

Water Conservation Evaluation Criteria For Flood Control Infrastructure

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How can we evaluate current and future Flood Control District of Maricopa County (District) structures for potential water conservation opportunities, and how will these evaluations help the District in future efforts towards continued flood control and increased water conservation?

Goals

- Develop evaluation criteria for existing and future Flood Control District of Maricopa County (District) structures for potential water conservation opportunities.

- Use the evaluation criteria to better understand the District's role in water conservation efforts throughout Maricopa County and how the District can efficiently and effectively incorporate water conservation opportunities into the work the District is already engaged in.

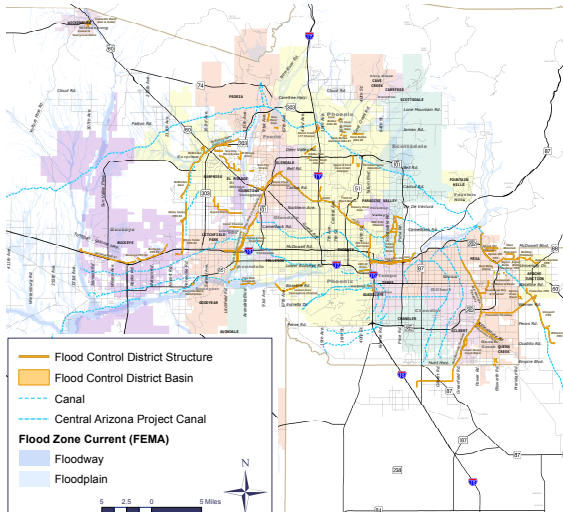
Methods

- The Study area is the 32,725.2 acres of District lands held in fee within Maricopa County and did not include those lands where the District has drainage easements with an underlying fee owner.

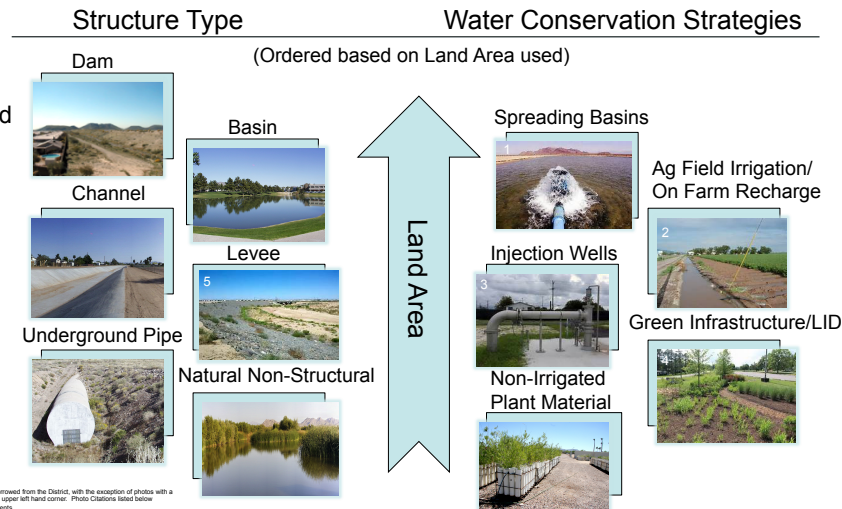
- Arc GIS Data was used to determine District land area held in fee by structure type

- Criteria were formed using the Districts Water Innovation Network (WIN) Preliminary Data Collection Report, as well as other District handbooks, news articles, and documents pulled from the District's database.

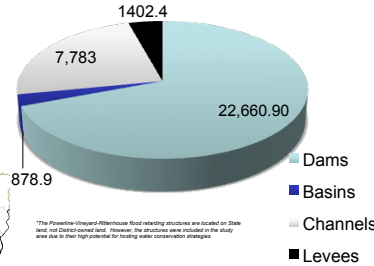
Flood Control District Structure Location



*Map does not show all FCDMC structures. For a full map, visit the Flood Control District of Maricopa County Website.



District-Owned Land Area (Acres)



*The flowline through the floodway structures are located on State and not District-owned land. However, the structures are included in the study area due to their high potential for testing water conservation strategies.

Water Conservation Evaluation Criteria

Economic/Political/Legal	Physical
<ul style="list-style-type: none"> • Cost/Benefit • Funding Source • Political/Legal • Recharge Credit • Land Ownership/Future Land Use Designation • Area Critical Need • Collaborative Partnership Potential 	<ul style="list-style-type: none"> • Structure Capture Potential • Proximity to other Infrastructure • Land Area (Size) • Cultural Concerns • Structural Impact • Environment • Soils/Geology • Slope/Topography • Infiltration/Percolation • Groundwater • Rainfall • Water Quality

Non-Physical Water Conservation Strategies

- Water Delivery System Audits
- Reclaimed Water Use Increases
- Water Banking
- Water Transfers
- Legislation/Regulation/Policy Change
- Municipal Best Management Practices

Findings

- Based on the information gathered, dams generally provide the most contiguous land area, which is preferred over a linear land area for implementing large scale water conservation projects.

- Dams have the largest land area percentage in the District, therefore providing the most opportunity for implementing a water conservation project.

- In light of the challenges of managing potable, waste, and stormwater, along with increased resource insecurity; planners, decision-makers, and public agencies will need to adopt a new way of thinking and pooling resources.

One Water Philosophy

"A program that integrates all of the capital spending for drinking water, stormwater and wastewater into a single management plan"

(BC Water News)



- Promote economic development, accomplish water conservation goals, and increase cooperation with other public agencies/ organizations to help create a sustainable future water supply for Arizona.

Further Study

- Further study on weighting these criteria/potential projects can be done to further understand the District's role in water conservation.

- Future research can be done to assess the changes that need to be made to policy relating to water rights, stormwater capture and storage, and recharge credit allocations.

Conclusion

In times of drought and anticipated water shortages, the District and other public agencies/organizations should work together to achieve multiple objectives on District lands for the benefit of Arizona's taxpayers and overall community well-being. Through water conservation and the One Water system, the District and other public agencies/organizations can increase efficiency and water conservation through storm/flood water management practices to ensure that Arizona's citizens will have the water supply they need.

Acknowledgment

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Photo Citations

1. <http://regulator.blogspot.com/2012/07/transforming-in-mojave-ground-water-could.html>
2. <https://www.asu.edu/water-for-the-environment>
3. <http://www.moodoo.com/r2011-08.html>
4. http://www.clearwatertrust.org/content/greeninfrastructure/images/galleries/existing_gilmg_02.jpg
5. <http://static.panoramio.com/photos/large/45748797.jpg>