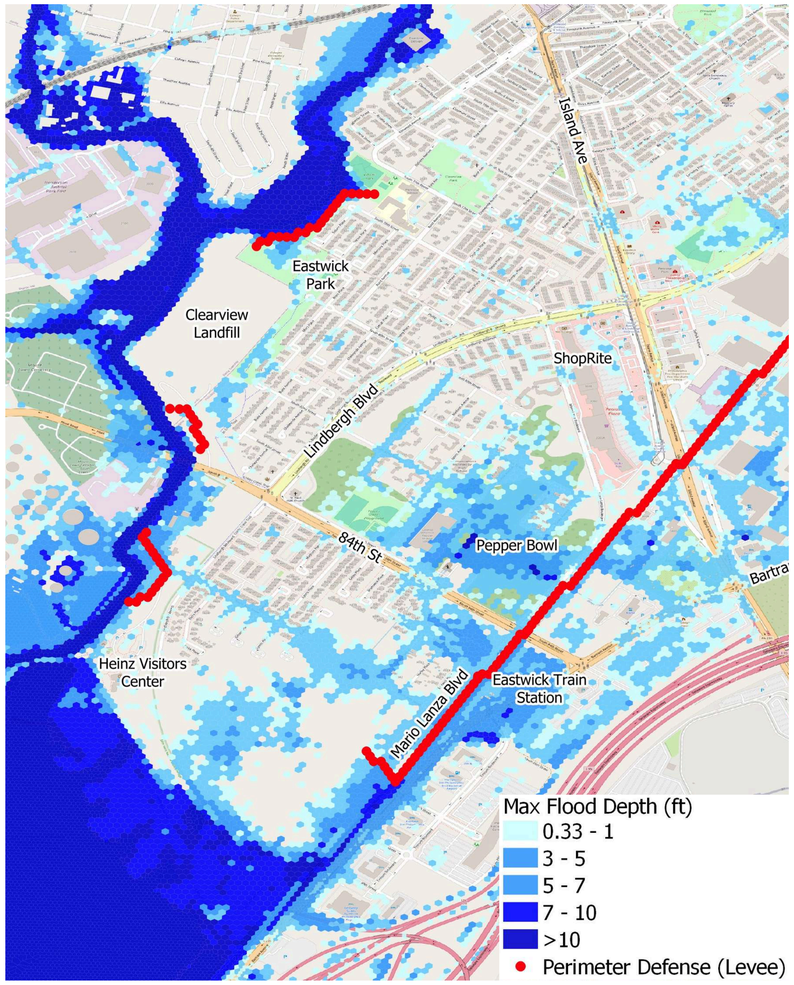
Future Combined River & Coastal Storm

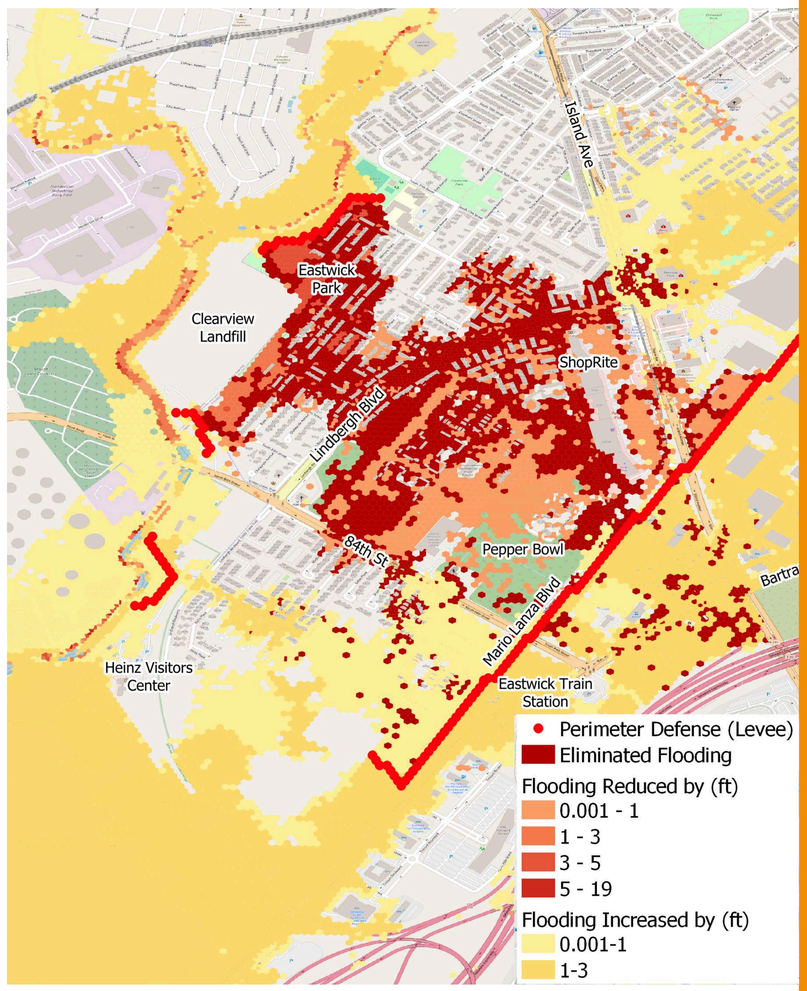
This is flooding in Eastwick **without** any Perimeter Defense Plus measures.

This is flooding in Eastwick **with** Perimeter Defense Plus measures.

With Perimeter Defense Plus measures, this is the amount of flooding **reduced** or **eliminated** in Eastwick.







284 acres of flooding reduced and 121 acres of flooding eliminated.

The Work Continues. Stay Connected!

Next Steps

- Creating the recommended strategy with your input.
- Outlining how we will implement the strategy.
- Putting measures in place over time.

Near-Term Flood Resilience Projects

Soon to be completed:

- HESCO Barriers
- Henderson Marsh Pre-Construction
- Turkey Foot Marsh Pre- and Post- Construction

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