

REGION H
Water Planning Group

**POPULATION DEMANDS
COMMITTEE
MEETING MATERIALS**

July 18, 2023

Common Region H Terms and Conversion Factors

List of Abbreviations

CRU	Collective Reporting Unit
DCP	Drought Contingency Plan
DFC	Desired Future Condition
DOR	Drought of Record
EA	Executive Administrator
EPA	Environmental Protection Agency
FWSD	Fresh Water Supply District
GAM	Groundwater Availability Model
GCD	Groundwater Conservation District
GMA	Groundwater Management Area
GPCD	Gallons Per Capita Per Day
GRP	Groundwater Reduction Plan
IFR	Infrastructure Finance Report
IPP	Initially Prepared Plan
MAG	Modeled Available Groundwater
MPC	Master Planned Community
MUD	Municipal Utility District
MWP	Major Water Provider
PCS	Plumbing Code Savings
PDSI	Palmer Drought Severity Index
PWS	Public Water Supply
RFPG	Regional Flood Planning Group
RHWPG	Region H Water Planning Group
ROR	Run-of-River
RWP	Regional Water Plan
RWPA	Regional Water Planning Area
RWPG	Regional Water Planning Group
SWIFT	State Water Implementation Fund for Texas
SWP	State Water Plan
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TWC	Texas Water Code
TWDB	Texas Water Development Board
UCM	Unified Costing Model
URS	Unique Reservoir Site
USS	Unique Stream Segment
WAM	Water Availability Model
WCID	Water Control and Improvement District
WCP	Water Conservation Plan
WMS	Water Management Strategy
WRAP	Water Rights Analysis Package
WUG	Water User Group
WWP	Wholesale Water Provider

Water Measurements

1 acre-foot (AF) = 43,560 cubic feet = 325,851 gallons

1 acre-foot per year (ac-ft/yr) = 325,851 gallons per year = 893 gallons per day

1 gallon per minute (gpm) = 1,440 gallons per day = 1.6 ac-ft/yr

1 million gallons per day (mgd) = 1,000,000 gallons per day = 1,120 ac-ft/yr

**Region H Water Planning Group
Population Demands Committee
10:30 AM Tuesday
July 18, 2023
Freese and Nichols Houston Office
10497 Town and Country Way, Suite 500, Houston, TX 77024**

AGENDA

1. Call to order.
2. Introductions.
3. Review and approve minutes of April 17, 2023 meeting.
4. **Receive public comments on specific issues related to agenda items 5 through 8.** (Public comments limited to 3 minutes per speaker)
5. Discuss Committee activities and schedule.
6. Receive update from Consultant Team regarding review of Texas Water Development Board (TWDB) draft per-capita water demand projections.
7. Receive update from Consultant Team regarding requests for amendment to draft population and water demand projections.
8. Discuss population and water demand projections, supporting data, and the process for requesting revised projections and consider recommendations to the Region H Water Planning Group (RHWPG).
9. **Receive public comments.** (Public comments limited to 3 minutes per speaker)
10. Adjourn.

Persons with disabilities who plan to attend this meeting and would like to request auxiliary aids or services are requested to contact Philip Taucer at (713) 600-6835 at least three business days prior to the meeting so that appropriate arrangements can be made.

Agenda Item 3

Review and approve minutes of April 17, 2023 meeting.

**REGION H WATER PLANNING GROUP
POPULATION DEMANDS COMMITTEE
MINUTES OF COMMITTEE MEETING
APRIL 17, 2023**

MEMBERS PRESENT: Ivan Langford, Veronica Osegueda (for Michael Turco), and Byron Ryder

MEMBERS ABSENT: Marvin Marcell and Robert Istre

NON-VOTING MEMBERS: Michele Foss, Texas Water Development Board

CONSULTANT TEAM: Courtney Corso and Philip Taucer

1. CALL TO ORDER

The meeting was called to order at 1:10 p.m.

2. INTRODUCTIONS

There were no guest introductions for this item.

3. REVIEW AND APPROVE MINUTES OF JUNE 21, 2022 COMMITTEE MEETING

Mr. Langford made a motion to approve the minutes from June 21, 2022. The motion was seconded by Mr. Ryder and carried.

4. RECEIVE PUBLIC COMMENTS ON SPECIFIC ISSUES RELATED TO AGENDA ITEMS 5 THROUGH 9.

There were no public comments.

5. DISCUSS COMMITTEE ACTIVITIES AND SCHEDULE

Mr. Taucer presented the upcoming schedule for activities related to population and demand projections, including the upcoming deadline for submittal of projection revision requests to Texas Water Development Board (TWDB).

6. DISCUSS METHODOLOGY FOR DEVELOPMENT OF PER CAPITA WATER DEMANDS AND CALCULATION OF PLUMBING CODE SAVINGS FOR DETERMINING MUNICIPAL DEMANDS.

Mr. Taucer summarized the TWDB approach to developing dry-year per capita water demand levels for Water User Groups (WUGs), including the estimation of future savings from plumbing codes and gradual replacement of older water fixtures with more efficient technology. Ms. Foss provided additional background. Mr. Langford asked if the TWDB analysis had reconsidered older estimates of household size, with Ms. Foss confirming that TWDB had retained a uniform three persons per household for all WUGs for purposes of the plumbing code savings analysis. Judge Ryder noted that local electric companies have recently been using a value of approximately 2.5 persons per household for planning in the area. The Committee and consultant team noted that the ongoing review of draft per-capita demands for the region should consider the potential for impacts from household size.

7. RECEIVE PRESENTATION ON AND DISCUSS POPULATION AND WATER DEMAND PROJECTIONS, SUPPORTING DATA, AND THE PROCESS FOR REQUESTING REVISED PROJECTIONS AND CONSIDER RECOMMENDATIONS TO THE REGION H PLANNING WATER PLANNING GROUP (RHWPG).

Mr. Taucer and Ms. Turco provided a summary of the methodologies utilized in the development of draft TWDB population projections and development of the Joint Regulatory Plan Review (JRPR) by the Harris-Galveston Subsidence District and Fort Bend Subsidence District. The Committee and consultant team discussed the details of the methodology utilized by the JRPR to distribute projected growth spatially with consideration for current development, transportation infrastructure, wetlands, floodplains, and non-developable areas. Mr. Taucer then briefed the group on projected populations and geographic distributions of population for each county within Region H. The Committee discussed the results, noting that there have been concerns with undercounts in the 2020 Census which may impact projections for some areas. The committee also noted that TWDB's draft projections included some population declines in counties in the northern portion of Region H. Ms. Foss indicated that a substantial number of counties, predominantly rural, had projected decreases in population this cycle. Judge Ryder noted that while the draft TWDB projections for Leon County show a population decrease, there has been recent post-COVID development in some parts of the county, including three new subdivisions near Centerville and two in the Jewett and Normangee area; these may not have been captured by 2020 data. Mr. Langford noted that new floodplain maps may impact San Jacinto County. The Committee made recommendations regarding projection adjustment requests for consideration by the full RHWPG, including recommending alignment of Region H population projections with those from the JRPR for applicable counties. The Committee also recommended the use of the 0.5 migration scenario for counties with projected population declines where doing so would result in a higher projection to avoid underrepresenting demands in those areas.

8. DISCUSS METHODOLOGY FOR SURVEYING WATER USER GROUPS (WUGS) FOR INPUT REGARDING POPULATION PROJECTIONS AND OTHER DATA FOR USE IN THE DEVELOPMENT OF THE 2026 REGIONAL WATER PLAN.

Mr. Taucer gave the Committee a brief overview of the WUG survey for the ongoing planning cycle, noting that the survey has been significantly streamlined and shortened relative to prior cycles with the intent of increasing response rates. Ms. Corso noted that while the survey is nearing readiness for distribution, it may be released shortly after the May RWPG meeting to confirm the use of JRPR projections in the survey.

9. RECEIVE PRESENTATION ON IDENTIFICATION OF MAJOR WATER PROVIDERS FOR REGION H AND CONSIDER RECOMMENDATIONS TO THE RHWPG.

Mr. Taucer briefed the committee on the Major Water Provider (MWP) classification and presented the results of a proposed methodology for identifying potential MWPs based on intervals of projected water demand or supply allocation similar to that utilized for the 2021 Region H Regional Water Plan. It was noted that identification of MWPs had also be discussed with the Non-Population Demands Committee due to the potential for non-municipal MWPs. Mr. Langford noted that the use of an overall allocation metric results in the inclusion of a number of entities which are retail-only providers or provide only limited wholesale supplies outside of their retail service area; in many cases, these predominantly-retail systems represent a small portion of overall regional demand and show little recent or projected future growth which would drive water management strategies. Ms. Foss noted that some regions have utilized a metric including sales to other entities in identifying MWPs. The Committee recommended

maintaining the volumetric threshold utilized in the 2021 Region H Regional Water Plan with the addition of a metric applying a minimum threshold for supply outside of an entity's own retail service area.

10. RECEIVE PUBLIC COMMENTS

There were no public comments.

11. ADJOURN

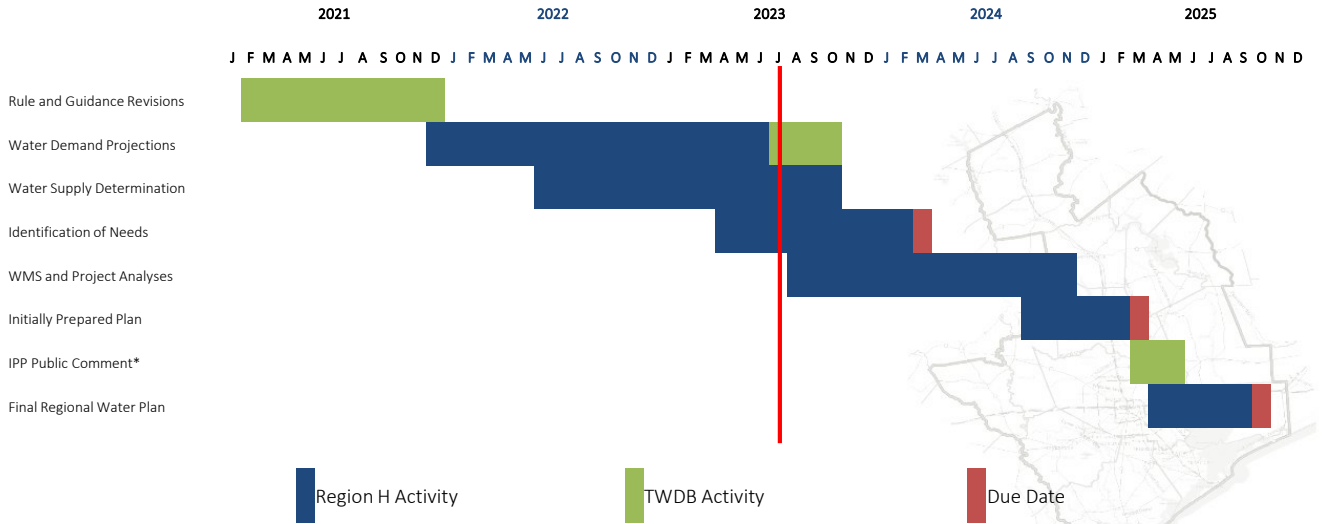
Without objection, the meeting was adjourned at 2:45 p.m.

DRAFT

Agenda Item 5

Discuss Committee activities and schedule.

Agenda Item 5 Committee Activities and Schedule



*Region H accepts public comment throughout the planning cycle and at each RWPG and committee meeting.

Agenda Item 5 Committee Activities and Schedule

Date	Scheduled Events/Tasks
07/2023	Population Demands Committee Meeting
08/2023	RWPG Meeting (possibly 07/2023)
08/2023	Municipal projection review concludes / requests due to TWDB
10/2023	TWDB adoption of projections
03/2024	Technical Memorandum due to TWDB

Agenda Item 6

Receive update from Consultant Team regarding review of Texas Water Development Board (TWDB) draft per-capita water demand projections.

Agenda Item 6 Per Capita Demands

- Dry year conditions
- Historical data + estimated future efficiencies
- Assumed lower boundary

2021 RWP dry
year per-
capita

Convert 2020
PCS from old
plan to annual
rate

Apply accrued
savings dry
year to 2020

New 2020
Baseline per-
capita

Apply future
PCS estimates

Constrain
minimum to
60 gpcd

Freese and Nichols, Inc. | INTERA Inc.

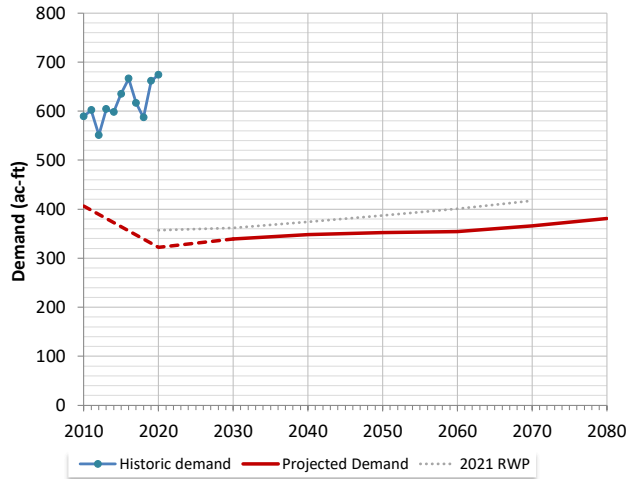
Agenda Item 6 Per Capita Demands

- Detailed review
- Potential adjustments to $\approx 25\%$ of WUGS
- Contributing factors
 - Differences in recalculated historical
 - Uncertainties in reported usage
 - Base year
 - Rapid population changes
 - Short records for newer WUGs

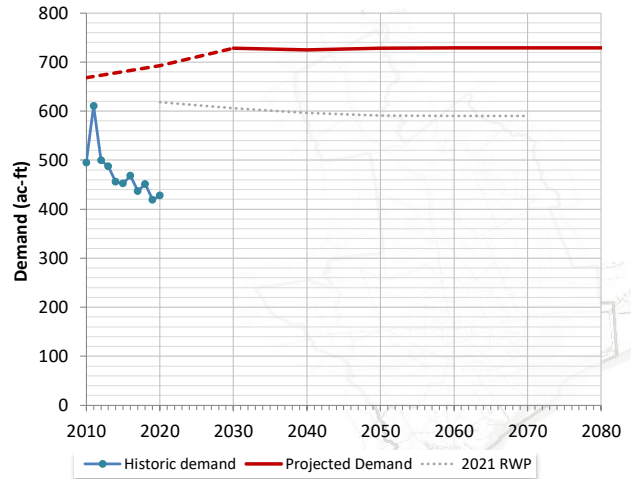


Agenda Item 6 Per Capita Demands

Definitely Too Low



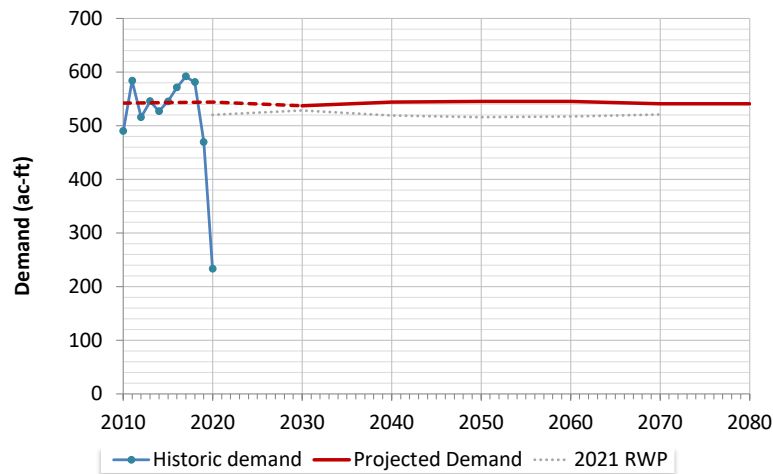
Definitely Too High



Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 6 Per Capita Demands

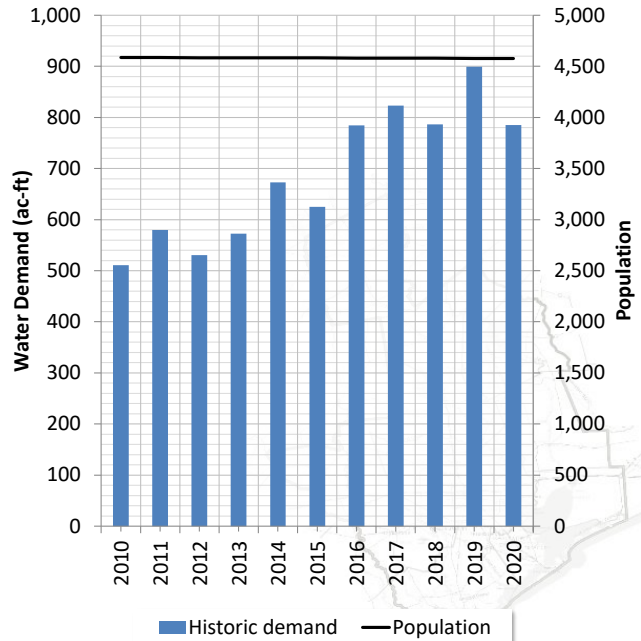
Judgement Call



Freese and Nichols, Inc. | INTERA Inc.

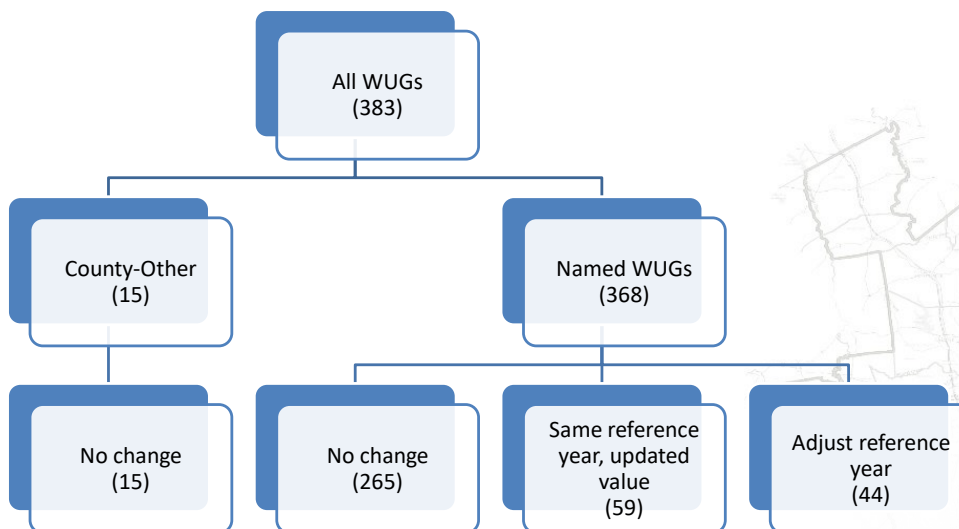
Agenda Item 6 Per Capita Demands

- Baseline vs. max (and near-max) years
- Demand vs. population trends
- Drought vs. recent rainfall
- Old and new historic per-capita estimates
- JRPR estimates
- New development grow mode



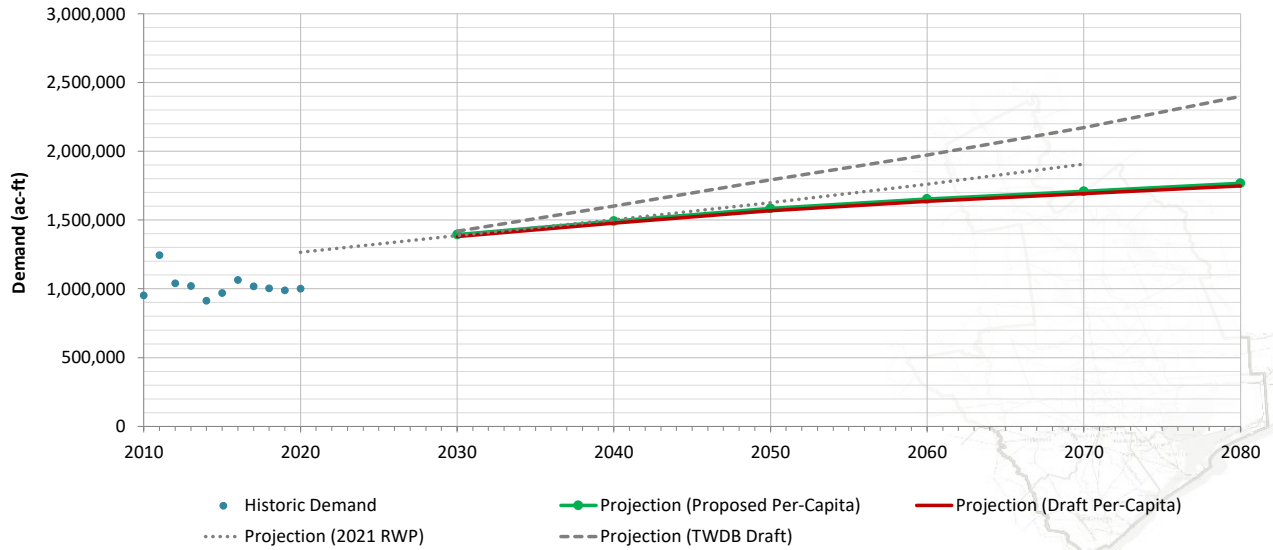
Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 6 Per Capita Demands



Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 6 Per Capita Demands



WUG	TWDB Historic Data Trends for 2010-2020			Max Historic GPCD and Ref. Baseline Year	Draft Baseline GPCD and Ref. Baseline Year	Proposed Baseline GPCD and Ref. Year	Recommendation and Basis
	Population	Water Use	Per-Capita Use				
Alvin				119 (2011)	155 (2011)	111 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Bacilff MUD				89 (2018)	67 (2011)	75 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Baybrook MUD 1				141 (2011)	256 (2011)	133 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Blaketree MUD 1 of Montgomery County				1689 (2017)	1565 (2018)	335 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. The draft baseline is extremely high, and likely reflects land development use for a newly-developing area.
Blue Bell Manor Utility				111 (2011)	201 (2011)	103 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Bolivar Peninsula SUD				456 (2020)	61 (2011)	375 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Brazoria				121 (2018)	92 (2011)	118 (2017)	Adjust the baseline to reference the updated TWDB estimate for year 2017 per-capita use. The year 2011 underestimates demand relative to recent historic usage. Separate analysis suggests 2011 value should be higher.
Brazoria County FWSD 1				174 (2016)	83 (2018)	174 (2014)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. Note that some recent years display higher per-capita than 2013, but may be artifacts of uncertainty in population or demand data.
Brookshire MWD				228 (2020)	103 (2011)	135 (2016)	Adjust the baseline to reference the updated TWDB estimate for year 2016 per-capita use. The year 2011 underestimates demand relative to recent historic usage. Separate analysis suggests 2011 value should be higher.
Buffalo				203 (2015)	176 (2011)	199 (2015)	Adjust the baseline to reference the updated TWDB estimate for year 2015 per-capita use. The year 2011 underestimates demand relative to recent historic usage.
Cape Royale UD				379 (2011)	232 (2011)	266 (2012)	Adjust the baseline to reference the updated TWDB estimate for year 2012 per-capita use. The estimated per-capita from the 2021 RWP appears to have been low. In this case 2012 appears to be a reasonable baseline, as the 2011 value appears very high relative to historic demands.
Clear Brook City MUD				98 (2010)	84 (2011)	91 (2010)	Adjust the baseline to reference the updated TWDB estimate for year 2010 per-capita use. The year 2011 underestimates demand relative to recent historic usage.
Clute				150 (2011)	116 (2011)	142 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.

Summary of Potential Region H Per-Capita Demand Rate Adjustments

Concord-Robbins WSC				146 (2020)	68 (2011)	124 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Crosby MUD				229 (2015)	108 (2011)	161 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Deer Park				148 (2014)	113 (2011)	142 (2014)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. The year 2011 underestimates demand relative to recent historic usage.
Douglas Utility				134 (2019)	82 (2011)	123 (2015)	Adjust the baseline to reference the updated TWDB estimate for year 2015 per-capita use. The year 2011 underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2015, but may be artifacts of uncertainty in population.
Forest Hills MUD				84 (2020)	99 (2011)	84 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. The estimated per-capita values from the 2021 RWP appear to have been higher than historical.
Fort Bend County MUD 131				145 (2011)	76 (2018)	145 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The year 2018 underestimates demand relative to recent historic usage.
Fort Bend County MUD 149				334 (2017)	91 (2011)	218 (2015)	Adjust the baseline to reference the updated TWDB estimate for year 2015 per-capita use, the second-highest value. The full dataset shows high variability in per-capita and total demand, possibly due to uncertainty in rapid population growth.
Fort Bend County MUD 25				179 (2011)	116 (2011)	173 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Fort Bend County MUD 47				135 (2020)	100 (2011)	115 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2013, but may be artifacts of uncertainty in population or demand data.
Fort Bend County MUD 5				148 (2011)	73 (2014)	85 (2014)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. The prior estimated year 2014 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Fort Bend County WCID 2				228 (2011)	175 (2011)	222 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Freeport				150 (2019)	100 (2011)	127 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The year 2011 underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2013, but may be artifacts of uncertainty in population.
Fulshear				234 (2014)	103 (2011)	140 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. The year 2011 underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2020, but may be artifacts of uncertainty in population.
G and W WSC				69 (2018)	104 (2011)	50 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.

Summary of Potential Region H Per-Capita Demand Rate Adjustments

Galveston County MUD 12				162 (2017)	107 (2011)	130 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Galveston County WCID 8				129 (2018)	95 (2011)	114 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Grand Oaks MUD				98 (2019)	75 (2018)	98 (2019)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. Data for earlier years appears suspect.
Groveton				141 (2016)	96 (2011)	127 (2014)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. The year 2011 underestimates demand relative to recent historic usage.
Hardin WSC				125 (2011)	91 (2012)	116 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Harris County MUD 106				182 (2010)	250 (2011)	128 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Harris County MUD 119				115 (2013)	77 (2011)	108 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Harris County MUD 132				273 (2011)	161 (2011)	264 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Harris County MUD 148				95 (2011)	67 (2011)	89 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Harris County MUD 152				116 (2011)	122 (2011)	110 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Harris County MUD 189				170 (2020)	81 (2011)	142 (2016)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Harris County MUD 216				250 (2016)	129 (2011)	185 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Harris County MUD 23				105 (2013)	70 (2011)	99 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The year 2011 underestimates demand relative to recent historic usage.
Harris County MUD 261				337 (2011)	154 (2018)	247 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage.








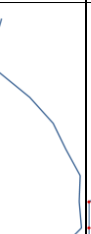
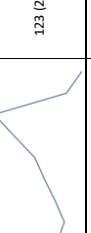
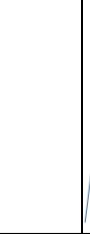
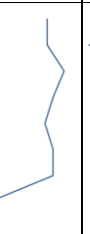
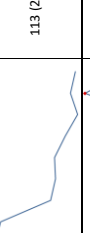



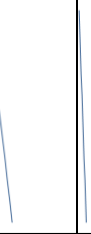



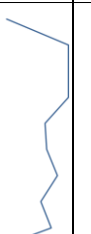
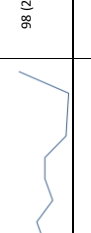


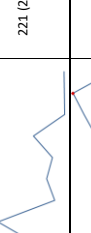


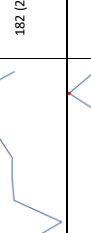
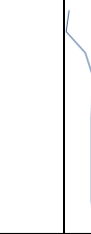
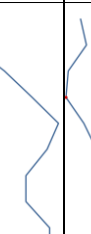

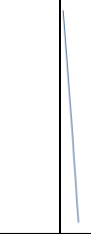

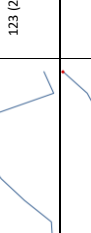
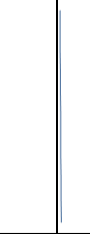
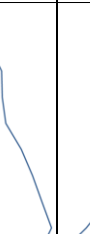
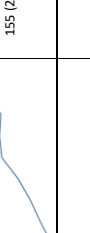
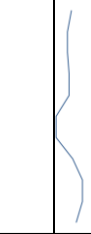

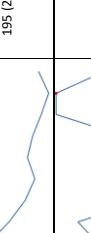
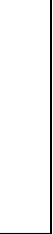


Summary of Potential Region H Per-Capita Demand Rate Adjustments

Harris County MUD 345			241 (2013)	203 (2011)	224 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Harris County MUD 36			313 (2019)	212 (2011)	298 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Harris County MUD 46			141 (2011)	148 (2011)	134 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Harris County MUD 58			135 (2016)	101 (2011)	131 (2016)	Adjust the baseline to reference the updated TWDB estimate for year 2016 per-capita use. Data for earlier years appears suspect.
Harris County WCID 1			144 (2014)	91 (2011)	132 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Harris County WCID 74			117 (2011)	100 (2011)	109 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Harris County WCID 89			175 (2019)	76 (2011)	152 (2018)	Adjust the baseline to reference the updated TWDB estimate for year 2018 per-capita use. Data for earlier years appears may be lower than anticipated.
Hitchcock			116 (2016)	99 (2011)	105 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Humble			218 (2010)	140 (2011)	182 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Huntsville			313 (2015)	174 (2011)	163 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2015 per-capita use. The year 2011 underestimates demand relative to recent historic usage.
Jersey Village			185 (2011)	203 (2011)	177 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Kings Manor MUD			173 (2011)	105 (2010)	128 (2010)	Adjust the baseline to reference the updated TWDB estimate for year 2010 per-capita use. The prior estimated year 2010 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
La Marque			184 (2020)	140 (2011)	184 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. The year 2011 underestimates demand relative to recent historic usage. Separate analysis suggests 2011 value should be higher.
Liberty			178 (2013)	152 (2011)	171 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage.

Summary of Potential Region H Per-Capita Demand Rate Adjustments

Liberty County FWSD 1 Hull			298 (2019)	135 (2011)	161 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in demand data.
Madisonville			196 (2020)	164 (2011)	185 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Memorial Point UD			182 (2012)	146 (2011)	173 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Montgomery County MUD 119			136 (2020)	244 (2011)	136 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. Per-capitas for the 2021 RWP appear to have been too high.
Montgomery County MUD 139			144 (2020)	90 (2018)	144 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. The WUG appears to be new development in growth moods, so this may be a conservative assumption.
Montgomery County MUD 15			84 (2013)	118 (2011)	72 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline overestimates demand relative to recent historic usage, including peak demand years. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Montgomery County MUD 18			403 (2011)	246 (2011)	394 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Montgomery County MUD 19			192 (2011)	118 (2011)	183 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Montgomery County MUD 56			94 (2011)	97 (2011)	86 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Montgomery County MUD 8			315 (2018)	135 (2011)	274 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Montgomery County MUD 89			192 (2012)	71 (2011)	155 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Montgomery County MUD 9			389 (2013)	140 (2011)	383 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Montgomery County MUD 95			162 (2020)	76 (2011)	145 (2017)	Adjust the baseline to reference the updated TWDB estimate for year 2017 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Montgomery County UD 2			237 (2010)	111 (2011)	228 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.

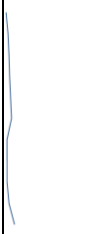
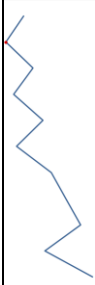
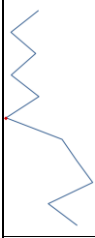




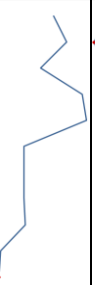
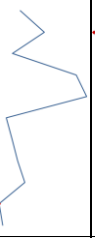
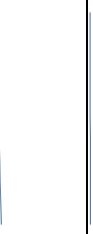



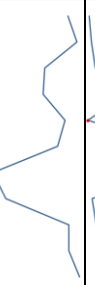
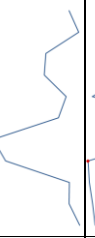



Summary of Potential Region H Per-Capita Demand Rate Adjustments

Montgomery County UD 3				313 (2013)	132 (2011)	305 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Montgomery County UD 4				334 (2017)	149 (2011)	285 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
New Caney MUD				123 (2018)	75 (2011)	98 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Nitsch and Son Utility				113 (2011)	97 (2018)	113 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The year 2018 underestimates demand relative to recent historic usage.
Normangee				248 (2019)	146 (2011)	195 (2015)	Adjust the baseline to reference the updated TWDB estimate for year 2015 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
North Belt UD				262 (2011)	171 (2011)	253 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Oak Hollow Utility				98 (2011)	105 (2011)	89 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Pecan Grove MUD 1				221 (2011)	159 (2013)	198 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The prior estimated year 2013 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Pennington WSC				182 (2019)	86 (2011)	152 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Pinehurst Decker Prairie WSC				107 (2019)	61 (2011)	88 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2013, but may be artifacts of uncertainty in population or demand data.
Porter SUD				123 (2017)	60 (2015)	81 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2013, but may be artifacts of uncertainty in population or demand data.
Ranch Crest Water				155 (2020)	117 (2018)	155 (2020)	Adjust the baseline to reference the updated TWDB estimate for year 2020 per-capita use. The WUG appears to be new development in growth mode, so this may be a conservative assumption. 2018 underestimates recent demand.
Rayford Road MUD				195 (2011)	113 (2011)	189 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Riverside SUD				98 (2019)	60 (2011)	86 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2013, but may be artifacts of uncertainty in demand data.

Summary of Potential Region H Per-Capita Demand Rate Adjustments

San Jacinto SUD				119 (2011)	83 (2011)	110 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
San Leon MUD				114 (2020)	60 (2011)	111 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in demand.
Shepherd				213 (2020)	108 (2011)	148 (2014)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2014, but may be artifacts of uncertainty in demand data.
Sienna Plantation				172 (2011)	213 (2011)	167 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
Soda WSC				115 (2020)	75 (2010)	106 (2012)	Adjust the baseline to reference the updated TWDB estimate for year 2012 per-capita use. The estimated per-capita from the 2021 RWP appears to have been low. Note that some recent years display higher per-capita than 2012, but may be artifacts of uncertainty in population or demand data.
Southern Montgomery County MUD				153 (2016)	103 (2011)	118 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in demand.
Spring Creek UD				118 (2011)	79 (2011)	112 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Surfside Beach				402 (2018)	249 (2010)	336 (2010)	Adjust the baseline to reference the updated TWDB estimate for year 2010 per-capita use. The prior estimated year 2010 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2010, but may be artifacts of uncertainty in population or demand data.
Sweeny				156 (2011)	131 (2011)	148 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
T and W Water Service				198 (2011)	224 (2011)	190 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline overestimates demand relative to recent historic usage, including peak demand years.
TDCJ Ramsey Area				510 (2020)	755 (2011)	489 (2018)	Adjust the baseline to reference the updated TWDB estimate for year 2018 per-capita use. The draft baseline overestimates demand relative to recent historic usage.
Tempe WSC 1				79 (2010)	81 (2010)	69 (2010)	Adjust the baseline to reference the updated TWDB estimate for year 2010 per-capita use. The prior estimated year 2010 per-capita used in the 2021 RWP overestimates demand relative to recent historic usage, including peak demand years.
The Commons Water Supply				163 (2018)	107 (2010)	161 (2018)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Some of the earlier demand and population data appears suspect.
Trinity Rural WSC				120 (2011)	106 (2011)	113 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.

Summary of Potential Region H Per-Capita Demand Rate Adjustments

Waller				189 (2015)	157 (2011)	184 (2015)	Adjust the baseline to reference the updated TWDB estimate for year 2015 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Waterwood MUD 1				466 (2016)	252 (2011)	340 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage. Note that some recent years display higher per-capita than 2011, but may be artifacts of uncertainty in population.
Westwood Shores MUD				144 (2011)	117 (2011)	136 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The prior estimated year 2011 per-capita used in the 2021 RWP underestimates demand relative to recent historic usage.
Willis				156 (2019)	112 (2011)	125 (2011)	Adjust the baseline to reference the updated TWDB estimate for year 2011 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Wood Branch Village				109 (2014)	69 (2011)	103 (2014)	Adjust the baseline to reference the updated TWDB estimate for year 2014 per-capita use. The draft baseline underestimates demand relative to recent historic usage.
Woodcreek MUD				167 (2013)	111 (2011)	161 (2013)	Adjust the baseline to reference the updated TWDB estimate for year 2013 per-capita use. The draft baseline underestimates demand relative to recent historic usage. The year 2011 underestimates demand relative to recent historic usage. Separate analysis suggests 2011 value should be higher.

Agenda Item 7

Receive update from Consultant Team regarding requests for amendment to draft population and water demand projections.

Agenda Item 7 WUG Requests

- Discussed with RWPG in May
- WUG Survey
 - 366 WUGs & 54 responses (14%)
 - ≈ 67% of est. 2030 named WUG population



Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

- Potential Revisions
 - Montgomery County MUD 139
 - Montgomery County WCID 1
 - North Fort Bend Water Authority
 - North Zulch MUD
 - Southern Montgomery County MUD
 - County-Other (adjust for above)

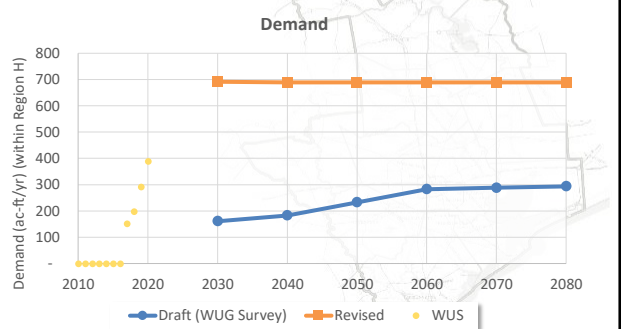
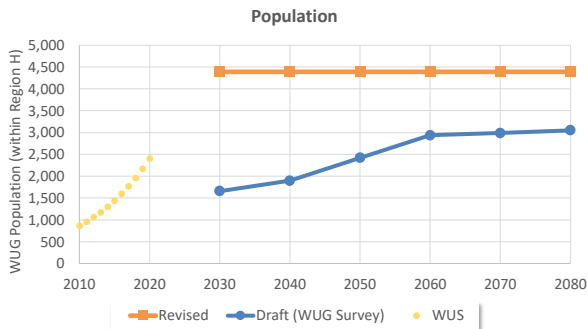


Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

Montgomery County MUD 139

- New WUG; formed in 2016, build-out anticipated 2023.
- Data through 2020 did not capture most recent development.
- Proposed population based on 2023 connections with no future growth.
- Adjusted per-capita from gpcd analysis.

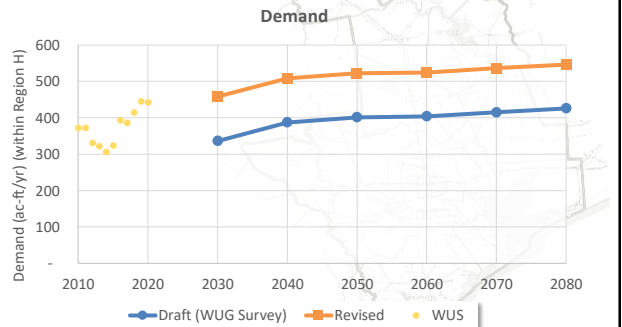
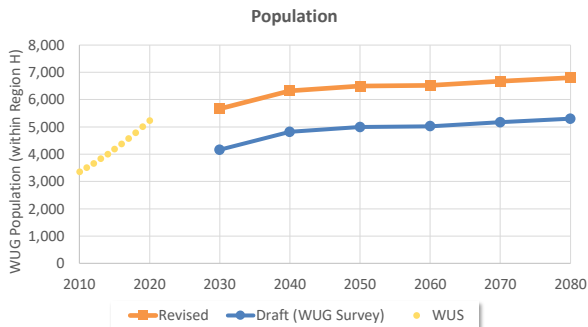


Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

Montgomery County WCID 1

- Increase near-term population to better reflect service area and upcoming developments.
- No revision to GPCD.

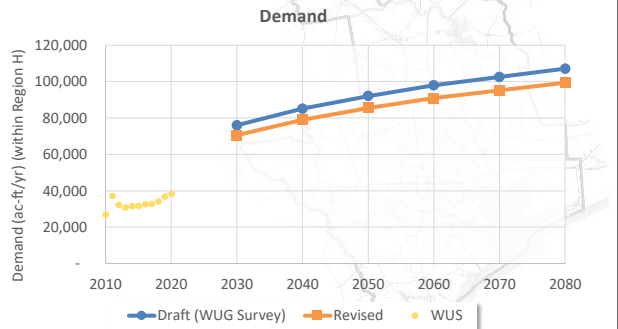
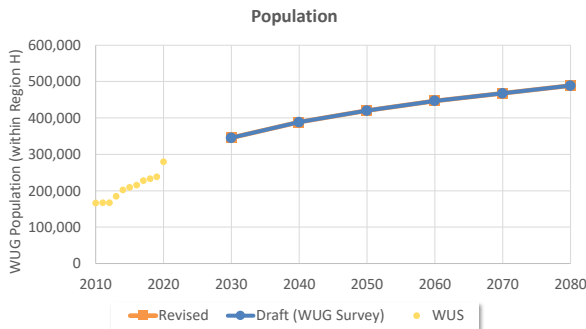


Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

North Fort Bend Water Authority

- Changes in water use levels since 2011.
- Draft per-capita exceeds revised year 2011 value.
- Adjust to revised value of 186 gpcd based on WUG data.

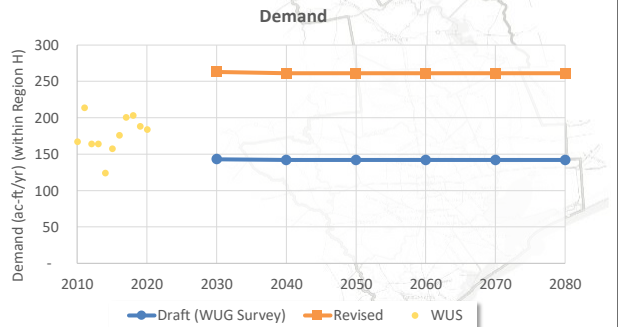
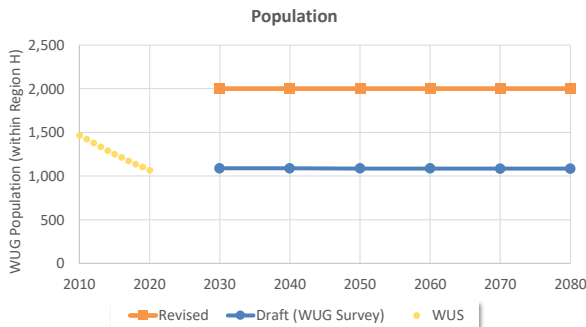


Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

North Zulch MUD

- Multiple new subdivisions.
- Increase 2030 population to current estimate of 2,000 and maintain through 2080. (Assume constant for existing service area.)

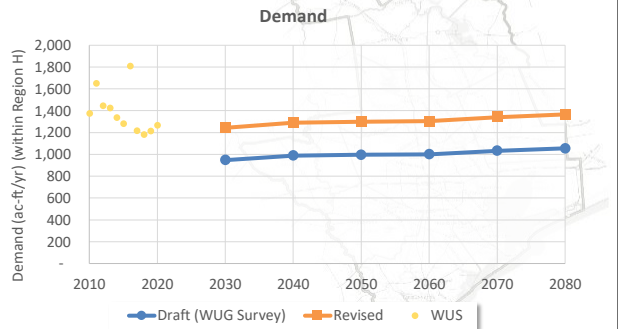
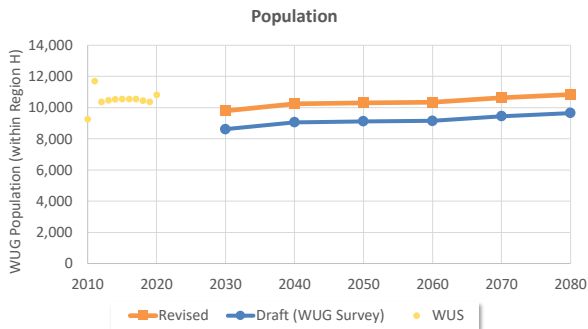


Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

Southern Montgomery County MUD

- Survey projection undercounts due to census block.
- Limited growth.
- Maintain population growth but shift upward to correct.
- Adjusted per-capita from gpcd analysis.



Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 7 WUG Requests

- Coordination in progress
 - City of Manvel
 - CHCRWA
 - WHCRWA



Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 8

Discuss population and water demand projections, supporting data, and the process for requesting revised projections and consider recommendations to the Region H Water Planning Group (RHWPG).

Agenda Item 8 Recommendations

Criteria for Population Adjustment

- 2010 pop. differs from baseline
- Growth rate difference
- Limitations on buildout
- Updated information on area

Data Required

- Connections or pop
- Estimates for cities by TDC or regional council
- Documentation of growth limits
- Documentation and maps for area changes
- Other data at RWPG discretion

Freese and Nichols, Inc. | INTERA Inc.

Agenda Item 8 Recommendations

Criteria for Per-Capita Adjustment

- Different year better fit
- Data errors
- Temporary constraints
- Change in rural trend
- Different fixture rate

Data Required

- Production and sales
- Temporary infrastructure doc.
- Drought indices
- Water efficient fixture records
- Rural trend data
- Other data at RWPG discretion

Freese and Nichols, Inc. | INTERA Inc.

**Agenda Item 8
Recommendations**

