



## **WORK SESSION**

### **AGENDA**

**City Commission of the City of Warrenton  
Tuesday, April 9, 2019 – 5:15 P.M.**

**Warrenton City Commission Chambers  
225 South Main Avenue  
Warrenton, OR 97146**

---

- 1. Call to Order**
- 2. Roll Call**
- 3. Levee Update**
- 4. Adjourn**

Warrenton City Hall is accessible to the disabled. An interpreter for the hearing impaired may be requested under the terms of ORS 192.630 by contacting Dawne Shaw, City Recorder, at 503-861-0823 at least 48 hours in advance of the meeting so appropriate assistance can be provided.

# Warrenton Levee System

City Commission Work Session - April 9, 2019



# Warrenton Levee System

## City Commission Work Session

April 9, 2019  
5:15 pm

Warrenton City Hall  
225 S Main St  
Warrenton, OR 97146

### AGENDA

1. **Overview – Warrenton Levee System**
2. **USACE Periodic Inspection**
  - A. Animal Control
  - B. Observations
  - C. Next Steps
3. **Encroachments**
  - A. Types
  - B. Unacceptable ratings and RIP
  - C. 426 S Main
  - D. Next steps – Encroachment Policy in Levee Right-of-Way
4. **Tide gates**
  - A. Video Inspections
  - B. Current Legislation
5. **Levee Assistance Legislation**
6. **USACE Risk Assessment and FEMA Accreditation**
  - A. Levee Screening
  - B. Qualitative Risk Assessment
7. **Potential Cost-Sharing Opportunity**
8. **Tabletop Emergency Exercise – Levee Failure**
9. **Clatsop County Diking District 11**
10. **Funding Option – Drainage District**

# Warrenton Levee System

City Commission Work Session - April 9, 2019



1

---

---

---

---

---

---

---

---

## Warrenton Levee System Overview

- Approximately 11 miles in total length including Clatsop No. 11 levee section
- Sections of levee system first constructed in 1878 – 140 years
- USACE designed and built the existing levee system starting in 1939 – 80 years
- Designed for flood management of Columbia River, Skipanon River, Youngs Bay and the Lewis and Clark River

2

---

---

---

---

---

---

---

---

## Warrenton Levee System Overview

### - WHY IS IT SO IMPORTANT ?-

- Approximately 80% of the City is below High Tide
- Approximately 4,000 acres of land is below high tide
- Regional assets such as the Astoria Airport, US Coast Guard Base, Warrenton Wastewater Treatment Plant, Police, Fire, Public Works, City Hall, Warrenton Grade School and Warrenton High School, Warrenton Downtown and Marina, and of course the majority of Warrenton homes and businesses
- Flat topography, low elevation and our location next to major tributaries results in Warrenton being significantly more dependent on an effective flood management system than most urban areas.

3

---

---

---

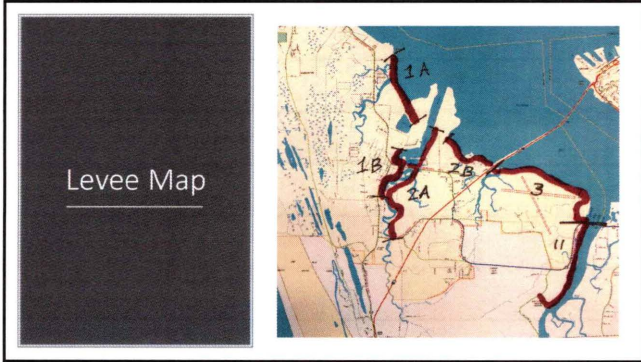
---

---

---

---

---



4

---

---

---

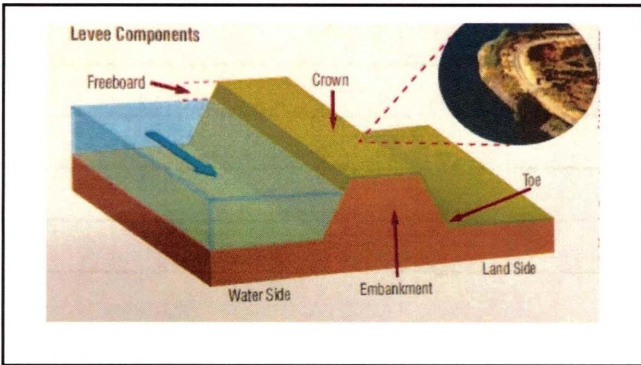
---

---

---

---

---



5

---

---

---

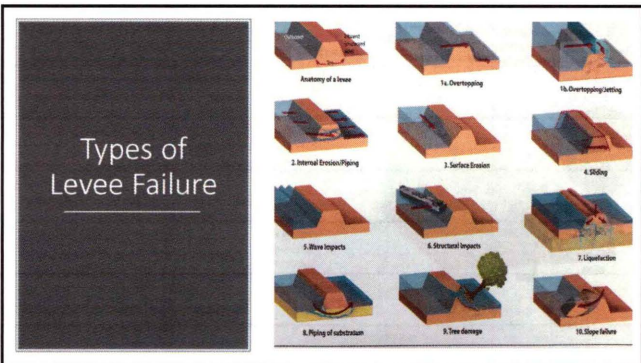
---

---

---

---

---



6

---

---

---

---

---

---

---

---

USACE Periodic Inspection – January 2019

- Required to remain in the USACE Rehabilitation and Inspection Program (RIP)
- Warrenton's last Periodic Inspection was in 2010
- Inspection conducted by team of consultants from Tetra Tech, Shannon & Wilson, a USACE Levee Safety Officer and Public Works Operations Manager Kyle Sharpsteen
- Conducted over four (4) days

---

---

---

---

---

---

---

---

7



---

---

---

---

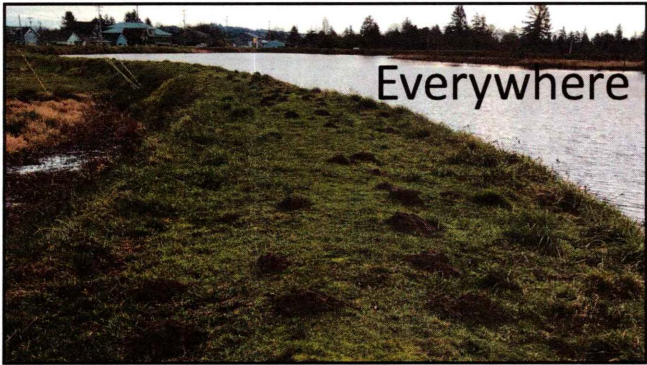
---

---

---

---

8



---

---

---

---

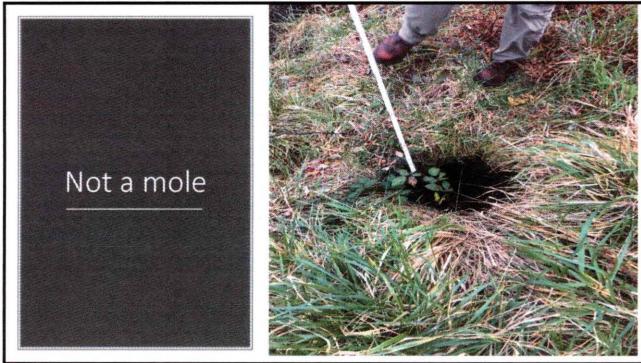
---

---

---

---

9



10

---

---

---

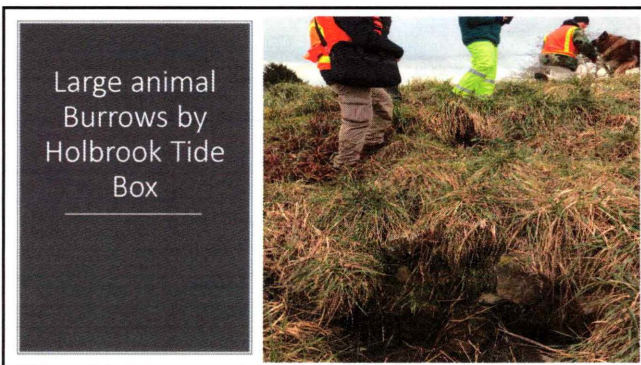
---

---

---

---

---



11

---

---

---

---

---

---

---

---

**Operations and Maintenance Manual Update**

USACE Requirement for the City of Warrenton to have Operations and Maintenance Manual for Levee and Flood Control Works  
(Submitted January 2019)

**Comment from USACE in March 2019:**

**NEED ANIMAL CONTROL PLAN**

12

---

---

---

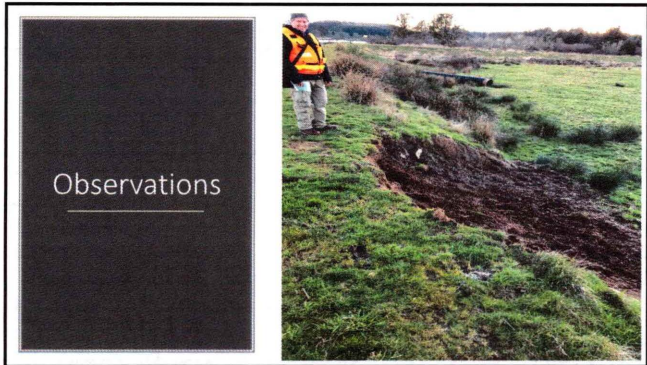
---

---

---

---

---



13

---

---

---

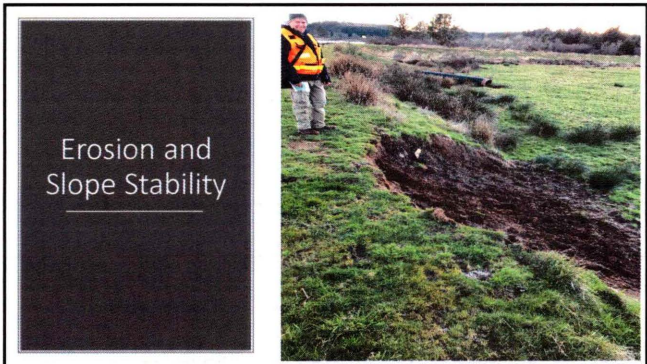
---

---

---

---

---



14

---

---

---

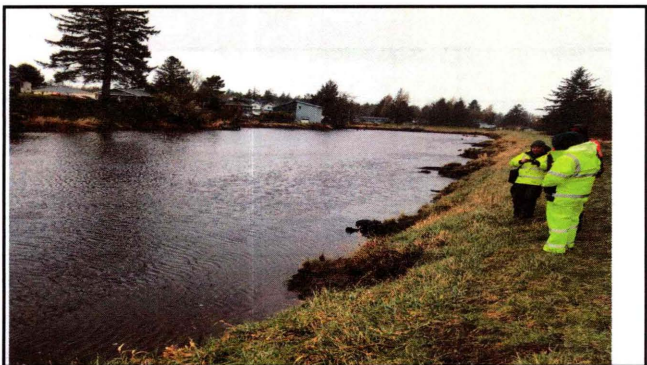
---

---

---

---

---



15

---

---

---

---

---

---

---

---



16

---

---

---

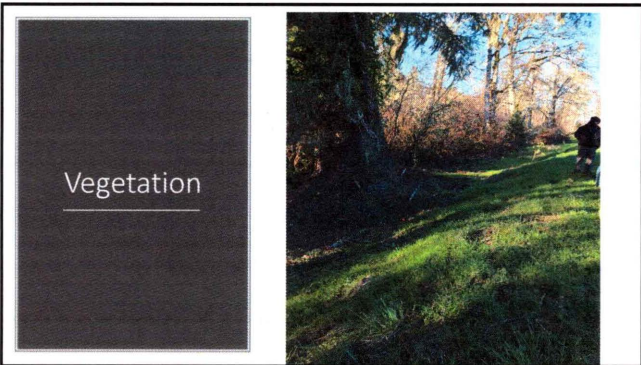
---

---

---

---

---



17

---

---

---

---

---

---

---

---



18

---

---

---

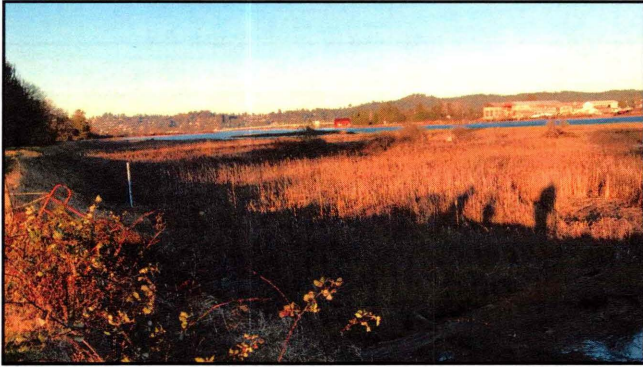
---

---

---

---

---



19

---

---

---

---

---

---

---

---



20

---

---

---

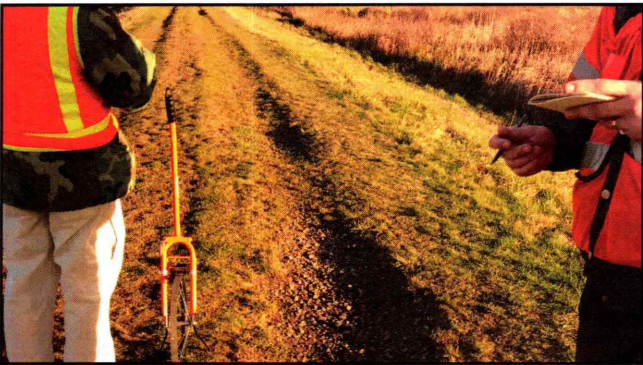
---

---

---

---

---



21

---

---

---

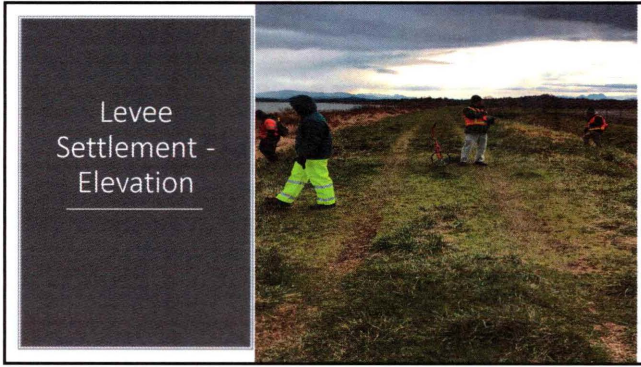
---

---

---

---

---



22

---

---

---

---

---

---

---

---



23

---

---

---

---

---

---

---

---

**Next Steps - 2019 Periodic Inspection**

- Checklist from the inspection has been completed. A letter has been drafted and is awaiting final approval from the USACE Portland Levee District
- **The Checklist of action items will be mailed mid-April 2019**
- Final Periodic Inspection Report will be issued before end of fiscal year (Sept 2019)

24

---

---

---

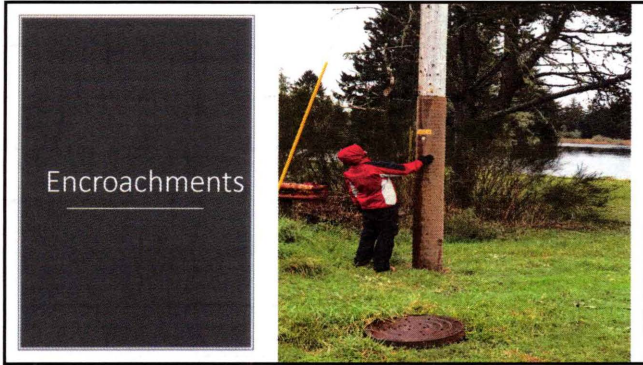
---

---

---

---

---



25

---

---

---

---

---

---

---

---

**Encroachments**

- Elements built or growing in or on the levee (pipes, sign poles, trees, sheds, houses, roads, etc.). These are natural or man-made obstructions or physical intrusions into the levee. These obstructions or intrusions can increase the risk of damage to the levee during high water events and intensify the risk to areas for which the levees were designed to reduce risk

26

---

---

---

---

---

---

---

---

**Encroachments – USACE Status**

- Compiled a catalog of 66 encroachment points or series of encroachments from the 2010 and 2015 inspections. Submitted additional documentation, photos and information from Pacific Power, ODOT and Warrenton Public Works.
- Submitted the encroachment catalog to USACE in January 2019.

27

---

---

---

---

---

---

---

---



28

---

---

---

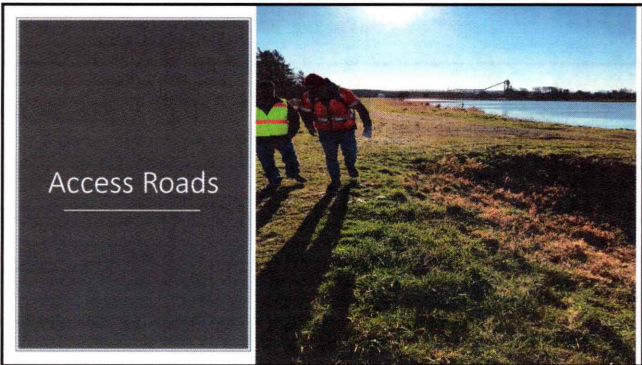
---

---

---

---

---



29

---

---

---

---

---

---

---

---



30

---

---

---

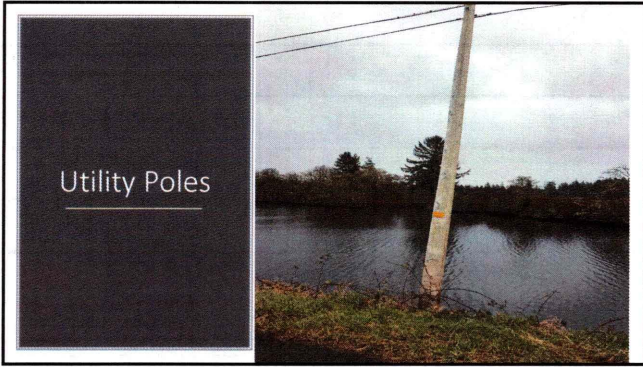
---

---

---

---

---



31

---

---

---

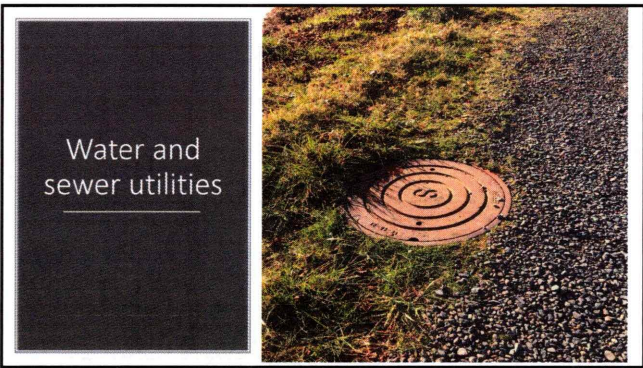
---

---

---

---

---



32

---

---

---

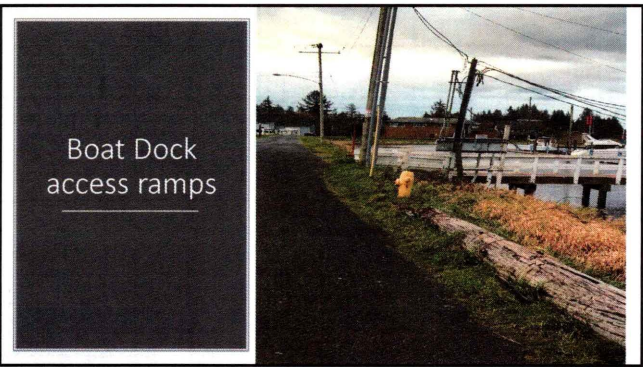
---

---

---

---

---



33

---

---

---

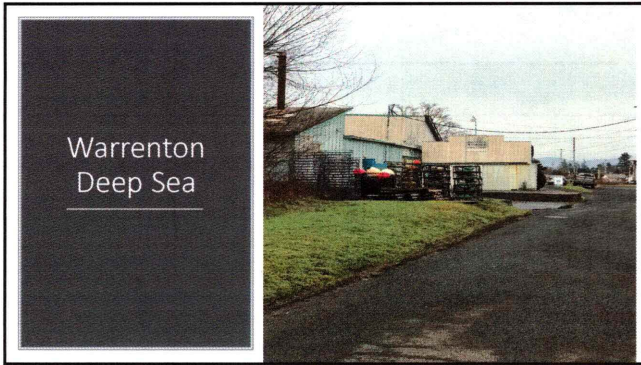
---

---

---

---

---



34

---

---

---

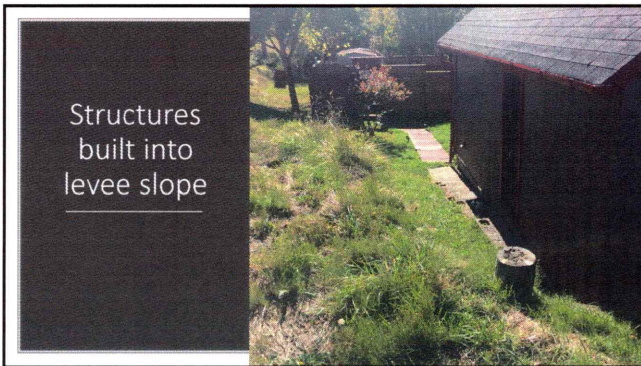
---

---

---

---

---



35

---

---

---

---

---

---

---

---

USACE Guidance- Encroachments

- USACE is primarily focused on those rated as 'Unacceptable'. These are encroachments that may threaten the integrity of the levee during a flood event or hinder flood fighting efforts. **Failure to address unacceptable encroachments could put the Warrenton levee system in 'Ineligible' status within the Rehabilitation and Inspection Program (RIP)**

Example:  
**426 S Main Ave** with garage built into levee slope

36

---

---

---

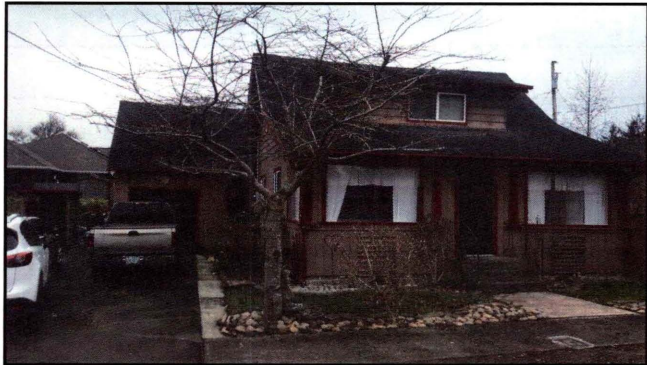
---

---

---

---

---



37

---

---

---

---

---

---

---

---



38

---

---

---

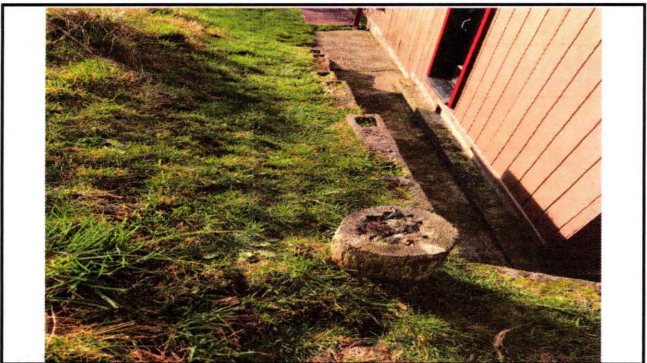
---

---

---

---

---



39

---

---

---

---

---

---

---

---



40

---

---

---

---

---

---

---

---

### Main Issue – Unacceptable Encroachments

- 426 S Main is rated 'Unacceptable'.
- Homeowner must prove that the levee can withstand the designed flood level

Failure to adequately address this encroachment may place Warrenton Diking District 1 into 'Ineligible' status in the Rehabilitation and Inspection Program (RIP).

41

---

---

---

---

---

---

---

---

### Next Steps for the Homeowner

#### Engineering analysis

- Geotechnical review – Hand auger or cone penetration test to determine soil strength
- Provide any as-built plans to demonstrate how far piling extend below pavement

#### Possible remedies (pending engineering analysis)

- Soil nails to stabilize retaining wall into levee embankment
- Replace existing concrete block wall with a larger, heavier ultra block wall
- Removal of structure

42

---

---

---

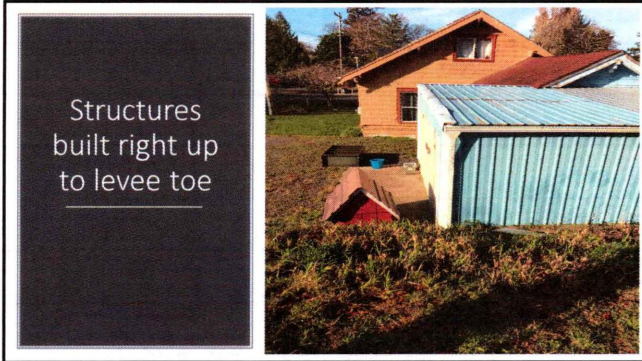
---

---

---

---

---



43

---

---

---

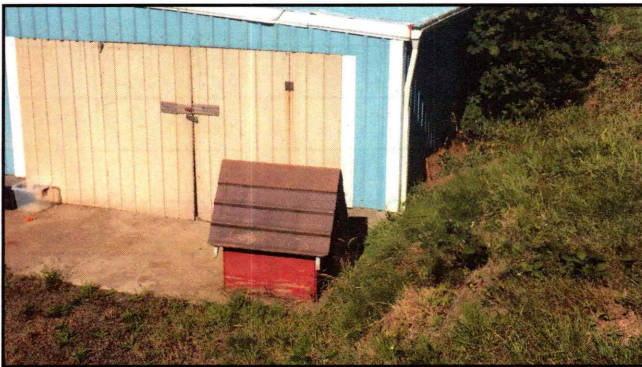
---

---

---

---

---



44

---

---

---

---

---

---

---

---

**Next Steps - Encroachments**

**What policy does the City of Warrenton establish to enforce the levee right-of-way?**

1. Legal notification to existing encroachment properties with structures in the levee right-of-way/easement. *Letter to property owner at 426 S Main is currently under legal review.*
2. Agree to work with property owner to help find engineering services and construction options.
3. Create a permit process/design review board for existing or future proposed encroachments in levee right-of-way (Example MCDD).
4. **FAIL TO RESPOND OR ADDRESS ADEQUATELY** - Place title restriction on property deed.
5. Condemnation and removal

45

---

---

---

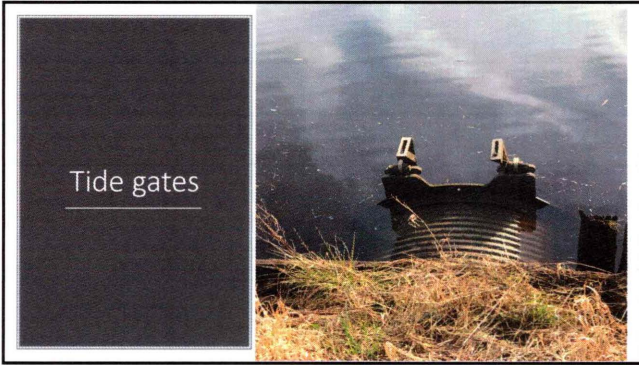
---

---

---

---

---



46

---

---

---

---

---

---

---

---

Tide gates

- 27 Tide gate stations
- 35 Tide gates
- 2 storm pumps

Several culverts and tide gates date back to original construction (1939)  
Wood stave pipe culverts remain

47

---

---

---

---

---

---

---

---



48

---

---

---

---

---

---

---

---

**USACE Requirement – Tide gates**

- The interiors of the tide gate culverts need to video inspected every 5 years and a recorded copy of the visual inspection and a report need to be submitted to the USACE
- Last inspection was 5 years ago – Need to conduct inspection in 2019
- **Failure to conduct a video inspection and a recorded copy to USACE can put the Warrenton Levee System into ‘Ineligible’ status in the Rehabilitation and Inspection Program (RIP).**

49

---

---

---

---

---

---

---

---

**Association of Oregon Counties and Oregon Watershed Enhancement Board**

Public Outreach Meetings Dec 2017- Feb 2019

- **Problem** – 1000-plus tide gates in Oregon. Many of these are in need of replacement or on the verge of failing in the next 10 years.
- Fish passage requirements and ESA regulations can make the costs of replacement with a fish-friendly tide gate as much as 10 times that of a standard culvert and top-hinge flap gate
- Permitting of tide gate projects can take years with up to 9 federal and state agencies claiming jurisdiction or review of proposed projects
- Landowners often avoid the process and do replacements on their own because the costs and process are burdensome

50

---

---

---

---

---

---

---

---

**Current Oregon Tide Gate Legislation**

**SB 812**

- Appropriates moneys to fund contracted services for coordination of tide gate permitting (ombudsman)
- Appropriates moneys for position within ODFW to provide technical support related to tide gate projects
- Appropriates money for position within ODFW to provide fish passage engineering services related to tide gates

*Clatsop County Commission has also sent letter of support for SB 812*

51

---

---

---

---

---

---

---

---

Current Oregon Tide Gate Legislation

**SB 812**

Work Session held 4-4-19 in Senate Committee on Environment and Natural Resources

Previously Referred to Environment and Natural Resources on 2-21-19, to go on to the Joint Committee on Ways and Means after approval (Sen Johnson Co-Chair)

No meetings currently scheduled

---

---

---

---

---

---

---

---

52

Additional Oregon Tide Gate Legislation

**HB 2979**

- Appropriates moneys to contract for services to provide technical assistance to landowners to comply with regulation on tide gate projects with an opening diameter of 4 feet or less.

This is **IN ADDITION** to any other appropriations not in **IN LIEU OF** any other bills (SB 812).

*Clatsop County Commission has also submitted letter of support for HB 2979*

---

---

---

---

---

---

---

---

53

Additional Oregon Tide Gate Legislation

**HB 2979**

Passed from Committee on Natural Resources 4-2-19

Referred to the Joint Committee on Ways and Means (Sen Johnson Co-Chair)

No meetings currently scheduled

---

---

---

---

---

---

---

---

54

Oregon Levee Assistance Legislation

**SB 432**

Puts \$10 million into the Levee Project Subaccount for distribution to levee sponsors (like Warrenton)

Passed - Committee on Environment and Natural Resources 2-27-19

Referred to the Joint Committee on Ways and Means (Sen Johnson Co-Chair)

No meetings currently scheduled

---

---

---

---

---

---

---

---

55

Oregon Levee Assistance Legislation

**SB 254**

- This would allow for the Levee Projects Subaccount to provide financial assistance for levee projects in the form of matching grants up to \$2 million dollars. Grants would require a 20 percent (20%) match from the local sponsor.

(Bills passed in the two previous biennium provided financial assistance in the form of loans, not grants)

**Warrenton has not only endorsed but is currently included in the inventory and description of statewide levee needs accompanying this bill**

*Clatsop County Commission has also sent letter of support for SB 254*

---

---

---

---

---

---

---

---

56

Oregon Levee Assistance Legislation

**SB 254**

Passed from Committee on Environment and Natural Resources 3-6-19

Referred to the Joint Committee on Ways and Means (Sen Johnson Co-Chair)

No meetings currently scheduled

---

---

---

---

---

---

---

---

57

### USACE Risk Assessment / FEMA Accreditation

- PUBLIC SAFETY – To ensure that the City of Warrenton flood management system can provide flood protection for citizens and property during a 100-year flood event
- ECONOMIC – To reverse 2010 revisions to the National Flood Insurance Program Map for Warrenton and Clatsop County that have resulted in millions of dollars in cost to property owners in the form of increased insurance premiums for homes and businesses

The Base Flood Elevation (BFE) increase in 2010 also produced significantly higher development costs for commercial and residential construction projects

---

---

---

---

---

---

---

---

58

### Levee Safety Screening – Step 1

- Caroline Williams with USACE will conduct a series of screenings of each section of our levee system, starting in April/May 2019 and continuing through September 2019.
- At conclusion of the screening Warrenton will receive a rating for each section (6) our levee system from 1 to 5
- New USACE guidance for levee safety should be adopted this year, and screenings will be conducted on 'risk-based' rather than 'compliance-based' criteria. This evaluates potential hazards, past and future performance, and the ultimate consequences if a levee fails.

'Poor to Good' rating system versus 'Unacceptable to Acceptable'

**PAID FOR BY USACE**

---

---

---

---

---

---

---

---

59

### USACE Qualitative Risk Assessment – Step 2

- Team consisting of USACE personnel from Portland District and USACE staff trained by the Risk Management Center along with a FEMA representative and the levee sponsor
- Identify hazards
- Assess likelihood of hazard occurring
- Identify potential failure modes
- Assess the consequences
- Estimate the risk
- Prepare report - Report would be provided to FEMA for National Flood Insurance Program (NFIP) purposes

**LEVEE SPONSOR PAYS USACE 50 PERCENT (50%) OF THE COST**

---

---

---

---

---

---

---

---

60

### Qualitative Risk Assessment

- Formal request from USACE Portland District Commander must be made for accelerated levee system evaluation to then provide accreditation recommendation to NFIP

Sample letter attached

---

---

---

---

---

---

---

---

61

### Potential Cost-Sharing Opportunities

- SB 254 – 20 percent (20%) City of Warrenton match to 80 percent (80%) State of Oregon match - up to \$2 million dollars
- USACE Qualitative Risk Assessment (QRA) program – 50 percent (50%) City of Warrenton match to 50 percent (50%) Water Resources Reform and Development Act (WRRDA 2014) funding to complete QRA evaluation

---

---

---

---

---

---

---

---

62

### Potential state and federal grant opportunities

Example: \$400,000 can be leveraged to receive up to \$2 million from state to receive \$4 million in USACE risk assessment services.

City of Warrenton -	\$ 400,000
State of Oregon -	\$1,600,000
USACE -	<u>\$2,000,000</u>
Total -	\$4,000,000 towards USACE Risk Assessment

---

---

---

---

---

---

---

---

63

### Tabletop Emergency Exercise – Levee Failure

- Public Works Director Stelzig has requested assistance from USACE to plan an Emergency Management Training Exercise to replicate a levee failure event
- **Fall 2019**
- Clatsop County Emergency Management Director Tiffany Brown and her staff have also agreed to participate and assist in the exercise.

---

---

---

---

---

---

---

---

64

### Clatsop County Diking District 11

- Superintendent Bob Johnson reviewing USACE Rehabilitation and Inspection Program (RIP) requirements and considering formal request to USACE to enter into the RIP
- District 11 is part of Warrenton flood protection system, and any risk assessment evaluation must include District 11
- District 11 has limited resources and revenues, so it may be in City of Warrenton's interest to formalize an expanded Memorandum of Agreement outlining roles and responsibilities for future maintenance and capital improvement projects.

---

---

---

---

---

---

---

---

65

### City of Warrenton Funding Questions

Along with the obvious benefit of providing improved flood management and protection, **FEMA Accreditation** will positively impact flood insurance rates and development codes.

Potential Costs:

- Geotechnical work on levees - \$1,000,000
- Potential cost estimate of significantly raising elevation of levees- \$16,000,000

Beyond **FEMA Accreditation** there is the need for a sustainable revenue source for future levee improvement projects.

Currently the Stormwater Utility Fee funds stormwater-related projects, including levee improvement projects - \$380,000 annually

---

---

---

---

---

---

---

---

66

City of Warrenton Funding Option

• 2017 ORS 547.069<sup>1</sup>  
Formation of drainage district by owners of certain lands permitted

- In a contiguous body of swamp, wet or overflowed land or irrigated land from which waters contribute to the swamp or to the wet or overflowed condition of the same or different land, the owners of record of at least 50 percent of the acreage may form a drainage district for the purpose of reclaiming and protecting the land by drainage, flood control or otherwise from the effects of water:
- (1) For sanitary or agricultural purposes; or
- (2) When reclaiming and protecting the land protects life or property from the harmful effects of water or produces another public utility or benefit. [2015 c.544 §5]
- Note: See note under [547.063 \[Definitions\]](#).

---

---

---

---

---

---

---

---

67

Questions ?

---

---

---

---

---

---

---

---

68

Warrenton Levee System

City Commission Work Session - April 9, 2019




---

---

---

---

---

---

---

---

69

# Draft Letter

April 9, 2019

Colonel Aaron Dorf  
District Commander  
U.S. Army Engineer District, Portland  
P.O. Box 2946  
Portland, OR 97208-2946

ATTN: District Levee Safety Program Manager Shane Cline

Dear Colonel Aaron Dorf:

This is in reference to Section 3014 of the Water Resources Reform and Development Act of 2014, Levee Certifications. Section 3014 provided authority for the US Army Corps of Engineers (USACE) to accelerate a levee system evaluation to provide a levee accreditation recommendation for purposes of mapping for the National Flood Insurance Program (NFIP). The City of Warrenton requests an accelerated levee system evaluation from USACE for the Warrenton Diking District and Clatsop County Diking District 11 located in Warrenton and Clatsop County, Oregon.

We understand that upon receipt of this letter, USACE will evaluate available resources and prepare a scope of work and a cost estimate for the levee system evaluation. If the City of Warrenton enters into an agreement with USACE for the levee system evaluation, we understand that we will be responsible for 50 percent of the cost.

Henry Balensifer  
Mayor, City of Warrenton  
225 S Main Ave  
Warrenton, OR 97146

# Draft Letter

April 9, 2019

Arthur Stockenburg  
426 S Main Ave  
PO BOX 72  
Warrenton, OR 97146

Dear Mr Stockenburg,

The City of Warrenton recently completed a US Army Corps of Engineers (USACE) inspection of the Warrenton Levee. During this inspection, the garage associated with the house at 426 S Main was again deemed an "Unacceptable" encroachment to the levee system. The USACE has informed us that this encroachment is significant and may threaten the integrity of the levee or hinder flood fighting efforts. The excavation of the levee to construct the garage will likely put the Warrenton Diking District in 'ineligible' status with the USACE Rehabilitation and Inspection Program if it is not addressed. It also appears that the garage structure was built in the City of Warrenton levee right-of-way and over the property line.

We would request a meeting with you to discuss alternatives, as the City of Warrenton must respond to this encroachment to the levee to remain in the USACE Rehabilitation and Inspection Program. Please contact Mark Kujala at (503) 791-2513 to schedule a time with the City of Warrenton Staff to address this matter.

Thank you,

Mark Kujala  
Kujala Consulting  
1715 Eastwind Terrace  
Hammond, OR 97121  
(503) 791-2513  
Mark.kujala@gmail.com