

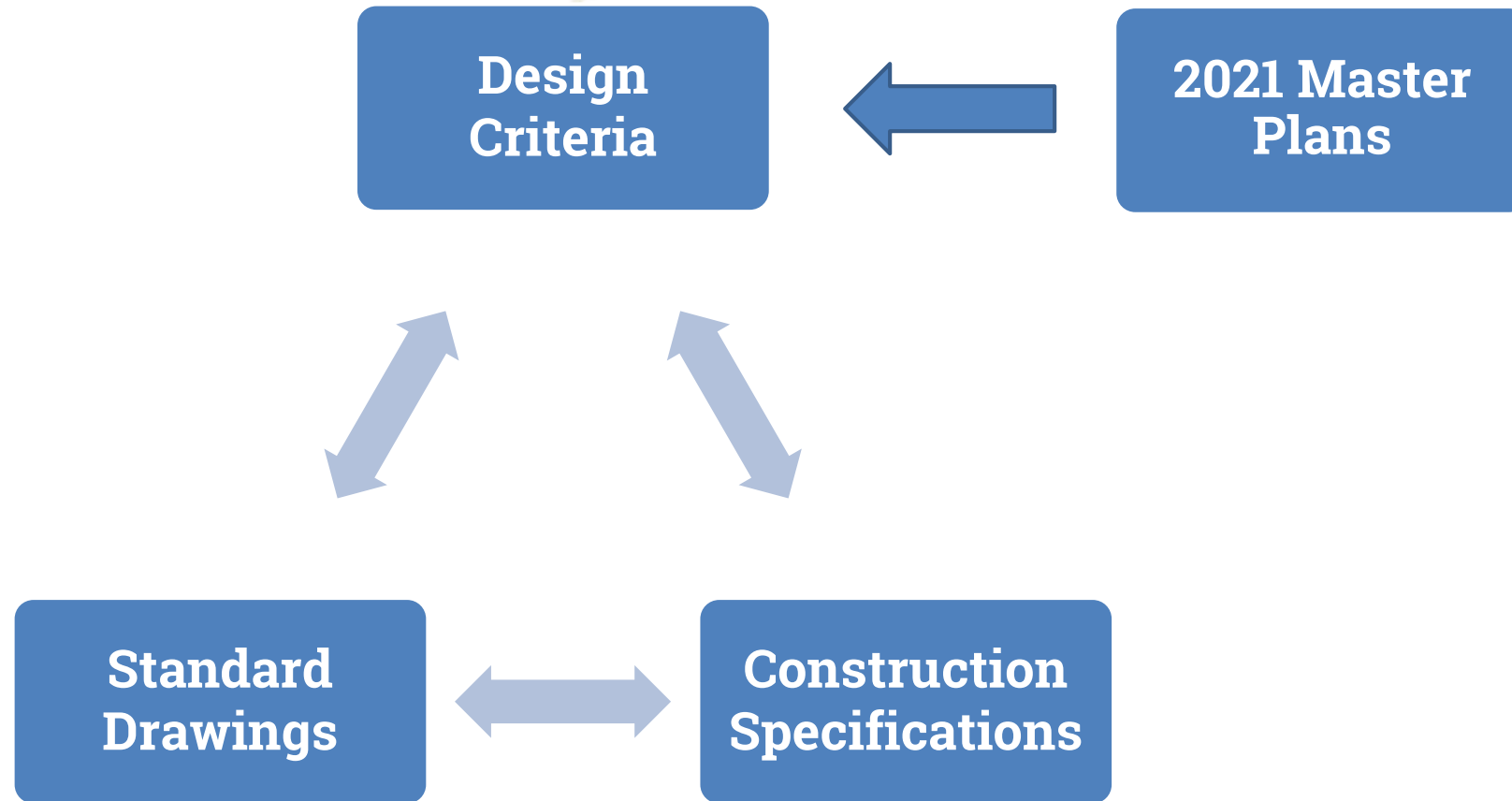
# Update Water & Sewer Design Criteria & Standards

**Presented to  
Water & Sewer Board**

**April 20<sup>th</sup>, 2022**



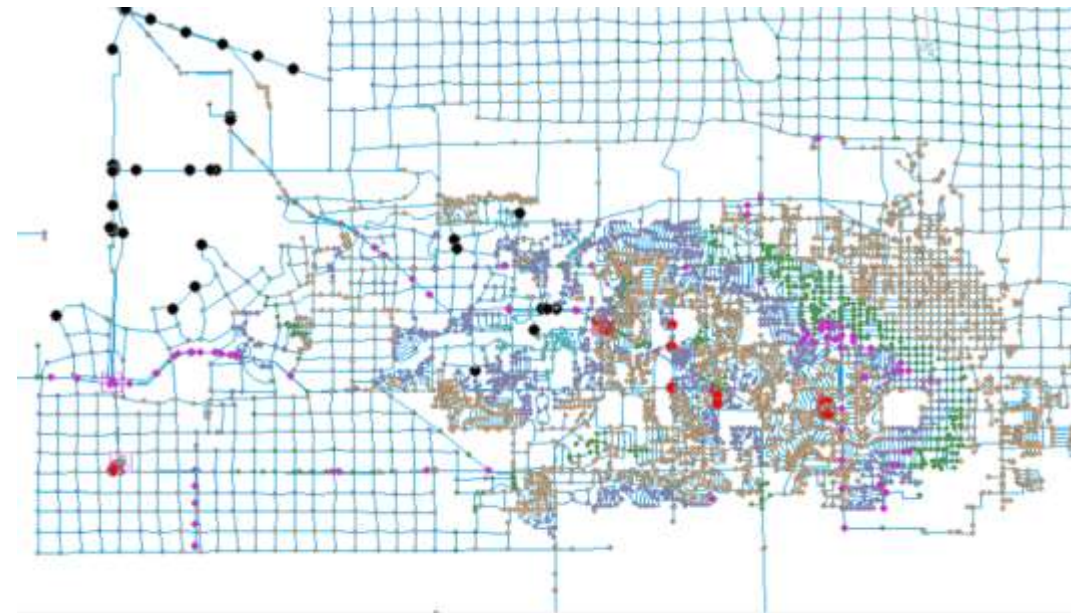
# Process for Updating Water & Sewer Design Criteria & Standards



# Design Criteria

## Goals

- **Alignment with W&S master plans published 2021.**
- **Align criteria with current W&S standards**  
**(Updated technology and equipment)**
- **Consistency across standards**
- **Coordination with other departments**
- **Potential for cost savings and reduced frequency**  
**of project RFI's**
- **Conformance to the new statewide Subsurface**  
**Utility Engineering (SUE) Laws**



# Design Criteria: Section 1

## General Requirements of Development

- **There were no substantive changes to this section**
- **Alignment with Engineering Development Review**



# Design Criteria: Section 2

## Submittal Requirements

- **Hydraulic models in a format that can be integrated with the City's overall models – InfoWater & InfoSWMM**
- **Implementing stricter measurement tolerances for survey verifications and as-built drawings**
- **Provided more detail for reimbursement of oversized public infrastructure, particularly sanitary sewer lift stations and non-potable ponds and pump stations.**



# Design Criteria: Section 3

## Potable Water

- Provides guidance for development when assumptions are made on future customers
- Updated future flows more accurately using zoning, acreages, and building footprints
- Provides new criteria to model water flows for:
  - Commercial parcels based on zoning and acreage
  - Industrial parcels based on zoning and acreage
  - Commercial buildings based on use and area.
- Aligns with wastewater for consistency

Residential			
Zoning based on <i>City of Greeley Charter and Code, Chapter 24.401, Zoning District Development Standards.</i>			
Use	Units Per Acre*	Occupancy	Peak Hour Demand
R-E	3	3.1 persons	1.9 gpm/unit
R-L	5	3.1 persons	1.9 gpm/unit
R-M	10	2.7 persons	1.7 gpm/unit
R-H	20	1.7 persons	1.1 gpm/unit
R-MH	15	1.7 persons	1.1 gpm/unit
*Use these unit per acre values unless specific unit counts are known			
Commercial			
Where uses are known, use the specific demand values. Commercial demands based on 1000 ft <sup>2</sup> of building area unless noted otherwise. Otherwise use the appropriate zoning demand values.			
Use	Average Day Demand without Irrigation		
C-L	1500 gpd per acre		
C-H	3000 gpd per acre		
I-L & I-M	1500 gpd per acre		
I-H	3000 gpd per acre		
Use	Average Day Demand		
Restaurant	500 gpd		
Retail/Offices	200 gpd		
Grocery Store	430 gpd		
Laundry, Dry Cleaning	1000 gpd		
Auto Dealer, Repair/Service	115 gpd		
Car Wash with Water Reuse	1500 gpd		
Hospital	380 gpd		
Hotel/Motel	350 gpd		
Retirement & Nursing Home	350 gpd		
School	12 gpd/student without showers 36 gpd/student with showers		
Religious Building	300 gpd		
Warehouse (Non-industrial)	25 gpd		
Irrigation	25 gpm per acre		

# Design Criteria: Section 4

## Sanitary Sewer

- **Defines wastewater flows for:**
  - **Commercial & Industrial customers based on zoning**
- **Provides guidance for development when assumptions are made on future customers**
- **Calculates future wastewater flows more accurately using zoning, acreages and building footprints**
- **Removes underdrains below sanitary sewer lines**
- **Detailed Lift station criteria**
- **Aligns with potable water for consistency**

Residential			
Zoning based on City of Greeley Charter and Code, Chapter 24.401, Zoning District Development Standards			
Use	Units Per Acre	Occupancy	Average Day Wastewater Flows*
R-E	3	3.1 persons	0.22 gpm/unit
R-L	5	3.1 persons	0.22 gpm/unit
R-M	10	2.7 persons	0.19 gpm/unit
R-H	20	1.7 persons	0.12 gpm/unit
Commercial			
Use		Average Day Wastewater Flows*	
C-L (not specified)		1,500 gpd/acre (minimum)	
C-H (not specified)		3,000 gpd/acre (minimum)	
Retail/Offices		200 gpd/1,000 SF	
Hotels/Motels		350 gpd/1,000 SF	
Restaurants		500 gpd/1,000 SF	
Bars and Lounges		300 gpd/1,000 SF	
Neighborhood Stores		200 gpd/1,000 SF	
Department Stores		200 gpd/1,000 SF	
Laundry and Dry Cleaning		1,000 gpd/1,000 SF	
Banks		300 gpd/1,000 SF	
Nursing Homes		350 gpd/1,000 SF	
Warehouses		25 gpd/1,000 SF	
Car Washes		1,500 gpd/1,000 SF	
Auto Dealer/Repair/Service		115 gpd/1,000 SF	
Grocery Store		430 gpd/1,000 SF	
Religious Buildings		300 gpd/1,000 SF	
Factories		800 gpd/1,000 SF	
Hospitals		380 gpd/1,000 SF	
Schools (without showers)		12 gpd/student	
Schools (with showers)		36 gpd/student	
Industrial			
Use		Average Day Wastewater Flows*	
I-L (not specified)		1,500 gpd/acre	
I-M (not specified)		1,500 gpd/acre	
I-H (not specified)		3,000 gpd/acre	

\*1cfs = 448.33 gpm

Average day wastewater flow per capita = 60 gpcd



# Non-Potable Water Design Criteria

- **Comprehensive**
  - **Covers every aspect of non-pot system design.**
  - **Updated Standards and References.**
- **Easy to Follow**
  - **Simplified & logical progression.**
- **Aligns with NP Master Plan**
- **Regional Systems/Oversizing**
- **Predesign Meetings w/Stakeholders**





# Design Criteria: Section 6 Landscape and Irrigation

## **New Criteria:**

- **Promotes water conservation**
- **Support attractive and sustainable landscapes**

## **Applicable to:**

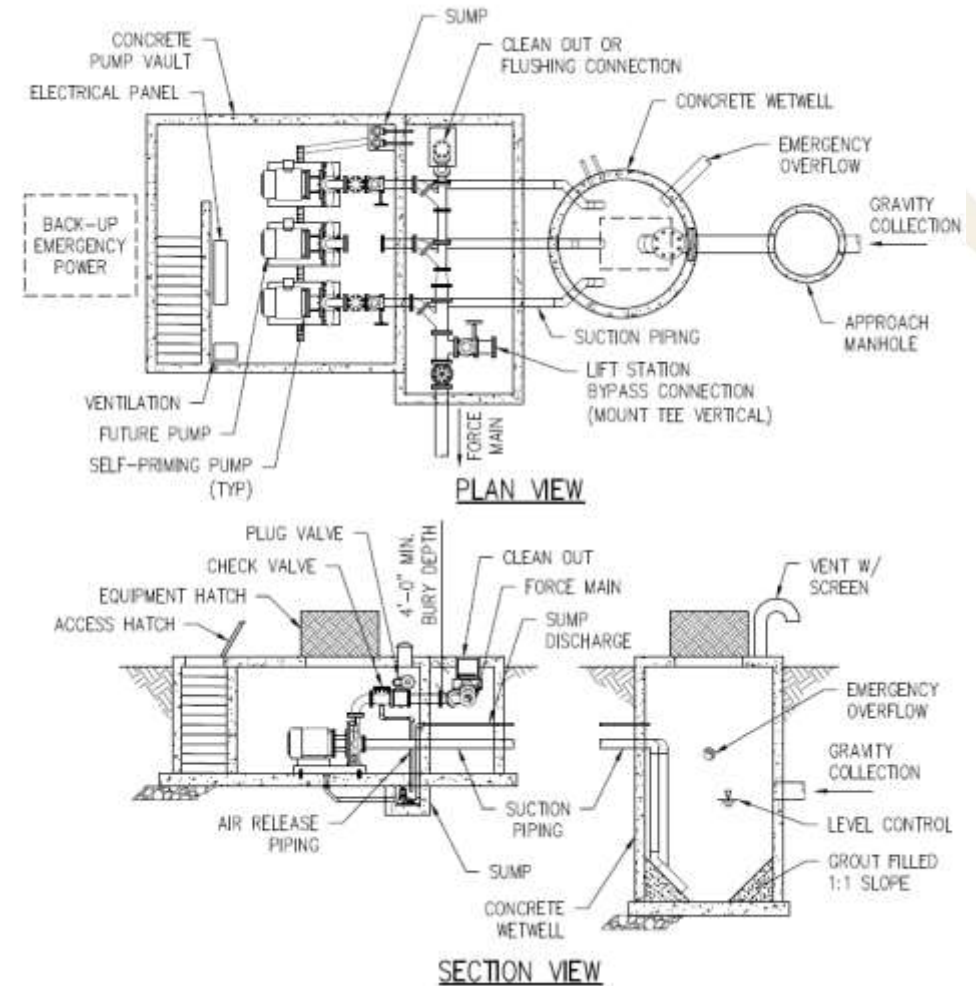
- **Common areas**
- **Right-of-ways**
- **Municipal buildings**
- **Non-residential (commercial/industrial)**
- **Multi-family residential**



# Standard Drawings

## Key Updates

- Updated City Logo
- Condensed meter vault notes across non-potable and potable water meters & added new non-potable meter size drawing
- Added standard lift station drawings to the sanitary sewer subset of standard drawings
- Added “UL” Subset for utility locating details in accordance with the new SUE law in Colorado (SB 18-167)



# Engagement & Review

- **Introduced to Builders, Realtors, Developers - July 19, 2021**
- **Reviewed and Coordinated with other City Departments throughout process**
- **Reviewed by Engineering Development Review**
- **Introductory Meetings with Engineers, Developers, Landscape designers, & Community members - March 2<sup>nd</sup> & 3<sup>rd</sup>, 2022**
- **Presented to Planning Commission to get Input and Feedback - March 8th, 2022**
- **Next Steps**
  - **W&S will review all comments and address questions**
  - **Presentations & Approval by City Council**



# Questions?

