

# North Greeley & Downtown Stormwater Master Plan

January 28, 2016



**ICON**  
ENGINEERING, INC.

City of  
**Greeley**  
Colorado

# Agenda

1. Background and Flood History
2. Project Area
3. Purpose of this Master Plan
4. Master Plan Progression and Timeline
5. Baseline Hydrology and Hydraulics
6. Community Outreach



# Background & Flood History - 1983



Both photos COG Staff



# Background & Flood History - 2000's



June 2009, Courtesy  
**Greeley Tribune**



August 2008,  
Courtesy  
**Greeley Tribune**

July 2001,  
COG Staff



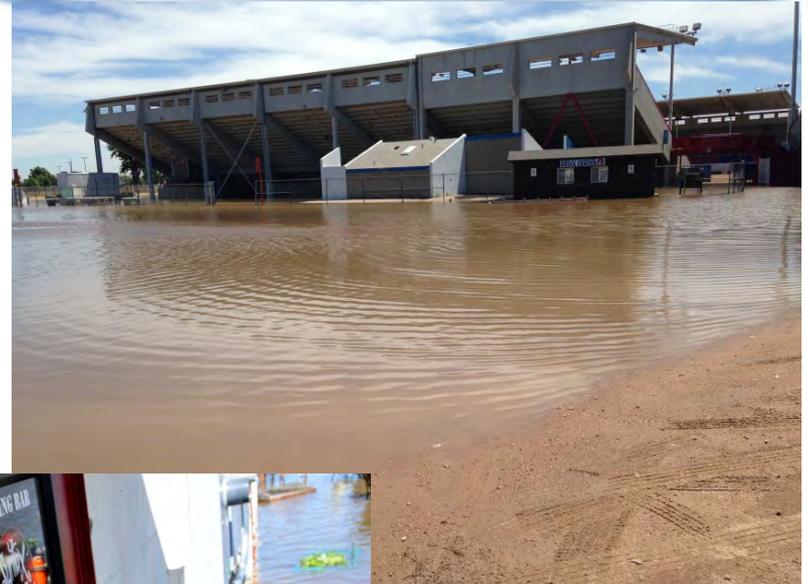
August  
2008,  
Courtesy  
**Greeley Tribune**



# Background & Flood History - June 2014



COG Staff



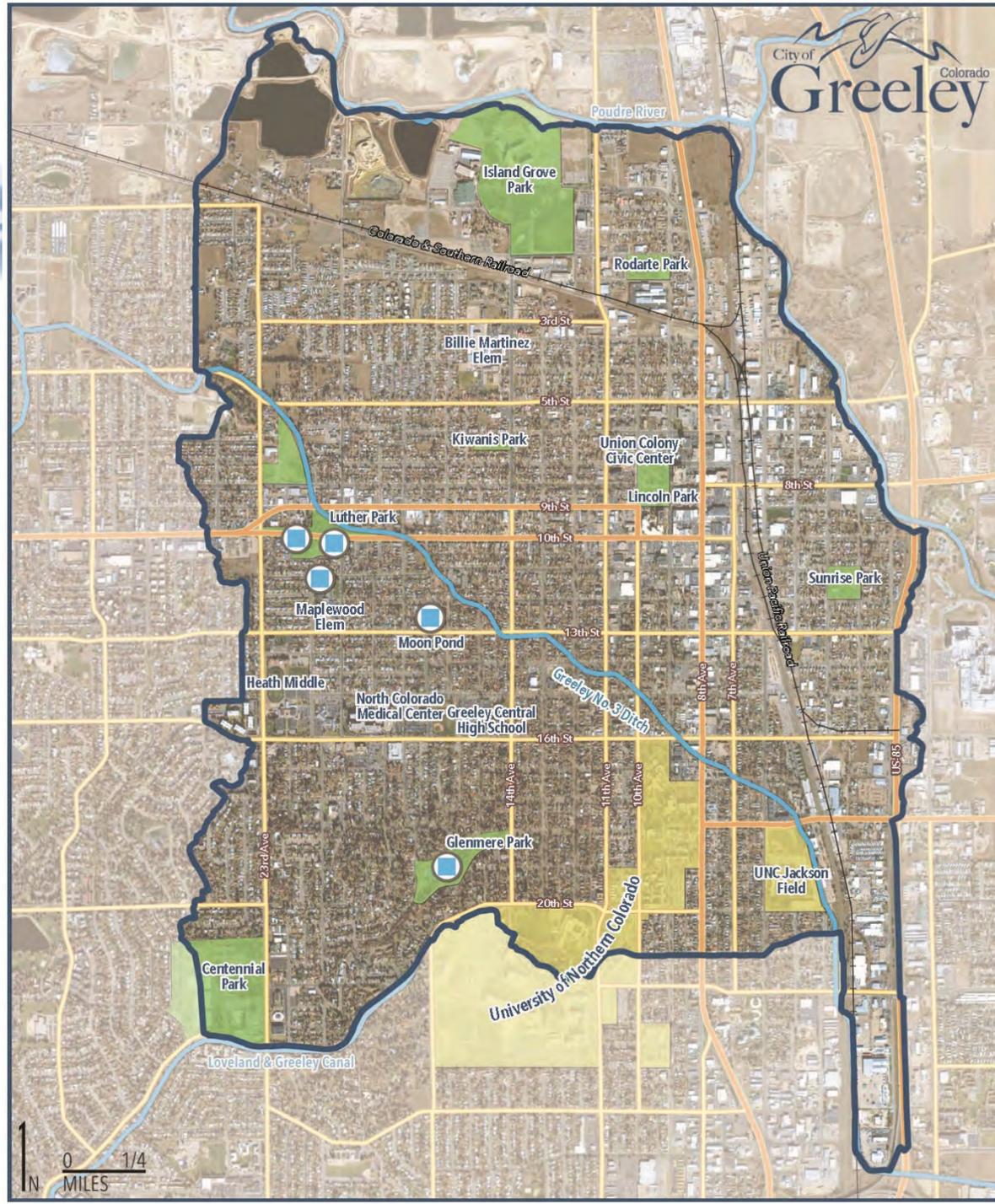
COG Staff



Courtesy Greeley Tribune



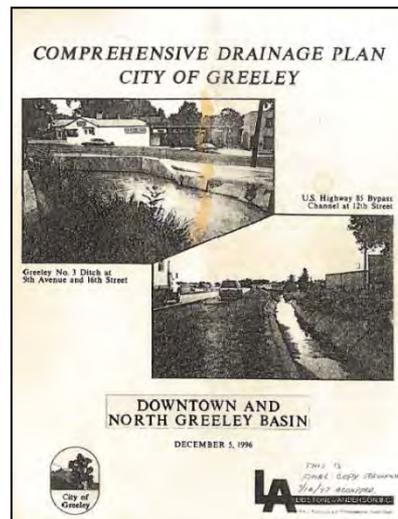
# Master Plan Project Area



# Purpose of this Master Plan

This master plan reviews and updates past studies and reports prepared for the City

- City of Greeley Comprehensive Drainage Plan Downtown and North Greeley Basin Final Report (2005)
- Comprehensive Drainage Plan City of Greeley Downtown and North Greeley Basin (1996)



# Purpose of the Master Plan

This master plan will provide the City a guiding document that will:

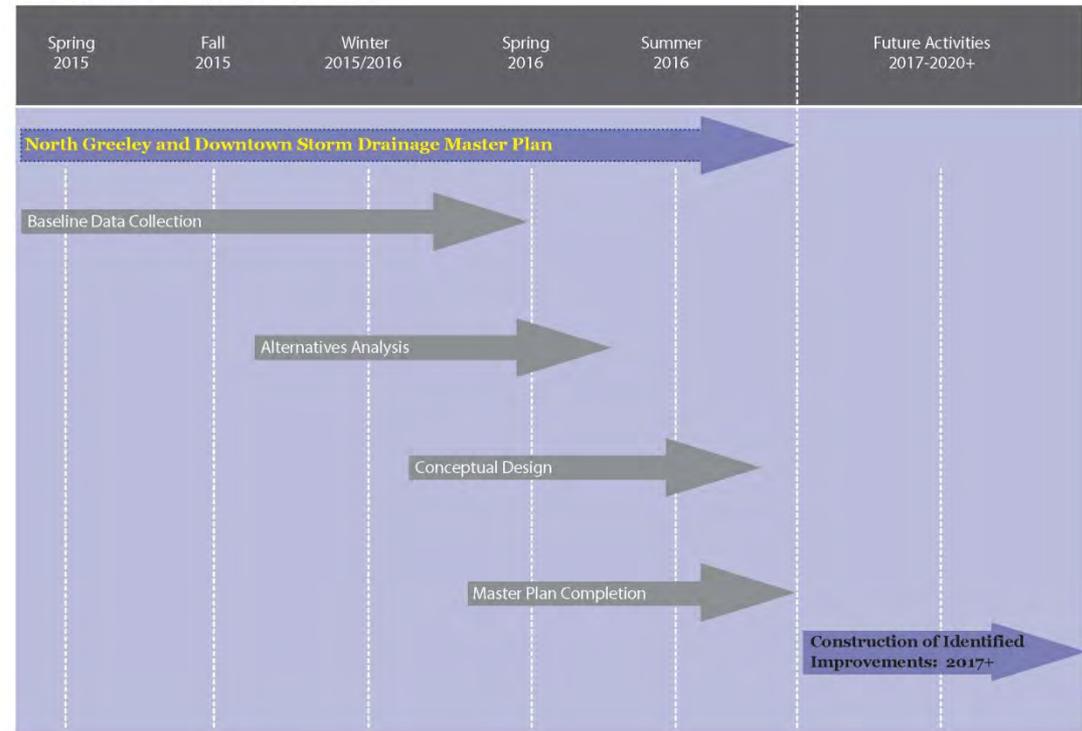
- Quantify stormwater runoff and quantity;
- Identify potential flood risk and hazards;
- Characterize known and potential problem areas;
- Define and prioritize capital improvement projects to reduce flood risk and frequency;
- Recommended improvement to water quality;
- Guide best redevelopment practices



# Progression and Timeline

- Project Kickoff - (May 2015)
- Data Collection & Baseline Analysis - (May 2015 - Jan 2016)
- Alternative Analysis - (Jan - Apr 2016)
- Conceptual Design - (Apr – Jun 2016)
- Study Completion – (July 2016)

Tentative Project Timeline



# Baseline Hydrology & Hydraulics - Helpful Definitions

**Hydrology:** Study of watershed behavior during and after a rain storm

- **Hydrology Terms:**

- Rainfall that reaches the stream is called runoff.
- Increased runoff becomes flood discharge.
- Discharge is the amount of water flowing down a stream, gutter, or storm drain.
- Discharges are measured in cubic feet per second, or cfs.



# Baseline Hydrology & Hydraulics - Helpful Definitions

- **Hydraulics: The physical behavior of water flowing in a stream, gutter, or storm drain**
  - Configuration / shape of the ground and flow path;
  - Roughness of the ground and flow path
  - Identifies how deep and fast the water will flow

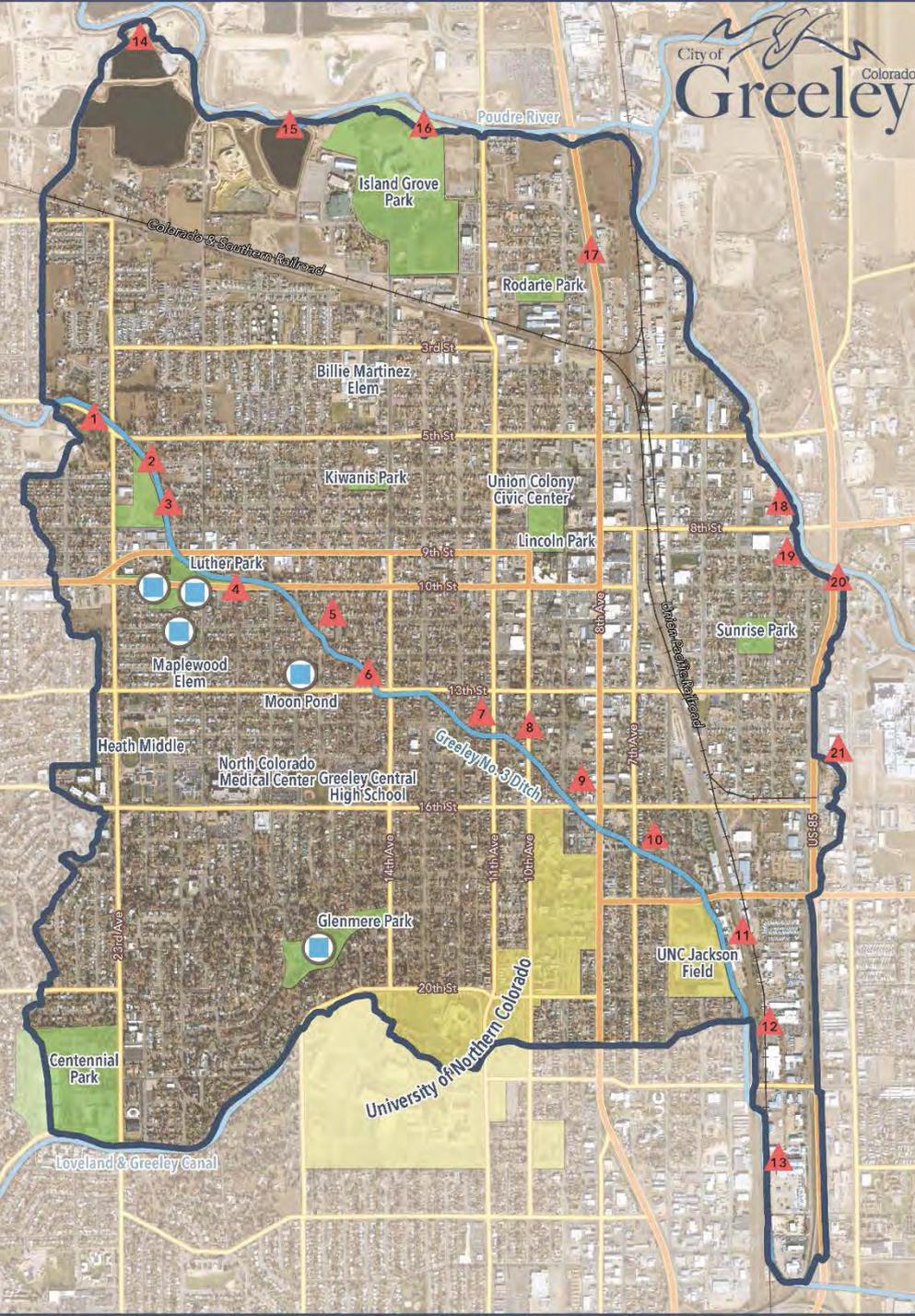


# Baseline Hydrology & Hydraulics - North Greeley and Downtown Watershed Characteristics

- Inlets
- Storm drains
- Open Channels
- Detention Ponds
- Irrigation Canals
- Roadways



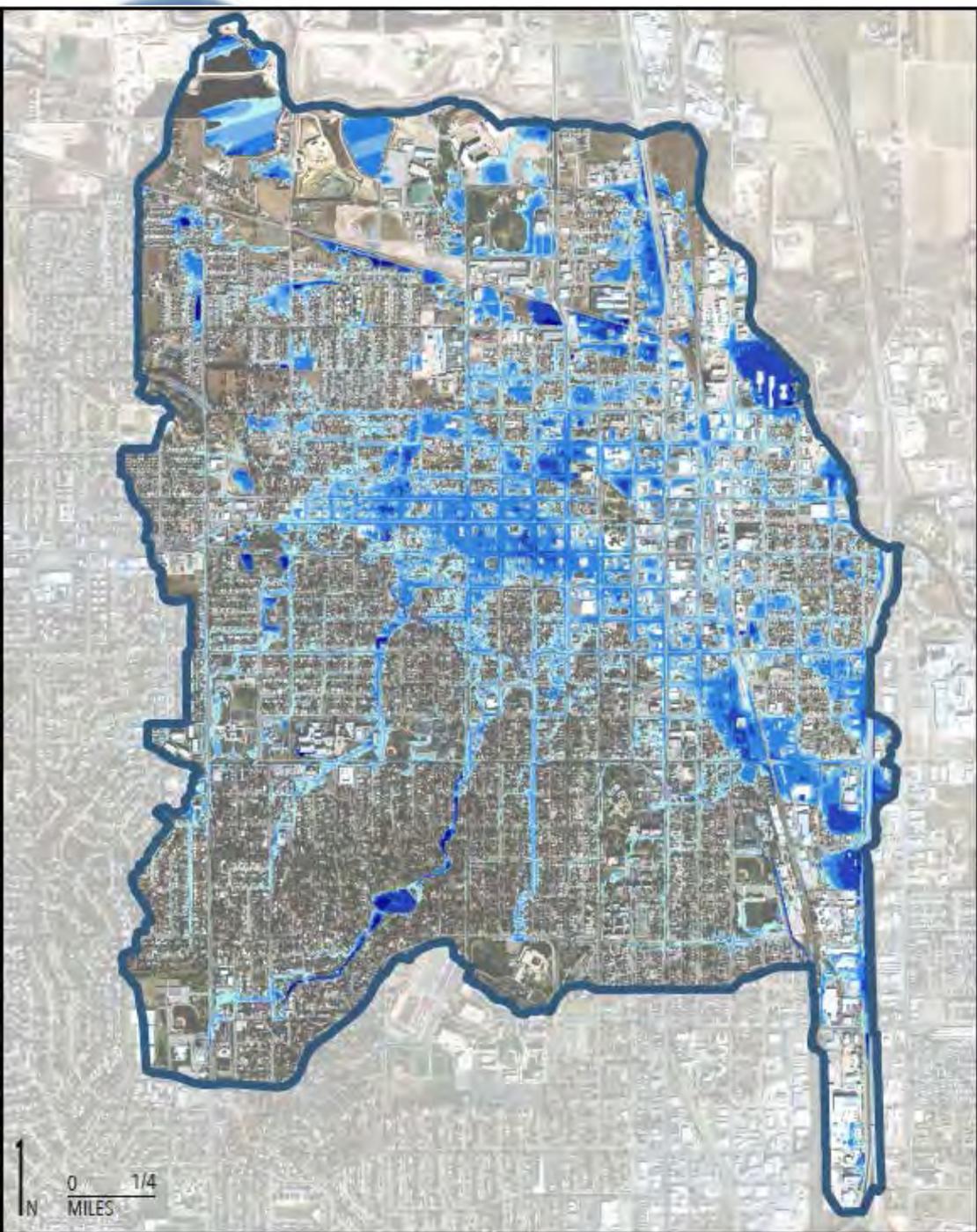
# Baseline Hydrology & Hydraulics - Hydrology Summary



2016 Master Plan Update				
ID	Location of Spill from Greeley No. 3 Canal	2-yr	10-yr	100-yr
1	23rd Ave. & 5th St.	0	0	0
2	5th St. & 6th St.	0	0	48
3	6th St. & 9th St.	0	0	2
4	9th St. & 19th Ave.	2	33	405
5	10th St. & 12th St.	46	213	620
6	12th St. & 13th St.	105	228	543
7	13th Ave. & 11th Ave.	84	151	383
8	11th Ave. & 15th St.	5	29	73
9	15th St. & 8th Ave.	70	90	128
10	8th Ave. & 18th St.	34	66	171
11	East of UNC Physical Plant	0	1	109
12	Upstream of 22nd St.	44	71	169
13	22nd Street & U.S. Highway 85 Bypass	13	16	19

2016 Master Plan Update				
ID	Location of Outfall into Poudre River	2-yr	10-yr	100-yr
14	NW Corner of study	109	239	454
15	Gravel Ponds west of Island Grove Park	81	173	325
16	14th Avenue system	141	229	406
17	1st Street Outfall Area	215	796	2869
18	7th-9th Street	186	306	582
19	2nd Avenue Outfall	123	222	501
20	Highway 85 Bypass Channel	25	28	33
21	Outfall east of study boundary	193	407	1520

# Baseline Hydrology & Hydraulics - Hydraulic Summary



## Legend

Shallow	
Moderate	
Deep	

# Community Outreach

- **City is looking for community input:**
  - Better identify flooding problems
  - Input and support during planning process
  
- **Public Meetings & Workshops:**
  - **Baseline Data Collection (January 2016)**
  - Improvement Alternatives (April 2016)
  - Present Final Plan (June 2016)



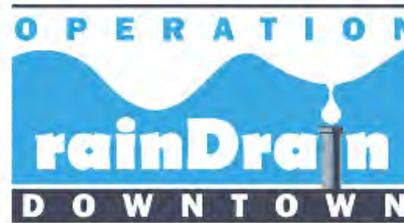
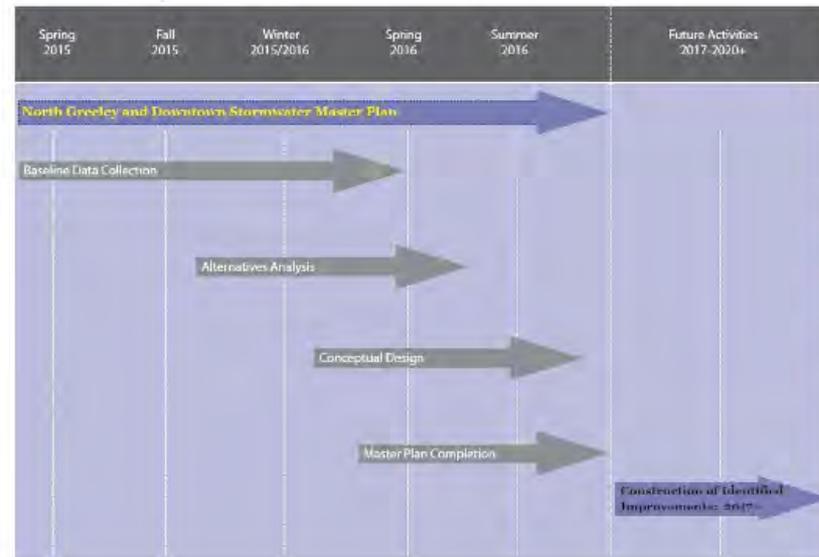
## Downtown Stormwater Master Plan

### Background

The Downtown and North Greeley Basin, approximately 5.2 square miles in drainage area, generally slopes from the south near the University of Northern Colorado campus north to the Cache la Poudre River. The existing storm drain system is undersized throughout the basin, with the frequent flooding causing damages to buildings throughout the watershed, including City Hall in 2001.

The focus of the study is to produce a comprehensive storm drainage master plan to identify and prioritize capital improvement projects, improve water quality, and guide redevelopment within the Downtown and North Greeley Basin.

### Project Timeline



### Contact Us!

We want to hear from you. We have two easy ways for you to comment. Complete our survey or use our interactive map.

[Comment Map](#)

[Survey](#)

### Project Documents

[Project Brochure](#)

[FAQs](#)

### Project Team

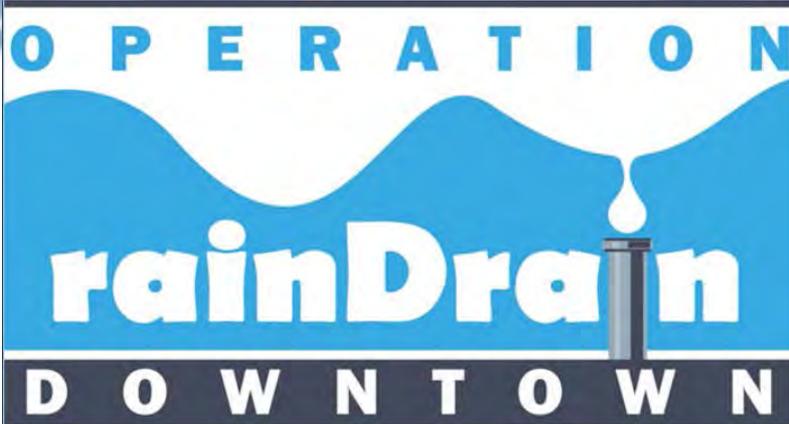
City of Greeley

ICON Engineering



<http://DowntownRainDrain.com>

# Community Outreach - Stormwater Survey



## City of Greeley Stormwater Survey

\* Required

Does your property experience flooding? \*

- Yes
- No

Continue »



12% completed

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# Community Outreach - Community Comment Map

## Greeley Stormwater Master Plan - Community Comments

**Instructions**

Please drag the **RED** marker to your location of interest (you can zoom and pan the map in order to accurately place your marker), and fill out the form in the popup. Please note that once you submit, the marker will turn **PINK** and is no longer movable.

Your comment can be seen in the map, but your personal information will not be visible to the public.

If you wish to make additional comments, drag the **RED** marker again and a new form will become available.

Layers can be turned on and off using the menu button on the left. Flow Depths will appear at zoom levels 16 and greater.

**Legend**

**Flow Depth**

- Shallow
- Moderate
- Deep

Project Limits

Source: [City of Greeley](#)

**Name**

**Email**

**Phone Number**

**Comment**

**Add Comment**

**Greeley**

Flow Depth

- Shallow
- Moderate
- Deep

Project Limits

Source: [City of Greeley](#)

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