



City Council Memorandum

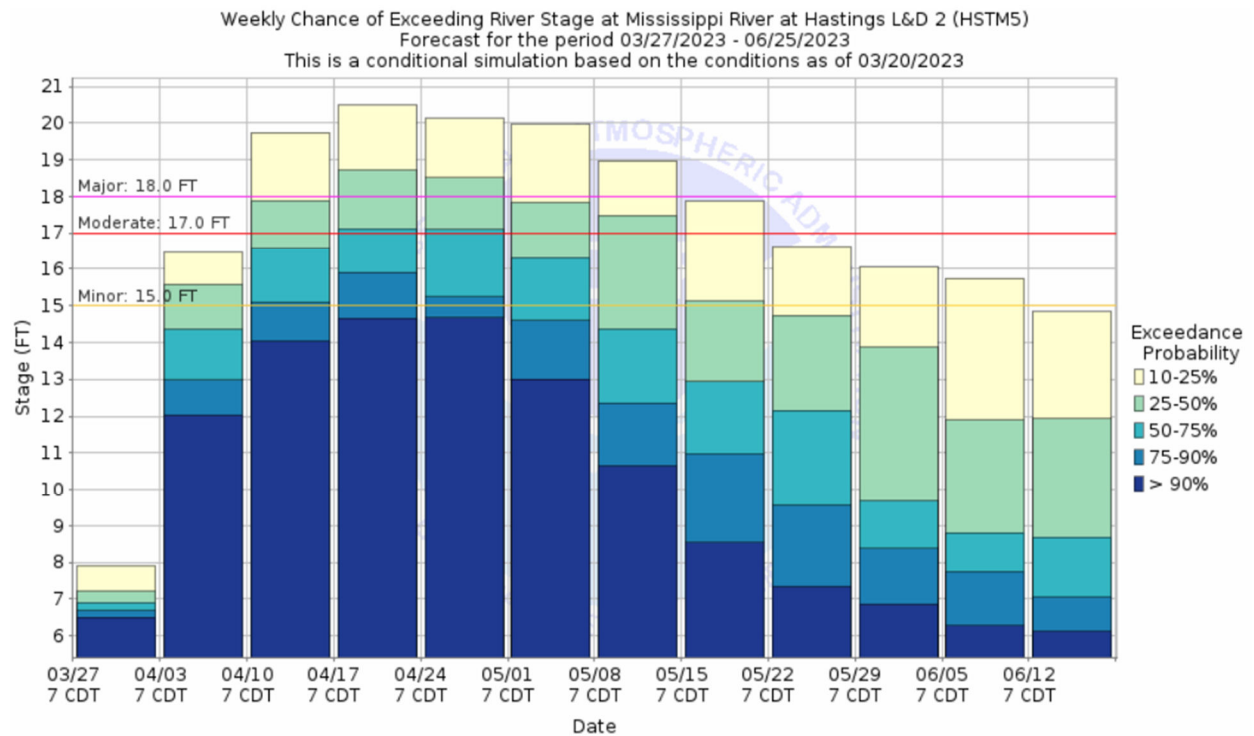
To: Mayor Fasbender & City Councilmembers
From: Ryan Stempski – Public Works Director/City Engineer
Date: March 29, 2023
Item: Update on Flood Forecast & Response Planning Steps

Council Action Requested:

No action requested. Council is being provided an update to the flood fighting policy. City forces would provide sand, sandbags, logistical support, and hauling of filled sandbags to curbside locations, but City forces will not be used to fill sandbags or to build barriers on private property. After the flood, City forces will haul away all sandbags that are brought back out to the curb.

Background Information:

City staff monitors the National Weather Service (NWS) forecasts for the Mississippi River at Lock and Dam 2 extremely close during the spring snowmelt. Predictions show that we may be a couple weeks out from the highest stage potential, at which there is a 50-75% chance of a moderate flood stage (17 feet). Please see the chart below for the NWS projections as of March 20th.



This forecast needs to be qualified – many variables can significantly change the forecast higher or lower, including how rapidly the snowmelt occurs, how quickly the frost comes out of the ground, and additional snowfall or rainfall events. Over the next few weeks, the forecast can and will change. It is also important to note that the NWS’s forecasts do lean conservative, and our observations over the years are that actual flood stage has ended up being slightly below the forecasted figure made closest to the crest.

Physical Impact

It would take a flood stage of 22 feet to directly impact approximately 10 homes on the north side of 1st Street in East Hastings. Many of these homes have not sandbagged in the past when flooding occurred. Therefore, it would be prudent to continue to monitor the flood projections and reach out to the impacted properties in advance of potential sandbagging efforts.

There are also a number of public infrastructure impacts that would occur based on the current forecast, including closure of several segments of City roadways, closure of spaces within Jaycee, Lake Rebecca, River Flats, and Levee Parks. Attached is a two-page summary covering notable City and private property locations where impacts may be observed. Also attached, are maps of these locations and stages.

City Response

As flood levels rise, Public Works, Parks, Police and Fire will coordinate efforts and close roadways, trails and parks as appropriate. We will monitor river levels and flood forecasts.

City staff has engaged in preliminary discussions with the Branchline Church, which would allow the use of their facilities (east of the railroad tracks off 2nd Street) to stage equipment and materials for sandbagging efforts. Members of the church and other volunteer groups would be invited to sandbag homes where that was requested. As in the past, City staff proposes to support those efforts by supplying sand, sandbags, and poly sheeting needed to sandbag homes, and to haul sandbags filled by volunteers to curbside locations where they can be accessed by volunteers to construct barriers on private property. In addition, flood update and planning meetings will be scheduled, with the frequency of the meetings dictated by flood forecasts and planning flood fighting needs.

Financial Impact:

The financial impact of flood fighting activities is unknown; dependent on level of flooding experienced and the demand for sandbags by the aforementioned property owners. We have sandbags, poly, and pallets on hand already. If flooding becomes severe, there is a good possibility that emergency declarations could be made and that certain flood response efforts and public infrastructure damage would be eligible for State and/or Federal reimbursement. We have identified a flooding account number to track expenses for reimbursement if financial assistance becomes available.

Attachments:

- General Flood Information Notes
- General Flood Maps

General Flood Information Notes

UPDATED March 2019

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National Weather Service Flood Information Website:

<http://water.weather.gov/ahps2/hydrograph.php?wfo=mpx&gage=hstm5>

Important Elevations – City Infrastructure

Base Elevation of River is 670.65'

<u>STAGE</u>	<u>ELEVATION</u>	<u>DESCRIPTION</u>
15.00	685.65	Top of Steps & Veterans Memorial - Levee Park
15.35	686.00	Low Point - Mississippi River Trail by Levee Park steps
15.54	686.19	Low Point – Spiral View Loop Road (north side of river beneath Highway 61 Bridge)
15.80	686.45	Low Point – E 10 th Street/County Road 54 (just east of 18 th Street intersection)
15.95	686.60	Low Point - 1st St/RR Bridge Underpass – Water on Rd
16.90	687.55	Low Point E 4 th St. – Water on Road
17.05	687.70	Low Point – E 10 th Street – ½ way between Vermillion River bridge and E 18 th Street
17.25	687.90	Low Point – E 10 th Street just west of E 18 th Street
17.35	688.00	Top of Riprap - Jaycee Park
18.43	689.08	Low Point - L/D Road
18.55	689.20	Bottom of Flood Columns – Levee Park
18.85	689.50	Low Beam – E 4 th St. Bridge
19.35	690.00	Low Point – E 1st St & Franklin
19.35	690.00	Lake Isabel Boat Ramp Parking Lot (lowest areas)
19.85	690.50	Front Deck Hydropower Plant
20.95	691.60	Floor of Musical Playground
21.15	691.80	Floor of Rotary Pavilion
22.35	693.00	Top of Deck – E 4 th St. Bridge, and HASTINGS Sign – Levee Park
22.45	693.10	Labyrinth slab – Levee Park
23.00	693.65	Patio/Fireplace – Levee Park
23.45	694.10	Top of Lock Wall – Hydro-electric Plant Access

Estimated Flood Impact on 1st St. Homes from GIS Contours:

*Based on 2013 GIS Elevation Data and 6/23/2014 Field Surveys - * indicates approximate elevations*

<u>STAGE (FEET)</u>	<u>ADDRESS/OWNER LAST NAME</u>	<u>LOWEST STRUCTURE OPENING ELEVATION</u>
17.70	623 1 st Street East - Mollick	688.35 – Door on NE side of home
18.19	607 1 st Street East - Latch	688.84 – Rear door
18.09	613 1 st Street East – Whelan	688.74 – rear door
18.50	1115 1st Street East – Plan	689.15 – Cellar Door at rear of home
18.96	801 1st Street East – Biscoe/Wiegele	689.61
18.86/19.1	707 1st Street East - Heselton	689.51 – Garage/Outbuilding, 689.75 - House
20.07	1021 1st Street East – Leslie	690.72 – Chimney flue door
20.47	1015 1st Street East – Carl	691.12 – E side entry door
20.56/21.38	803 1st Street East - Wiegele	691.21 – Garage, 692.03 - House
21.35	817 1st Street East – Machinery Consultants	692*
22.35	1111 1st Street East – Plan	693*
23.35	1001 1st Street East – Reuter	694*
23.55	803 1 st Street E – Flaten	694.2
24.35	901 1st Street East - Gear	695*
24.35+	Properties at E end of E 4 th Street	695+

***There are also a couple of low areas in yard spaces on the south side of 1st Street E which can become inundated by way of the City's storm sewer connection. These are located at the properties of 914 E 1st Street and 109 Washington Street.*

General Flood Information Notes

UPDATED March 2019

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Recent Crests

- (1) 16.60 ft on 07/01/2018 (P)
- (2) 17.50 ft on 05/01/2018 (P)
- (3) 15.19 ft on 10/13/2017
- (4) 15.22 ft on 05/27/2017
- (5) 15.85 ft on 07/18/2016
- (6) 12.87 ft on 05/23/2015
- (7) 18.95 ft on 06/27/2014
- (8) 14.35 ft on 07/02/2013
- (9) 15.07 ft on 06/02/2012
- (10) 17.76 ft on 04/13/2011
- (11) 17.42 ft on 03/30/2011
- (12) 16.22 ft on 10/04/2010
- (13) 17.22 ft on 03/25/2010 (P)
- (14) 22.00 ft on 04/29/2001
- (15) 21.60 ft on 04/17/2001
- (16) 21.30 ft on 04/13/1997
- (17) 18.90 ft on 06/28/1993
- (18) 16.90 ft on 04/07/1986
- (19) 17.10 ft on 05/04/1975
- (20) 15.10 ft on 07/29/1972

(P): Preliminary values subject to further review.

Historic Crests

- (1) 25.90 ft on 04/17/1965
- (2) 24.30 ft on 04/16/1969
- (3) 22.00 ft on 04/29/2001
- (4) 21.60 ft on 04/17/2001
- (5) 21.30 ft on 04/13/1997
- (6) 20.90 ft on 04/16/1952
- (7) 18.95 ft on 06/27/2014
- (8) 18.90 ft on 06/28/1993
- (9) 18.90 ft on 04/18/1951
- (10) 17.76 ft on 04/13/2011
- (11) 17.50 ft on 05/01/2018 (P)
- (12) 17.42 ft on 03/30/2011
- (13) 17.22 ft on 03/25/2010 (P)
- (14) 17.10 ft on 05/04/1975
- (15) 16.90 ft on 04/07/1986
- (16) 16.60 ft on 07/01/2018 (P)
- (17) 16.60 ft on 06/30/1957
- (18) 16.22 ft on 10/04/2010
- (19) 15.85 ft on 07/18/2016
- (20) 15.50 ft on 05/11/1950
- (26) 12.87 ft on 05/23/2015

(P): Preliminary values subject to further review.

USACOE Lock & Dam No. 2 & City of Hastings Hydro-Electric Plant
No Damages Expected to City Facilities
City will fill USACOE Septic Tank with fresh water to avert failure/collapse under floodwaters

City of Hastings - Lock & Dam Road
Moderate to Heavy Road Flooding Expected
Minor Road Damage Possible
Moderate Debris Cleanup Expected

City of Hastings - Riverfront Trail & Scenic Overlook
Minor Flooding & Damages Possible
Moderate Debris Cleanup Expected

City of Hastings - Spiral View Loop Road
Closure Required at Stage of 15.5 Feet
Significant Flooding of Road Expected
Minor to Moderate Damages Possible
Moderate Debris Cleanup Expected

City of Hastings - E 1st Street Underpass of CP Rail Bridge
Closure Required at Stage of 16 Feet
Minor Road Damages Possible
Moderate Debris Cleanup Expected

Residences on E 1st Street
(607-1115 E 1st Street)
Moderate to Significant Structural Flooding Possible
City Coordinatates with Property Owners & Volunteers to Protect Structures as Requested
Homeowners Provide Own Post-Flood Cleanup As Necessary

City of Hastings/Minnesota DNR - Public Boat Ramp
Complete Flooding and Closure of Ramp Expected
Significant Flooding of Parking Area Possible
Ramp Damage Possible
Moderate to Significant Debris Cleanup Expected

City of Hastings - E 4th Street Bridge
Closure Possible at 22 Feet Stage
No Vehicular Access to Private Property for City services

City of Hastings - Lake Rebecca Park
Parking Lot & Park Grounds Flooding
Minor Pavement Damages Expected
Minor Debris Cleanup Expected

City of Hastings - E 4th Street
Significant Road Flooding Expected
Alternate Access Available to Homes at East End (Dirt Road in wooded area)
Minor Road Damage Possible
Minor Debris Cleanup Expected

City of Hastings - Lock & Dam Road
Significant Road Flooding Expected
Moderate to Significant Debris Cleanup Expected
Minor to Moderate Road Damages Possible

City of Hastings - Levee Park
Significant Flooding of Park Grounds expected
Minor to moderate damage of park features possible
Moderate to significant debris cleanup expected

Private Home is at elevation of 693 or higher (Stage of 22.35)

City of Hastings - East Hastings Sanitary Lift Station
No Damages Expected

City of Hastings - Lake Isabel Boat Ramp
Closure Expected
No Damages Expected
Minor Debris Cleanup Expected

Private Homes - all are at or above elevation of 695 feet (stage of 24.35)

2019 Mississippi River Flooding - Areas of Concern

Notes based on NWS Probabilities Forecast Dated 3/4/2019



Significant Road Flooding Expected
Moderate to Significant Debris Cleanup Expected
Minor to Moderate Road Damages Possible

City of Hastings - Levee Park
Significant Flooding of Park Grounds expected
Minor to moderate damage of park features possible
Moderate to significant debris cleanup expected

Private Home is at elevation
of 693 or higher (Stage of 22.35)

City of Hastings - East Hastings Sanitary Lift Station
No Damages Expected

City of Hastings - Lake Isabel Boat Ramp
Closure Expected
No Damages Expected
Minor Debris Cleanup Expected

Private Homes - all are at or above
elevation of 695 feet (stage of 24.35)

City of Hastings Public Works
1225 Progress Drive
No Impact

Dakota County State Aid Highway 54 (Ravenna Trail)
Moderate Flooding of Roadway Possible just east of E 18th Street
Minor Damage to Roadway Possible
Closure Necessary at stage of approx. 18.5-19 feet
Minor Debris Cleanup Expected

City of Hastings - E 10th Street
Minor to Moderate Flooding of Road Expected
Closure Expected to be necessary east
of Progress Drive

City of Hastings - E 18th Street
Minor Flooding Expected
Closure may be required

Dakota County Road 91 (Glendale Road)
Flooding of Road Not Expected

Highway 55

E 10th Street

Highway 61

CSAH 54 (Ravenna Trail)

Glendale Road

Spiral Boulevard

Highway 316

2019 Mississippi River Flooding - Areas of Concern

Notes based on NWS Probabilities Forecast Dated 3/4/2019

