

SEA LEVEL RISE

Local Infrastructure Responses

City of Olympia
LOTT Clean Water Alliance
Port of Olympia

January 2015

Implications for Our Community

- Long term issue
 - Huge risks
 - High costs
 - Transient issue....until downtown floods
- Limited Federal/State leadership
 - Actions are needed now
- Shrinking local and external funds

Keeping the Discussion Alive

- Relating climate change to our community
 - Olympia specific information
 - Make it interesting
- Folding into existing responsibilities
 - Flooding, municipal infrastructure management
- Taking small steps
 - Gather information, annual work efforts
- Discussing shoreline modifications

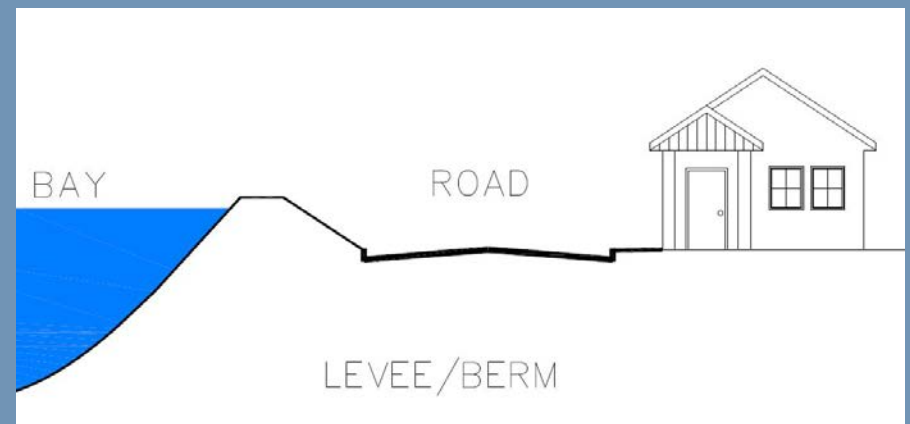
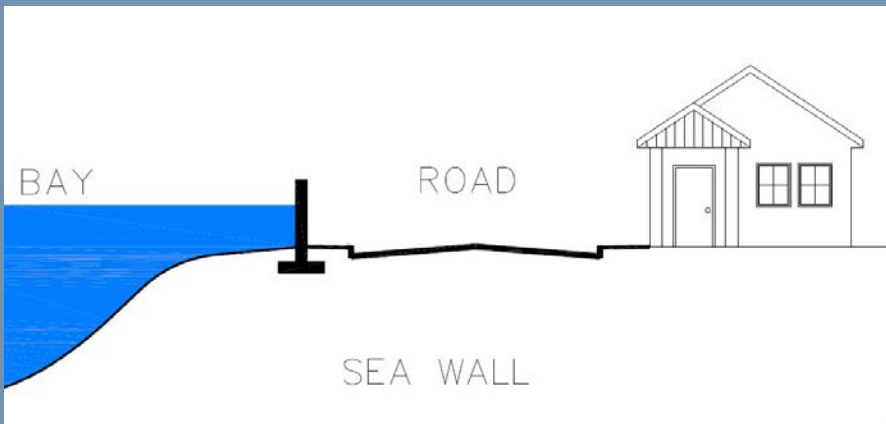
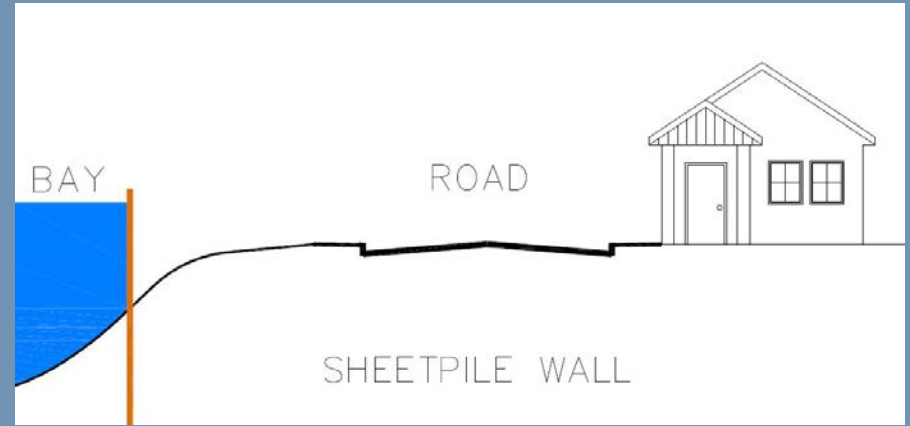
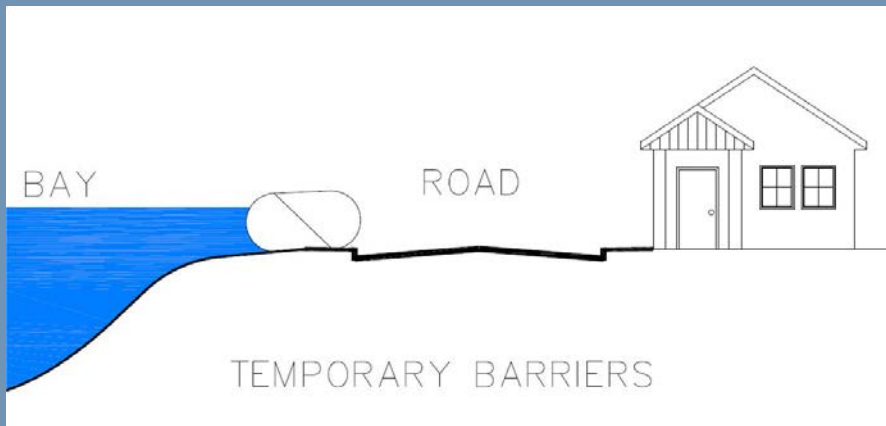
City Policies – December 2014

- The City uses best available information to implement a sea level rise management plan that will protect Olympia's downtown.
 - Scenarios, plans, costs, financing
 - Maintain public control shorelines
 - Incorporate sea rise into infrastructure decisions
 - Partner and engage community
 - Require development to incorporate responses

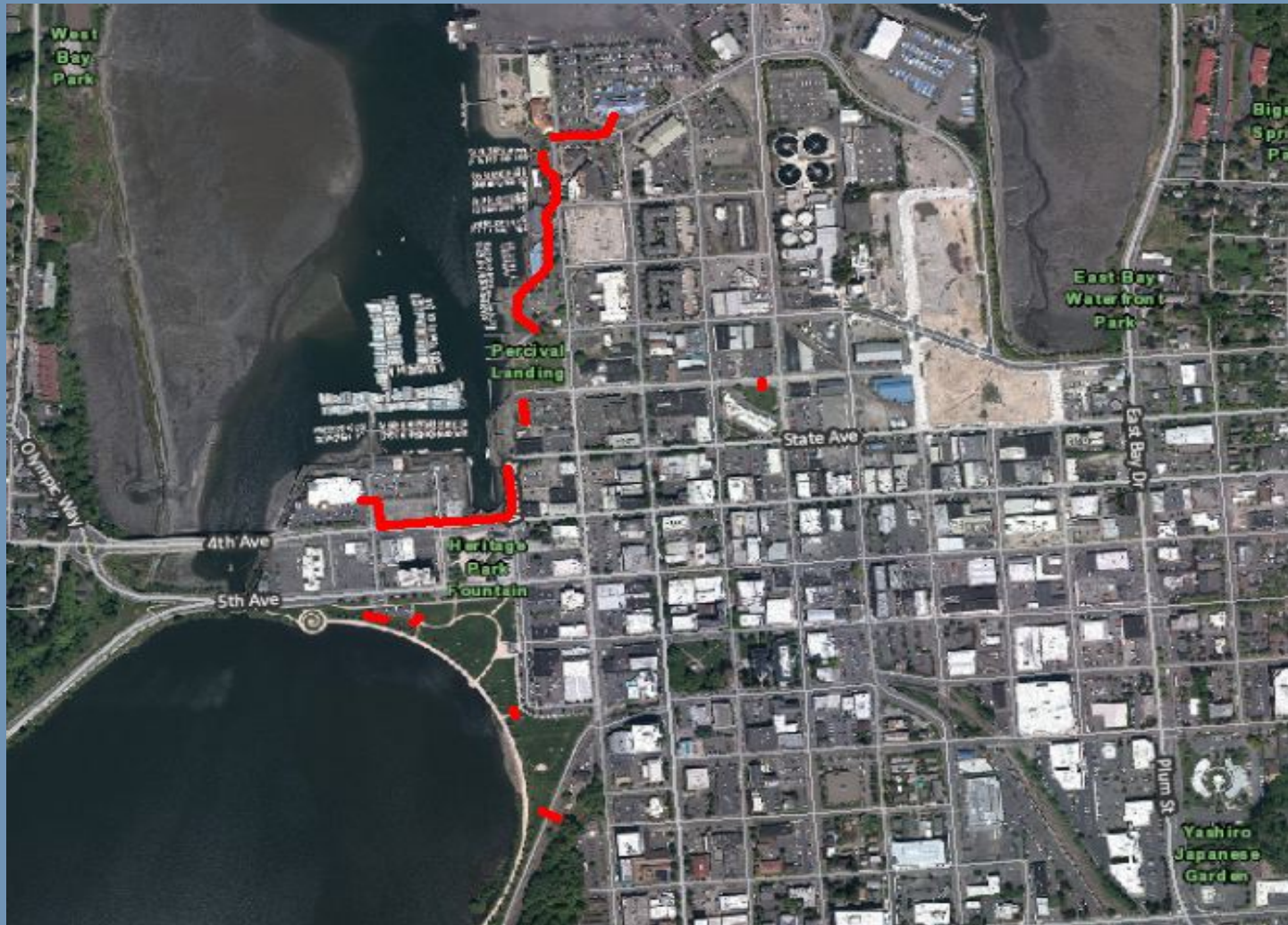
Infrastructure Responses

- Overtopping of shorelines
- Stormwater pipe backflow
- Precipitation runoff

Overtopping of Shorelines



Temporary Flood Barriers - Locations



Capitol Lake



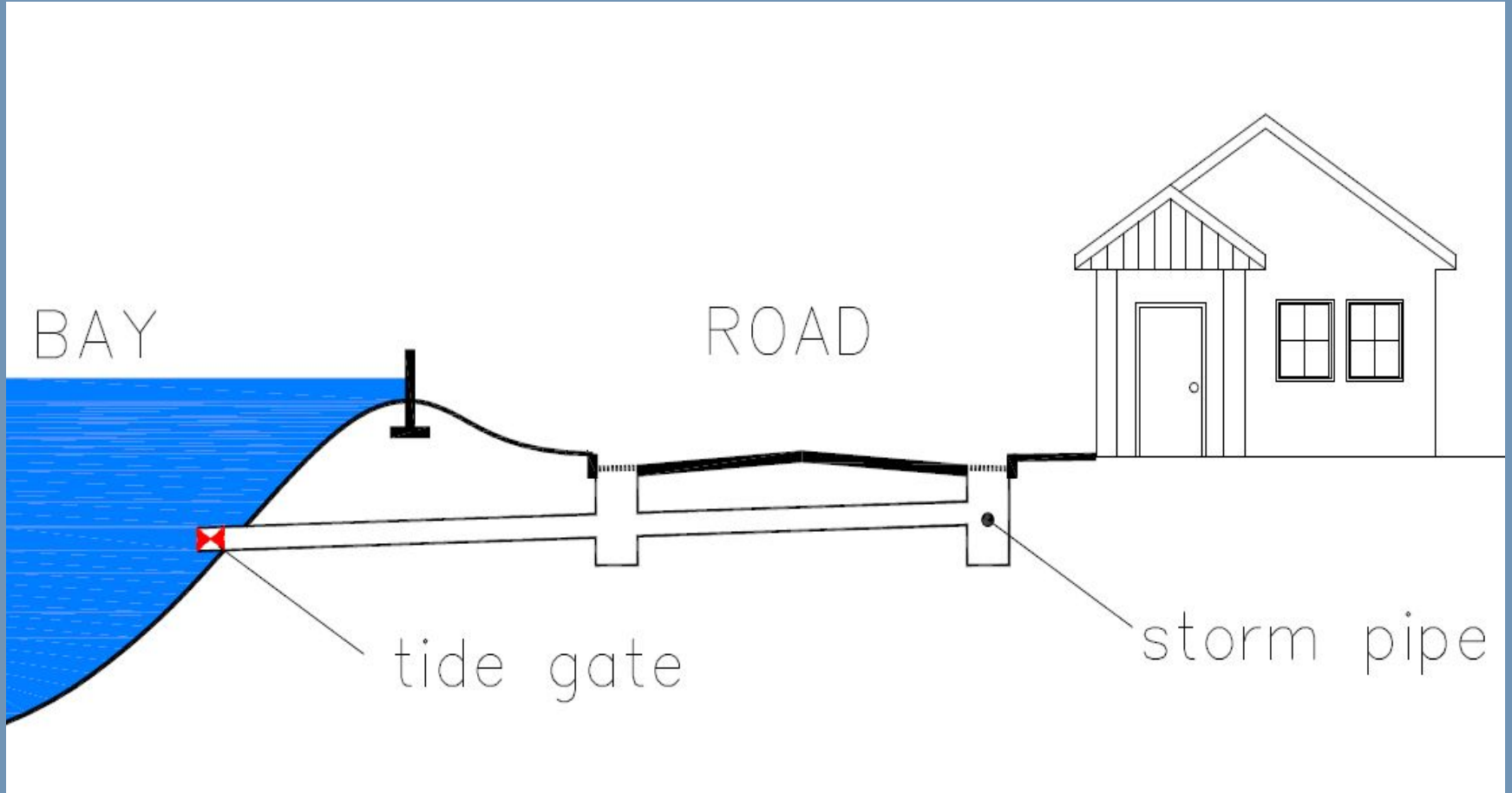
Permanent Barrier Locations – 0.25 ft sea level rise



Barrier Locations – 0.5 ft sea level rise and beyond

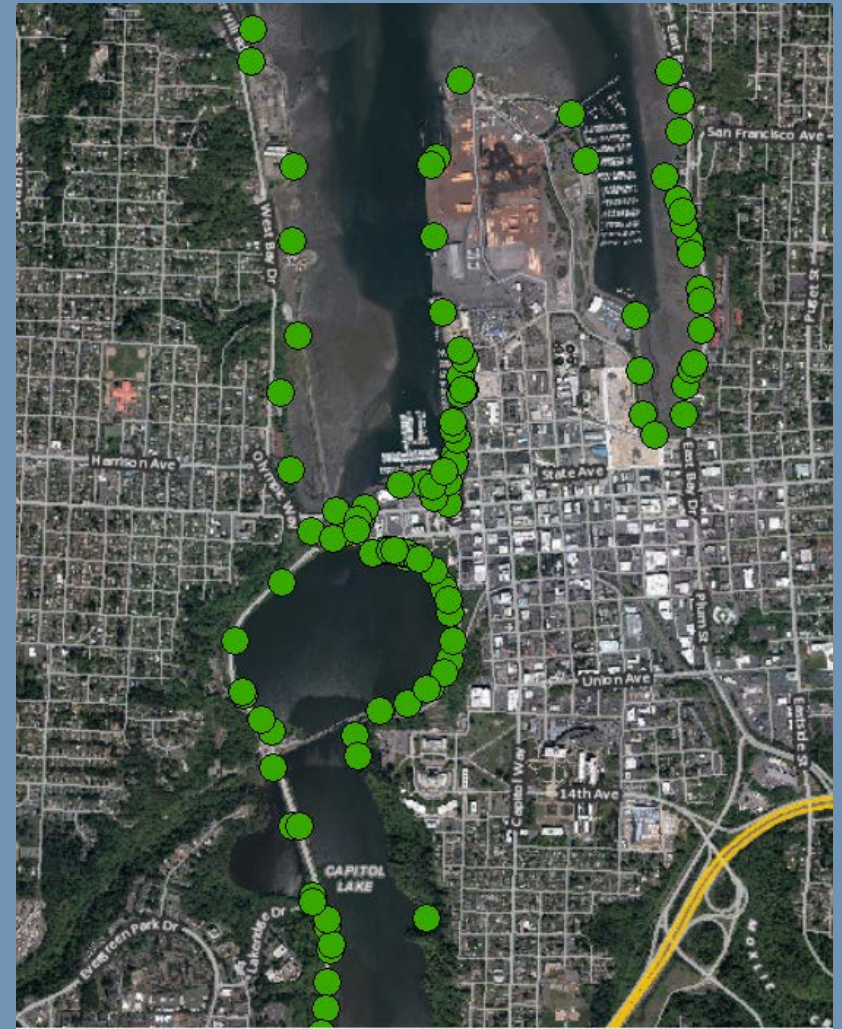


Stormwater Pipe Backflow



Stormwater Outflows

112 known outfalls to
Capitol Lake and Budd
Inlet within the city limits

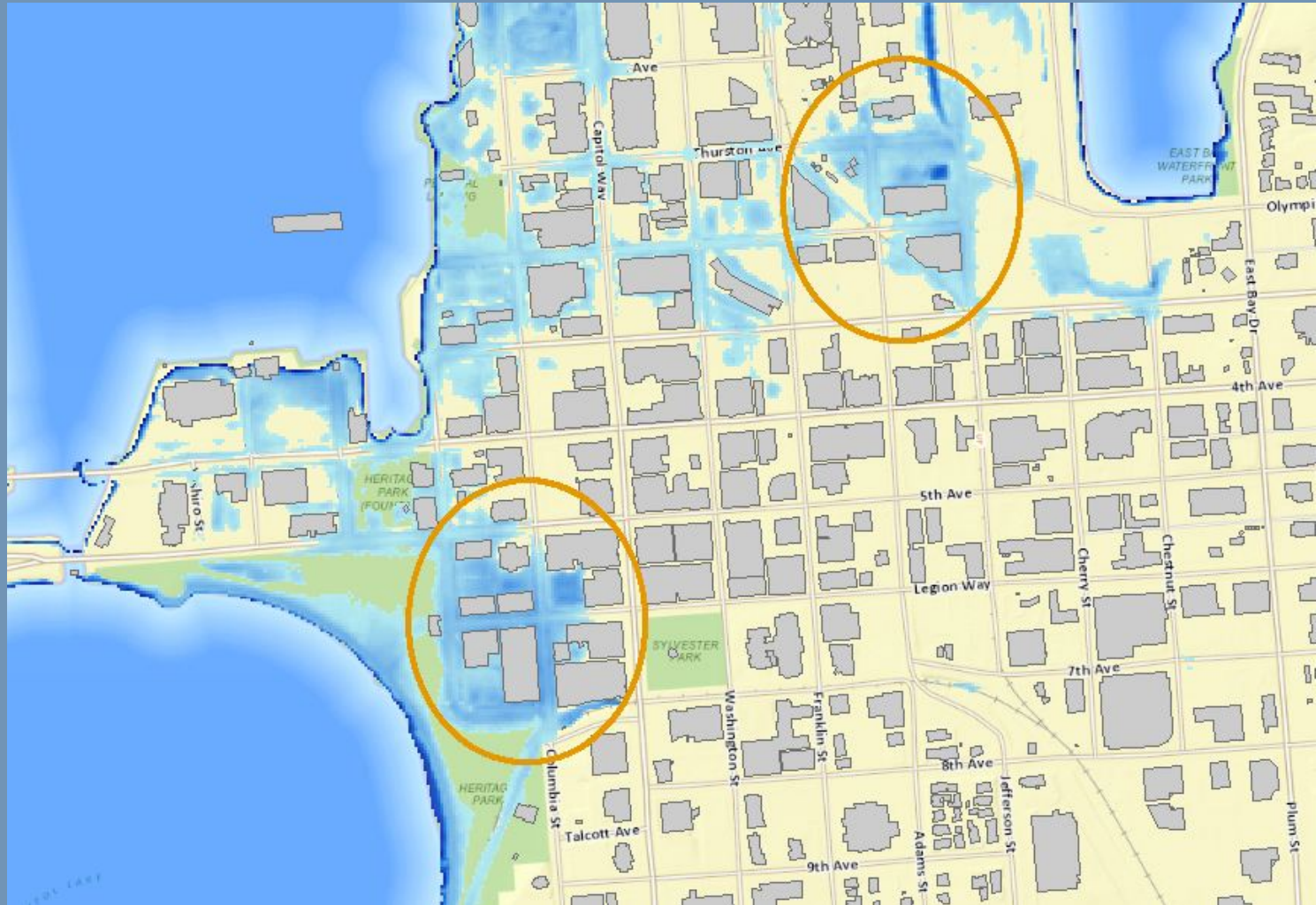


Outfall Vulnerability

- Of those piped outfalls, 36 are susceptible to backflow flooding
- 20 City –owned
- 9 State-owned
- 5 Port-owned
- 2 Privately-owned



Capitol Lake and East Bay



Backflow Prevention Devices

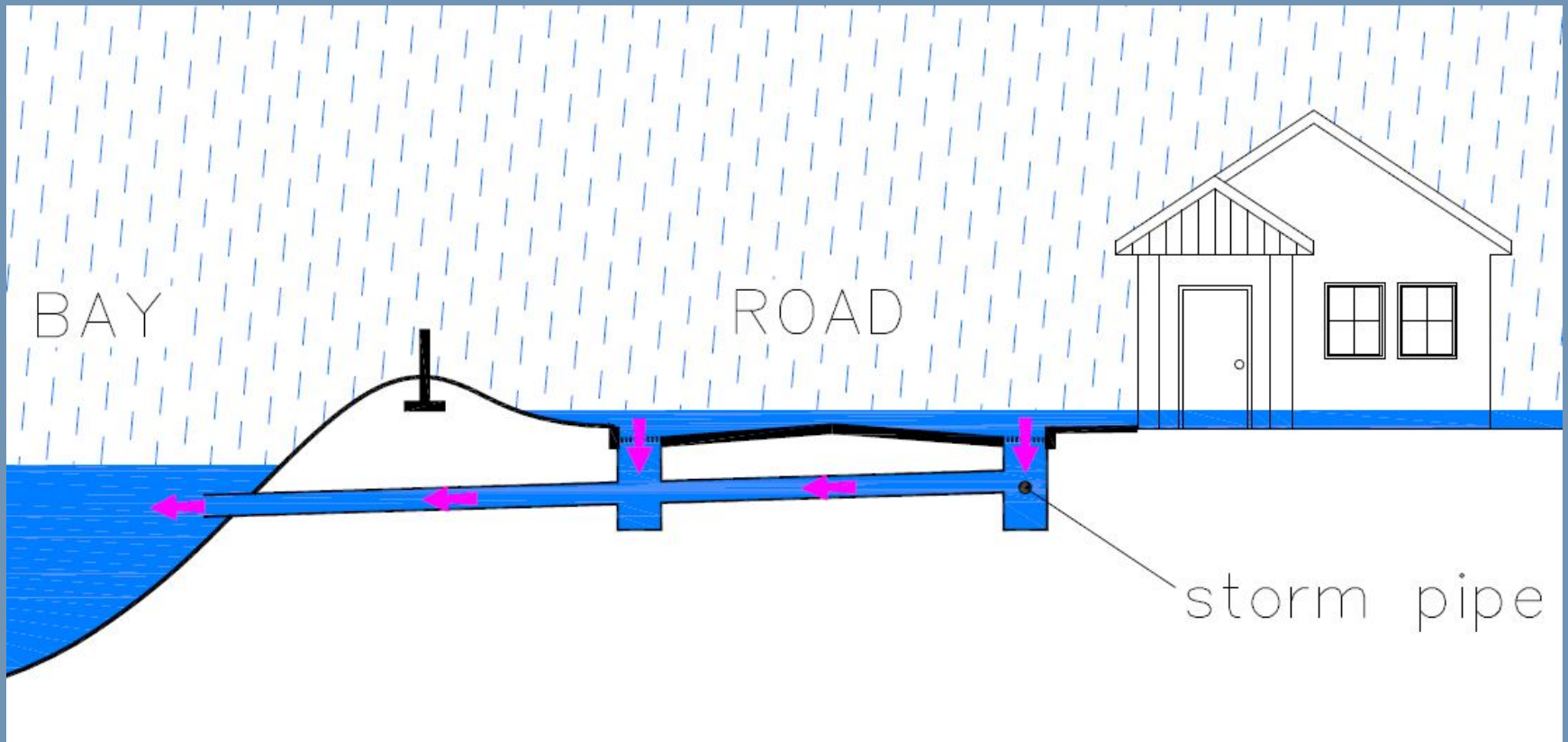


Flap tide gates & Gate valve



Pinch valve "duck bill"

Precipitation Runoff Flooding



Developing Infrastructure Responses

- Annual work plans
 - Increase data and knowledge
 - Incremental steps in the right direction
- Infrastructure planning
 - Link to level of expected sea rise within a time frame....phased
 - Incorporate downtown reconstruction sites
 - Help community visualize the problems and potential responses

Annual Work Plans

- Improve land elevation data
- Complete an engineering analysis of potential responses to 50 inches of sea rise
- Improve emergency responses
- ◉ Next... Approach to shoreline barriers



Current Work Plan

- Survey shoreline and vulnerable structure elevations
- Refine emergency response protocols
- Identify combined sewer catch basins vulnerable to flooding
- Purchase temporary barriers and practice placement
- Investigate Percival Landing options

Importance of Percival Landing

- One of our most vulnerable areas
- High community value and use
- Publicly-owned
- Evolving landscape
 - Rebuilding of the boardwalk

Near-term Infrastructure

(0.25 feet of sea level rise)

- Install strategic tide gates
- Modify drainage system for the Capitol Lake to eliminate need to pump 20-acre basin
- Investigate the permeability of downtown soils

Medium-term Infrastructure

(0.25 to 0.5 feet of sea level rise)

- Modify elevations of Heritage Park
- Install permanent flood barriers on western shore of peninsula
- Consolidate peninsula drainage systems
- Disconnect flood-prone streets from the Moxlie Creek drainage system
- Purchase pumps to handle downtown runoff during high tides

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