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Strategies and projects that provide both water supply and flood mitigation

While developing the state water and flood plans, certain strategies and projects under consideration may provide benefits to both water supply and flood mitigation, though the potential overlap between them is relatively limited.

It is important to understand that water supply planning and flood risk mitigation planning deal with fundamentally different hydrologic events. For example, the storage volume within a reservoir cannot be simultaneously used for both flood mitigation *and* water supply purposes.[1] The goal of flood mitigation storage is to keep the reservoir as empty as possible so it is ready for the next storm. Whereas the goal of water supply storage is to keep the reservoir as full as possible in preparation for drought.

This information sheet is intended to provide general guidance in determining the appropriate plans for strategies and projects where overlap may cause confusion.

Flood flows already play a major role in the state water plan

It is important to note that storm/flood waters play an important role in the regional and state water planning process as they are already accounted for in the surface water availability models and provide the basis for much of Texas' existing water supplies via surface water reservoirs that capture them. These types of flows are also relied on, and modeled using the water availability models, for future recommended water supply reservoirs and other projects in the state water plan. Although flood flows are captured *and held* in water supply reservoirs, water supply reservoirs are not sited, designed, or operated to provide flood protection; although, in some cases, they may provide some incidental flood mitigation benefits. There are some multi-purpose reservoirs designed and operated to provide both water supply and flood protection, but as previously mentioned, the storage space used for flood protection cannot also be used for water supply.

Water Supply Planning

The regional and state water plans are developed to ensure adequate water supply during drought of record conditions. A water management strategy is a plan to meet an identified need for additional water by an entity, which can mean increasing the total water supply or maximizing an existing supply, including by reducing water demands. A water management strategy project is a water project that has a non-zero capital cost and is developed to implement a water management strategy.

Among the requirements for determining whether a water management strategy or project should be in the regional and state water plan, the following is key criteria:

- The strategy or project must reduce the consumption of water; reduce the loss or waste of water; improve the efficiency in the use of water; or develop, deliver, and/or treat additional water supply volumes to water user groups or wholesale water providers when implemented in at least one planning decade such that a firm yield of water is available during drought of record conditions.

Flood Mitigation Planning

The overarching goal of the flood planning process is to develop regional and state flood plans that provide for the protection of life and property without negatively affecting neighboring areas. The flood planning process focuses on reducing the

[1] Sometimes these competing goals can work together, such as with initiatives like Forecast Informed Reservoir Operations (FIRO). FIRO activities, which require real-time watershed monitoring, sophisticated modeling, and sophisticated decision-making tools using dedicated resources, seek to leverage weather forecasts to help decide when to hold water in the reservoir (minimal rain or incoming flows) versus when to release water from the reservoir (in anticipation of incoming floodwater).

existing flood risk and preventing additional future flood risk.

A flood mitigation project is a proposed structural or non-structural project that has non-zero capital costs and/or other non-recurring costs and, when implemented, will reduce flood risk. A flood management strategy is a proposed plan to reduce flood risk or mitigate flood hazards to life or property that does not qualify as a flood management evaluation or a flood mitigation project. Among the criteria for determining whether a project or strategy should be in the regional and state flood plan, the following is key:

- The primary function of each recommended flood mitigation project must be flood risk reduction. Additionally, they must include quantifiable flood risk reduction benefits that, at a minimum, consider mitigation for flood events associated with a 1 percent annual chance (100-year flood) where feasible.[2]

Decision Points

While the Texas Water Code requires that the state flood plan must "contribute to water development where possible," there is no requirement in water supply planning statutes to consider incidental flood mitigation benefits.

Some flood mitigation projects may provide incidental or indirect benefits to water resources or water supplies that do not provide measurable and reliable water supply. However, if the flood strategy or project is capable of producing additional, measurable water supply volumes under drought of record conditions, it could potentially be considered for inclusion as a water supply strategy/project in the regional and state water plans, subject to meeting the associated water planning requirements and at the discretion of the regional water planning group.

For a visual illustration of how certain projects may fit into one or both regional plans, see Figure 1.

Additional Resources

For additional information on the regional water planning process and current activities, please call 512-936-2387 or visit www.twdb.texas.gov/waterplanning/rwp/index.asp.

For additional information on the regional flood planning process and current activities, please call 512-475-0145 or visit www.twdb.texas.gov/flood/planning/index.asp

[2] In addition, flood mitigation projects must not have negative effect on neighboring areas and must be permittable, constructible, and implementable.

Figure 1. Potential overlap between projects in the regional water (supply) plans and regional flood plans