

TUCSON ARIZONA
FLOODPLAIN MANAGEMENT PLAN
5-YEAR UPDATE WORKSHOP #3 OF 3
DEMYSTIFYING TUCSON DRAINAGE REGULATIONS
(2025)

ELIZABETH LEIBOLD P.E., CPM, CFM, CIVIL ENGINEER / TUCSON FLOODPLAIN ADMINISTRATION



DEPARTMENT OF
TRANSPORTATION AND MOBILITY

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations

Agenda for Tuesday July 8, 2025, 9:30 AM – 11:30 AM

- **Introductions and sign-in sheet for free raffle drawing**
- **Go over June 2 meeting highlights**
- **Focus on messages that need to be broadcasted**
- **Outreach suggestions / brainstorm additional ideas**
- **FMP exercises**
- **Free Raffle Drawing**



TUCSON STORMWATER MANAGEMENT STUDY

The Floodplain Management Plan
is Phase V of TSMS

TSMS Subtask V.b.viii: Demystifying
Tucson Drainage Regulations



FLOODPLAIN MANAGEMENT PLAN

TSMS Phase V(a)

December 8, 2020



Last meetings for Demystify we:

- ✓ Talked about the FMP process
- ✓ Acknowledged Floodplain Champions
- ✓ Went through key messages that we wanted broadcasted
- ✓ Talked about ways to improve City's Flood Outreach
- ✓ Highlighted the Floodplain Management Hub Site
- ✓ FMP Exercises
- ✓ Raffle

Tucson Floodplain Management Plan 5-year Action Item Update for TSMS Subtask - Working Groups:

- 1) Creating Online App / GUI for the Tucson Drainage Manual
- 2) Software Parameter Requirements for City of Tucson Drainage Submittals
- 3) Retrofitting Existing At-Risk Sanitary Lines
- 4) Human Access Controls for Stormdrain Systems
- 5) M.E.O.W. – Maintain & Enhance; Outreach for Watercourses
- 6) Describing Scenarios for Flood & Erosion Emergency Response Exercises
- 7) Outreach Suggestions for Demystifying Tucson Drainage Regulations**



Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations

Workshop 7) Demystifying Tucson Drainage Regulations

[TSMS Subtask: Phase V.b.vii]

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations

Workshop - Demystifying Tucson Drainage Regulations

Purpose: to promote clarification of City of Tucson drainage regulations & any upcoming Floodplain Ordinance (FPO) updates, increase resiliency, and better broadcast important flood and erosion hazard safety messages.

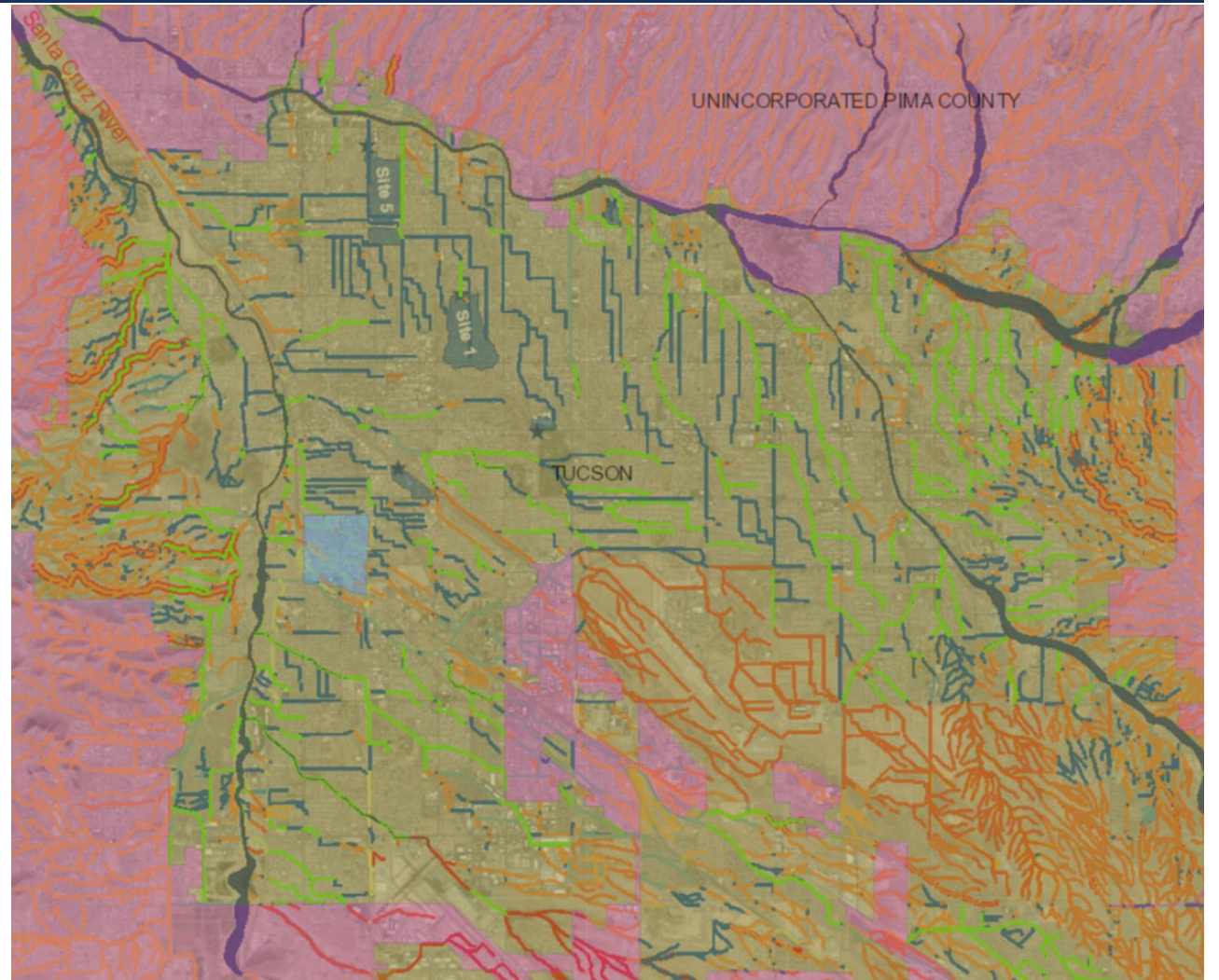
City of Tucson will use the preliminary information that comes from the first workshop to meet with the various City of Tucson Public Information Office staff to help develop outreach.



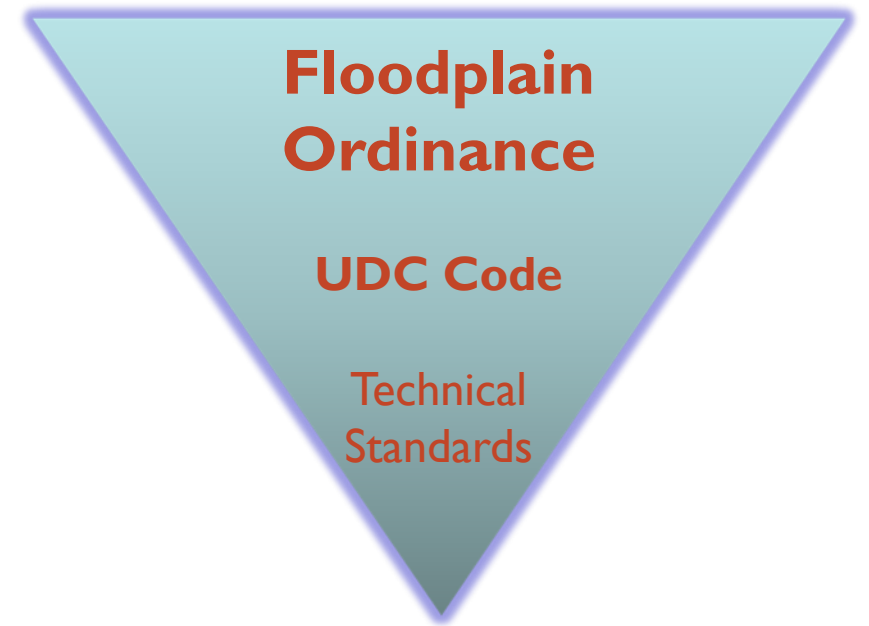


Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations General Hydrology of the Tucson Area

- Flow pattern – generally SE to NW
- Soils types are different than other areas in So Az – hydrologic soil groups C & D and caliche are harder soils so percolation can be slower.
- Sustainable approach: Detention Design (R2D2)



Tucson TSMS 5-Year FMP Action Item Update
Demystifying Tucson Drainage Regulations
Regulatory Hierarchy





City of Tucson's highest
floodplain code is the
City's Floodplain
Ordinance.

ALP Sec. 26-5.2. Floodway fringe de x +

code library.amlegal.com/codes/tucson/latest/tucson_az/0-0-0-19333

American Legal Publishing eCodeALP

2024 S-144 (current)

Chapter 26 FLOODPLAIN, STORMWATER, AND EROSION HAZARD MANAGEMENT*

ARTICLE I. IN GENERAL

DIVISION 1. FLOODPLAIN AND EROSION HAZARD AREA REGULATIONS

Sec. 26-1. Purpose.

Sec. 26-1.1. Authority.

Sec. 26-1.2. Applicability.

Sec. 26-1.3. Basis for establishing areas of special flood hazard.

Sec. 26-1.4. Methods of reducing flood losses.

Sec. 26-2. Definitions.

Sec. 26-3. Floodplain boundaries, elevations.

Sec. 26-3.1. Floodplain boundary and flood elevation revisions.

Sec. 26-4. Statutory exceptions.

Sec. 26-4.1. Nonconforming development.

Sec. 26-5. Floodplain and erosion hazard area development.

Chapter 26
FLOODPLAIN, STORMWATER, AND EROSION HAZARD MANAGEMENT*

* **Editors Note:** Ord. No. 5777, § 1, adopted May 23, 1983, repealed ch. 26, pertaining to swimming pools, bath houses and bathing places, in its entirety. Former ch. 26 was derived from Ord. No. 3002, § 2, adopted June 26, 1967, as amended by Ord. No. 5722, §§ 1, 3, adopted Feb. 28, 1983. Ord. No. 5802, § 1, adopted July 5, 1983, specifically repealed Ord. No. 5722, §§ 1, 3, from which §§ 26-70 and 26-72 had been derived. For a complete sectional disposition, see the Code Comparative Table at the back of this volume.

Subsequently, Ord. No. 7407, § 5, adopted June 25, 1990, added a new ch. [26](#).

Note: Ord. No. 10209, § 1, adopted Oct. 18, 2005, amended the title of ch. [26](#) to read as herein set out. Prior to inclusion of said ordinance, ch. [26](#) was entitled, "Floodplain and Erosion Hazard Management."

Cross References: Spa/pool code, § [6-181](#) et seq.

Art. I. In General, §§ 26-1--26-19

Div. 1. Floodplain and Erosion Hazard Area Regulations, §§ 26-1--26-19

Art. II. Stormwater Management, §§ 26-20--26-48

Div. 1. Purpose and Definitions, §§ 26-20--26-29

Div. 2. Powers and Duties, §§ 26-30--26-39

Div. 3. Prohibitions, Non-Prohibited Discharges, and Requirements, §§ 26-40--26-46

Div. 4. Enforcement, §§ 26-47, 26-48

Article I. In General

Division 1. Floodplain and Erosion Hazard Area Regulations

Sec. [26-1](#). Purpose.

Sec. [26-1.1](#). Authority.



Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations City of Tucson Riparian Floodplain Requirements

Tucson Flood, Stormwater, Erosion Hazard Management Plans

Tucson Code – Floodplain Ordinance

Tucson infiltration requirements

Tucson basin volume & routing requirements

UDC Overlay Code – ERZ Overlay

Tucson Code Chapter 29 Article 8 – W.A.S.H. Ordinance

Technical Standards – 4-01 through 4-04, 10-01

Tucson Code Chapter 11



Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Other City of Tucson Regulations which may Impact Riparian Floodplain

- Besides the Floodplain, Stormwater, and Erosion Hazard Management Code, other Mayor and Council approved regulations include: various chapters in the Tucson Code (W.A.S.H. Ordinance), Plan Tucson, Unified Development Code (UDC), UDC Overlays (ERZ), Technical Standards (Grading, Hydrology) and other Tucson regulations
- Technical regulations such as: City of Tucson Drainage Manual, Detention / Retention Manual, and other Technical Standards
- NOI Authorization for grading issued by Arizona Department of Environmental Quality (Arizona Pollutant Discharge Elimination System (AZPDES MS4, Deminimus, Pesticide Permit, Construction General Permit)
- Other regulatory impacts: understanding HUD's new Federal Flood Risk Management Standard (FFRMS) regulations)
- Policies and Active Practice Guidelines such as Green Streets Active Practice Guidelines (APG) requires all road projects to incorporate performance goals wherever possible.

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations City of Tucson Drainage Manual

One of the prominent features of suburban and metropolitan Tucson is the network of coalescing urban watercourses and drainageways extending throughout the basin. In fact, these urban watercourses and drainage systems are just as significant a part of the total fabric of our community as are the roadways, linear parks, and the residential and non-residential neighborhoods which serve as vital, interconnected components of the overall urban environment of the City of Tucson. Unfortunately, the overall importance of an urban watercourse is often overlooked, and the full potential for utilizing this important land resource is often not fully realized by land planners and civil engineers.

Urban watercourses serve numerous complementary purposes, such as providing a primary pathway for the conveyance of stormwater runoff; reducing downstream flood peaks by temporarily detaining floodwaters in the shallow flood plains or overbank storage areas naturally found along the unchannelized and/or underfit portions of watercourses; providing open space within the otherwise possibly congested urban environment; providing areas for the either the preservation or the re-establishment of natural, riparian vegetation, thereby preserving wildlife habitat and movement corridors for native and introduced animal species; and providing a suitable location to accommodate future trail systems adjoining the watercourses for the enjoyment of pedestrians and bicyclists.

In an effort to improve the appearance and to encourage multi-purpose uses of important urban watercourses in our community, the design of drainageways and channels should be done in the context of the entire urban environment, and not just as a single-purpose project.

STANDARDS MANUAL FOR DRAINAGE DESIGN AND FLOODPLAIN MANAGEMENT IN TUCSON, ARIZONA

**DECEMBER, 1989
(REVISED JULY, 1998)**



*Prepared for
City of Tucson
Department of Transportation
Engineering Division*

*Prepared by
Simons, Li & Associates, Inc.*

Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Maintenance



Drainage Facility Annual Maintenance

Drainage basins and other drainage facilities in both commercial, residential subdivisions, or other developments are **required to be inspected annually** at minimum, by a Civil Engineer hired by the HOA, or other appointed oversight group, to assure that the drainage basins and drainage facilities function to City standards and codes. (City of Tucson Technical Manual Section 4-04.1.5, 14.3.)

Some HOA's have their annual inspection and report performed in late summer or in the fall and then use the recommendations to clean and repair damage after monsoon season, or perform the annual inspection report and repairs in early spring in preparation for next monsoon.

List of maintenance requirements or guidelines specific to your subdivision are typically found in the subdivision's drainage report, on the Final Plat, and/or in the subdivision's Covenants, Conditions, and Restrictions (CC&R's).

If the HOA has not been maintaining their drainage facilities, the HOA can begin by hiring a Civil Engineer to perform an inspection of the subdivision and watershed areas. They typically will research the approved grading plan and drainage report to see if there are changes from the originally approved plans and determine which areas may need maintenance/ attention. As a suggestion, the City of Tucson recommends asking your engineer to provide the HOA with clearly described options, if more than one is available, to address each correction. That way the HOA can discuss the costs and/or recommendations and vote on or discuss the options if needed. Addressing the maintenance items quickly is important as problems can compound and created increased potential for flood, erosion, or other hazards, as well as liability issues. Violation letters or other penalties may also be sent if maintenance is not being performed. (Reference: Tucson Code Chapters 11 and 26 Article I.)

List of commonly found drainage problems for basins and other subdivision drainage facilities:

- | | |
|--|---|
| <input type="checkbox"/> Broken / damaged scuppers | <input type="checkbox"/> Sediment reducing capacity or flow |
| <input type="checkbox"/> Clogged / damaged inlet or outlet | <input type="checkbox"/> Shopping carts |
| <input type="checkbox"/> Damaged / failing embankment | <input type="checkbox"/> Side bank or spillway erosion |
| <input type="checkbox"/> Debris, contaminants, or trash | <input type="checkbox"/> Sinkholes, tunneling, or piping |
| <input type="checkbox"/> Erosion at outlet or inlet areas | <input type="checkbox"/> Stagnant or ponding water |
| <input type="checkbox"/> Erosion undercutting or scour | <input type="checkbox"/> Watershed change or breach |
| <input type="checkbox"/> Overgrown vegetation | <input type="checkbox"/> Weeds (ie illegal buffelgrass, etc.) |

In some cases, the Final Plat may indicate that a certain watercourse or drainage improvement is maintained by the City of Tucson (publicly maintained drainage infrastructure), in which case the City should be contacted if there are any issues found or if there are any breaches in the watershed area of the subdivision. In other cases, Final Plats may also indicate for some subdivisions that the drainage facilities are privately maintained, which generally require maintenance by HOA management.

Except for large-scale, regional detention/retention basins, the City of Tucson shall not accept small-scale, local detention/retention basins for operation, maintenance, or liability. However, a basic inspection is performed by the City staff annually to see whether there are basic maintenance issues to address, and letters are sent to the HOA for those basins that are seen to have general issues. This inspection is usually not performed by a City of Tucson Civil Engineer and does not take the place of the HOA requirement to perform the annual maintenance inspection and report by their hired Civil Engineer. The City inspections typically will look for basin issues only, not at other drainage facilities. City Drainage Inspector will look for general issues such as overgrown vegetation, weeds, ponding, debris, trash, and other evident issues that may be seen by a quick inspection that may only include driving by the basin. To clarify and reiterate, City inspections do not take the place of the required annual inspection to be performed by a civil engineer that would be hired by property owners / HOA.



Homeowners' or Business Owners' Association shall be established for all subdivisions in order to create the authority and responsibility for maintaining private basins, small washes and private constructed channels within the subdivision.

Owner or owners of a **subdivision or any development** that has private basin(s) or private drainage facilities shall be solely responsible for operation, maintenance, and liability for these drainage structures and retention/detention basins.

Professional Civil Engineer, registered in the State of Arizona, shall be retained by Association / Owner(s) at least once a year, and also following any damaging floods, in order to inspect and certify compliance with drainageway(s), detention/retention basin(s), and/or other drainage facilities, for maintenance-inspection criteria based on approved drainage report and grading plans for the development or subdivision, per City of Tucson Technical Manual Section 4-04.2.3.1.6.C & 4-04.14.

The owner or owners shall have an Arizona Registered Professional Civil Engineer prepare a certified inspection report for the drainage and detention/retention facilities at least once each year, and that copies of these Engineer's regular or annual inspection reports and certifications of compliance will be kept on file by the Association/Owner(s), for review by City staff, upon written request.

Per Technical Manual Section 4-04.14, City staff may periodically inspect detention / retention basins or other drainage facilities to verify that scheduled and unscheduled maintenance activities are being performed adequately. Owner or owners shall reimburse the City for any and all costs associated with maintaining the drainage and detention/retention facilities, should the City find the owner or owners deficient in their obligation to adequately operate and maintain their facilities.

The certified annual inspection report shall contain at minimum the following summaries:

a) A statement saying that either no maintenance work is needed at that time, or a list of repairs and work to be done to correct deficiencies, to avoid potential problems, and/or to restore the aesthetics. Also state that this work shall be followed by a Letter of Certification from an Arizona Registered Professional Civil Engineer verifying that the recommended work has been satisfactorily completed. The Engineer shall notify the City Engineer, in writing, should safety-related maintenance not be completed within a reasonable period of time.

b) A statement either indicating that watershed conditions have not changed since the previous inspection report, or stating that specific changes have occurred which alter or eliminate some of the design features - thereby affecting the level of service of the drainage and detention/retention systems. In addition, the City Engineer is to be immediately notified, in writing, if watershed conditions have changed to the extent that drainage and detention/retention systems no longer satisfy the requirements of the City of Tucson Floodplain Regulations.

Other questions regarding private drainage facility maintenance requirements or researching subdivision information, may be directed to City of Tucson PSDS Engineering Division 520-791-5550. Come to 201 N Stone Av 1st Floor City of Tucson, Engineering Counter – go to website for office hours: <https://www.tucsonaz.gov/pdsd> Or contact City of Tucson Floodplain Administration at Department of Transportation & Mobility Engineering Division on the 4th floor 201 N Stone Av for other flood/erosion questions. TucsonFloodErosionInfo@tucsonaz.gov

Maintenance responsibility
and
special requirements

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations Tucson Floodplain Ordinance – TC Chapter 26 Article I Section 26-5

Sec. 26-5.1. Floodway development.

Development in the floodway shall:

- (1) Conform to adopted city land use plans for the design of public and private development in the floodplain.
- (2) Not result in damage to public facilities as a result of erosion or flooding events.
- (3) Not generate adverse impacts (including but not limited to erosion) upstream or downstream.
- (4) Not unnecessarily alter riparian habitats of watercourses and adjacent bank areas.
- (5) Not increase the base flood elevations. Certification by a registered professional civil engineer shall be provided that demonstrates that the encroachment shall not result in any increase in flood levels during the occurrence of the base flood

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations Tucson Floodplain Ordinance – TC Chapter 26 Article I Section 26-5

Sec. 26-5.2. Floodway fringe development.

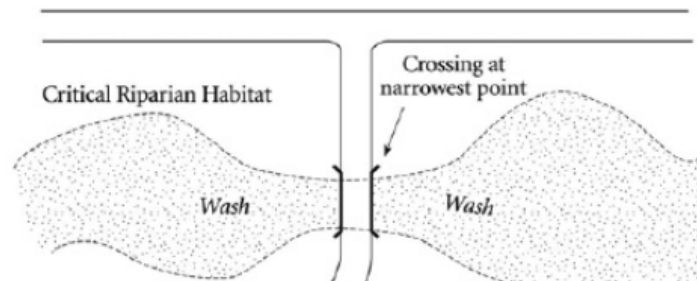
No development, storage of materials or equipment, or other uses shall be permitted which, acting alone or in combination with existing or future uses, create a danger or hazard to life or property. Development in the floodway fringe shall:

- (1) Conform to adopted city land use plans for the design of public and private development in the floodplain.
- (2) Not result in damage to public facilities as a result of erosion or flooding events.
- (3) Not generate adverse impacts, including but not limited to erosion, upstream or downstream.
- (4) Not unnecessarily alter riparian habitats of watercourse and adjacent bank areas.
- (5) Not increase the base flood elevation more than one-tenth of a foot, as measured from the property boundary.
- (6) Not result in higher floodwater velocities which significantly increase the potential for flood or erosion damage.
- (7) Not significantly increase channel or bank erosion.
- (8) Use, where appropriate, native and/or adaptive landscaping to enhance the open space character of the floodway fringe.
- (9) Place the lowest (including basement) floor one (1) foot above the base flood elevation. In an AO Zone, residential construction new or substantial damage repairs or improvements shall have the lowest floor including basement elevated to or

A. Standards

The following standards are required as part of the [mitigation](#) plan, when applicable. They are also required for any allowed encroachment into [critical riparian habitat areas](#) . Encroachment that may be allowed is limited to [utilities](#) , [roadway improvements](#) , walkways, or bike paths.

1. [Roadway](#) , bike path, and walkway [improvements](#) and utility encroachments into [critical riparian habitat areas](#) are limited and approved only if there are no other alternatives in the design of the [project](#) . Where allowed, [roadway](#) , bike path, and walkway [improvements](#) and utility encroachments shall cross [critical riparian habitat areas](#) and not run parallel to the [critical riparian habitat](#) .
2. Where [roadway](#) , bike path, and walkway [improvements](#) are allowed to encroach into [critical riparian habitat areas](#) , they are allowed only at the narrowest point of the [critical riparian habitat](#) . (See [Figure 5.7-C.](#))



FLOODPLAIN ENCROACHMENT THAT MAY BE ALLOWED
IS LIMITED TO UTILITIES, ROADWAY IMPROVEMENTS,
WALKWAYS, OR BIKE PATHS.





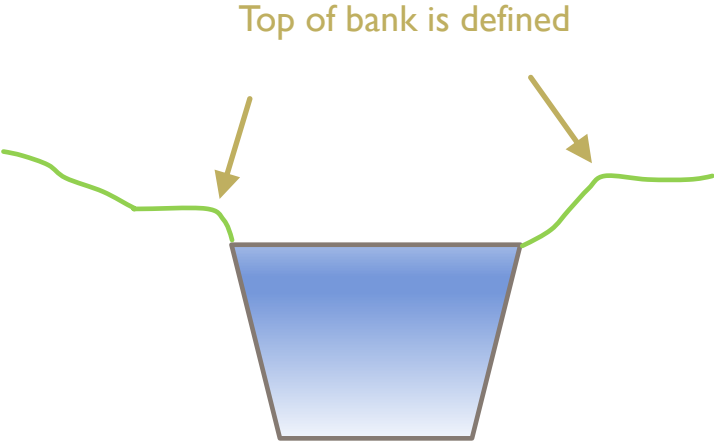
Tucson TSMS 5-Year FMP Action Item Update
Demystifying Tucson Drainage Regulations
W.A.S.H. Ordinance
TC Chapter 29 Article VIII

ARTICLE VIII.
WATERCOURSE AMENITIES, SAFETY AND HABITAT

Sec. 29-12. Purpose and intent.

Washes within the urbanized areas of the city in which existing vegetation is maintained are valuable nature resources that contribute to the health and well-being of the residents of the city. Such washes assist in groundwater recharge, support wildlife habitat, and provide natural open space areas. These regulations are specifically intended to accomplish the following:

- (a) Maximize opportunities for groundwater recharge through the preservation of specific washes with earthen channels and banks.
- (b) Protect existing vegetation found within and near specific washes.
- (c) Provide for the restoration of vegetation disturbed as a result of development in and adjacent to specific washes.
- (d) Assist in the reduction of the urban heat island effect by retaining existing vegetation and minimizing structural improvement of urban washes.



Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations SCENIC CORRIDOR ZONE - UDC 5.3.6

5.3.4. SCENIC ROUTE **BUFFER AREA**

A. Requirement

1. A buffer area 30 feet wide, adjacent to the MS&R future right-of-way line , is required and shall be preserved and maintained in its natural state;

C. Drainageways shall be maintained in their natural states when possible, and the discretionary authority shall be exercised only under unusual circumstances. In situations where the discretionary authority is exercised by the City Engineer or designee, modifications shall be in accordance with the “Floodplain, Stormwater, and Erosion Hazard Management Regulations.”

Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Grading permits are Required for Ground Disturbance where Drainage may be Altered.

TS Sec.2-01.2.2 Grading Standards

2.2 Exceptions



A [grading](#) permit is not required for the following:

- A. When approved by PDSD, [grading](#) in an isolated, self-contained area if there is no danger to private or public property;
- B. An [excavation](#) below finished [grade](#) for basements and footings of a building, retaining wall or other structure authorized by a valid building permit. This shall not exempt any [fill](#) made with the material from such [excavation](#) or exempt any [excavation](#) having an unsupported height greater than five feet (1,524 mm) after the completion of such structure;
- C. Cemetery graves;
- D. Refuse disposal [sites](#) controlled by other regulations;
- E. [Excavations](#) for wells or tunnels or utilities;
- F. Mining quarrying, [excavation](#) , processing stockpiling of rock, sand, gravel, aggregate or clay where established and provided for by law, provided such operations do not affect the lateral support or increase the stresses in or pressure upon any adjacent or contiguous property, “except as such activities are regulated by code or other regulations of this jurisdiction”;
- G. Exploratory [excavations](#) under the direction of soil engineers or engineering geologists;
- H. An [excavation](#) which (1) is less than two feet (610 mm) in depth, or (2) which does not create a cut [slope](#) greater than five feet (1,524 mm) in height and steeper than one unit vertical in one and one-half units horizontal (66.7% [slope](#)); and,
- I. A [fill](#) less than one foot (305 mm) in depth and placed on natural terrain with a [slope](#) flatter than one unit vertical in five units horizontal (20% [slope](#)), or less than three feet (914 mm) in depth, not intended to support structures, which does not exceed 50 cubic yards (38.3 m3) on any one lot and **does not obstruct a drainage course.**

NOTE: Exemption from the permit requirements of this chapter shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this chapter or any other laws or ordinances of this jurisdiction.

Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Grading Plans are required for Development in Floodprone Areas

TC Sec.26-8(b)(4)

(b) *Delineation of Areas Subject to Flooding on Plats and Development Plans:*

(1) All tentative plats and development plans submitted shall show the location, by survey or photographic methods, of streams, watercourses, canals, irrigation laterals, private ditches, culverts, lakes and other water features, including those areas subject to flooding and/or erosion. The location shall also include the direction and magnitude of any flow, water surface elevations, and the limits of inundation from the base flood.

(2) Identify on the final plans the elevation(s) of the proposed structure(s) and pads. If the site is filled above the BFE, the final lowest floor and grade elevations shall be certified by a registered professional engineer or surveyor and provided to the floodplain administrator.

(3) All tentative plats and development projects in floodprone areas shall be accompanied by conceptual grading plans and conceptual drainage improvement plans included in a drainage statement or a drainage report prepared by a state-registered professional civil engineer, for approval by the city engineer, unless exempted by the city engineer. These reports or statements should include the following:

a. The methods for mitigation of increased urban peak and/or volumetric flood-water runoff or discharge created by the development on-site and to upstream and downstream properties, up to a reasonable location as determined by the approved hydrologic and hydraulic study.

b. The demonstration that the improvements are compatible with the existing upstream and downstream drainage conditions and that any proposed grading and/or grade change will not have an adverse impact on adjacent property.

c. The methods for adequate erosion and sediment control, as approved by the city engineer.

d. The proposed floodplain management methods for floodproofing (existing nonresidential structure only) drainage control, detention, retention, and/or delineating and setting aside floodprone areas which result in mitigating a flood or erosion hazard on the proposed finished pads (elevations determined) and drainage slopes constructed to protect building foundations from runoff waters.

(4) All tentative plats and development plans in floodprone areas shall show proposed grading and improvement for areas which are subject to flooding or erosion or which have poor drainage. Also included will be a description and location of all facilities proposed to be used to alleviate flooding, erosion or other drainage problems, both in the proposed subdivision or development, and downstream and upstream of any watercourse affected by the subdivision or development, whether they are within or outside the project boundaries.

Prior to commencement of any site improvements or grading, a grading plan shall be submitted to the city engineer for review and approval. Detailed improvement plans of storm drains or channel improvements shall also be submitted to the city engineer for review and approval.

Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Building Pads are required for Development in Floodprone Areas

TC Sec.26-8(d)

(d) *Building Sites:* Land which contains area within a floodplain shall not be divided or platted for residential occupancy or building sites unless each lot contains a building site, either natural or manmade, which is not subject to flood-related erosion or to flooding by the base flood, provides all weather access to the building pad, and is certified for compaction of fill for pad by an engineer.

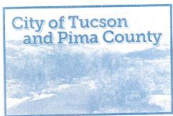
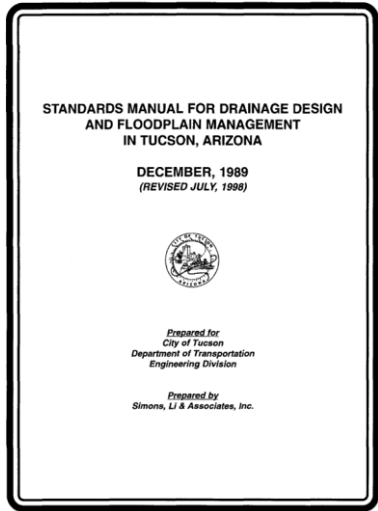
(1) In areas subject to flooding where no fill is proposed to be used, the building line shall be located no closer to the floodplain than the edge of the area subject to flooding by the base flood.

(2) In areas where fill is to be used to raise the elevation of the building site, the building line shall be located not less than twenty-five (25) feet landward from any edge of the fill, unless a study prepared by a state-registered professional civil engineer and approved by the city engineer shows that a lesser distance is acceptable.

(3) No fill shall be placed in any floodway; nor shall any fill be placed where it diverts, retards or obstructs the flow of water to such an extent that it creates a danger or hazard to life or property in the area.

Tucson TSMS 5-Year FMP Action Item Update
Demystifying Tucson Drainage Regulations
Messages that Need to be Broadcasted

City of Tucson Floodplain Administration is looking for ways to improve out outreach efforts to encourage the understanding of these safety regulations.



Emergency Flood Information

Flash Flood Warning means flash flooding is imminent in specific areas.

Flash Flood Watch means heavy rains may result in flash flooding in specific areas. **BE ALERT AND PREPARE** for the possibility of a flood emergency.

Stay tuned to 24-hour weather broadcasts by the National Weather Service using a NOAA Weather Radio tuned to 162.4 MHz. Warnings are also broadcast on local radio, television, and on-line at: <http://www.weather.gov/faction>

During A Flood

- DO NOT USE ARMOED BARRICADES:
- You can be fined and forced to pay for rescue costs.
- Do not attempt to drive over a flooded road or bridge.
- Avoid areas subject to flooding.
- Do not attempt to cross a flooded stream.
- Stay away from the banks of flowing waters.
- Stay clear of disaster areas.
- Do not consume food or water that has been in contact with flood water.
- Do not handle electrical equipment in wet areas.
- Report broken utility lines to the appropriate authorities.
- Stay at home or indoors.
- Prevent and monitor children.

General Flood Information

- Help preserve our waters, they are natural resources.
- Permits are needed from the local government agency for any work in a wash, local or FEMA floodplain.
- The local government agency can assist in determining how to protect your property from flood damages.
- Do not dump in washes, it blocks flow and can cause flooding.
- Remember: "Only rain in the drain."
- Report illegal dumping, or other activities in a wash or floodplain by calling the local governments listed.

Flood Insurance

Standard property insurance for your home or business does not cover flooding. A building does not have to be located in a federally recognized floodplain for you to purchase flood insurance. All city and county residents are eligible for flood insurance after a 30-day waiting period. Renters may purchase contents coverage. Contact an insurance professional for details.

Floodplain and Flood
Protection Information

Information about the floodplain status of your property can be found on the Flood Insurance Rate Maps available for examination at the Tazewell-Pike County Public Library and online. Flood hazard maps, flood protection letters, rating assistance information, drainage assessment, staff field visit request and information about how to reduce risks, are available at:

City of Tucson
Planning & Development Services Department
201 North State Ave., 1st floor
Tucson, Arizona 85701
Phone: (520) 795-6200, Fax: (520) 795-6034

Online at <http://www.tucsonaz.gov/pds4/foodplain-information>
Si quiere información en español, llame al 520-791-3550.

Unincorporated Pima County
Pima County Regional Flood Control District

201 North Stone Ave., 9th floor
Tucson, Arizona 85701
520-724-4600

Online at <http://www.pima.gov/floodcontrol>
Si quiere información en español, llame al 520-724-4600.

This information is provided by the
City of Tucson and Pima County Regional Flood Control District



PIMA COUNTY
BLOOD CENTER



Design Standards for Stormwater Detention and Retention for Pima County

1. INTRODUCTION

1.1 Purpose

The purpose of this manual is to provide guidance, design standards and policy direction when runoff detention and retention systems are required due to development throughout Pima County. This manual is a supplement to, and has the same regulatory authority as, the floodplain management regulations throughout the jurisdictions of Pima County, including:

- Title 16 of the Pima County Code;
- Chapter 26 of the Tucson Code;
- Title 14 of the Sahuarita Town Code;
- Chapter 17 of the Oro Valley Town Code; and
- Title 21 of the Town of Marana Land Development Code.

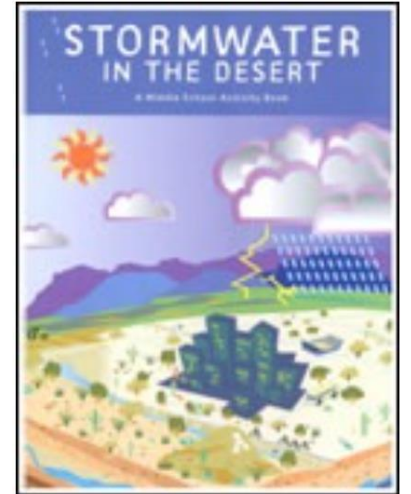
Throughout the manual, these are collectively referred to as the Ordinances.

Since 1987, the Stormwater Detention/Retention Manual (Pima County Department of Transportation & Flood Control District and City of Tucson) has required the use of runoff detention and retention systems to:

1. Protect adjacent properties from adverse impacts;
2. Preserve watershed-scale peak discharge characteristics; and
3. Retain a portion of stormwater runoff on site for re-use and infiltration.

This manual continues to require protection of adjacent properties and preservation of pre-development peak discharges and also incorporates revisions that:

1. Require first-flush retention that should be located throughout the development. The retained volume may also be used to meet all or part of the project's detention volume requirement;
2. Include sustainability principles and promote early, integrated site planning;



Stormwater Management Training for DTM Streets

Part 1

July 21, 2022

Derived from City of Tucson MS4 Permit,
City of Tucson Stormwater Code,
Tucson Floodplain Management Plan,
City of Tucson Flood and Erosion Hazard Management Code,
TSM5 and other City of Tucson regulations

Elizabeth Leibold, P.E., CPM, CFM
Civil Engineer at City of Tucson
Department of Transportation & Mobility



Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Brainstorm on Creative Outreach Ideas

- ☐ Improve the FIM and other periodic outreach events
- ☐ Possible piggy back
- ☐ Increase understanding of Stakeholders needed for Floodplain Management Planning
- ☐ Accentuate and broaden advertising
- ☐ Slogans
- ☐ Review types of products that could be considered for outreach tools
- ☐ Increase the number of employee trainings to include flood & erosion hazard considerations
- ☐ Improve understanding of regulatory compliance for new development
- ☐ Increase understanding of special drainage requirements
- ☐ Improve understanding of process for STAC reviews
- ☐ Other ideas...

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations Existing Outreach Activities

Outreach

The City of Tucson performs some of the following various flood and erosion hazard outreach activities annually



Tucson TSMS 5-Year FMP Action Item Update

Demystifying Tucson Drainage Regulations

Existing Outreach Activities

Outreach

Floodplain Management Plan Annual Meeting
Flood Insurance Meetings
Monsoon Awareness Week
Operation Splash
Operation Freeze
Tucson Juneteenth Festival at Kino Sports Complex – Children’s table
EHSS Vendor Fair – Raytheon
Davis Monthan Outreach
Ward IV Back to School Bash
Tucson Association of Realtors EXPO
Tucson Association of Realtors - Floodplain Information for Realtors
Southern Arizona Homebuilders Association (SAHBA) Technical
Committee Meeting
Engineers Week Event
Earth Day
Neighborhood Association Outreach Meetings
Other Outreach

Tucson TSMS 5-Year FMP Action Item Update Demystifying Tucson Drainage Regulations Existing Outreach Activities

Other Outreach

Social Media

Individual Constituent Consultations on Phone

Individual Constituent Meetings

Field Drainage Inspections

Website

Floodplain Administration



Fred Wasmer Photography

OUTREACH EVENTS

Upcoming Events

The City of Tucson is holding two Flood Insurance virtual online meetings presenting information about flood hazards and general information about flood insurance for Tucson and the surrounding areas. The City of Tucson Floodplain Administration invites other jurisdictions and agencies including: Pima County, Oro Valley, Sahuarita, Marana and the Department of Insurance and Financial Institutions to present information on how to reduce flood risk and lower costs associated with flood hazards. Two options are provided (having same information):

Thursday May 29, 2025

4:00 PM to 5:00 PM

[Meeting Link](#)

Friday May 30, 2025

8:00 AM to 9:00 AM

[Meeting Link](#)

City of Tucson is holding an in-person open house for the Tucson 5-year Floodplain Management Plan Update.

Thursday July 17, 2025

4 PM to 5:30 PM

Location: the Tucson Association of Realtors at 2445 N Tucson Bl.
Learn about the City of Tucson's goals and action items. Free Raffle Prizes.

Watershed	Project Status
Alamo	Existing Conditions & Alternatives, and Final Reports completed by Pima County Regional Flood Control District. Floodplain map revisions (LOMR) in effect as of March 15, 2021. Mayor & Council adopted this watershed management plan in 2021. FEMA grant funding is being considered for one or more identified project alternatives.
Arroyo Chico	Downtown Links drainage infrastructure currently under construction with project completion expected March 2023 and includes large storm drains in Broadway Bl. Flood map updates will be completed after the record drawings are completed by the City, and Pima County Flood Control District submits documentation to FEMA for approval. Tucson Arroyo - Arroyo Chico Phase 2B Increment has been discontinued by the U.S. Army Corps of Engineers.
Atterbury	Watershed development & drainage planning is being coordinated for the upper watershed and State land area.
Christmas	Feasibility study for potential projects including stormdrain capacity in this watershed was finalized using FEMA grant funding, and neighborhood input for associated green infrastructure. El Con detention project is still identified as a key project. El Con detention is being looked at by PCRFC. A FEMA grant is being considered for stormdrain improvements along Country Club and Fort Lowell Road and Tucson Boulevard and would include Green Infrastructure improvements if grant is awarded.
El Vado	Neighborhood park / drainage improvements are being planned.
Flowing Wells	Pima County Regional Flood Control District is studying Flowing Wells Wash, Wilson Wash, Navajo Wash, as well as Bronx Wash with West University Watersheds on behalf of the City of Tucson.
Julian	Tucson Airport Authority detention is being planned; Pima County Regional Flood Control is assisting the Airport Authority.
Rodeo	Funding is being sought for an erosion protection and safety improvement for Pennsylvania Dr and Lundy Av dip crossing. Funding is needed for future wash crossing considerations at 16thAv.
Ruthrauff	One of the approved alternative projects from the Ruthrauff Basin Management Plan (approved by Mayor & Council Oct. 24, 2017) is underway near the Gardner Lane area.
Santa Cruz	Santa Cruz River Management Plan (from Santa Cruz County to Pinal County) update: Alternatives Report and Technical Data have been completed by Pima County Regional Flood Control District, project includes post sediment removal assessment from Grant Rd to Avra Valley Rd.Lower Santa Cruz River master planning project also underway. Floodwall for TEP substation feasibility study including archeological study was completed by FEMA, through a grant. A FEMA grant is being considered for the construction of this project.
Silvercroft	Silvercroft Watershed is being assessed for the Lower Santa Cruz master plan (by Pima County Regional Flood Control District). The El Rio Golf Flood Mitigation Project - detention facilities are complete. Phase 2 to begin next year. Additional improvement projects are being considered and a study is planned for the downstream locations.
Prop 407 (City-wide)	Various drainage improvements being incorporated into park development projects.

Tucson TSMS 5-Year FMP Action Item Update FMP Stakeholder Surveys

Floodplain Management Hub Site - A website that will contain surveys, applications, stories, narrative, and more.

- 1) Survey for stakeholders to identify who they are, where they live and what type of stakeholder they are.
- 2) Survey for reporting flooding incidents - Spanish and English
- 3) Application for identifying what floodplain you are in and giving floodplain information via clicking on the map.
- 4) Floodplain Report Dashboard
 - a. Dashboard for seeing reported flooding incidents in each watershed with levels of urgency assigned based on a variety of factors including:
 - i. High number of high-risk incidents
 - ii. Soil type
 - iii. Equity (incorporating the Equity Priority Index).
 - b. Watershed updates – explain drainage improvement project underway in that watershed
- 5) Story Map explaining floodplains and Tucson floodplain regulations
- 6) Content library - a PDF repository for TSMS reports and other smaller drainage master plans, drainage reports, floodplain maps, elevation certificates, and other documents for the public to be able to search through documents.

When: Likely start Late Fall (November 2025), Estimated Completion Date: (May 2027)

Tucson TSMS 5-Year FMP Action Item Update FMP Stakeholder Surveys

- ☐ Please fill out Goal survey (updated verbiage).
- ☐ Please fill out other FMP surveys
- ☐ Turn in survey data today or scan and send in via email
TucsonFloodErosionInfo@tucsonaz.gov

ADDITIONAL THOUGHTS AND IDEAS?

Thank you for attending part (3 of 3) of the City of Tucson Floodplain Management Plan Working Group Meetings for Demystifying Tucson Drainage Regulations (TSMS Phase Vbvii) and discussion of FMP. You are also welcome to attend the Open House for 5-year Update to the **City of Tucson Floodplain Management Plan**

Thursday, July 17, 2025

4 PM to 5:30 PM

Tucson Association of Realtors

2445 N Tucson Boulevard

City staff will present findings from workshops, updated floodplain maps, share flood safety information, and outline ongoing management efforts. Input will be compiled into a final FMP draft for consideration by Mayor and Council later this year.

Free Raffle Prizes will be held every 10 minutes.

