Additional Discussion of Water Management Strategies

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Agenda Item 7

Planning Framework Definitions

- **Surface Water Management Strategy** – a water management strategy proposed to eliminate a Surface Water Shortage, reduce a Surface Water Shortage, or generally increase Surface Water.
- A River Basin Plan is a collection of **water management strategies** supported by a summary of data and analyses designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions.

Discussion Guide

1. What existing water management strategies are already used in the Saluda basin? Consider and group these strategies by water use sector and whether they are:
    a. Supply-side strategies
    b. Demand-side strategies
    c. Low flow management strategies

2. How effective are the existing strategies? Think in terms of their ability to reduce demands, increase supply availability, and prevent shortages.

3. Do you think strategies that are already in-place can be expanded or improved?

4. What types of strategies are likely to be relevant in the Saluda Basin to reduce or eliminate projected shortages, increase available supply, minimize low flows, and help improve the flow regime for aquatic organisms and recreation? Which strategies should we evaluate using the surface water model?

Group Reports – Q1: Existing Strategies in the Basin

- Water loss and control measures, including leak management via smart meters (including both AMI and AMR)
- Small impoundments (for golf and ag supply, generally) and larger reservoirs (for energy, public supply, and industry, generally)
- Tiered rate structures
- Public education (e.g. water bill inserts)
- Drought management plans

Group Reports – Q2: Effectiveness of Existing Strategies

- Drought plans have limited effectiveness because only the governor has authority, in many cases, to enact mandatory water use restrictions.
- Public education (e.g. bill inserts) could be more effective.
- Small impoundments are recognized as being effective to maintain access to needed supply during low flow conditions, as evidenced by the fact that numerous agricultural water users build them to retain water.
- The major reservoirs in the Saluda basin are effective water supply strategies and meet other needs – such as recreation.

Group Reports – Q3: Can Existing Strategies be Expanded

- Existing water infrastructure (conveyance, reservoirs, storage facilities) needs to be maintained. Aging infrastructure may result in increased water loss.

- It has become more difficult to permit and build even small impoundments. Impoundments serve as critical storage opportunities for water users located far away from major sources. Relying on small streams, especially near headwaters is difficult, unless impoundments area used to store water during dry periods, when lower order stream flows are reduced or zero.

- Watershed protections such as riparian buffers can be expanded to both improve water quality and reduce sediment loading to streams.

Group Reports – Q4: What Strategies are Relevant in the Saluda basin and Should be Further Evaluated?

- The advantages and disadvantages of reclaimed water (water reuse) were briefly discussed.

- In the Saluda basin, much of the water that is withdrawn is returned to the system and used further down the basin. This is a form of indirect potable reuse.

Demand Side Strategies

Important Considerations:

- Water users have different financial and technical resources.
- Not every strategy is applicable to every water user.
- Due to **uncertainty** of future water availability, it is becoming increasingly important to use water as efficiently as possible.
- Some strategies may be identified as part of an **adaptive management plan**. They are only recommended if certain risk triggers occur, or conditions change beyond what is expected.

Adaptive management is a framework that can be used to implement options as the future unfolds in a structured way to avoid the pitfalls of either **under-performance** or **over-investment.**

What Are Potential Uncertainties?

Saluda RBC identified Uncertainties
CLIMATE
POPULATION
LAND USE
LOSS OF POWER
TYPE OF INDUSTRY / INDUSTRIAL GROWTH
MODELING AND DATA GAPS
POLITICS / LEGISLATION
REGULATORY

Common uncertainties in water resources planning

Water Conservation and Efficiency Strategies

RBC Decisions

Agricultural Portfolio of Water Efficiency Strategies	Level of Support	Priority?	Include as an Adaptive Strategy?
Water Audits and Nozzle Retrofits	Supported by RBC	No priority was assigned, given that each may apply differently to different growers	
Irrigation Equipment Changes	Supported by RBC		
Soil Management and Cover Cropping	Supported by RBC		
Irrigation Scheduling	Supported by RBC		
Crop Variety, Crop Type, and Crop Conversions	Supported by RBC		
Future technologies	Supported by RBC		
Others?			

Water Conservation and Efficiency Strategies

RBC Decisions

Municipal Portfolio of Water Conservation and Efficiency Strategies	Level of Support	Priority?	Include as an Adaptive Strategy?
Conservation Pricing Structures / Drought Surcharge	Supported		
~~Toilet Rebate Program~~	Low (Remove)		
Landscape Irrigation Program and Codes	Supported		
Leak Detection and Water Loss Control Programs (and Replace Aging Infrastructure)	Supported		
~~Car Wash Recycling Ordinances~~	Low (Remove)		
~~Water Waste Ordinance~~	Low (Remove)		
Public Education of Water Conservation (elaborate, add specifics, like rain barrel, native plants, etc.)	Supported		
Residential Water Audits	Supported		
~~Water Efficiency Standards for New Construction~~	Low (Remove)		
Reclaimed Water Programs	Supported		
Time-of-Day Watering Limits	Supported		

The RBC requested that a discussion of the applicability of these strategies to commercial and institutional water users should be included in Chapter 6

Water Conservation and Efficiency Strategies

RBC Decisions

Industrial and Energy Portfolio of Water Conservation and Efficiency Strategies	Level of Support	Priority?	Include as an Adaptive Strategy?
Water Audits	The RBC generally expressed support for these strategies (although there was not a comprehensive discussion).		
Rebates on Energy Efficient Appliances			
Water Recycling and Reuse			
Water Saving Equipment and Efficient Water Systems			
Installing Water Saving Fixtures and Toilets			
Educating Employees			
Others?			