Update Water & Sewer Design Criteria, Standards Details, & Construction Specifications
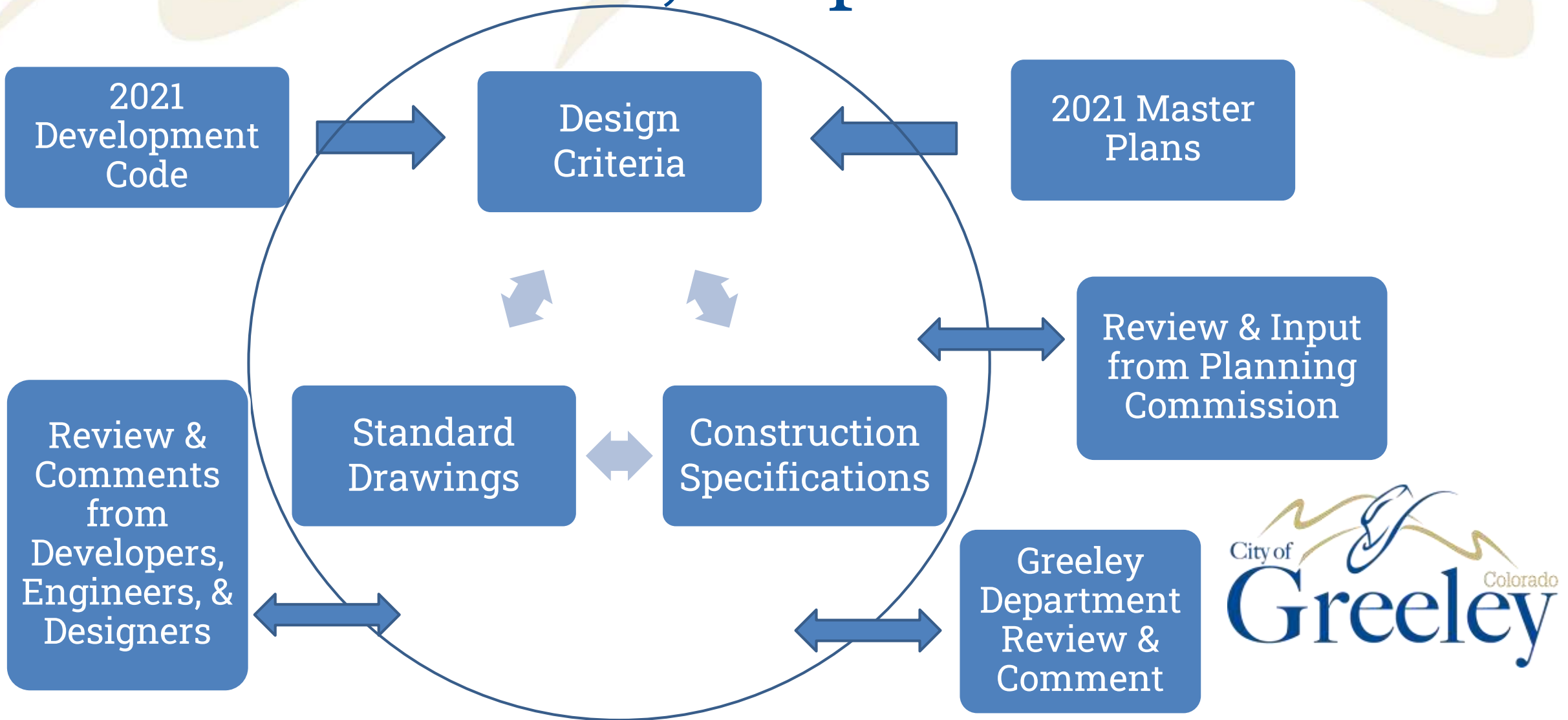
**Presented to
City Council**

August 16, 2022
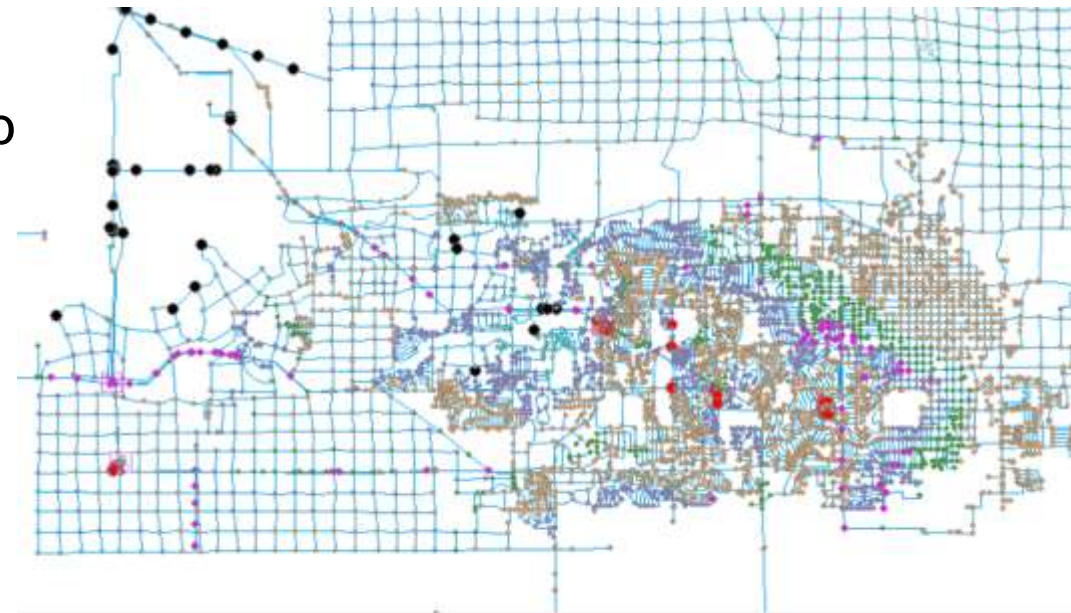
City of Greeley Colorado

Process for Updating Design Criteria, Standards Details, & Specifications

2021 Development Code

Design Criteria

2021 Master Plans

Review & Input from Planning Commission

Review & Comments from Developers, Engineers, & Designers

Standard Drawings

Construction Specifications

Greeley Department Review & Comment

City of Greeley Colorado

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 o 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

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Design Criteria: Section 2 Submittal Requirements

- Hydraulic models in a format that can be integrated with the City's overall models – InfoWater & InfoSWMM

- Updated 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:
  - o Commercial parcels based on zoning and acreage
  - o Industrial parcels based on zoning and acreage
  - o Commercial buildings based on use and area.

Residential			
Zoning based on *City of Greeley Charter and Code*, Chapter 24.401, *Zoning District Development Standards.*			
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 ft² 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
- Detailed Lift station criteria

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.
- Aligns with NP Master Plan
- Regional Systems/Oversizing

Design Criteria: Section 6 Landscape and Irrigation

New Criteria:

- Promotes water conservation

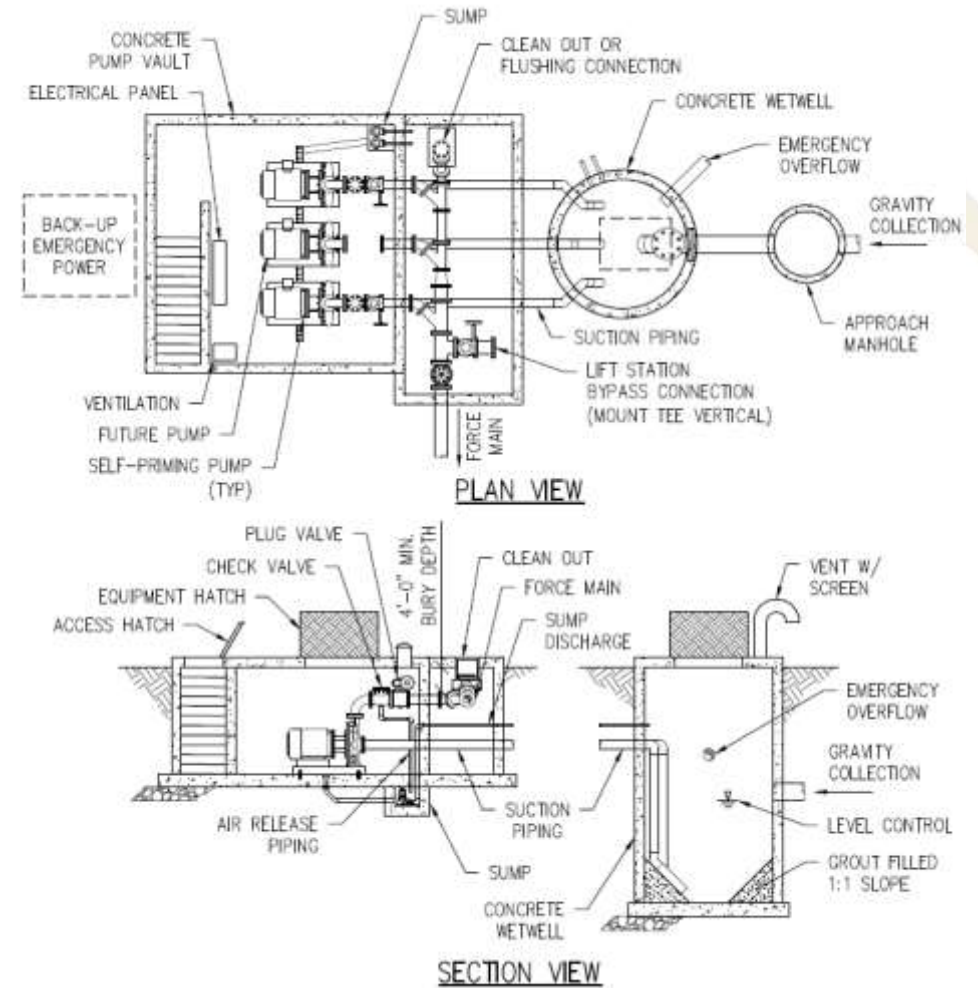- Support attractive and sustainable landscapes

Applicable to:

- Common areas

- Right-of-ways

- Municipal buildings

- Non-residential (commercial/industrial)

- Multi-family residential

Standard Drawings & Specifications

Key Updates

- Consistency across all standards

- Added standard lift station drawings to the sanitary sewer drawings

- Added utility locating details in accordance with the new SUE law in Colorado (SB 18-167)

City of Greeley Colorado

Engagement & Review

- **Introduced to Builders, Realtors, Developers - July 19, 2021**

- **Reviewed and Coordinated with other City Departments throughout process**

- **Reviewed by Engineering Development Review & Civil Inspections Staff**

- **Presented to Planning Commission to get Input and Feedback - March 8th, 2022**

- **Meetings & Review Comments from Engineers, Developers, Landscape designers, & Community members - March to June, 2022**
  - **155 comments and questions tracked and addressed**

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Staff Recommendation

- Water & Sewer Board approved and recommended to City Council on July 20, 2022

- Planning Commission approved and recommended to City Council on August 9th, 2022

- Adopt the ordinance to amend Title 20 of the Greeley Municipal Code concerning the adoption of the Water & Sewer Department Design Criteria and Construction Specification

City of Greeley Colorado

Questions?