

Meeting Agenda

Project Name: Levee Improvement District 2012-1 Levee Recertification Mapleton, ND

Purpose: Discuss updates to "Plan of Operation" for Flood Preparation

Date: 01/30/2018 Time: 6:00 pm Facilitator: Brandon Oye

Location: Moore Engineering Minutes: Paul Bervik

Invitees: Brandon Oye, Paul Bervik, Kurt Lysne, Fire Chief, City Council, Public Works

1. Welcome/Introduction

2. Background on Flood Operation

2.1 Definitions:

- 2.1.1 Flap Gate (see figure) – automatic closure structure. Not 100% efficient at holding back water. Current Plan of Operation calls for sandbagging.
- 2.1.2 Sluice Gate (see figure) – guillotine like closure structure. More efficient than a flap gate. If ice forms in gate, it can be difficult or impossible to close until ice melts.
- 2.1.3 Freeboard – extra elevation of levee to mitigate uncertainty. Aka: factor of safety.
- 2.1.4 O+M Manual – Operations and Maintenance Manual. This document is used to assist in operating and maintaining a project.

- 2.2 Water will be against the flap gates during a flood. The city needs to decide what will trigger the closing of the sluice gates (secondary closure structure).

3. Options for Gravity Closure

3.3 Most conservative, more frequent operation:

- 3.3.1 Close sluice gate when water reaches the upstream invert of the culvert and is rising. Have pumps on site to prevent interior flooding.

3.4 Less conservative, less frequent operation:

- 3.4.1 Begin continuous monitoring water levels at manhole and upstream end of culvert when water reaches the upstream invert and is rising. If it is noticed that water is back flowing past flap gate, close sluice gate and begin pumping.
- 3.4.2 If water levels exceed a predetermined level above the upstream invert and is rising, close sluice gate. Have pumps on site to prevent interior flooding.

3.5 Most risk, least operation: **(NOT RECOMMENDED)**

- 3.5.1 Begin continuous monitoring water levels at manhole and upstream end of culvert when water reaches the upstream invert and is rising. If it is noticed that water is back flowing past flap gate, close sluice gate and begin pumping.

4. Options for Lift Station Closure

4.6 More frequent operation:

- 4.6.1 Close sluice gate when water is at sluice gate invert and is rising. Have pumps on to prevent interior flooding.

4.7 Less frequent operation:

- 4.7.1 Allow water level to raise above sluice gate invert to a level that will not have an effect on the city. At this point, close sluice gates and ensure pumps are in operational position.

5. Recommendations

5.1 Schedule of Operations by River Stage

6. Additional Comments

5.1 Numbering/naming system for culverts closures/lift station closures.

5.2 Need complete update of Operations and Maintenance Manual for the Flood Protection Levee System

5.3 Prediction/observation process

5.4 Responsible parties for Plan of Operation

5.4.1 Do any names need to be changed or added?

5.5 Should any other action items be added to the Schedule of Operations?

5.6 Questions/Comment

5.7 Determining next steps forward