



# STORM DRAINAGE DESIGN MANUAL UPDATE

February 9<sup>th</sup>, 2017



## REQUESTED ACTION

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**Receive and discuss summary of updates to the Storm Drain Design Manual**

**and**

**Provide staff direction on the public process for adoption of the updated Storm Drainage Design Manual**



# AGENDA

- **What is the Storm Drainage Design Manual?**
- **Current Storm Drain Design Manual**
- **Updated Storm Drainage Design Manual**
- **Adoption Process**
- **Public Outreach and desired town process**



## WHAT IS THE STORM DRAINAGE DESIGN MANUAL?

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- **Day to day document utilized by staff to review drainage improvement plans and stormwater master plans typically for development of private property**
- **Document utilized by developers to design drainage improvement plans for their projects**
- **Includes:**
  - **Acceptable design requirements specific to the Town**
  - **Submittal requirements for drainage plans/reports**
  - **Methods for runoff calculations, retention, etc.**



# CURRENT STORM DRAIN DESIGN MANUAL

- Originally adopted in March of 1987 by Resolution 537
- Uses outdated rainfall data and engineering practices
- Part of Dibble's scope with the Watershed Studies to Update this document

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# UPDATED STORM DRAINAGE DESIGN MANUAL

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- **Incorporates all aspects of Stormwater Management**
  - **Floodplain Management**
  - **Stormwater Management**
  - **Erosion Hazards**
  - **Stormwater Quality**
  - **Low Impact Development**



# UPDATED STORM DRAINAGE DESIGN MANUAL

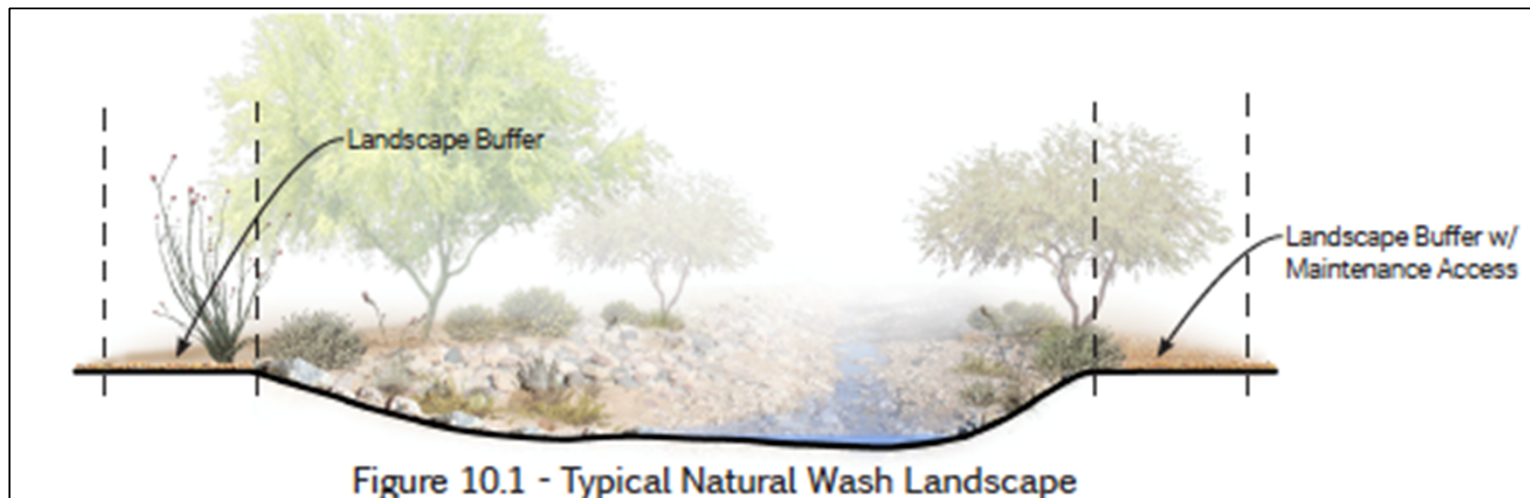
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- **In addition, more specifically provides guidance on:**
  - **Drainage Reports and Plans**
  - **Drainage Easements**
  - **Grading Permits**
  - **Design and Maintenance of infrastructure**
- **All while keeping with the Town's unique character**



# UPDATED STORM DRAINAGE DESIGN MANUAL

- **Coordination of Government Authorities and their Standards (i.e. FEMA, EPA, Corps, ADWR, ADEQ, FCDMC)**
- **Requirements for Stormwater Quality during construction**





# UPDATED STORM DRAINAGE DESIGN MANUAL

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- **Stormwater Quality During Construction**
  - **Provides information to contractors on the Arizona Department of Environmental Quality's process for Notice of Intent**
  - **Storm Water Pollution Prevention Plan requirements and process**



# UPDATED STORM DRAINAGE DESIGN MANUAL

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- **Requirement for First Flush per the Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES)**
  - **Reduces the amount of pollutants entering the storm drain system and subsequent washes and waterways**
  - **Requires first ½ inch of rainfall to be retained and/or "treated" before leaving the site**



## UPDATED STORM DRAINAGE DESIGN MANUAL

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- **Stormwater Storage Volume based on 100 Year 2 Hour Storm for consistency with FCD**
  - **Non-SFR – Retain entire runoff volume**
  - **Flatland SFR's – Retain change in runoff volume due to development**
  - **Hillside SFR's – Retain change in runoff volume with a tiered reduction based on increasing slopes**
- **Certified volume requirement and easements over retention basins**



# UPDATED STORM DRAINAGE DESIGN MANUAL

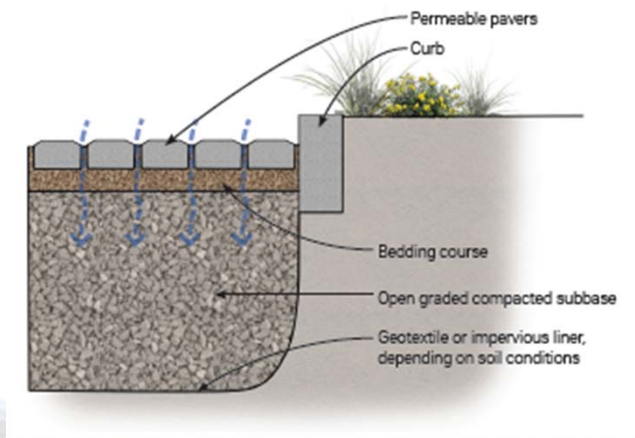
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- **Hillside SFR's – Retain change in runoff volume with a tiered reduction based on increasing slopes**
  - **Lots with Slope 10-20% require 100% retention**
  - **Lots with Slope 20-30% require 50% retention**
  - **Lots with Slope above 30% require no retention**
- **Storage options:**
  - **Basins, underground storage, permeable pavers, LID techniques**



# UPDATED STORM DRAINAGE DESIGN MANUAL

- **Low Impact Development**
  - **Toolbox for homeowners/developers to utilize**
  - **Encourages more natural approach to addressing stormwater management at the source**



# UPDATED STORM DRAINAGE DESIGN MANUAL

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- **Drainage Reports**
  - **Type of reports required for different submittals**
  - **What is required in each report**
- **Drainage Plans and Permits**
  - **When required**
  - **Acceptable methodology and calculations**
- **Grading Permits**
- **On-going maintenance**



# ADOPTION PROCESS

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- **Two part process:**
  - 1. Resolution adopting the amended Storm Drainage Design Manual**
  - 2. Ordinance to change the text of Town Code Section 5-10-3 Storm Drainage Design**



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