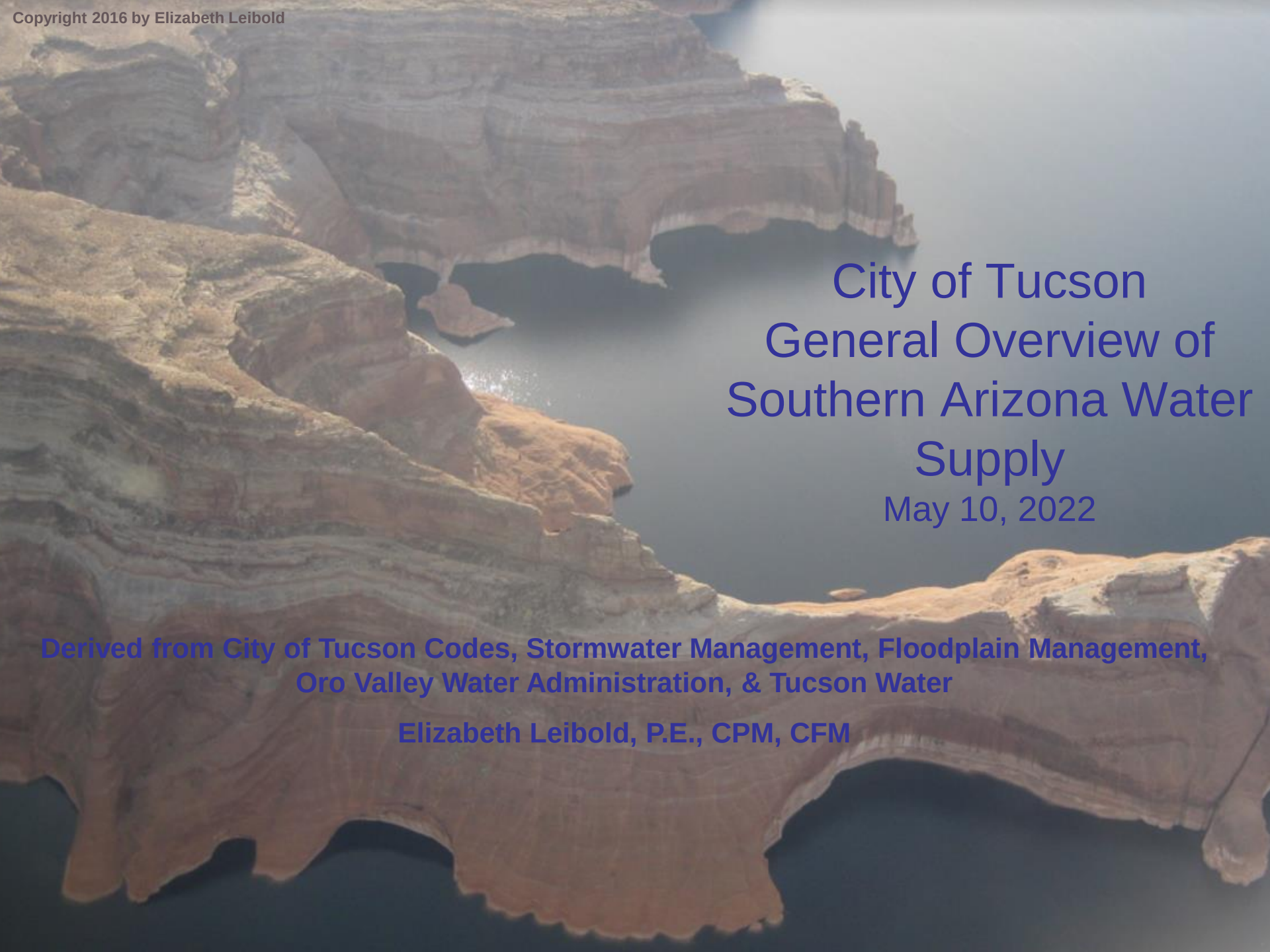
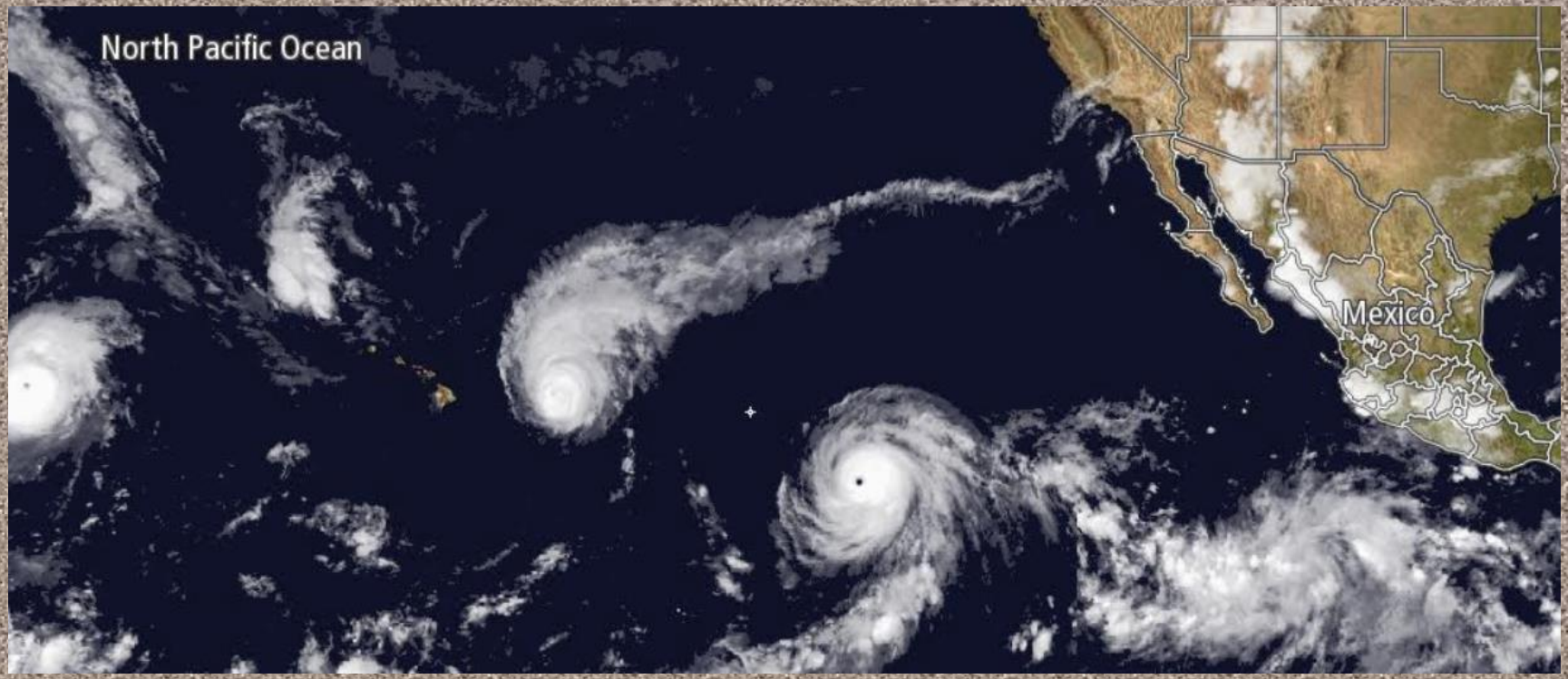


City of Tucson General Overview of Southern Arizona Water Supply

May 10, 2022

Derived from City of Tucson Codes, Stormwater Management, Floodplain Management, Oro Valley Water Administration, & Tucson Water

Elizabeth Leibold, P.E., CPM, CFM



Water comes from the Pacific Ocean.

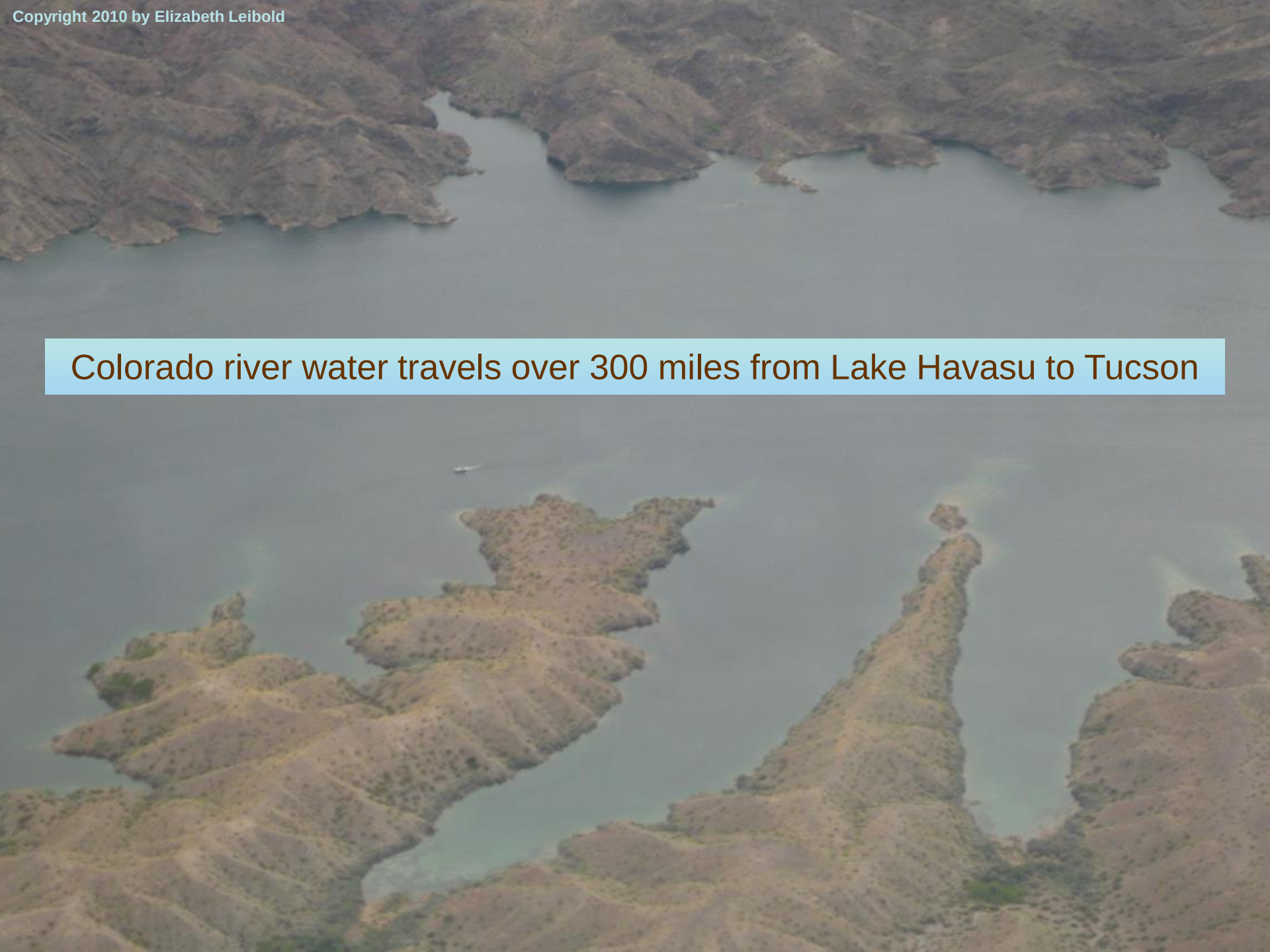
Precipitation from Pacific Ocean travels up Baja from Mexico. Atmospheric Rivers are long stretches of moisture that can hit the Sierra Nevadas, Colorado.

When California receives abundant rain, that rainwater offsets allocations of water sent to Arizona.

Where does the water go?

Colorado River Lower Basin water increases when large snow storms hit the Colorado mountains which helps Arizona's water supply

From Colorado, some of snow melt travels through Utah



Colorado river water travels over 300 miles from Lake Havasu to Tucson

Lake Havasu

Central Arizona Project (CAP) channel delivers water to recharge basins (CAVSARP, SAVSARP) west of Tucson

Central Arizona Project (CAP) channel delivers water to recharge basins (CAVSARP, SAVSARP) west of Tucson

Central Avra Valley Storage and Recovery Project (CAVSARP) and Southern Avra Valley Storage and Recovery Project (SAVSARP)

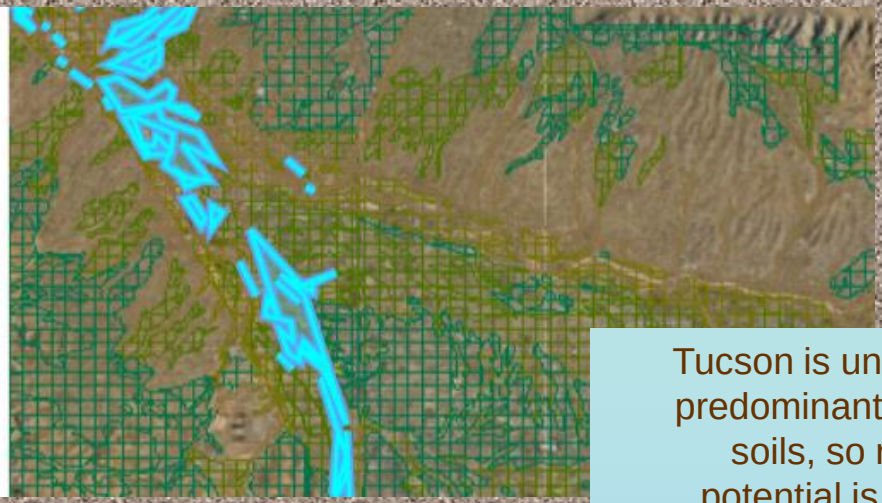
stores Tucson's Colorado River water allotment

Hydrologic Soils Group - NRCS

Comoro sandy loam
Dirt Code:
Soil Group A: 100
Soil Group B: 0
Soil Group C: 0
Soil Group D: 0

GIS Layer Name: SOILSHYD

View Additional Details | Add to Results



Hydrologic Soils Group - NRCS

Pantano-Granolite complex, 5 to 25 percent slopes
Dirt Code:
Soil Group A: 0
Soil Group B: 0
Soil Group C: 0
Soil Group D: 75

GIS Layer Name: SOILSHYD

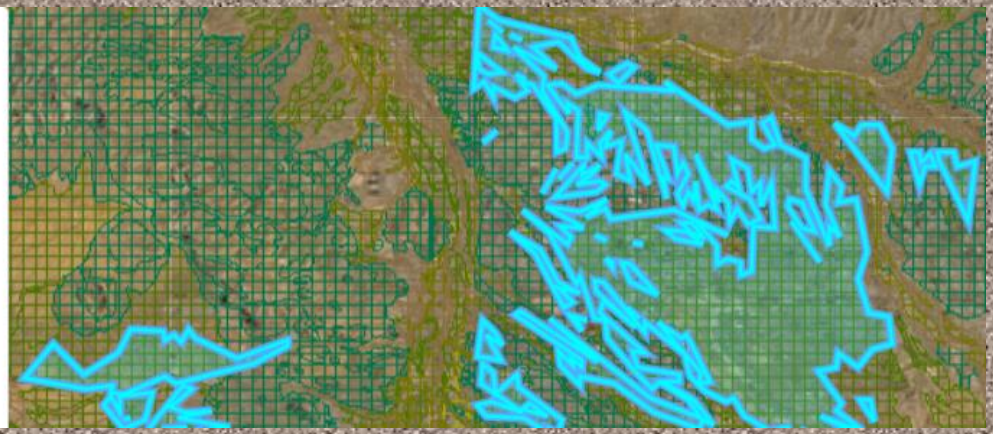
View Additional Details | Add to Results

Hydrologic Soils Group - NRCS

Mohave soils and urban land, 1 to 8 percent slopes
Dirt Code:
Soil Group A: 0
Soil Group B: 0
Soil Group C: 0
Soil Group D: 0

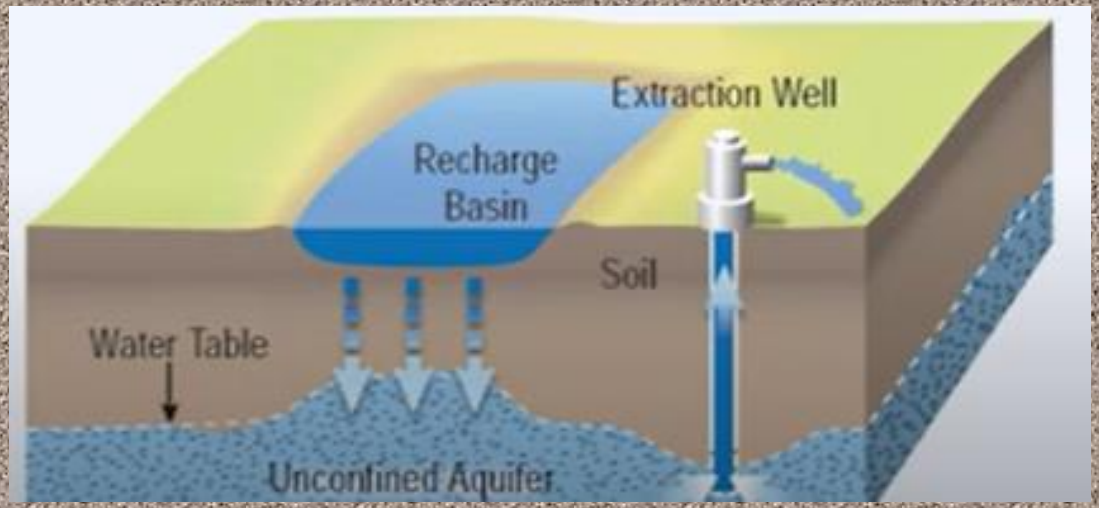
GIS Layer Name: SOILSHYD

View Additional Details | Add to Results

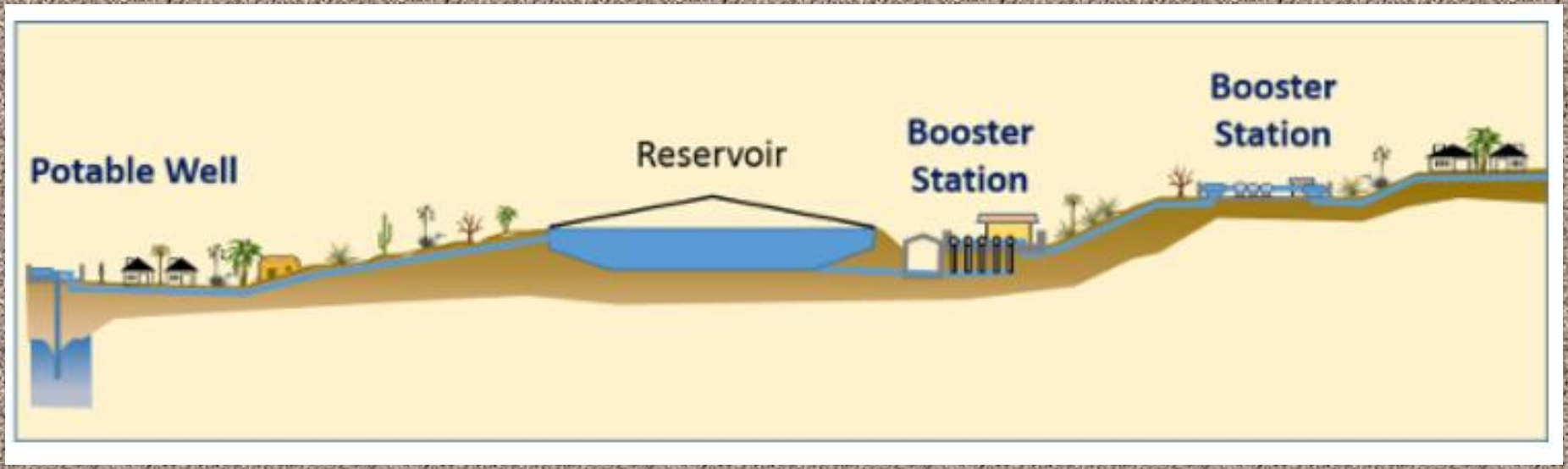


Tucson is unique with predominantly harder soils, so runoff potential is higher.

Sandy, pervious soils are located in Tucson's established washes and regional watercourses.



Water in Avra Valley basins are allowed to soak into the Hydrologic Soils Groups A & B soils and then gets pumped and treated and sent into the distribution lines.



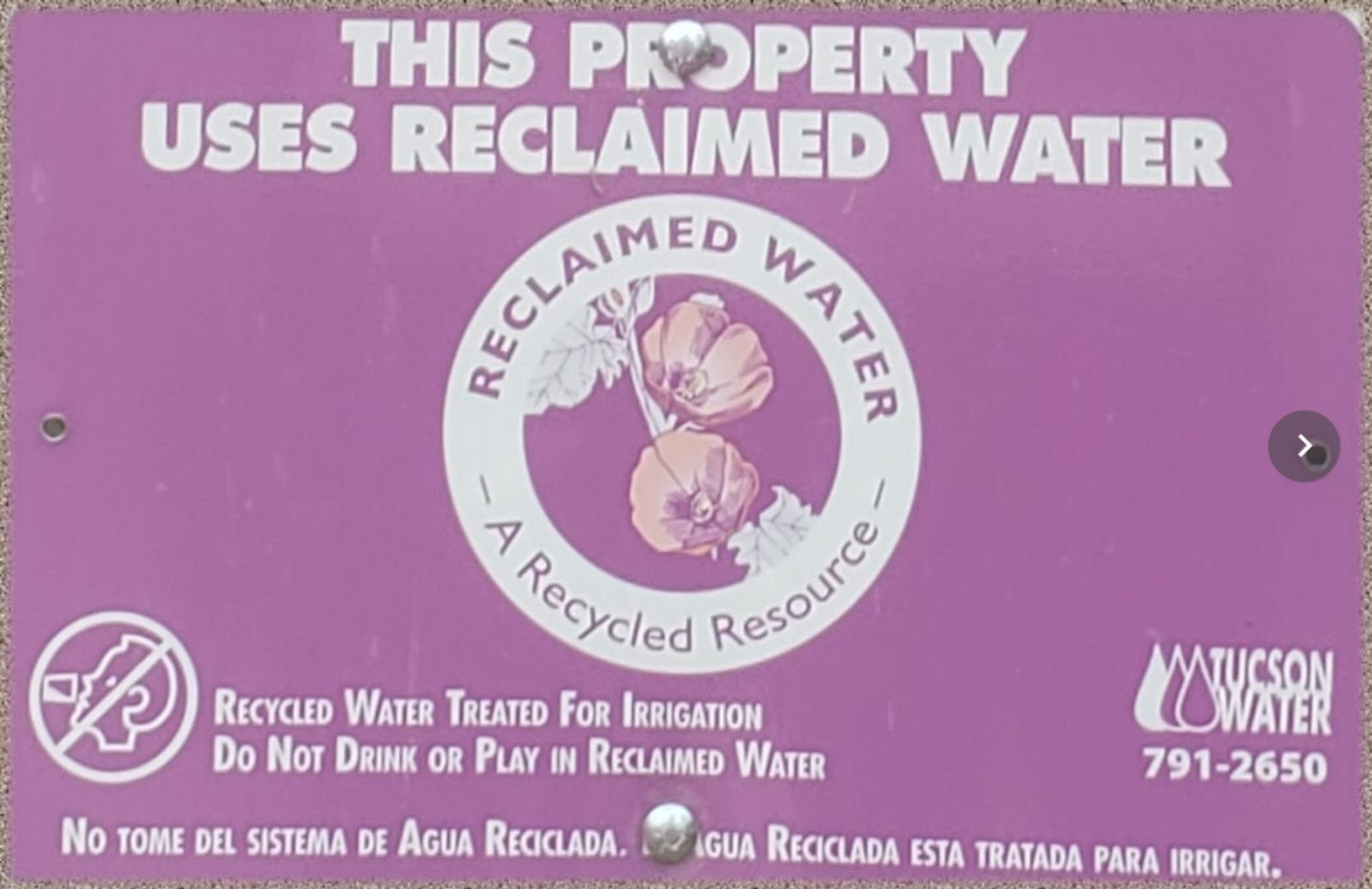
Three types of water:

White - Potable water (CAP system, clean aquifer potable water wells, rain)

Grey – not suitable for human consumption (greywater, reclaimed water, treated effluent)

Black – (sanitary waste water, polluted, contaminated water)

Reclaimed Water is best used for grading construction use, as well as irrigation of golf courses, parks, school athletic fields.



Key Points for Real Estate Professionals

- Development in the City of Tucson has assured 100-year water supply – generally speaking.
- Developer must verify water availability as one of the first steps before submitting a water maser plan.
- New annexations need to be assessed.

What if a property has a greywater system?

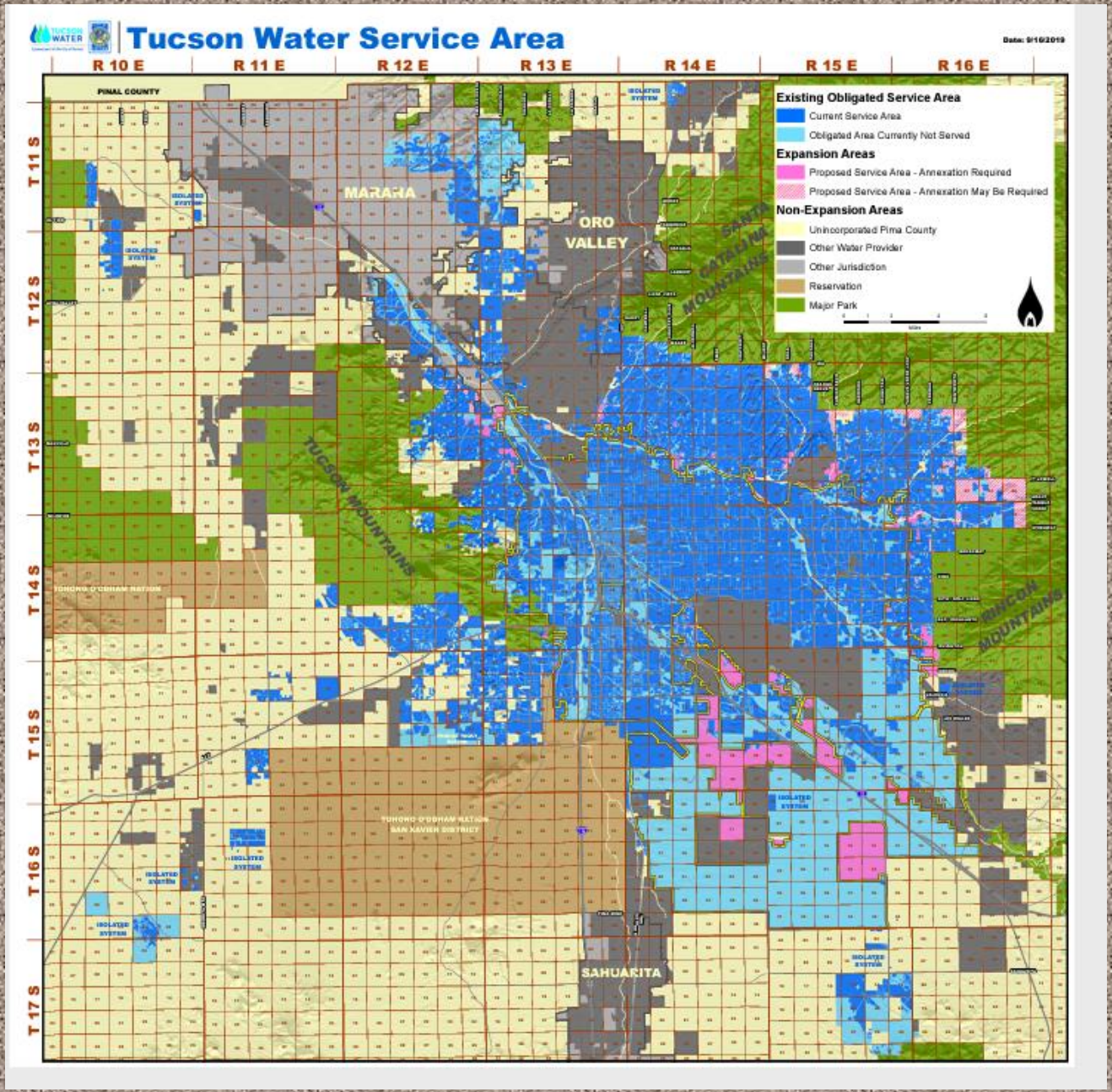
- Tucson's Greywater Ordinance and State greywater regulations restricts the discharge of greywater
- Sufficient area needs to be provided to use greywater discharge in the property
- No diaper washing
- Greywater is not allowed within 2-feet of property boundary – it as to be kept onsite and used for plant irrigation
- Greywater systems are alternative to connecting some fixtures to the sanitary system.

Water Quality

- Water testing
- Back flow prevention infrastructure
- Assuring greywater and potable water systems are kept separate

Improving Availability of Tucson's Water Resources

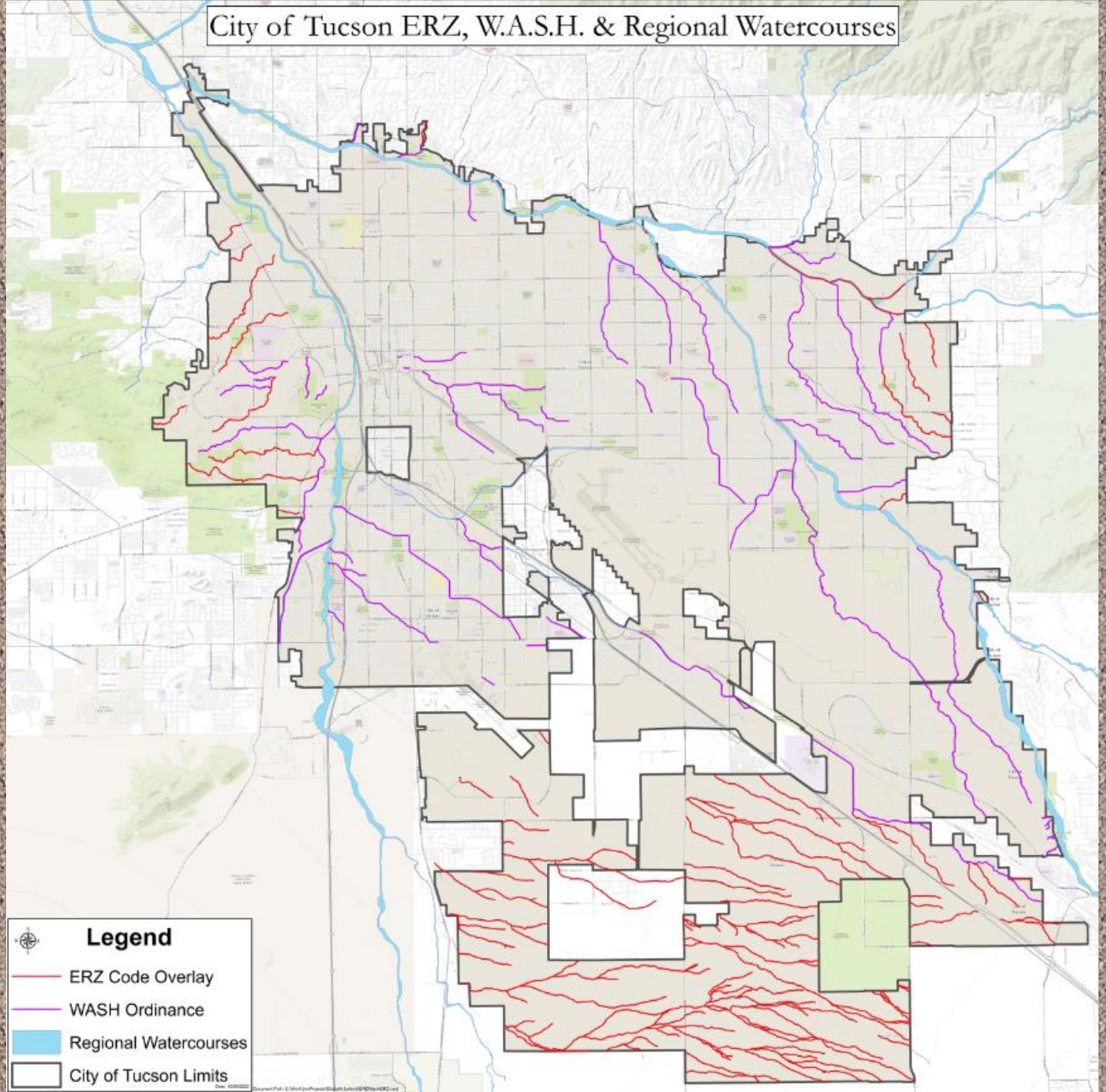
- Long-range water planning
- Drought Preparedness
- Water Quality sustainability includes using Cap to replenish groundwater
- Storage of banked CAP water
- Look for more efficient and safe ways to use reclaimed water
- Increase local use of rain water capture as needed

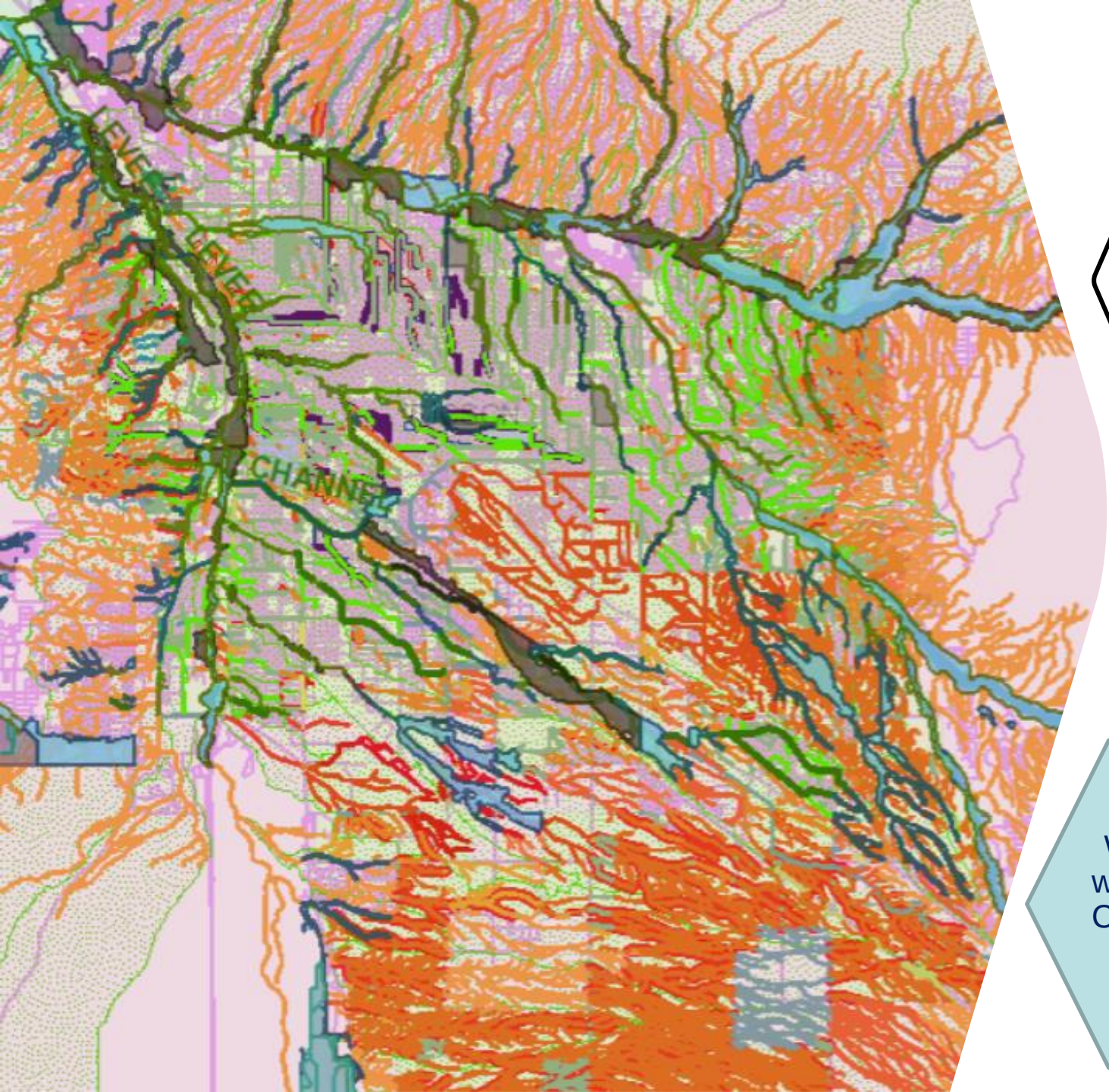


Development must verify that water availability exists.

What's in the future?

Imagine desalination plants along the California coast that use wave energy to generate a large portion of potable water for Southern California that offsets the demand on Colorado River water.


City of Tucson ERZ, W.A.S.H. & Regional Watercourses
Legend
ERZ Code Overlay
WASH Ordinance
Regional Watercourses
City of Tucson Limits



Watercourses and watersheds with the City of Tucson drain to the Northwest

Mayor and Council approved codes (Floodplain Ordinance)

Tucson Code Chapter 26 Article I:

- Prohibits obstruction, diversion and adverse impact
- Sec. 26-5.2: *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:*
- (3) *Not generate adverse impacts, including but not limited to erosion, upstream or downstream.*
- (13) *Prohibit storage and/or processing of materials that are buoyant, flammable, explosive or that could be injurious to human, animal or plant life at the time of flooding.*
- Sec.26-10: *The effects of recharging storm runoff and possible pollution of the groundwater shall be evaluated for all systems employing infiltration systems, such as dry wells, in order to prevent contamination of the groundwater aquifer*.
- Sec. 26-11.2: Factors considered for permit review: *The enhancement and preservation of groundwater recharge and the potential pollution of the groundwater supply.*

Stormwater Ordinance - Tucson Code Sec. 26-40. Prohibited discharges.

- *(1) Any discharge that is a source of pollutants;*
- *(2) Allowing or causing any discharge that contributes a pollutant to stormwater;*
- *(3) Any discharge that contributes to a violation of the city's Municipal Stormwater Permit, regardless of whether that discharge is covered under, and is in compliance with, an AZPDES/NPDES permit;*
- *(4) Establishing, using, and/or maintaining any connection that allows a discharge that contributes a pollutant to stormwater;*
- *(5) Depositing, dumping or storing any materials in a manner that may contribute a pollutant to, or obstruct the flow of, stormwater;*
- *(6) Failing to comply with any applicable AZPDES/NPDES Permit, including any permit requirements to develop, implement, or comply with a Stormwater Pollution Prevention Plan (SWPPP);*
- *(7) Failing to provide required information to the city including:*
- *a. Copies of the notice of intent, notice of termination, and/or no exposure certification as appropriate;*
- *b. Upon request, copies of the SWPPP, water quality monitoring results and/or hydrologic reports certifying compliance with discharge or retention requirements;*
- *(8) Failing to develop, implement, or comply with a Stormwater Pollution Prevention Plan or a Corrective Action Plan utilizing Best Management Practices that is either required under an AZPDES/NPDES permit or imposed by the city pursuant to this article, including requirements to implement good housekeeping, spill control and response, employee training, record keeping, proper material and waste management, practices for non-stormwater flows, and structural stormwater controls;*
- *(9) Misrepresentation in any document pertaining to an approved plan, permit, or certification relating to a discharge activity; and*
- *(10) Disabling or rendering inaccurate any sampling or monitoring device required under this article.*

Mayor and Council approved codes related to water ditches, natural drainage channels--Deposit of offensive matter; obstructions

- Tucson Code Sec. 11-58: *It shall be unlawful for any person to deposit or cause to be deposited in any acequia, water ditch, arroyo, or natural drainage channel, within the city, any filth, rubbish, garbage or any other matter or thing which is offensive to the sight or smell, or is derogatory to health, or trash, weeds or waste materials which in any manner obstruct or impede the natural or easy flow of the waste therein, or permit from the premises occupied by such person any house drainage or sewerage or any soapsuds or waste water in which any clothing or other materials have been washed, rinsed or cleaned, or any impure water whatever to drain into any such ditch, acequia, arroyo or natural drainage channel.*
- Tucson Code Sec. Sec. 11-59: *It shall be unlawful for all persons owning or occupying premises within the city through which an acequia, arroyo, water ditch, or natural drainage channel runs not to keep such arroyo, acequia, water ditch or natural drainage channel at all times free from all rubbish, garbage, filth, growing vegetation, brush, and any and all foreign matter and things whatever, which may obstruct the natural and easy flow of the water therein, or which may endanger the health, safety or welfare of residents of the vicinity or the public in general.*

Select Language

Tucson Water

- Pay Your Utility Bill
  - FAQ - New Online Payment Portal
- Customer Service
- About Your Water Quality
  - > Water Quality Reports
  - In Your Home and Business
  - Water Quality Monitoring In the Lab
  - Reclaimed Water, Backflow Prevention
  - Drinking Water Distribution System
- Contractors, Developers, and Engineers
- Rates and Monthly Charges
- Technical Library
- Public Policy
- Public Education and Outreach
- Community Relations

Water Quality Reports

The format for Tucson Water's Annual Water Quality Reports (also known as Consumer Confidence Reports or CCRs) follow guidelines set by the U. S. Environmental Protection Agency (EPA) as part of the Safe Drinking Water Act. The EPA requires all public water providers to deliver this information to all customers on an annual basis in a single report that provides water quality data to the public in an understandable manner.

See water quality tests closest to your home or business using our Online Water Quality Map

Main System

- **NEW** (June 24) Annual Water Quality Report 2019 (1,509 KB)

Isolated Systems

- Catalina Annual Water Quality Report 2019 (883 KB)
- Corona de Tucson Annual Water Quality Report 2019 (884 KB)
- Diamond Bell Annual Water Quality Report 2019 (884 KB)
- Police-Fire Academy Annual Water Quality Report 2019 (883 KB)
- Rancho Del Sol Lindo Annual Water Quality Report 2019 (887 KB)
- Sierrita Foothills Annual Water Quality Report 2019 (886 KB)
- Silverbell West Annual Water Quality Report 2019 (878 KB)
- Thunderhead Ranch Annual Water Quality Report 2019 (886 KB)
- Valley View Annual Water Quality Report 2019 (879 KB)

Contaminants of Emerging Concern

- Tucson Water's "Sentry Program"

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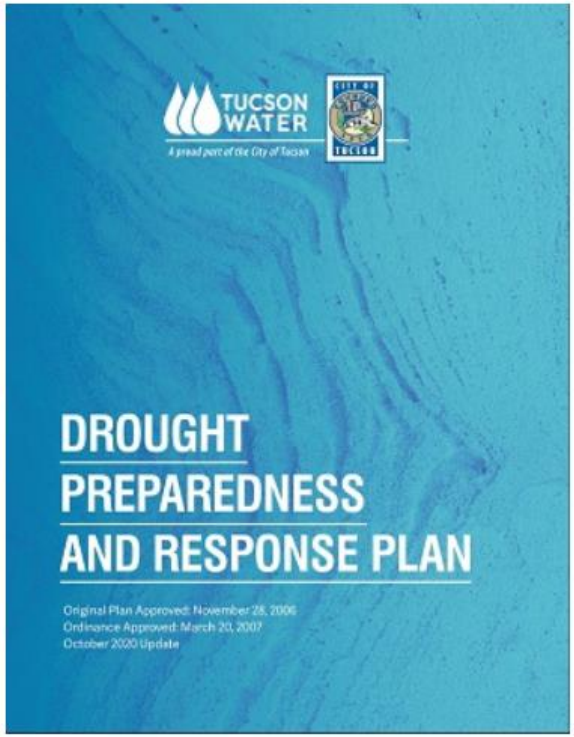
- Public Policy
  - Citizens' Water Advisory Committee
  - Water Service Area Review Board
  - Planning Documents
  - > Drought Preparedness
  - Financial Planning and Rate Setting
- Public Education and Outreach

Drought Preparedness

The Drought Preparedness and Response Plan was originally approved by Mayor and Council on November 28, 2006, as required by state statute (A.R.S. §45-342). Mayor and Council implemented the plan with Ordinance No. 10380 on March 20, 2007, the same year that Governor Brewer declared a statewide drought that persists to this day.



The drought plan must be updated every five years. Minor updates to the drought plan were made in 2012 and 2017. Mayor and Council approved a major revision in October 2020 that was largely driven by the 2019 Drought Contingency Plan, the seven state agreement on how to share Colorado River water. Before the end of 2026, the U.S. Secretary of the Interior will develop new guidelines for the long-term management of the Colorado River system in partnership with the Arizona Reconsultation Committee (the next drought plan update will reflect those guidelines).

Key elements of the most recent drought plan update are as follows:

- Updating the drought stages and thresholds to be consistent with the 2019 Drought Contingency Plan

- Demonstrating how the Utility has diversified its water supply portfolio, increased water savings, and improved infrastructure redundancy

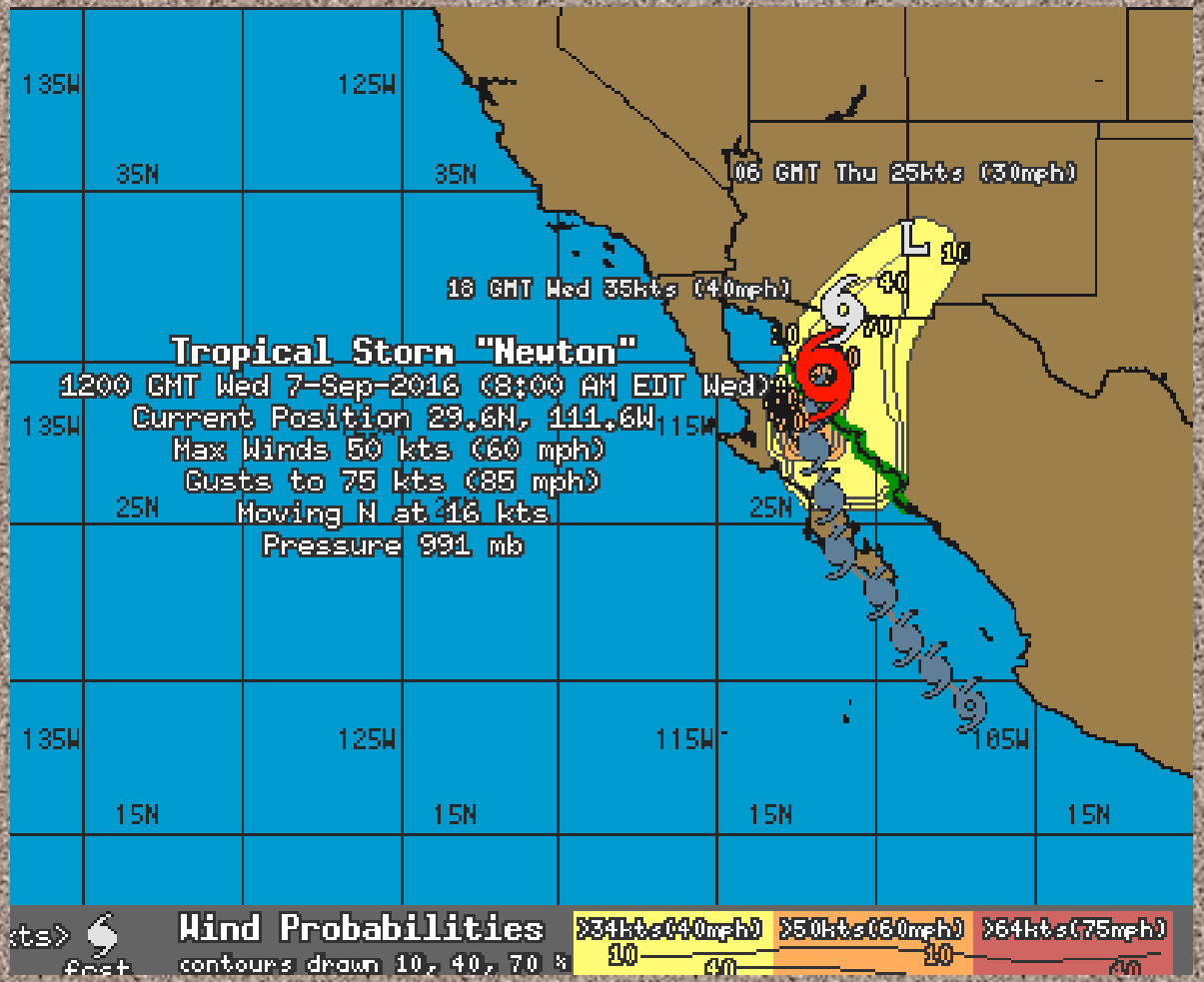
What can you do to conserve?

- Assess and manage your use
- Fix leaks, which can cause significant water waste
- Choose water & energy efficient toilets and other appliances
- Install low flow fixtures – faucets & showerheads (2.5 gallons per minute or less)
- Save water and money on your Pima County sewer bill. Keep your overall water use low in December, January, and February.
- Adjust your irrigation settings. Plants don't require as much water during winter.
- Go low outdoors - Choose native or low water use plants and limit water features
- Think about water quality too – clean surface water means clean groundwater, and remember: "Only Rain in the Drain"
- Use onsite cisterns to provide irrigation water for garden, washing car, and other uses

Think about water quality too

- Clean surface water means clean groundwater
- Remember: “Only Rain in the Drain”

Will we head into deep drought or get wetter?



March 2019 - Colorado heavy snow

May 2017 - Colorado hail storms

September 2016 – Tropical Storm Newton

September 2013 - Colorado flooding

Links

- ✓ Tucson Water https://www.tucsonaz.gov/water
- ✓ https://www.tucsonaz.gov/tdot/floodplain-administration
- ✓ Pima County Interjurisdictional Multi-hazard Plan https://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/OEMHS/2022%20Pima%20Co%20Plan%20Update%20FINAL%20-%20For%20Public%20Review.pdf
- ✓ https://www.azdeq.gov/WQARF
- ✓ https://new.azwater.gov/#

CITY OF TUCSON

Questions? Contact:

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Stormwater@tucsonaz.gov

Elizabeth.Leibold@tucsonaz.gov

Phone: 837-4934 / 429-4905