PLATEAU RWPG MEETING
WSP (FORMERLY LBG-GUYTON)
TECHNICAL CONSULTANT PRESENTATION
REGIONAL WATER PLANNING
WORKING SCHEDULE
### Working Schedule: Fifth Cycle of Regional Water Planning

<table>
<thead>
<tr>
<th>Item</th>
<th>Entity</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>TWDB</td>
<td>Release list of new municipal WUGs under utility boundary process</td>
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<tr>
<td>2</td>
<td>TWDB</td>
<td>Draft population and mining, and municipal demand projections prepared and made available by TWDB</td>
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<tr>
<td>3</td>
<td>RWPG</td>
<td>Identify any optional sub-WUGs for RWPA so the TWDB can incorporate these entities into the DB22 data structure</td>
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<td>4</td>
<td>TWDB</td>
<td>Draft livestock, irrigation, manufacturing, and steam-electric power demand projections made available by TWDB</td>
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<tr>
<td>5</td>
<td>RWPG</td>
<td>Review draft projections and finalize adjustments and WUG list with TWDB staff</td>
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<td>6</td>
<td>TWDB</td>
<td>Adopt all projections</td>
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<td>7</td>
<td>TWDB/RWPG</td>
<td>DB22 prepared and released for data entry</td>
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<tr>
<td>8</td>
<td>TWDB/RWPG</td>
<td>DB22 consultant training</td>
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<tr>
<td>9</td>
<td>RWPG</td>
<td>Evaluate water availability and existing water supplies</td>
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<tr>
<td>10</td>
<td>RWPG</td>
<td>Identify Water Needs</td>
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<tr>
<td>11</td>
<td>RWPG</td>
<td>Identify potentially feasible WMSs</td>
</tr>
<tr>
<td>12</td>
<td>TWDB</td>
<td>New Modeled Available Groundwater (MAG) volumes being issued by TWDB based on updated Desired Future Conditions (DFCs) - ESTIMATED</td>
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<tr>
<td>13</td>
<td>TWDB</td>
<td>TWDB Planning Rule Revisions</td>
</tr>
<tr>
<td>14</td>
<td>TWDB/RWPG</td>
<td>Next RFA for Regional Water Planning Grant (Public Notice, remaining SOW, Total Study Cost)</td>
</tr>
<tr>
<td>15</td>
<td>TWDB/RWPG</td>
<td>Amend Contracts with additional funding (WMS evaluation fundline to remain as notice-to-proceed)</td>
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#### Activity Breakdown
- **Identification of Optional Sub-WUGs Due: 9/1/17**
- **Review & Finalize Draft Projections and WUG List Due: 1/12/18**
- **Evaluate Water Source Availability & Existing Supplies**
- **Identify Water Needs**
- **Identify Potentially Feasible WMSs (Approx.)**

#### Key Dates
- **October 2017**

**Note:**
- Develop SW / GW Availability Volumes & Infrastructure Supply Volumes.
MATERIAL COVERED AT PREVIOUS MEETING

• APPROVED POPULATION, MUNICIPAL & WATER DEMAND PROJECTIONS (WITH THE EXCEPTION OF THE CITY OF KERRVILLE) FOR TWDB’S JANUARY 12TH SUBMITTAL DEADLINE

• APPROVED MAJOR WATER PROVIDERS

• AUTHORIZE THE CITY OF KERRVILLE, THE CONSULTANTS & THE CHAIR TO MODIFY POPULATION AND WATER Demands AS NECESSARY FOR KERR COUNTY.
TODAY’S DISCUSSION

• DISCUSS GROUNDWATER SUPPLY SOURCES
• DISCUSS GROUNDWATER SUPPLY ANALYSIS PROCESS
• DISCUSS SURFACE WATER SUPPLY ANALYSIS PROCESS
• DISCUSS PROCESS FOR IDENTIFYING POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES
• DISCUSS THE DRAFT CHAPTER 2
CHAPTER 3: WATER SUPPLY AVAILABILITY

SOURCE AVAILABILITY

• FRESH GROUNDWATER
• BRACKISH GROUNDWATER
• SURFACE WATER
• LOCAL SUPPLY
• REUSE

INFRASTRUCTURE AVAILABILITY
PLATEAU REGION
GROUNDWATER

• OVERVIEW OF AQUIFERS IN THE PLATEAU REGION
• GROUNDWATER AVAILABILITY
• PLATEAU REGION’S APPROACH TO GROUNDWATER
GROUNDWATER SUPPLY SOURCES

• MAJOR AQUIFERS
• MINOR AQUIFERS
• OTHER AQUIFERS
• BRACKISH AQUIFERS
PLATEAU REGION
GROUNDWATER MANAGEMENT AREAS
DFC / MAG TIMELINE

- Desired Future Conditions (DFC’s) were provided to TWDB by GMA’s in 2016
- TWDB is currently finalizing the Modeled Available Groundwater (MAG) Reports
  - GMA 7 – Should be finalized late February
  - GMA 9 – **IS AVAILABLE** (Trinity, ET (Plateau), Ellenburger-San Sabá & Hickory Aquifers)
  - GMA 10 – Should be finalized March / April
GROUNDWATER AVAILABILITY APPROACH

• WSP (FORMERLY LBG-GUYTON) WILL USE THE MAG ESTIMATES AS GUIDANCE FOR GROUNDWATER AVAILABILITY BY COUNTY/AQUIFER/RIVER BASIN

• IF DEMANDS ARE GREATER THAN MAGS
   - COMPLETE A LOCAL HYDROGEOLOGIC ASSESSMENT
PLATEAU REGION
SURFACE WATER SUPPLY ANALYSIS
(CAROLLO)
Regional Surface Water Planning and Modeling
Plateau Water Planning Group
Evaluating Available Surface Water Supply

Evaluated as the amount of water that a user can depend on obtaining during drought of record conditions

- **Reservoirs**: Firm Yield
- **Run of river**: Reliable (100%) monthly diversion during driest period of record
Based on infrastructure that is currently in place.

Based on the assumption that all senior downstream water rights are being fully utilized.

A properly issued water right is no guarantee of access to water.
Water Availability Models (WAMs)

As required by rule, TCEQ WAMs (Run 3) will be used.

- Colorado, & Brazos-Colorado
- Guadalupe & San Antonio
- Nueces
- Rio Grande
What is WAM?
Water Availability Model

• Models used by TCEQ for permitting surface water use

• Utilize historical flow, naturalized using:
  – Developed from USGS Gage Data, Historical Use and Historical Return Flows,
  – Historical Rainfall and Evaporation,
  – Permitted Diversion Volumes, Patterns, and Location

• Models the natural hydrology of the river basin to evaluate effects of permitted water diversion/use.
Use of Water Availability Models

- Implements prior appropriation system
  - (first in time, first in right)

- Conservatively determine water availability and reliability
  - Full permit conditions
  - Original reservoir capacities
  - No return flows (i.e. discharges)

- Critical period

- Environmental flows
Plateau Regional Planning Area

- **Colorado & Brazos-Colorado WAM**
  - Currently unavailable, pending TCEQ update
  - Approximately 3 Water Rights

- **Guadalupe & San Antonio WAM**
  - ver. October 17, 2014
  - Approximately 176 Water Rights

- **Nueces WAM**
  - Approximately 86 Water Rights

- **Rio Grande WAM**
  - ver. October 17, 2014
  - Approximately 36 Water Rights
## Surface Water Supplies to be Evaluated

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<th>Surface Water</th>
<th>County</th>
<th>Basin</th>
<th>Salinity</th>
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<td>Kerr</td>
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<tr>
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<td>Rio Grande</td>
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<td>Rio Grande Other Local Supply</td>
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<td>Rio Grande Run-Of-River</td>
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<td>*Rio Grande Run-Of-River</td>
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TWDB Surface Water Supply Guidance

- Employ most current TCEQ WAMs

- Obtain TWDB approval of hydrologic assumptions, models, and/or any variations from requirements
  - Operational requirements
  - Sedimentation

- Constraints
  - Availability
  - Physical
  - Legal
Municipal and Industrial Supply Assumptions

• Run of the river rights will be determined in accordance with TWDB guidelines. Use-appropriate monthly percentage of the annual firm diversion must be satisfied in each and every month of the simulation period for all surface water diversions, i.e., minimum monthly diversion amounts that are available 100% of the time.

• Reservoirs will use firm yield, unless a change is specifically requested by a reservoir owner and approved by the RWPG and TWDB, per TWDB guidelines.

• The calculated source availabilities will be compared against existing legal and infrastructure constraints (water treatment plants, pipelines, intakes, etc.) and will be constrained if the existing infrastructure or legal capability is not sufficient to facilitate full utilization of the source. The most constrained amount will be used as the firm supply.
Irrigation and Livestock Supply Assumptions

• Water supply for irrigation rights will be determined using firm reliability (100%). Per TWDB guidance, in the absence of any supply information or justification of reliable supplies available in a drought of record, supply values will be set equal to zero.

• Per TWDB guidance, in the absence of any supply information or justification of reliable supplies available in a drought of record, livestock supply values will be set equal to zero.
Simulation of Future Reservoir Conditions

• Reservoirs updated with decadal (2020 – 2070) elevation-area-capacity information (where available)

• If no recent surveys available, original area-capacity relations will be assumed.
Surface Water Supply Evaluation Objectives

• Determine decadal firm yield of existing water rights to identify surface water supply
  - Account for reservoir sedimentation where appropriate

• Determine reliable supply for run-of-river permits

• Identify yield/reliability of potential surface water management strategies

• Inter-regional coordination
Path Forward

- Compile most recent authorized and active Surface Water Rights

- Compile most recent (5 yr) reported Annual Diversions

- Develop Surface Water Supply Assumptions Memorandum for review and approval of RWPG and submittal to TWDB.
Questions?
PLATEAU REGION

POTENTIALLY FEASIBLE STRATEGY PROCESS
(SEE HANDOUT)
PLATEAU REGION

REVIEW DRAFT CHAPTER 2