

Stormwater Management Design Manual Update

March 4, 2025

City Council First Read

Ordinance #2025-04





Objectives for Tonight



- Project Scoping Exercise
- New Manual Basis
- Intent of Manual
- Peer Review and Public Comments
- Manual Revisions
- Discussion and Questions
- First Read Ordinance #2025-04
- Adopt Resolution and Ordinance



CITY OF FLAGSTAFF

**2025 STORMWATER
MANAGEMENT DESIGN
MANUAL**



Project Scoping Exercise

- Review existing manual (2009) to identify desired changes and deficiencies
- Review options for the new manual
 - a. Edit existing manual – too many edits
 - b. Create new manual – too large, cumbersome
 - c. Create new manual – **adopt from other agencies with adaptation to our community**



New Manual Basis

- Coconino County Drainage Design Criteria Manual - Revised 2020
 - Previous County version was based on City of Flagstaff manual
- City of Flagstaff Manual 2025 then utilized County 2020 version with adaptations to our community
- Adopted Flood Control District of Maricopa County Drainage and Design Manual – Hydraulics
- Hydrology – more regional specific (COF) with references to applicable standards and guidelines from other agencies



Intent of Manual



- Update to current engineering and drainage policies, methods, standards, definitions, and design procedures
- Goals as outlined in the Staff Report



Peer Review and Public Comments

- Initial peer review to over 30 participants - February 19, 2024 to March 12, 2024
- Final peer request extended through April 4, 2024
- Multiple comments received, considered, and incorporated as applicable
- Water Commission review – September 19, 2024
- Open for public comment September 20, 2024 through end of October 2024 - No public comments received



Remains Applicable

- Title 13 City of Flagstaff Engineering Design Standards and Specifications for New Infrastructure
 - Chapter 8 of Title 13 is the new stormwater manual
- Title 12 Floodplains (Floodplain Ordinance)
 - Floodplain Use Permit
 - FEMA Regulations
 - NFIP (National Floodplain Insurance Program)
- Low Impact Development Guidance Manual



Manual Revisions

2009 Manual	2025 Revised Manual	Summary of Revisions
Definitions	Definitions	- Definitions updated as need.
1: Introduction	1.0 General Conditions and Requirements	- Chapter sections updated as needed. - Added more sections including Legal Authority, References, Deviation From Adopted Standards, and a Disclaimer
2: Drainage Reports and Plans	2.0 Drainage Reports	- Chapter sections reorganized and revised as needed. - Sections about stormwater construction plans have been removed. More applicable to Engineering Standards, Title 13.
	3.0 Floodplain Requirements	- City of Flagstaff Administrative Floodplains added. - This chapter was contained in Chapter 2 (Drainage Reports) of the 2009 manual. - Additional information and guidelines provided as needed based on updated floodplain analysis and revision methods.



Manual Revisions

2009 Manual	2025 Revised Manual	Summary of Revisions
3: Hydrology	4.0 Hydrology	<ul style="list-style-type: none">- Revised and updated based on City of Flagstaff updated regional hydrology standards where applicable.- Revised and added information and guidelines as needed based on updated hydrologic analysis methods.- Provided "Quick Reference Guide"
4: Open Channels 5: Culverts and Bridges 6: Pavement Drainage 7: Storm Drains 8: Storage and Detention Facilities	5.0 Hydraulics	<ul style="list-style-type: none">- Adopted FCDMC Hydraulics Manual where applicable.- This chapter compiles Chapters 4 through 8 from the 2009 manual.- Revised and added information and guidelines as needed based on updated analysis methods.- Provided "Quick Reference Guide"
9: Low Impact Development Requirements for Infiltration and Reuse of Stormwater	6.0 Low Impact Development	<ul style="list-style-type: none">- Revised and added information and guidelines as needed based on updated analysis methods.- Clarified policies and added section for previously separate documents: Rainwater Harvesting (updates policy)- Added Reference section to related City of Flagstaff documents.



Manual Revisions

2009 Manual	2025 Revised Manual	Summary of Revisions
10: Erosion Hazard/ Building Setbacks	7.0 Erosion Hazard/ Building Setbacks	- Substantially the same.
11: Erosion and Sediment Control	8.0 Erosion and Sediment Control	- Chapter sections reorganized and revised as needed. - Substantially the same.
12: Energy Dissipators		- Chapter removed and references to other design manuals included in new manual where applicable.
	9.0 Burned Watershed and Post-Wildfire Flooding	- Chapter added to manual based on current and ongoing impacts from regional wildfires.
	10.0 Two-Dimensional Flood Modeling	- Chapter added to manual based on hydrologic and hydraulic analysis methods and technology currently used.

Discussion and Questions

