BRAZOS G
WATER PLANNING GROUP

BRAZOS G REGIONAL WATER PLANNING GROUP

June 23, 2021

10:00 A.M.

Brazos River Authority

Waco, TX

BRAZOS G
WATER PLANNING GROUP

1. CALL THE MEETING TO ORDER
2. INVOCATION
3. NOTICE OF MEETING
4. ATTENDANCE AND ANNOUNCEMENTS
5. PUBLIC INPUT (limited to 5 minutes each)

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6.1. Report and possible discussion from Texas Water Development Board (TWDB) staff

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6.2. Presentation by TWDB Staff on the Statewide Suitability Survey for ASR-AR

Statewide Survey of Aquifer Suitability for Aquifer Storage and Recovery Projects or Aquifer Recharge Projects

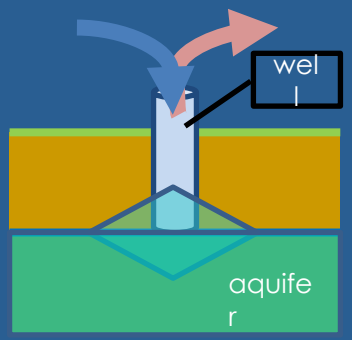
James A. Golab, Ph.D., P.G.
Innovative Water Technologies
Texas Water Development Board

Presented for the Region G Water Planning Group
June 23, 2021, 10:00 AM CDT

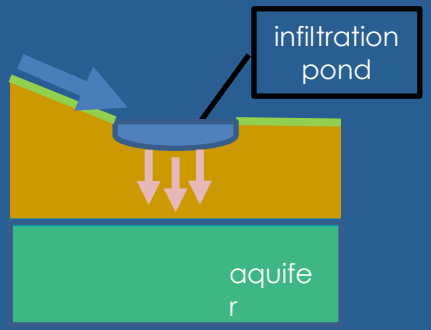
What is ASR and AR?

- **Aquifer storage & recovery** (ASR) is using a well to inject water into an aquifer for the purpose of subsequent recovery and beneficial use
- **Aquifer Recharge**, (AR, or sometimes MAR) is the controlled recharge of an aquifer at the surface through various methods such as infiltration basins.

ASR

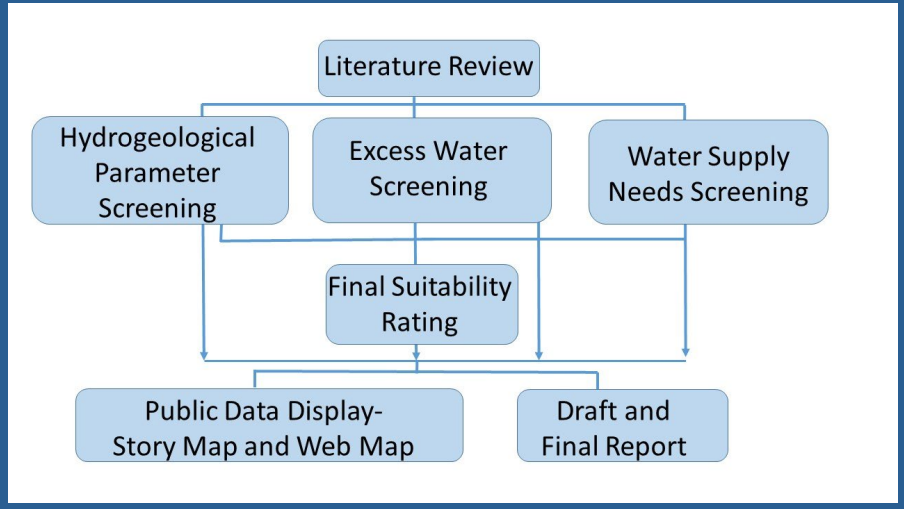


AR

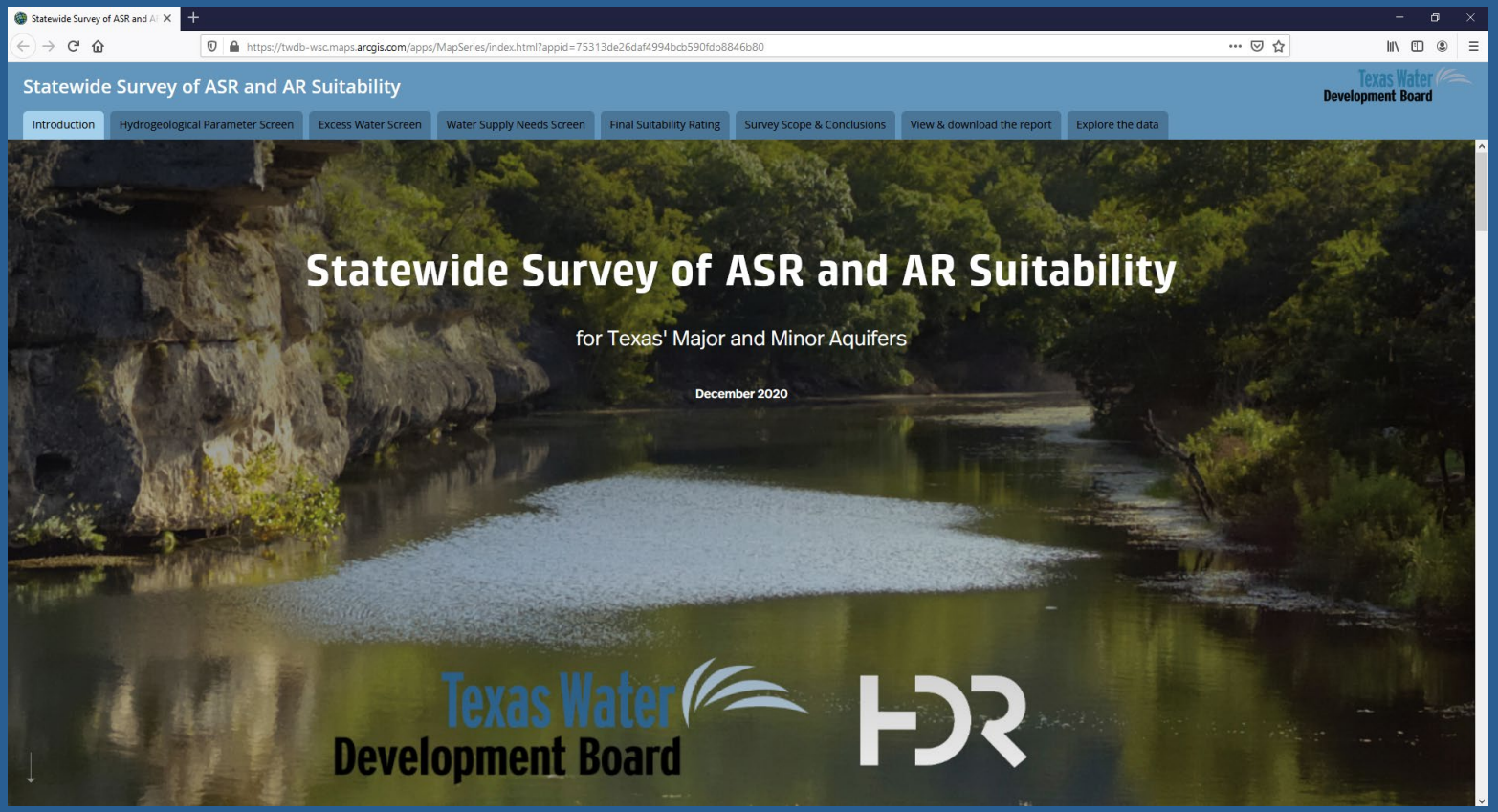


Introduction

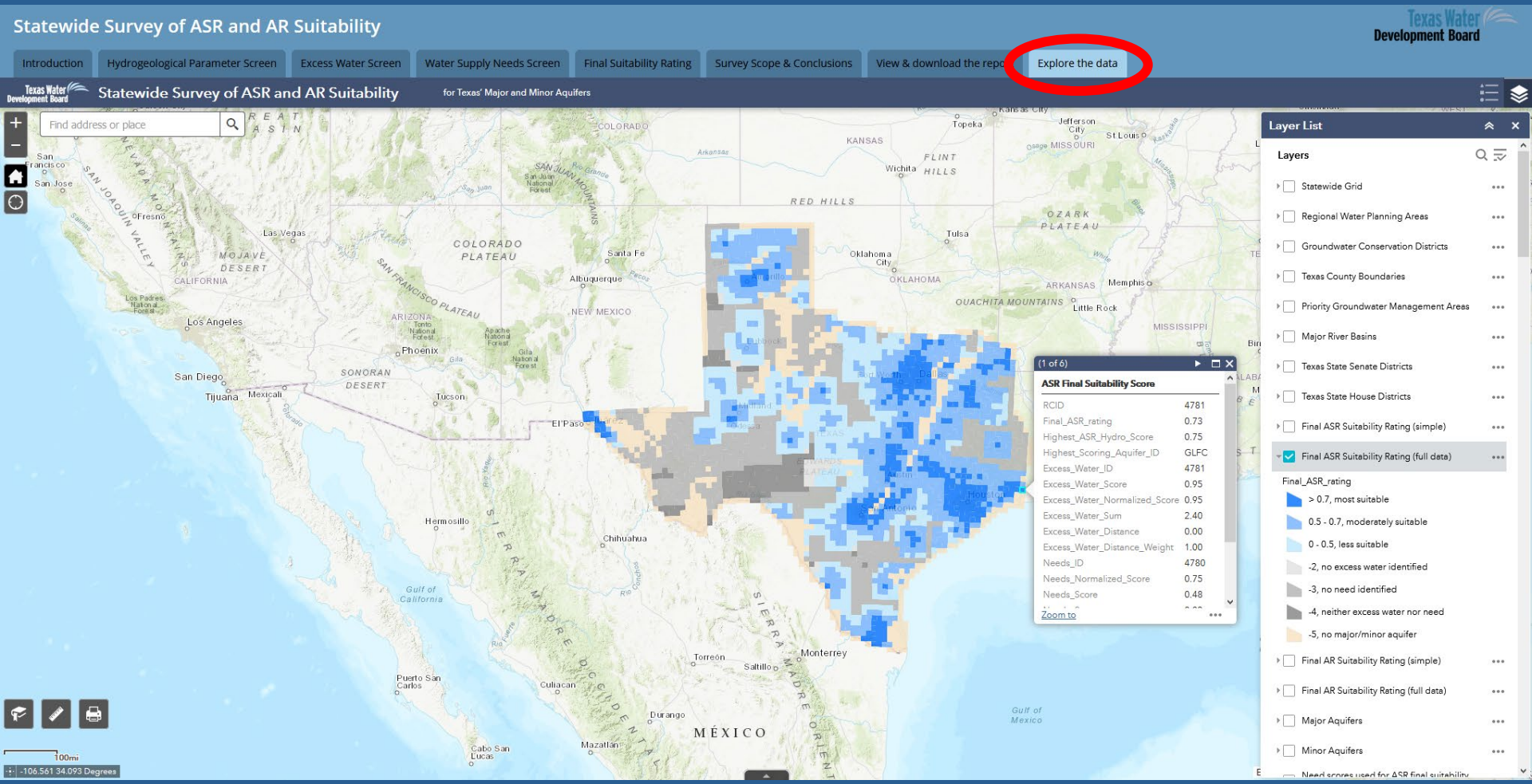
- 2019: Texas Legislature directed the Texas Water Development Board (TWDB) to survey ASR and AR potential statewide (House Bill 721)
- TWDB contracted with HDR
- Must include:
  - hydrogeological characteristics,
  - availability of excess water sources, and
  - the current and future water supply needs
- Resulted in final suitability ratings
- Completed published December 2020

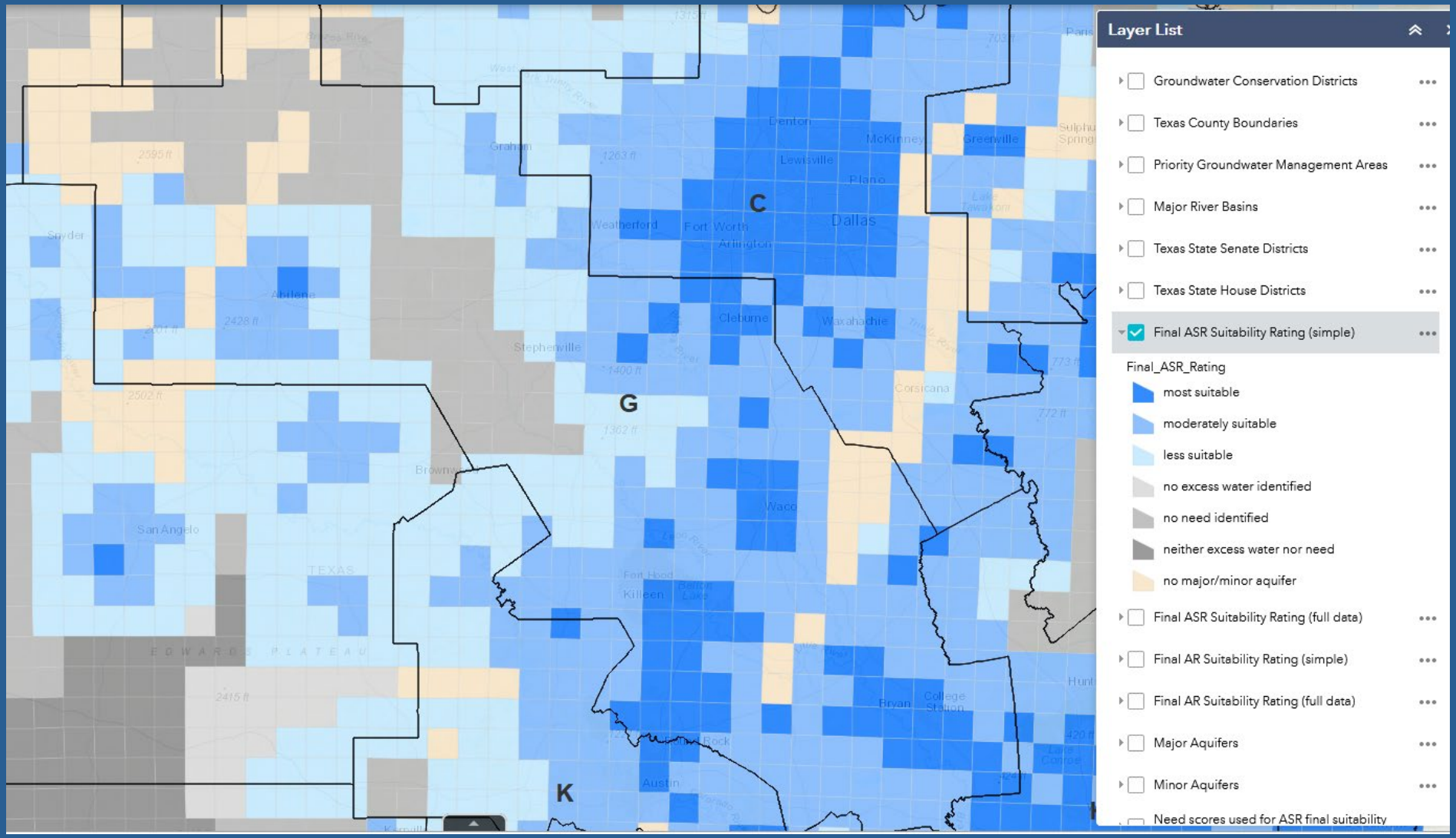


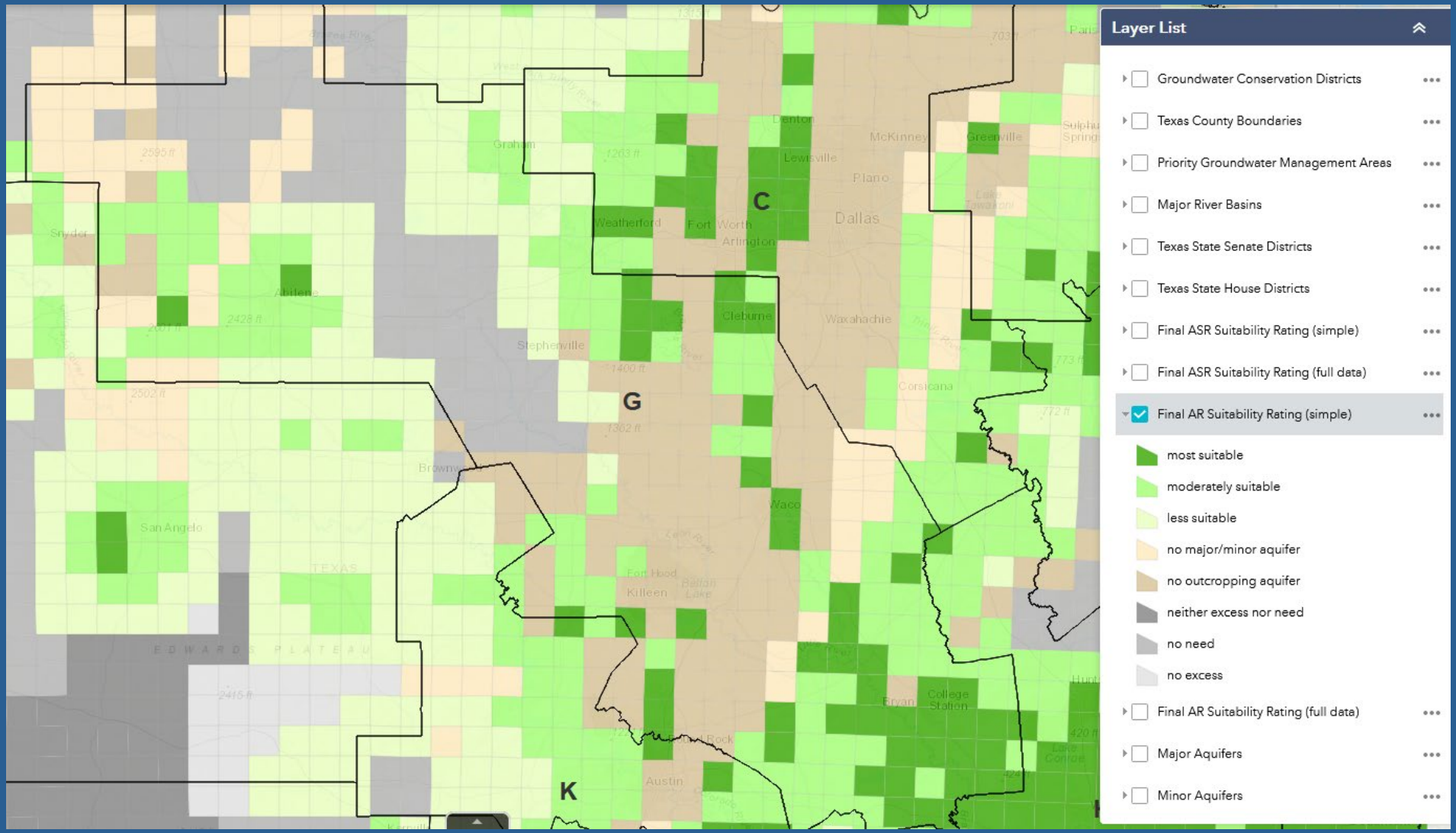
Public Data Display

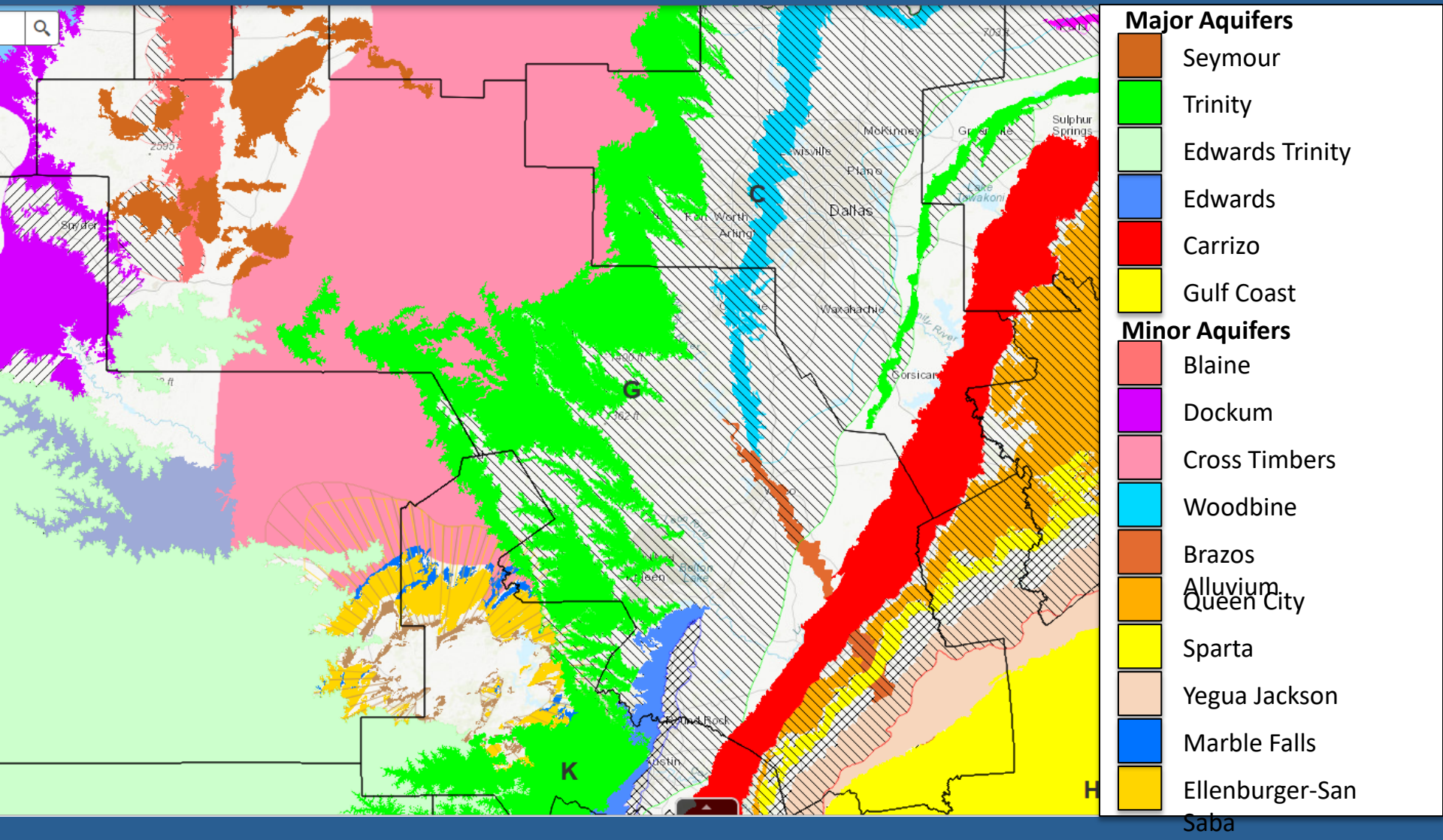


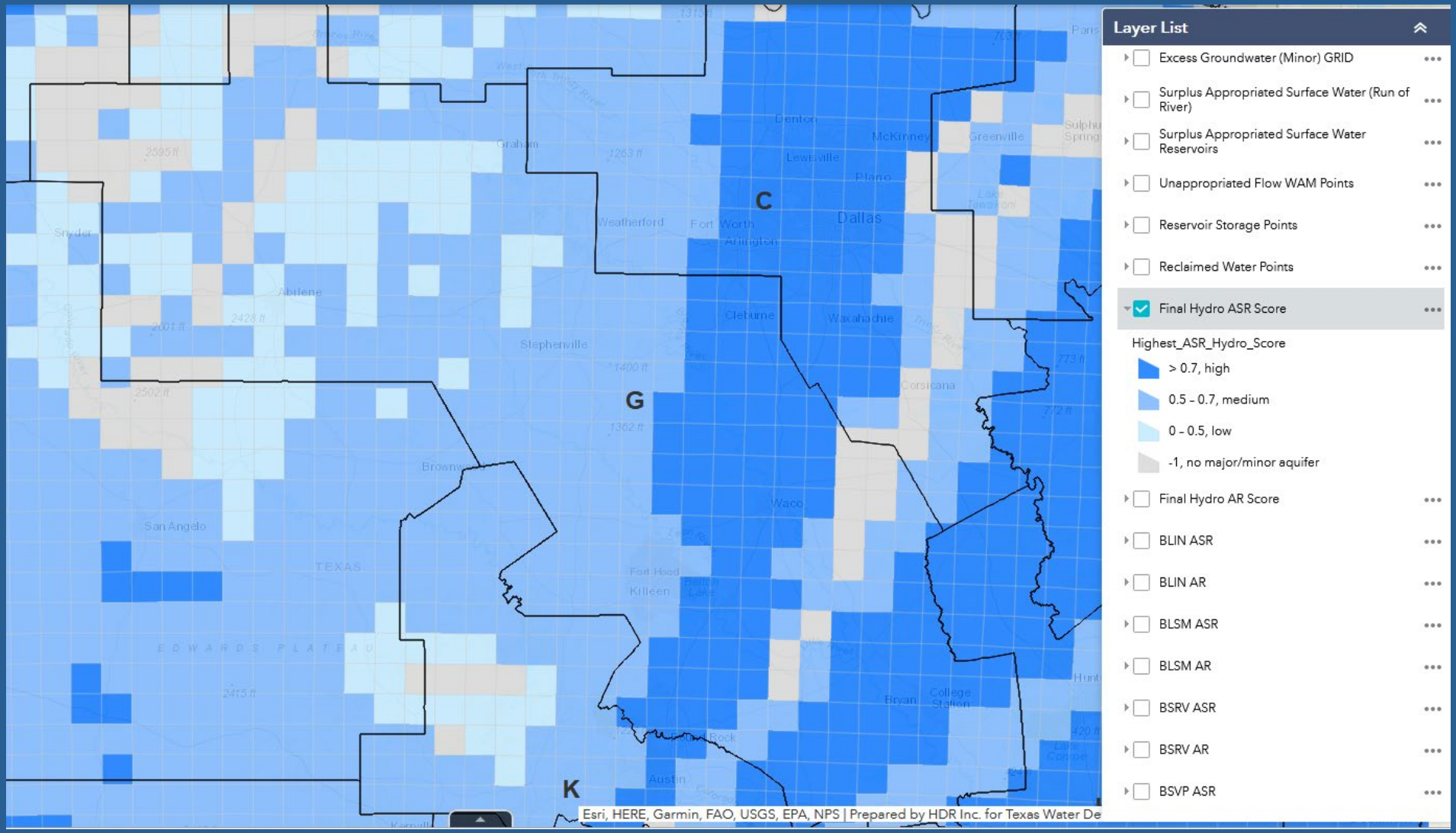
https://twdb-wsc.maps.arcgis.com/apps/MapSeries/index.html?appid=75313de26daf4994bcb590fdb8846b80

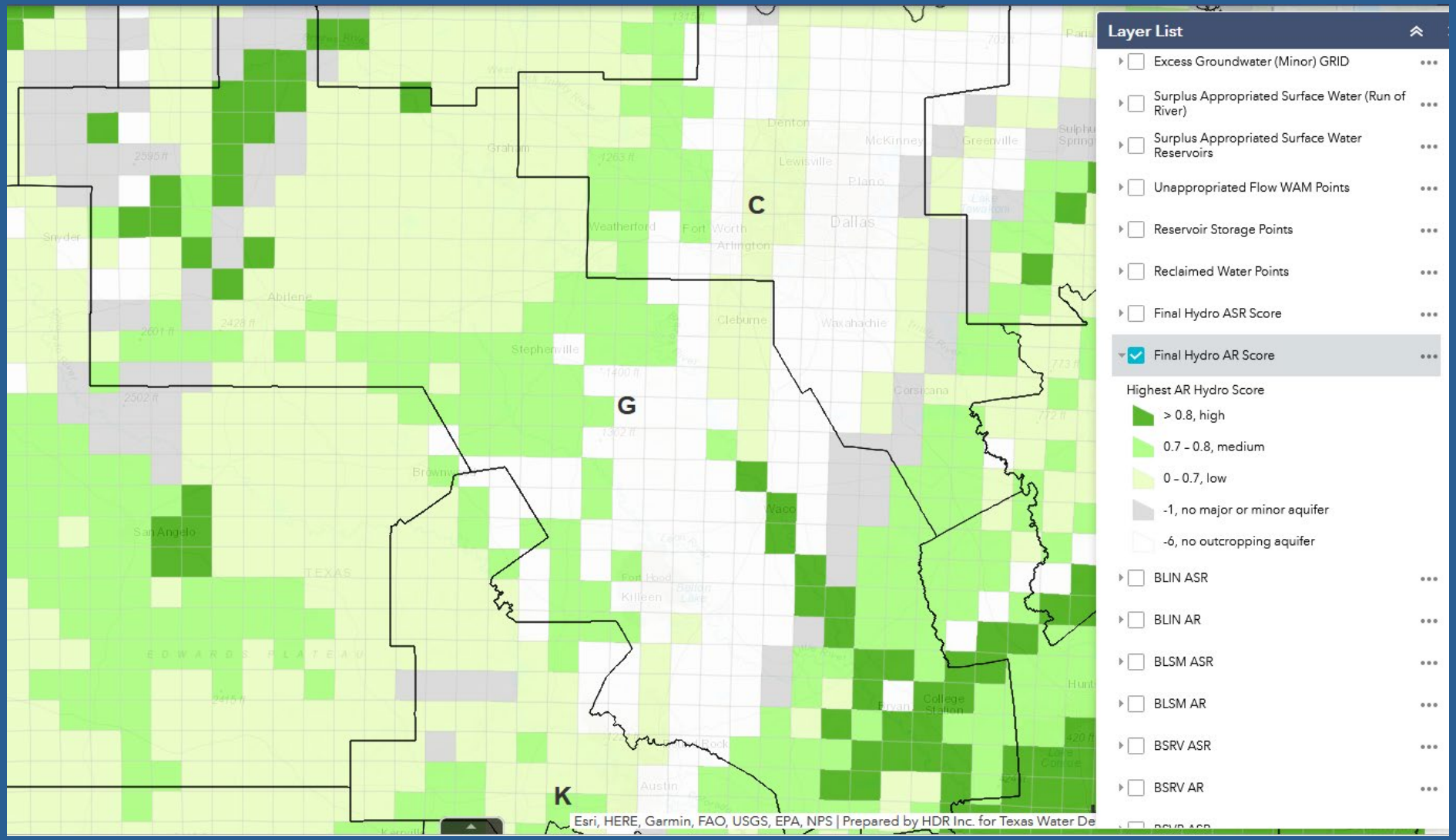

Statewide Survey of ASR and AR Suitability
Texas Water Development Board
Introduction
Hydrogeological Parameter Screen
Excess Water Screen
Water Supply Needs Screen
Final Suitability Rating
Survey Scope & Conclusions
View & download the repo
Explore the data
Statewide Survey of ASR and AR Suitability
for Texas' Major and Minor Aquifers
Find address or place
Layer List
Layers
Statewide Grid
Regional Water Planning Areas
Groundwater Conservation Districts
Texas County Boundaries
Priority Groundwater Management Areas
Major River Basins
Texas State Senate Districts
Texas State House Districts
Final ASR Suitability Rating (simple)
Final ASR Suitability Rating (full data)
Final_ASR_rating
> 0.7, most suitable
0.5 - 0.7, moderately suitable
0 - 0.5, less suitable
-2, no excess water identified
-3, no need identified
-4, neither excess water nor need
-5, no major/minor aquifer
Final AR Suitability Rating (simple)
Final AR Suitability Rating (full data)
Major Aquifers
Minor Aquifers
(1 of 6)
ASR Final Suitability Score
RCID 4781
Final_ASR_rating 0.73
Highest_ASR_Hydro_Score 0.75
Highest_Scoring_Aquifer_ID GLFC
Excess_Water_ID 4781
Excess_Water_Score 0.95
Excess_Water_Normalized_Score 0.95
Excess_Water_Sum 2.40
Excess_Water_Distance 0.00
Excess_Water_Distance_Weight 1.00
Needs_ID 4780
Needs_Normalized_Score 0.75
Needs_Score 0.48
Zoom to
MÉXICO
Gulf of California
Gulf of Mexico
-106.561 34.093 Degrees

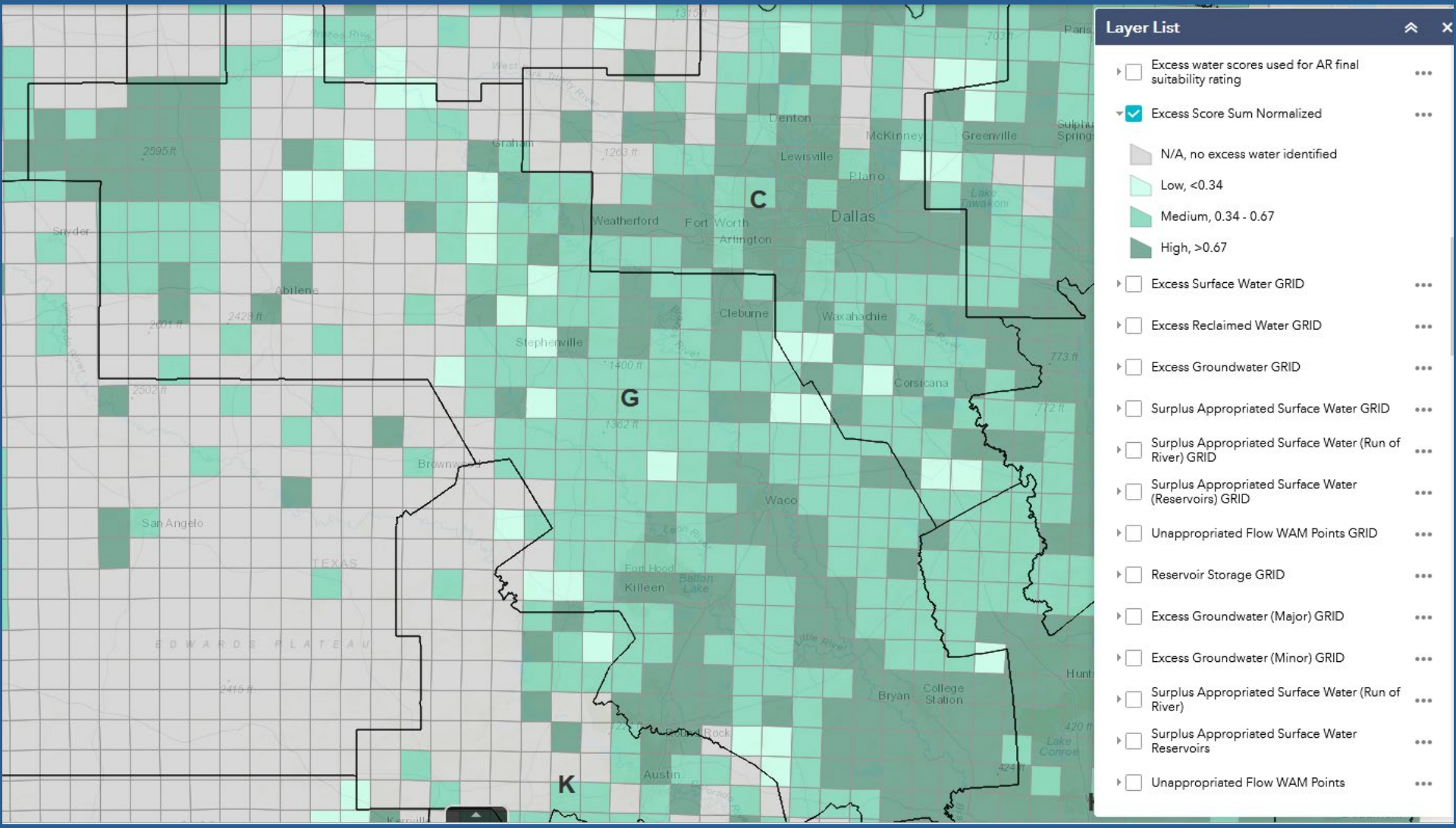

Layer List
Groundwater Conservation Districts
Texas County Boundaries
Priority Groundwater Management Areas
Major River Basins
Texas State Senate Districts
Texas State House Districts
Final ASR Suitability Rating (simple)
Final_ASR_Rating
most suitable
moderately suitable
less suitable
no excess water identified
no need identified
neither excess water nor need
no major/minor aquifer
Final ASR Suitability Rating (full data)
Final AR Suitability Rating (simple)
Final AR Suitability Rating (full data)
Major Aquifers
Minor Aquifers
Need scores used for ASR final suitability
C
G
K
Dallas
Fort Worth
Arlington
Denton
McKinney
Greenville
Lewisville
Plano
Weatherford
Graham
Snyder
Abilene
Stephenville
Cleburne
Waxahachie
Corsicana
Waco
Brownwood
San Angelo
TEXAS
Killeen
Fort Hood
Bryan
College Station
Austin
EDWARDS PLATEAU

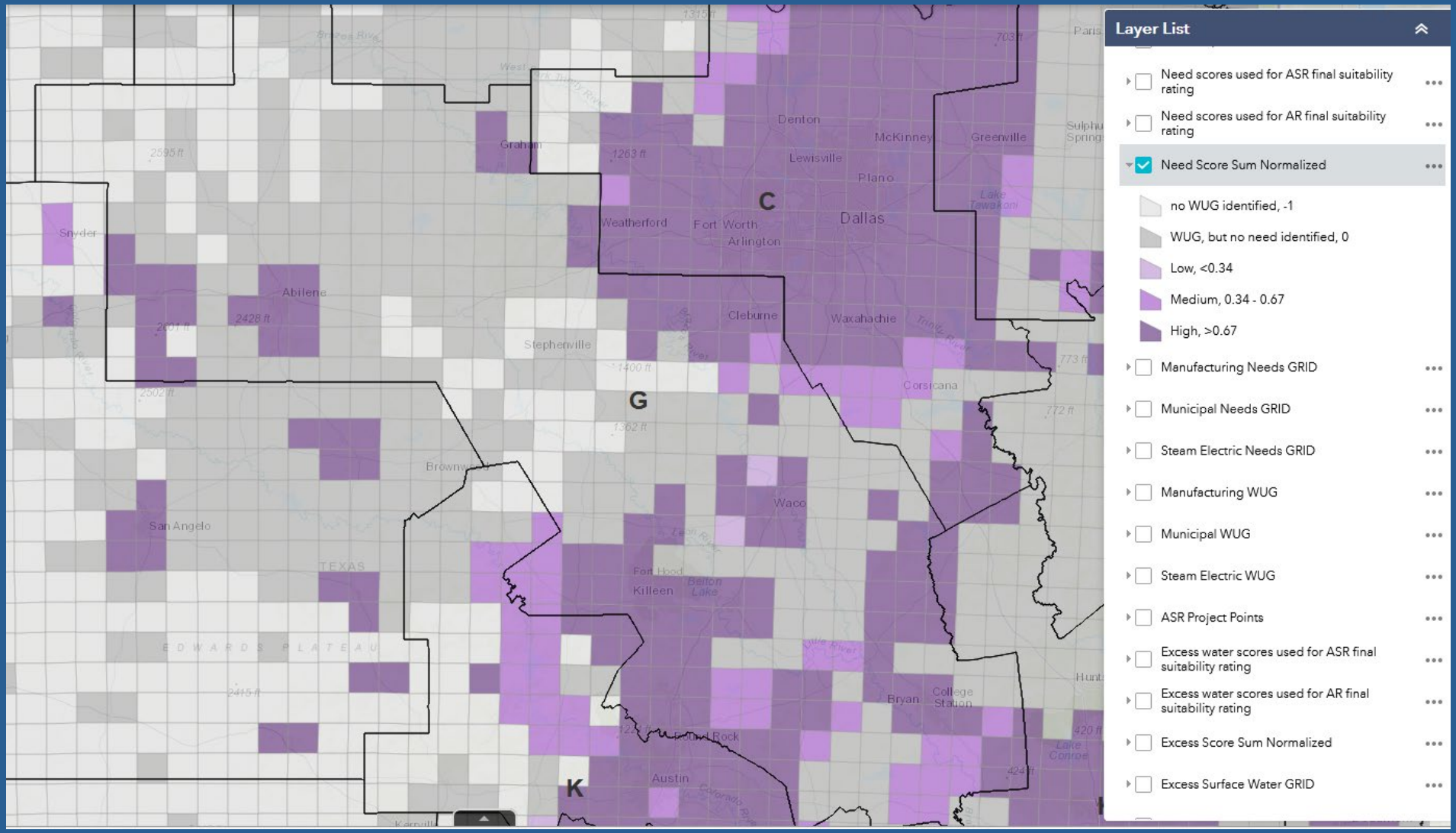

Layer List
Groundwater Conservation Districts
Texas County Boundaries
Priority Groundwater Management Areas
Major River Basins
Texas State Senate Districts
Texas State House Districts
Final ASR Suitability Rating (simple)
Final ASR Suitability Rating (full data)
Final AR Suitability Rating (simple)
most suitable
moderately suitable
less suitable
no major/minor aquifer
no outcropping aquifer
neither excess nor need
no need
no excess
Final AR Suitability Rating (full data)
Major Aquifers
Minor Aquifers
C
G
K
Dallas
Fort Worth
Arlington
Weatherford
Graham
Abilene
Stephenville
Cleburne
Waxahachie
Corsicana
Waco
Killeen
Fort Hood
Austin
San Angelo
TEXAS
EDWARDS PLATEAU
Brownwood
Lewisville
Plano
McKinney
Greenville
College Station


Major Aquifers
Seymour
Trinity
Edwards Trinity
Edwards
Carrizo
Gulf Coast
Minor Aquifers
Blaine
Dockum
Cross Timbers
Woodbine
Brazos Alluvium
Queen City
Sparta
Yegua Jackson
Marble Falls
Ellenburger-San Saba
Dallas
Fort Worth
Arlington
Waxahachie
Sulphur Springs
McKinney
Plano
Lewisville
Snyder
Austin
C
G
K
H


Layer List
Excess Groundwater (Minor) GRID
Surplus Appropriated Surface Water (Run of River)
Surplus Appropriated Surface Water Reservoirs
Unappropriated Flow WAM Points
Reservoir Storage Points
Reclaimed Water Points
Final Hydro ASR Score
Highest_ASR_Hydro_Score
> 0.7, high
0.5 - 0.7, medium
0 - 0.5, low
-1, no major/minor aquifer
Final Hydro AR Score
BLIN ASR
BLIN AR
BLSM ASR
BLSM AR
BSRV ASR
BSRV AR
BSVP ASR
C
G
K
Dallas
Fort Worth
Arlington
Denton
McKinney
Plano
Lewisville
Weatherford
Abilene
Stephenville
Cleburne
Waxahachie
Corsicana
Waco
Brownwood
San Angelo
TEXAS
Killeen
Fort Hood
Bryan
College Station
Austin
Esri, HERE, Garmin, FAO, USGS, EPA, NPS | Prepared by HDR Inc. for Texas Water De


Layer List
Excess Groundwater (Minor) GRID
Surplus Appropriated Surface Water (Run of River)
Surplus Appropriated Surface Water Reservoirs
Unappropriated Flow WAM Points
Reservoir Storage Points
Reclaimed Water Points
Final Hydro ASR Score
Final Hydro AR Score
Highest AR Hydro Score
> 0.8, high
0.7 – 0.8, medium
0 – 0.7, low
-1, no major or minor aquifer
-6, no outcropping aquifer
BLIN ASR
BLIN AR
BLSM ASR
BLSM AR
BSRV ASR
BSRV AR
C
G
K
Esri, HERE, Garmin, FAO, USGS, EPA, NPS | Prepared by HDR Inc. for Texas Water De


Layer List
Excess water scores used for AR final suitability rating
Excess Score Sum Normalized
N/A, no excess water identified
Low, <0.34
Medium, 0.34 - 0.67
High, >0.67
Excess Surface Water GRID
Excess Reclaimed Water GRID
Excess Groundwater GRID
Surplus Appropriated Surface Water GRID
Surplus Appropriated Surface Water (Run of River) GRID
Surplus Appropriated Surface Water (Reservoirs) GRID
Unappropriated Flow WAM Points GRID
Reservoir Storage GRID
Excess Groundwater (Major) GRID
Excess Groundwater (Minor) GRID
Surplus Appropriated Surface Water (Run of River)
Surplus Appropriated Surface Water Reservoirs
Unappropriated Flow WAM Points
C
G
K
Dallas
Fort Worth
Arlington
Weatherford
Denton
Lewisville
McKinney
Greenville
Plano
Graham
Abilene
Snyder
Cleburne
Waxahachie
Stephenville
Corsicana
Waco
Killeen
Fort Hood
Belton Lake
San Angelo
TEXAS
EDWARDS PLATEAU
Bryan
College Station
Austin
Lake Conroe
Lake Tawakoni


Layer List
Need scores used for ASR final suitability rating
Need scores used for AR final suitability rating
Need Score Sum Normalized
no WUG identified, -1
WUG, but no need identified, 0
Low, <0.34
Medium, 0.34 - 0.67
High, >0.67
Manufacturing Needs GRID
Municipal Needs GRID
Steam Electric Needs GRID
Manufacturing WUG
Municipal WUG
Steam Electric WUG
ASR Project Points
Excess water scores used for ASR final suitability rating
Excess water scores used for AR final suitability rating
Excess Score Sum Normalized
Excess Surface Water GRID
C
G
K
Dallas
Fort Worth
Arlington
Denton
McKinney
Greenville
Lewisville
Plano
Weatherford
Graham
Snyder
Abilene
Cleburne
Waxahachie
Stephenville
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Waco
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TEXAS
Killeen
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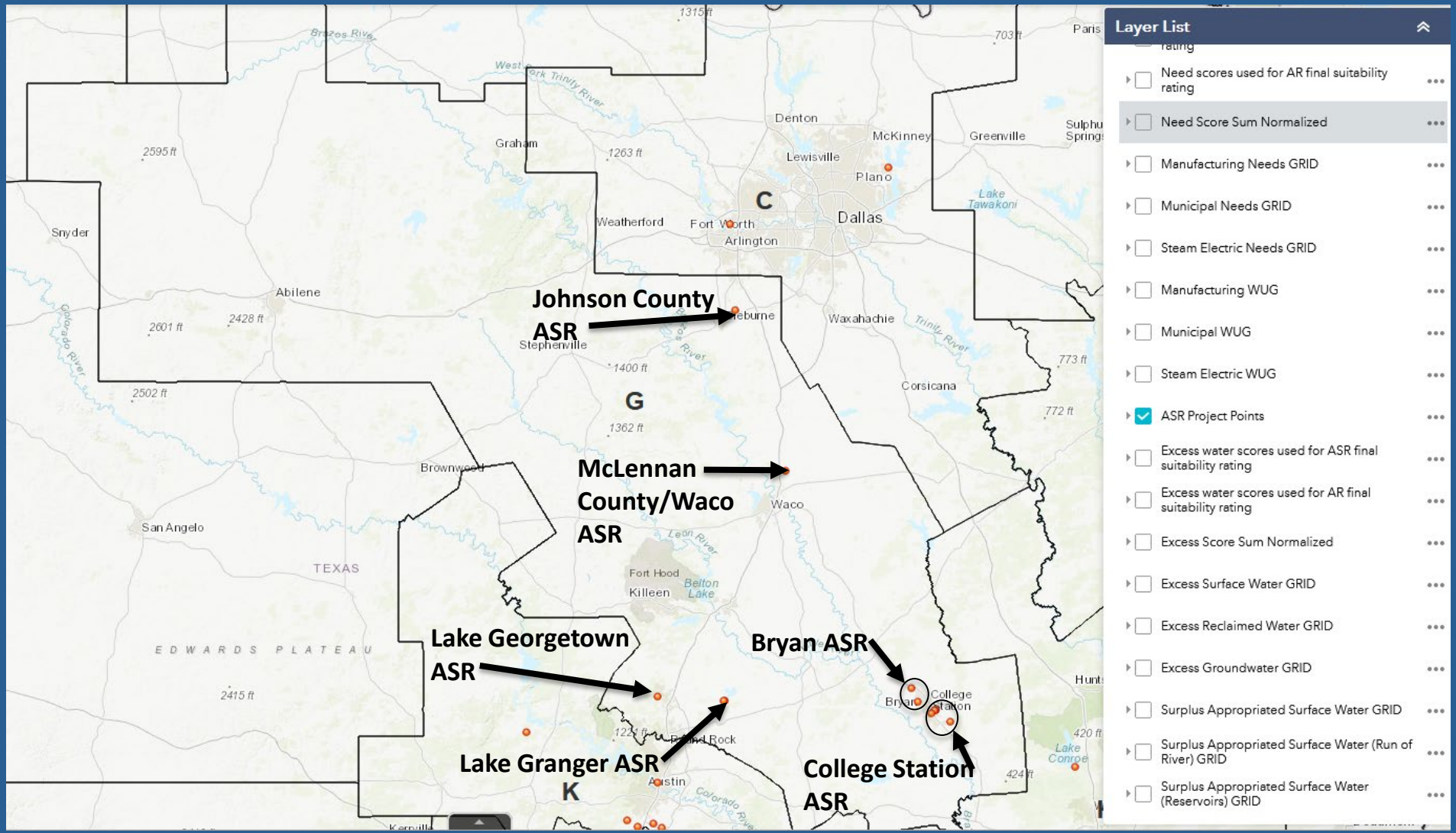
Belton Lake
Bryan
College Station
Austin
EDWARDS PLATEAU


Layer List
Need scores used for AR final suitability rating
Need Score Sum Normalized
Manufacturing Needs GRID
Municipal Needs GRID
Steam Electric Needs GRID
Manufacturing WUG
Municipal WUG
Steam Electric WUG
ASR Project Points
Excess water scores used for ASR final suitability rating
Excess water scores used for AR final suitability rating
Excess Score Sum Normalized
Excess Surface Water GRID
Excess Reclaimed Water GRID
Excess Groundwater GRID
Surplus Appropriated Surface Water GRID
Surplus Appropriated Surface Water (Run of River) GRID
Surplus Appropriated Surface Water (Reservoirs) GRID
Johnson County ASR
McLennan County/Waco ASR
Lake Georgetown ASR
Lake Granger ASR
Bryan ASR
College Station ASR
Denton
McKinney
Greenville
Lewisville
Plano
Dallas
Fort Worth
Arlington
Weatherford
Graham
Snyder
Abilene
Stephenville
Waxahachie
Corsicana
Waco
Brownwood
San Angelo
TEXAS
Fort Hood
Killeen
Belton Lake
EDWARDS PLATEAU
Round Rock
Austin
College Station
Bryan
Lake Tawakoni
Lake Conroe
Trinity River
Brazos River
Colorado River
Leon River
1315ft
703ft
2595ft
1263 ft
2601 ft
2428 ft
1400 ft
2502 ft
1362 ft
773 ft
772 ft
2415 ft
424 ft
420 ft

Benefits and Uses

- Free and public
- Data accessibility
- Data versatility
- Dovetails with the water planning process
- A fresh statewide perspective
- Start conversations
- Explore the data
- Identify areas that could warrant a feasibility analysis
- Arrive at your own conclusions

Access the Data

Project web page:
https://www.twdb.texas.gov/innovativewater/asr/projects/Statewide/index.asp

Story map:
https://twdb-wsc.maps.arcgis.com/apps/MapSeries/index.html?appid=75313de26daf4994bcb590fdb8846b80

Let us know if you would like to know more!

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231,
www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

James A. Golab
(512) 475-1540
james.golab@twdb.texas.gov

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6.3. Report and possible action on recommendation from the Executive Committee regarding the selection of the Technical Consultant for the 6th cycle of regional water planning

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BE IT HEREBY RESOLVED that the Executive Committee recommends to the members of the Brazos G Regional Water Planning Group the selection of Carollo Engineers, Inc. to serve as the Technical Consultant for the Brazos G Regional Water Planning Group for the sixth cycle of regional water planning.

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6.4. Consider and take potential action to authorize the Administrative Agent, Brazos River Authority, to provide public notice of a pre-planning public meeting.

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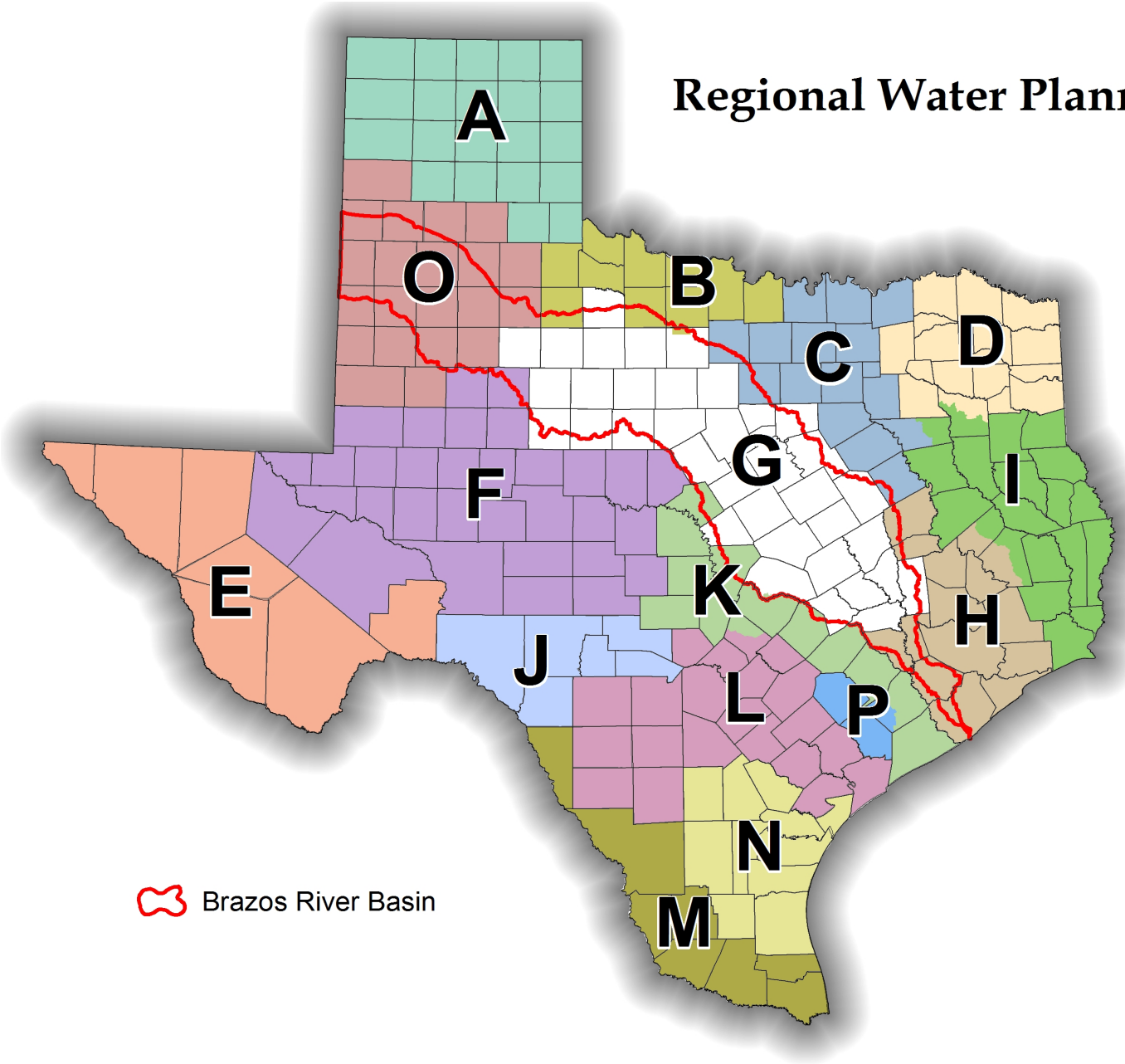
6.5. Report and possible discussion on updates from other regional water planning groups (Regions B, C, F,H, K, L & O).

Regional Water Planning Groups



- A Panhandle
- B Region B
- C Region C
- D North East Texas
- E Far West Texas
- F Region F
- G Brazos G
- H Region H
- I East Texas
- J Plateau
- K Lower Colorado
- L South Central Texas
- M Rio Grande
- N Coastal Bend
- O Llano Estacado
- P Lavaca

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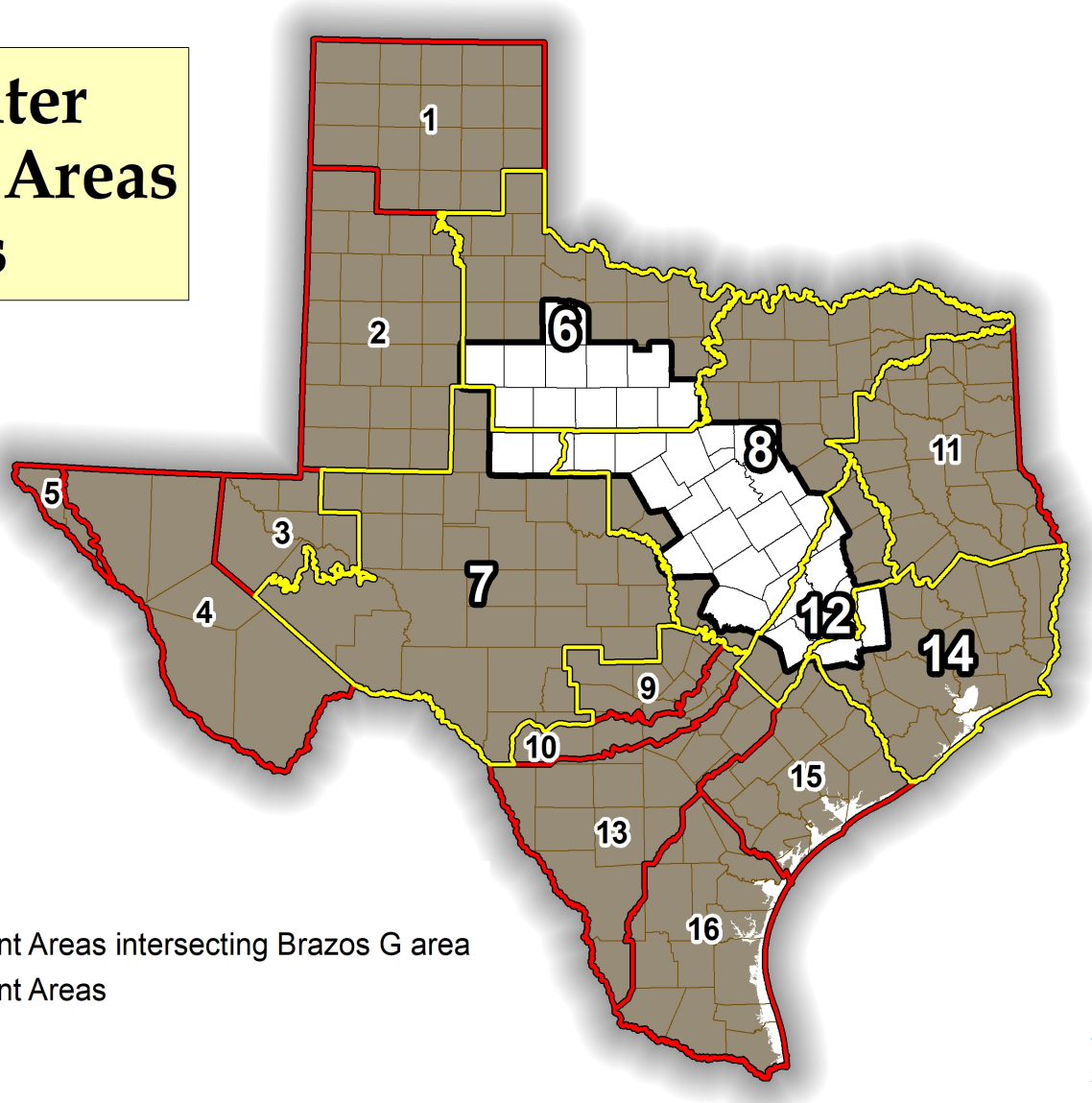
6.6. Report and possible discussion on Groundwater Management Area (GMA) activities.

Groundwater Management Areas of Texas



GMA's in Brazos G:
6, 7, 8, 12, 14

Brazos G Area
Groundwater Management Areas intersecting Brazos G area
Groundwater Management Areas

BRAZOS G
WATER PLANNING GROUP

BRAZOS G
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6.7. Report and possible discussion on agency communication and information. (TPWD, TDA, TSSWCB, BBASC, Interregional Planning Council & Reservoir Firm Yield Study)

BRAZOS G
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6.8. Discussion and possible action on report by Brazos G Administrator

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6.9. Discussion and possible action on report by Brazos G Chair

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7. DISCUSSION AND POSSIBLE ACTION ON NEW BUSINESS TO BE CONSIDERED AT NEXT MEETING

8. CONFIRMATION OF NEXT MEETING DATE

9. ADJOURN