



# City of Grand Island

Tuesday, October 21, 2008

Study Session

## Item -1

### Update on Storm Water Drainage Maintenance

Staff Contact: Steve Riehle, Ciity Engineer/Public Works Director

# Council Agenda Memo

**From:** Steven P. Riehle, Public Works Director

**Meeting:** October 21, 2008

**Subject:** Update on Storm Water Drainage Maintenance

**Item #'s:** 1

**Presenter(s):** Steven P. Riehle, Public Works Director

## Background

Grand Island received almost 6.5" of rain between Tuesday, June 3<sup>rd</sup> and Sunday, June 8<sup>th</sup>, 2008. Ground water levels were already high and soil above the ground water was saturated. The rain fall had a significant impact on ground water levels with a high level of runoff. Records were broken on Monday, June 9<sup>th</sup> for 16 of 39 ground water level observation wells in the community. Infiltration and inflow overwhelmed the sanitary sewer collection system and waste water treatment plant. Storm water runoff overloaded the storm drainage system. Mother Nature exhibited her tremendous power to impact our environment.

Numerous homeowners reported ground water intrusion into their basements. The sanitary sewer collection system was backed up when lift station # 7 at Grant Street by the bike trail and # 19 by Diers & Capital Avenues were unable to keep up. Homes across the community were experiencing sanitary sewer backups in their basements. Flows through the Waste Water Treatment Plant peaked at over 40 Million Gallons per Day (MGD). Streets were flooded, storm drainage inlets were ponding, storm drainage pipes were at capacity, and ditches were backing up.

The Utilities Department started up the inactive Parkview drinking water wells to help lower ground water. The pumps were discharged into the storm drainage system. The waste water division added an auxiliary pump at lift station # 7 to pump sanitary sewer flows to a section of the sanitary sewer collection system that had available capacity. An auxiliary pump was installed at lift station # 19 that pumped sanitary sewer flows into the storm sewer system. The streets division unplugged inlets, storm drainage pipes, and ditches to keep the water moving. An irrigation pump and piping was added to the Stolley Park storm drainage system to help with the bottleneck west of Blaine Street.

It's important that a community learn from significant events such as this.

## Discussion

This evening's presentation will expand on the conditions leading up to the event; actions taken during the event; activities since the event; and a discussion on how to move towards the future. Items that will be covered include:

### Conditions Leading up to the Event

1. Rainfall
2. Ground Water Levels

### Actions taken during the event

1. Ground Water Intrusion
  - a. Operation of Parkview Drinking Water Wells
2. Sanitary Sewer Collection System
  - a. Lift Station # 7 Area
  - b. Lift Station # 19 Area

### Activities since the Event

1. Neighborhood Meetings
  - a. Irish Acres
  - b. Brentwood
  - c. LaMar & Arthur
  - d. Circle Drive & Parkview
  - e. Summerfield
2. Funding for the De-Watering Project
3. Sanitary Sewer Collection System
  - a. Utility Stuffer
  - b. Lift Station # 7 Area
  - c. Lift Station # 19 Area
4. Storm Drainage
  - a. Expanded Ditch Maintenance
  - b. Ditch Clean Out Projects

### Future Planning

1. Storm Water Drainage Maintenance Plan:
  - a. Standard Operating Procedures
    - i. Underground (storm drainage culverts, inlets, boxes & bridges)
    - ii. Surface drainage system (ditches and detention/retention cells).
  - b. Standards for:
    - i. Operations
    - ii. inspection guidelines
    - iii. structural integrity
    - iv. nuisance control
    - v. sediment removal
    - vi. Deep ditches versus shallow ditches

- vii. Etc
  - c. Maintenance guidelines:
    - i. removal of debris
    - ii. silt
    - iii. erosion
    - iv. detention cell maintenance
    - v. control of undesirable vegetation
    - vi. mowing
    - vii. sweeping
    - viii. equipment needs and availability
    - ix. staffing requirements
    - x. etc.
- 2. Future Needs
  - a. Equipment
  - b. Funding
  - c. Staff
- 3. Engineering Study of Stolley Storm Drainage System
- 4. Storm Drainage Construction \$ budgeted under line item “Construct Drainway – CCC to Wood River
- 5. Reporting
  - a. Storm Water Program Management software
  - b. City Administrator’s Monthly Report
  - c. Annual storm water report to NDEQ
- 6. Integrated Capital Improvement Plan for Storm Water Drainage Projects

## **Conclusion**

This item is presented to the City Council in a Study Session to allow for any questions to be answered and to create a greater understanding of the issue at hand.