Duck River Drought Mitigation Progress Report/Updates

Off-stream Storage Reservoir (OSSR)

Interbasin Transfer (IBT)

Gresham Smith

Off-stream Storage Reservoirs (OSSRs)

OSSR Storage Volume Calculation

- 1 MGD * 30 days = Required Volume (MG)
- 1 MG = 3.07 ac-ft
- Required Volume (ac-ft) ÷ Assumed Depth (ft) = Footprint Area (ac)

Intake Entity	Intake Flowrate (MGD)	Intake Volume for 30 days (MG)	Intake Volume for 30 days (AC-FT)	Area, 20 ft depth (ac)	Area, 30 ft depth (ac)
Columbia Power and Water (Combined)	32	960	2946	147	98
Maury County Water Systems (Proposed)	3	90	276	14	9
Marshall County Board of Public Utilities	3	90	276	14	9
Lewisburg Water System	6	180	552	28	18
Bedford UD	4	120	368	18	12
Shelbyville Power, Water, Sewerage System	10	300	921	46	31
Spring Hill Water Dept	6	180	552	28	18
Total	64	1920	5892	295	196

Note: Permitted withdrawal rates (not demands) were used for initial estimates

Off-stream Storage Reservoir – Maury Co. Water

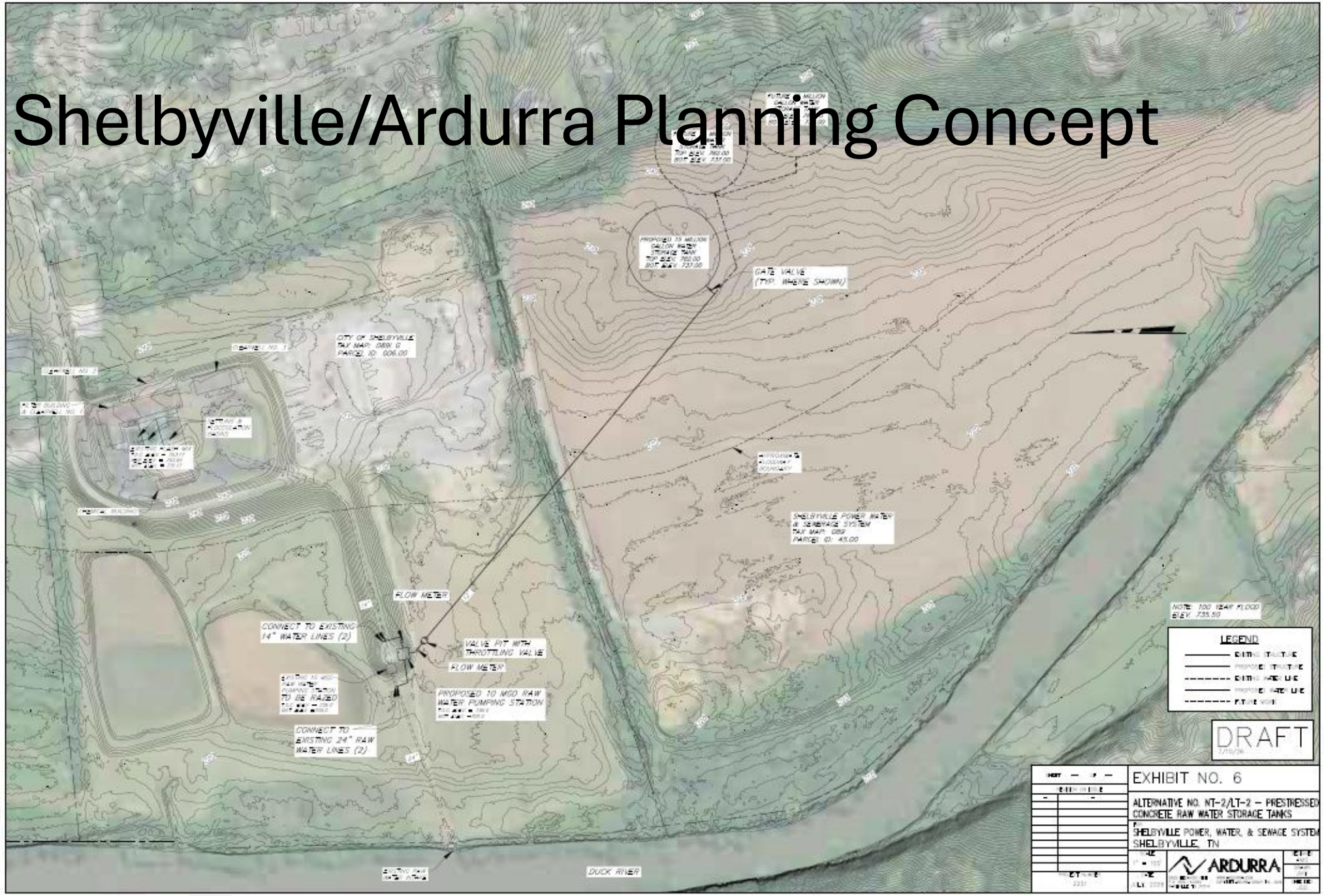
V = 90 MG
A = 9 to 14 Ac

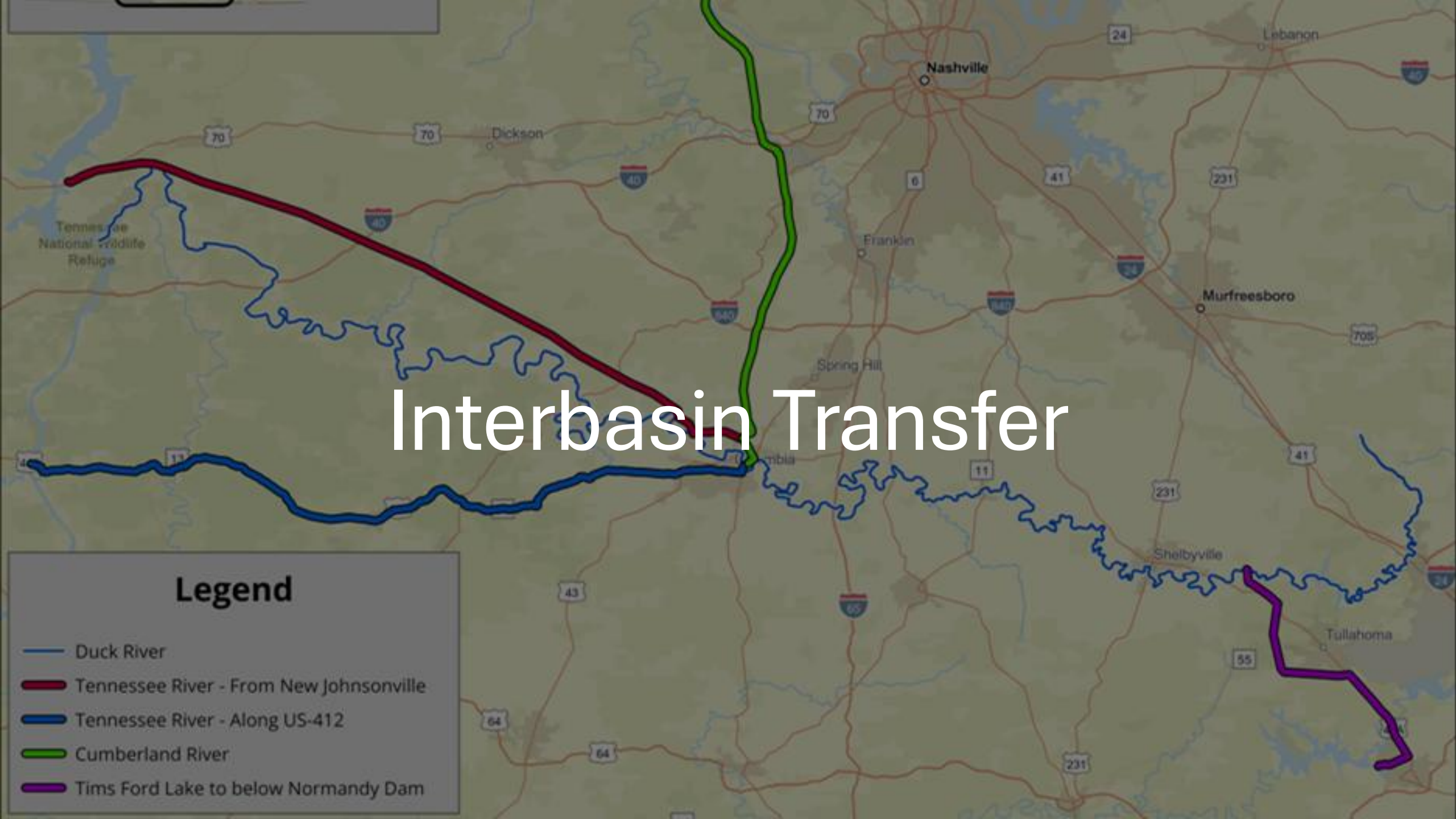
Off-stream Storage Reservoir – Shelbyville

Entity	Intake Flowrate (MGD)	Storage Days	Reservoir Depth (FT)	Reservoir Area (AC)
Shelbyville PWSS	10			
Option 1 – City Owned Land		30	30	31
Option 2 – Abandoned Quarry		9	20	14

- Storage Volume = 300 MG
- Average Basin Cost Estimate - $101,000,000

Shelbyville/Ardurra Planning Concept




Interbasin Transfer
Legend
Duck River
Tennessee River - From New Johnsonville
Tennessee River - Along US-412
Cumberland River
Tims Ford Lake to below Normandy Dam
Nashville
Lebanon
Dickson
Franklin
Murfreesboro
Spring Hill
Shelbyville
Tullahoma

Tims Ford Lake to Shelbyville PWSS Transfer

Tims Ford Lake to Shelbyville PWSS Transfer Cost	
Item	**Cost**
Pipeline	$ 335,554,560
Raw Water Intake & PS	$ 128,000,000
Booster Station(s)	$ 64,000,000
Engineering (10%)	$ 52,755,456
Land & Legal ($75/ft)	$ 13,107,600
Contingency (50%)	$ 296,708,808
Sum of Project Costs	**$ 890,126,424**

Meeting w/TVA April 2026

Regarding IBT from Tims Ford Watershed to Duck River Watershed, TVA's concerns are impacts to power generation, recreation, and water quality:

- If water is transferred from Tims Ford to another basin, TVA would likely request annual reimbursement for lost revenue, because this water would otherwise generate power at Tims Ford and all downstream hydropower dams before Kentucky.
- IBT will require a robust NEPA review and likely an Environmental Impact Statement, adding complexity and cost to the project.

Meeting w/TVA (Continued)

Regarding the IBT option from Tims Ford to Shelbyville:

- Shelbyville's intake is upstream of river gauge, so releases from Normandy already account for Shelbyville's total withdrawal; if Shelbyville's withdrawal needs are met through IBT, is the ~10 cfs from Normandy enough to help with withdrawal needs downstream?

- If Shelbyville's current ~10 cfs was allowed downstream, would it be lost to the losing reaches before Columbia, negating the effectiveness of an IBT solution at Shelbyville?

Meeting w/TVA (Continued)

- Industry standard for flood risk planning is 100- to 500-year flood event depending on regulatory requirements; it is recommended TDEC determine design drought event for water withdrawal planning.

Next Steps

- Refine planning criteria – establish design drought parameters.
- Incorporate demand projections and update OSSR Storage Volume Calculations and cost opinions.
- Prepare report deliverable w/recommendations for next phase.

Questions

Gresham Smith