

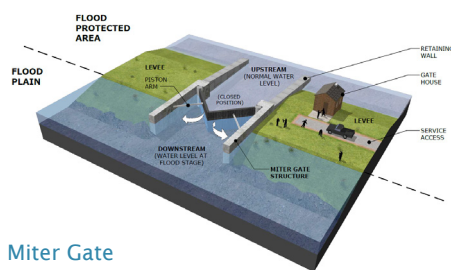
City-wide structural protection strategies are large-scale infrastructure projects that extend across one or more watersheds, substantially reducing coastal flood risks for large inland areas.

## Process

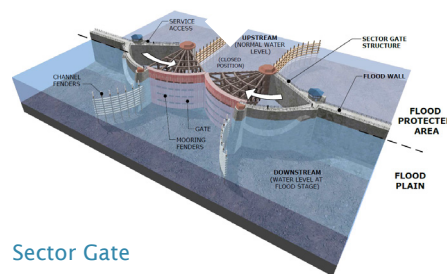
Designing potential City-wide structural flood protection systems was an iterative process, requiring frequent communication with decision makers, stakeholders, and planners. The study team first identified 12 individual structural alignments with 10 different alternatives. Each alternative is a combination of the individual locations to allow for a better understanding of the potential positive and negative impacts at each proposed location.

## Strategy Toolkit

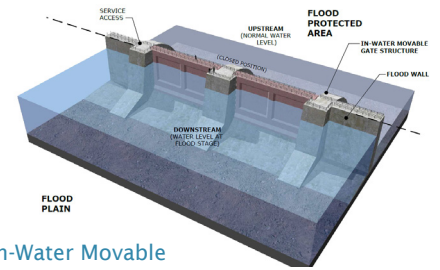
Surge barriers or gates are required where the alignment has to cross water. Miter gates are suitable for smaller channel crossings whereas sector gates are suited for federally maintained navigation channels. In-water movable gates offer an intermediate-level solution for medium sized channels.



Miter Gate



Sector Gate



In-Water Movable Gate

Floodwalls and levees are used in locations over land. Levees tend to preserve the existing ecosystem with minimal disruption whereas a floodwall creates a hard structural barrier. Floodwalls are typically used in locations where there is insufficient space to protect with a levee system.



Raised-Road Levee



Pedestrian Walkway Levee



Floodwall

## Accomplishments

### Strengths

- Large-scale structural intervention concepts provide FEMA certified protection from the future 100-yr flood events with 3 ft SLR.
- Alternatives are comparable based on evaluated protection benefits and costs.
- Opportunities exist for collaboration with other localities to provide more comprehensive protection.
- Designs minimize construction and utilize city-owned/public land.

### Limitations

- Concepts are high-level with alignments based on desktop analysis
- Solutions come with significant costs, in the order of billions.
- Each alignment will have major impacts and concerns which are not captured in detail.

