



## Water Planning Meeting AGENDA

April 7, 2015 at 10:00 a.m.  
San Antonio River Authority – Board Room  
100 E. Guenther Street  
San Antonio, Texas 78204

1. Introductions and Certification of a Quorum by the Secretary
2. Approval of the Minutes from the November 18, 2014, and the February 12, 2015, meetings
3. Region L Administrative Update and Recap of April 2, 2015 Meeting
4. Region L Technical Presentation from HDR Engineering
  - A. Consultants Work and Status of 2016 RWP Chapters
  - B. Potentially Feasible Water Management Strategies
  - C. Cumulative Effects Analysis
  - D. Master List of Water Management Strategies for Inclusion in the 2016 Initially Prepared Plan
5. Legislative Update
6. Regional Water Alliance Budget Update
7. Other Business/ New Business
8. Adjourn

## **Agenda Item 1**

Introductions and Certification of Quorum by the Secretary

## **Agenda Item 2**

Approval of the Minutes from the November 18, 2014, and the  
February 12, 2015, meetings



**Council of Representatives  
MEETING MINUTES**

**10:00 a.m. – November 18, 2014  
San Antonio River Authority,  
Boardroom 100 E. Guenther Street  
San Antonio, TX 78204**

**Council of Representatives**

**Present:**

Pat Allen, *Chair*  
Alan Cockerell  
Humberto Ramos  
Brandon Bradley  
Mike Taylor  
Darren Thompson  
Lisa Guardiolc  
Randy Schwenn  
Avery Lunsford  
Sam Willoughby  
John Chisholm  
James Neeley  
Albert Strzelczyk

Green Valley SUD  
Schertz-Seguin Local Government Corporation  
Canyon Regional Water Authority  
Cibolo Creek Municipal Authority  
Crystal Clear SUD  
San Antonio Water System  
San Antonio Water System  
City of Marion  
City of Universal City  
City of Schertz  
San Antonio River Authority  
City of Live Oak  
East Central SUD

**Members, Guests &  
Administrative:**

Cole Ruiz  
Brian Perkins

San Antonio River Authority  
HDR Engineering

**AGENDA ITEM NO. 1:      Introductions and Certification of a Quorum by the Secretary**

A quorum was established for this meeting.

**AGENDA ITEM NO. 2:      Approval of the Minutes from August 2014**

Minutes were approved.

**AGENDA ITEM NO. 3:      Region L Administrative Update and Recap of the November 6, 2014 Meeting**

Cole Ruiz, with the San Antonio River Authority (SARA), reported to the Regional Water Alliance that the most recent Region L meeting was held on Thursday, November 6, 2014, and gave a recap presentation of what transpired at the meeting.

Mr. Ruiz announced that the J-17 index well in San Antonio recorded a level below mean sea level (635 Feet), thus triggering the Voluntary Irrigation Suspension Program Option, otherwise known as VISPO. As a result 40,000 acre-feet of irrigation rights will not be eligible for pumping in 2015 as an additional benefit to the Edwards Aquifer and its spring flows.

The next meeting of the Region L Planning Group will be Thursday, February 5, 2015 at the San Antonio Water System's (SAWS) Customer Service Building, Room C145.

Mr. Ruiz reported that the next meeting of the Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee (BBASC) will be held on December 9, 2014 at the offices of the Guadalupe-Blanco River Authority.

Mr. Ruiz updated the RWA on a number of other Region L items including the 2015 Region L meeting schedule, items relating to Region L Planning Group policy recommendations, and general ongoing planning practices.

**AGENDA ITEM NO.4:      Presentation of Region L Technical Data from HDR Engineering**

Brian Perkins, with HDR Engineering, reported on the schedule looking forward for the Region L Planning Group.

Mr. Perkins briefed the RWA on several potentially feasible water management strategies, which were presented at the November 6, 2014, Region L Planning Group meeting, including the Drought Management, San Antonio Water System (SAWS) Vista Ridge Project, Seawater Desalination for SAWS, and the Hays County Public Utility + Texas Water Alliance + Mid Basin Water Supply Project Joint Project.

Brian Perkins also presented county by county summaries to the RWA showing the water supply needs of water user groups throughout Region L.

Mr. Perkins then briefly discussed several wholesale water provider tables, depicting water demands, supplies, needs, and potentially feasible water management strategies.

**AGENDA ITEM NO.5:      New Business**

The next meeting was set for February 12, 2015.

Humberto Ramos, with Canyon Regional Water Authority, requested an update on the Regional Water Conservation Program.

With no further business to discuss, the meeting was adjourned.

MINUTES RECOMMENDED FOR APPROVAL BY THE SECRETARY.

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Avery Lunsford, Secretary



**Council of Representatives  
MEETING MINUTES**

**10:00 a.m. – February 12, 2015  
San Antonio River Authority,  
Boardroom 100 E. Guenther Street  
San Antonio, TX 78204**

**Council of Representatives  
Present:**

Jeanne Schnurriger  
Alan Cockerell  
Humberto Ramos  
Brandon Bradley  
Barry Dobbs  
Steven Siebert  
Mark Wagster  
Avery Lunsford  
Sam Willoughby  
Pat Sullivan  
Albert Strzelczyk

Springs Hill Water Supply Corporation  
Schertz-Seguin Local Government Corporation  
Canyon Regional Water Authority  
Cibolo Creek Municipal Authority  
Crystal Clear SUD  
San Antonio Water System  
Live Oak  
City of Universal City  
City of Schertz  
City of Alamo Heights  
East Central SUD

**Members, Guests &  
Administrative:**

Cole Ruiz  
Steve Raabe  
Brian Perkins  
Rick Ilgner

San Antonio River Authority  
San Antonio River Authority  
HDR Engineering  
Edwards Aquifer Authority

**AGENDA ITEM NO. 1:      Introductions and Certification of a Quorum by the Secretary**

A quorum was not established for this meeting.

**AGENDA ITEM NO. 2:      Approval of the Minutes from August 2014**

No action to approve the minutes from November 2015 was taken due to lack of quorum.

**AGENDA ITEM NO. 3:      Region L Administrative Update and Recap of the February 5, 2015 Meeting**

Cole Ruiz, with the San Antonio River Authority (SARA), reported to the Regional Water Alliance that the most recent Region L meeting was held on Thursday, November 6, 2014, and gave a recap presentation of what transpired at the meeting.

Mr. Ruiz announced that the Region L Planning Group elected to keep the same officers on the Region L Executive Committee for the remainder of the current planning cycle, and will revisit choosing new officers in February next year.

Mr. Ruiz also announced that the Region L Planning Group is currently soliciting nominations to fill two vacancies: one representing the agriculture interest area, and one representing the industries area. Mr. Ruiz stated that nominations would be accepted through March 14, 2015. Mr. Ruiz also explained the nomination process.

Mr. Ruiz reported that the next meeting of the Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee (BBASC) will be held on May 22, 2015 at the Victoria Community Center.

Mr. Ruiz updated the group on the Region L Planning Group development of the Chapter 8 Policy Recommendations and Unique Stream Segments.

Mr. Ruiz reported that the San Antonio River Authority (SARA) was appointed as the administrator for the Fifth Cycle of Regional Water Planning, and would be filing an application for funds to initiate the next planning cycle.

The next meeting of the Region L Planning Group will be Thursday, April 2, 2015 at the San Antonio Water System's (SAWS) Customer Service Building, Room C145.

**AGENDA ITEM NO.4:      Presentation of Region L Technical Data from HDR Engineering**

Brian Perkins, with HDR Engineering, reported on the schedule looking forward for the Region L Planning Group, and gave an update on the status of the development of each chapter of the 2016 Regional Water Plan for Region L.

Mr. Perkins briefed the Regional Water Alliance (RWA) on several potentially feasible water management strategies, which were presented at the November 6, 2014, Region L Planning Group meeting including Brush Management – Gonzales County, Storage Above Canyon Reservoir (ASR), Balancing Storage, and Surface Water Rights water management strategies.



Mr. Perkins also presented a list of all recommended strategies, alternative strategies, and strategies needing further evaluation, which was approved by the Planning Group at the February 5, 2015, Region L meeting. The projects were organized by Wholesale Water Providers and Water User Groups.

Mr. Perkins then described the purpose of the Texas Water Development Board's (TWDB) requirement for a cumulative effects analysis.

**AGENDA ITEM NO.5:      Presentation on Regional Water Conservation Program from Rick Illgner, EAA**

Rick Illgner delivered a presentation on the Edward Aquifer Authority's (EAA) Regional Water Conservation Plan.

**AGENDA ITEM NO.6:      Other Business/ New Business**

Cole Ruiz gave a brief update on the Eighty Fourth Texas Legislature, and provided a list of bills that may pertain to the members of the Regional Water Alliance.

Meetings were set for the remainder of the 2015 calendar year beginning with April 7, August 13, and November 12.

Steven Siebert requested an update on the status of the RWA budget.

MINUTES RECOMMENDED FOR APPROVAL BY THE SECRETARY.

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Avery Lunsford, Secretary

### **Agenda Item 3**

Region L Administrative Update and Recap of April 2, 2015  
Meeting

**NOTICE OF OPEN MEETING OF THE  
SOUTH CENTRAL TEXAS REGIONAL  
WATER PLANNING GROUP**

TAKE NOTICE that a meeting of the South Central Texas Regional Water Planning Group as established by the Texas Water Development Board will be held on Thursday, April 2, 2015, at 9:30 a.m. at San Antonio Water System (SAWS), Customer Service Building, Room CR 145, 2800 US Highway 281 North, San Antonio, Bexar County, Texas. The following subjects will be considered for discussion and/or action at said meeting.

1. Public Comment
2. Approval of Minutes
3. Discussion and Appropriate Action Regarding Nominations to Fill Vacant Agriculture Voting Member (term expires 2016) and Industries Voting Member (term expires 2018)
4. Status of Edwards Aquifer Habitat Conservation Plan (HCP) – Nathan Pence, Executive Director EAHCP
5. Status of Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee (BBASC) and Expert Science Team (BBEST)
6. Chair's Report
7. Texas Water Development Board (TWDB) Communications
8. Discussion and Appropriate Action Regarding Consultants Work and Schedule
9. Discussion and Appropriate Action to Request Technical Assistance from the Texas Water Development Board (TWDB) to Complete the Socioeconomic Impact Analysis of not Meeting Certain Water Needs
10. Discussion and Appropriate Action Regarding the Adoption of the Proposed Chapter 8 Policy Recommendations and Unique Sites Language for Inclusion in the 2016 Initially Prepared Plan (IPP)
11. Discussion and Appropriate Action Regarding the Evaluation and Recommendation of Water Management Strategies (Task 4D)

12. Discussion and Appropriate Action Regarding Chapter 6 Cumulative Effects Results and Chapter 11 Comparison to the Previous Regional Water Plan
13. Discussion and Appropriate Action Regarding the Recommendations of Potentially Feasible Water Management Strategies for Inclusion into the 2016 Initially Prepared Plan (IPP)
14. Discussion and Appropriate Action Authorizing the San Antonio River Authority (SARA) to Submit the 2016 Initially Prepared Plan on Behalf of the South Central Texas Regional Water Planning Group (Region L) by May 1, 2015
15. Discussion and Appropriate Action Regarding Initially Prepared Plan (IPP) Public Hearings Schedule and Locations
  - A. Number of Public Hearings to be Held
  - B. Desired Locations of Public Hearings
16. Appropriate Action Regarding the Adoption of Guadalupe-Blanco River Authority's (GBRA) Proposed Substitution of the Lower Basin Storage 500 Acre Site Project for the Lower Basin Storage 100 Acre Site Project in the 2011 Regional Water Plan and Request the Texas Water Development Board (TWDB) to Amend the 2012 State Water Plan
17. Possible Agenda Items for the Next South Central Texas Regional Water Planning Group Meeting
18. Public Comment

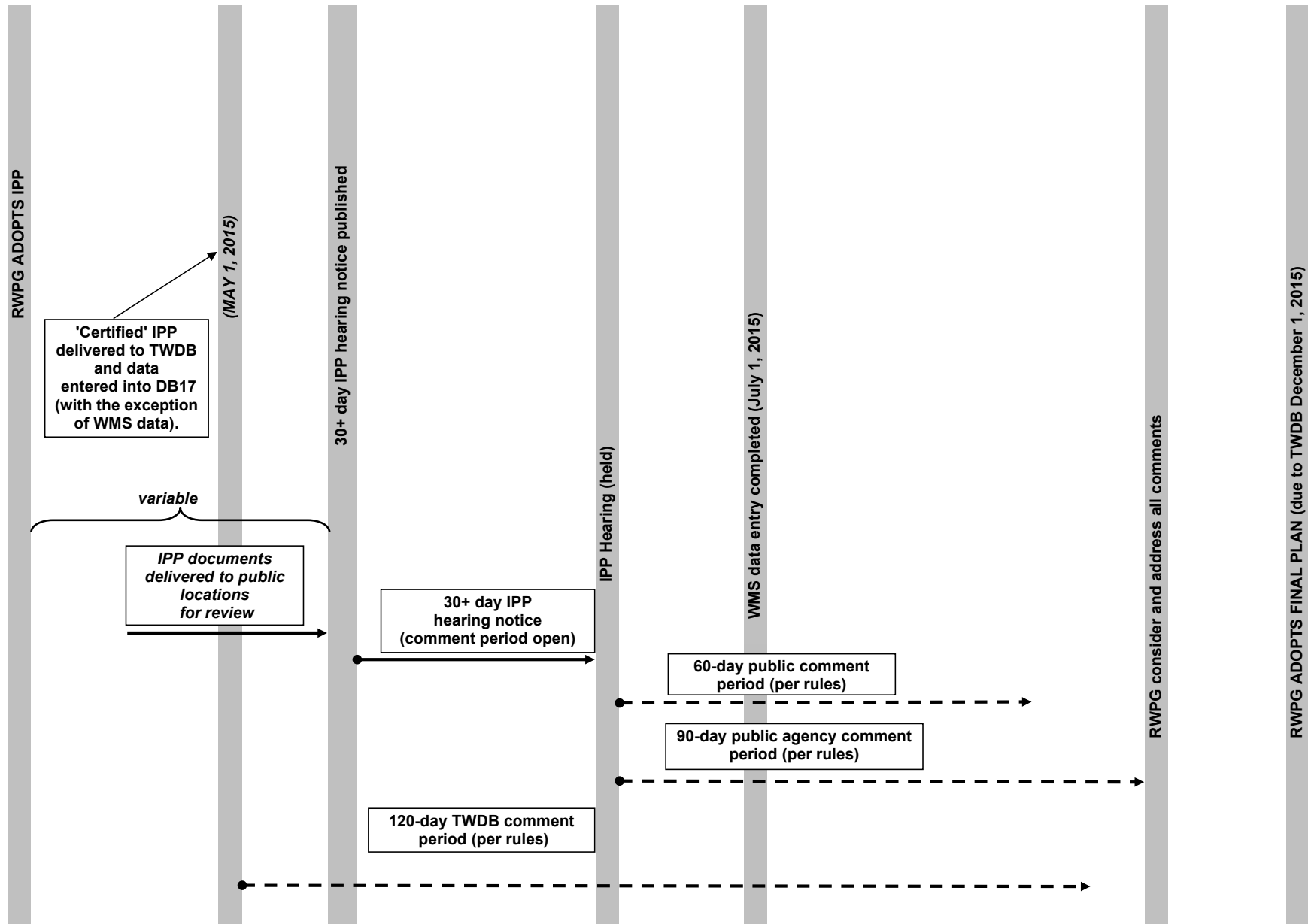
The South Central Texas Regional Water Planning Area consists of Atascosa, Bexar, Caldwell, Calhoun, Comal, Dewitt, Dimmit, Frio, Goliad, Gonzales, Guadalupe, Karnes, Kendall, La Salle, Medina, Refugio, Uvalde, Victoria, Wilson, Zavala and part of Hays Counties.

Please visit [www.RegionLTexas.org](http://www.RegionLTexas.org) to review available chapters of the 2016 Initially Prepared Plan

# Approved Locations

<b>Public Hearing 1</b>	<b>San Antonio</b>
<b>Public Hearing 2</b>	<b>Victoria</b>
<b>Public Hearing 3</b>	<b>San Marcos</b>

# IPP Process Schematic (May vary by Region) (no scale)



## **Agenda Item 4**

Region L Technical Presentation from HDR Engineering

Regional Water Planning Contract Document References			2017 Regional Water Plan Chapter, Associated TAC Sections, and Content			Status / Notes
TWDB Contract Reimbursement Accounting Number ('TXWise')	Exhibit A - Contract SOW Task	Exhibit C - General Guidelines for Regional Water Plan Development	Regional Water Plan Chapter Number	Primary TAC Section	General Content	
9	1	1	1	§357.30	Description of the Regional Water Planning Area	Distributed for Review on 12/5/2014
1	2A	2	2	§357.31	Projected Non-Municipal Water Demands	Distributed for Review on 12/5/2014
2	2B			§357.31	Projected Population and Municipal Water Demands	Distributed for Review on 12/5/2014
3	3	3	3	§357.32	Water Supply Analysis	Distributed for Review on 12/5/2014
4	4A	4	4	§357.33	Identification of Water Needs	Distributed for Review on 12/5/2014
5	4B	5	5	§357.34	Identification of Potentially Feasible Water Management Strategies (WMSs)	Currently in development. First draft ready for HDR internal review.
7	4D			§357.34; §357.35	Evaluations of Potentially Feasible WMSs and Recommended WMSs and Alternative WMSs	WMS write-ups being drafted and distributed to project sponsors for review
10	5			§357.34	Conservation Recommendations [as subchapter]	In development. Similar to Chapter 6 in 2011 Plan.
11	6	6	6	§357.40	Impacts of Regional Water Plan	Being presented.
				§357.41	Consistency with Protection of Water Resources, Agricultural Resources, and Natural Resources	Being presented.
12	7	7	7	§357.42	Drought Response Information, Activities, and Recommendations	In development.
13	8	8	8	§357.43	Policy Recommendations & Unique Sites	Being drafted and revised by Workgroup
14	9	9	9	§357.44	Infrastructure Financing Analysis	<i>To be completed after IPP</i>
15	11	11	11	§357.45	Implementation and Comparison to the Previous Regional Water Plan	In development.
8	10	10	10	§357.21; §357.50	Public Participation and Plan Adoption	<i>To be completed after IPP</i>
6	4C	12	N/A	contract	Technical Memorandum	Submitted to TWDB on 7/28/2014



# Victoria Water Management Strategies<sup>1</sup>

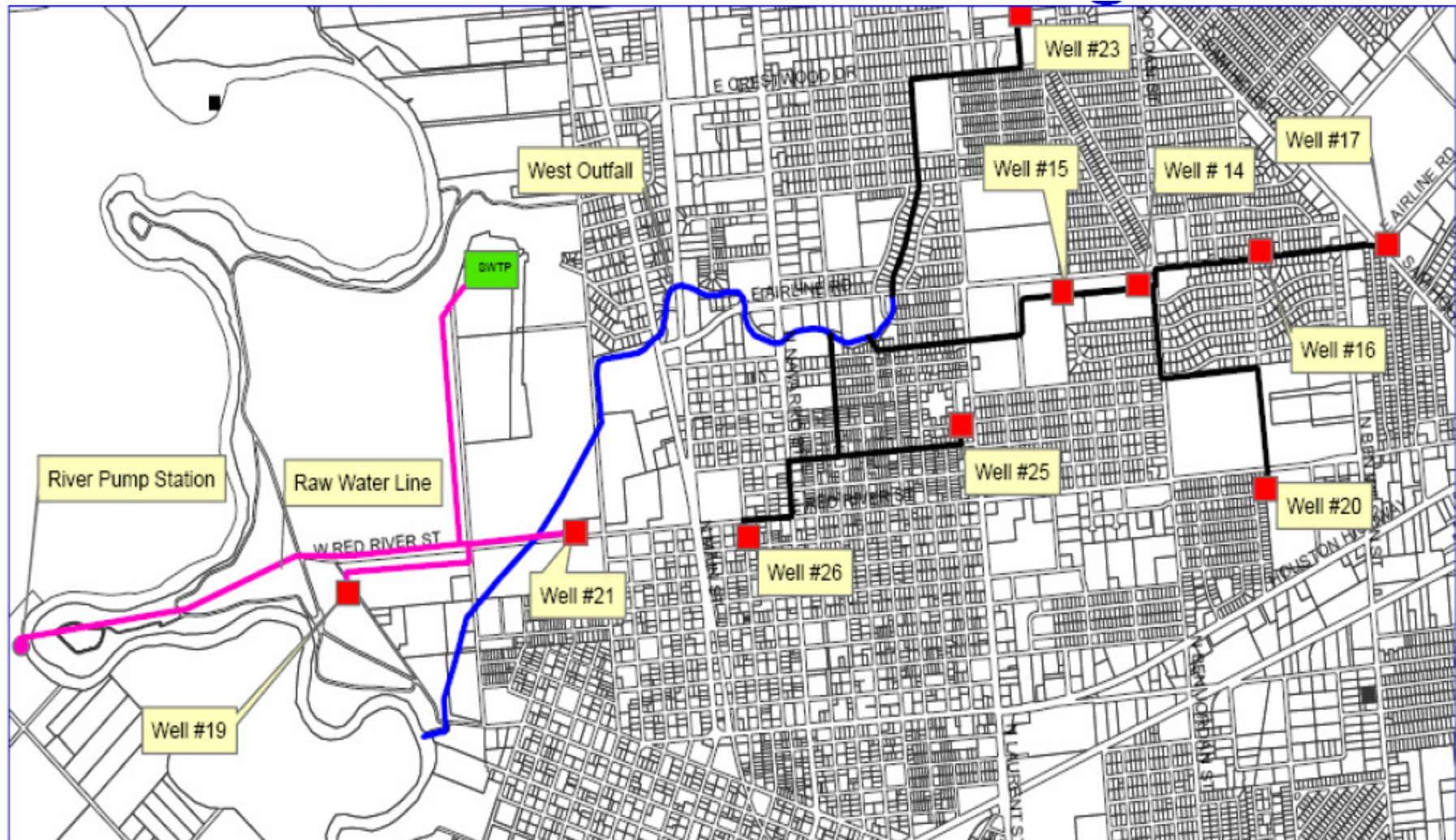
- **Surface Water Rights** – Continued acquisition of existing rights from willing sellers and amendments to facilitate use.
- **Groundwater Exchange** – Potential expansion of existing conjunctive use program involving surface water rights and permitted wells.
- **Aquifer Storage & Recovery (ASR)** – Development of an ASR project to firm up interruptible surface water rights and meet seasonal peaking needs.
- **Balancing Storage** – Development of additional off-channel storage and/or new ASR to meet seasonal peaking needs and help firm up interruptible surface water rights.

<sup>1</sup> In addition to Conservation & Drought Management

# Surface Water Rights

CA#/P#	Old Name	Priority Date	Annual Diversion (acft/yr)	Maximum Diversion (cfs)
3844	Schmidt	8/16/1918	608	9.8
3858	Murphy	6/27/1951	1,000	4.44
3860	Lipscomb	8/15/1951	260	8.91
3862	Big Rack	12/12/1951	262.7	12.62
3606	O'Connor Trust	7/10/1978	4,676	13.4
4117	???	4/2/1984	200	1.67
5466	Victoria	5/28/1993	20,000	150
		<b>Sums</b>	<b>27,006.7</b>	<b>200.84</b>

# Groundwater Exchange



# Groundwater Exchange

Well #	Capacity (gpm)	Capacity (cfs)	Capacity (acft/yr)	Victoria County GCD Authorized Production (acft/yr)
14	1,560	3.48	2,516	825
15	2,100	4.68	3,387	1,158
16	1,557	3.47	2,511	1,344
17	1,529	3.41	2,466	285
19	500	1.11	807	664
20	1,538	3.43	2,481	623
21	2,090	4.66	3,371	639
23	1,830	4.08	2,952	333
25	1,705	3.80	2,750	1,264
26	2,380	5.30	3,839	1,408
City Park	560	1.25	903	???
<b>Sums</b>	<b>17,349</b>	<b>38.66</b>	<b>27,984</b>	<b>8,544</b>

# Aquifer Storage & Recovery (ASR)

## Water Source:

- ~27,000 acft/yr surface water rights (priorities 1918-1993) with maximum diversion rate of ~201 cfs

## Key Objectives:

- Seasonal storage to meet peak demands
- Long-term storage to increase reliability during drought
- Deferring additional water treatment capacity
- Emergency storage for use during flood events
- Disinfection byproduct reduction

# Victoria Area ASR Feasibility Study

- Participants – City of Victoria, Victoria County GCD, Port of Victoria, GBRA, LNRA, & TWDB
- Technical Consultants – NEI, ARCADIS-US, ASR Systems, & INTERA
- Seven ASR options examined for meeting key objectives.
- Results summarized in a report completed in late 2014.

# Victoria ASR

City above Upper Goliad formation of the Evangeline Aquifer, which is suitable for ASR.



Phased project potentially including:

- 10 new ASR wells
- Retrofit 6 existing wells
- Storage zone and Chicot Aquifer monitoring wells

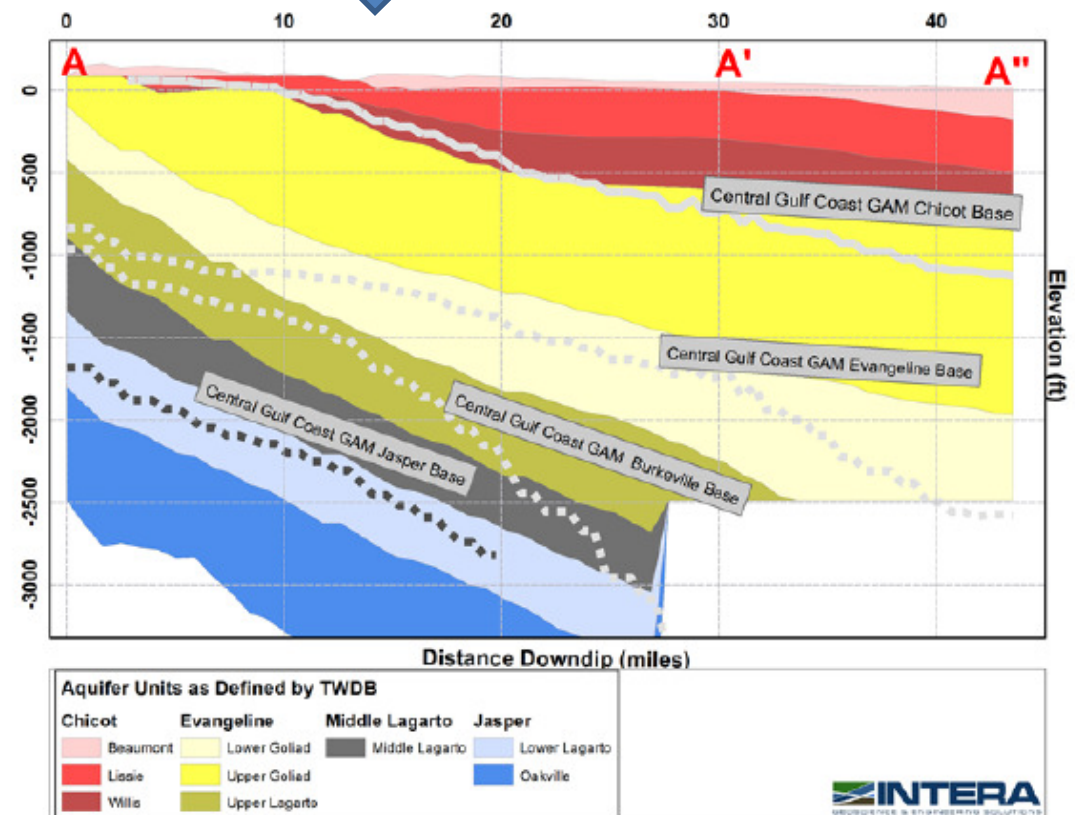


Figure 6.3: Profile of Geological Units and Aquifers from the TWDB Study (Young and others, 2010) and of Aquifers from the SWAP Study (Strom and others, 2003) that comprise the Gulf Coast Aquifer System along Cross Section A-A'

# Victoria ASR Costs & Permitting

## Costs

- Capital = \$14.5M
- Project = \$21.1M
- Annual = \$1.5M
- Unit = \$192/acft/yr  
(Yield = ~7,900 acft/yr)

## Permitting

- TCEQ – Amend surface water rights and obtain Class V injection permit
- VCGCD – Obtain drilling and production permits



# Balancing Storage

New site or sites presently undetermined, but development of additional off-channel and/or aquifer balancing storage is an ongoing pursuit of the City of Victoria. Such pursuit is generally consistent with the Balancing Storage water management strategy recommended by Region L.

# ***Facilities Expansions***

- **Expansions of major components of existing infrastructure (facilities) so WUGs can continue to provide a safe and reliable water supply to their customers during the planning period.**
- **WUGs:**
  - **Atascosa Rural WSC:** Interconnect with Benton City WSC and East Medina
  - **City of Helotes:** Integrating System with SAWS
  - **Gonzales County WSC:** Interconnects with Texas Water Alliance and SSLGC. Building additional well to utilize yield from Carrizo Aquifer (March 2015)
  - **Springs Hill WSC:** Agreement to utilize Seguin's 90% completed elevated storage tank. Emergency Interconnect with Schertz- Seguin pipeline
  - **Yancey WSC:** WTP Expansion for Groundwater. Looking to purchase new well site.
  - **SAWS:** Water Resource Integration Pipeline. Medina Lake Optimization (Membrane Improvements at WTP). **Direct Reuse Pipeline from Dos Rios to CPS.**
  - **Port O' Connor:** WTP Improvements. Distribution System Improvements. Groundwater Treatment. 3 GST's and associated Booster/ Feed Pumps.
  - **CCMA:** WWTP Expansion
  - **GBRA: Western Canyon WTP Expansion**
  - **Hays County: Transmission Facilities to move new supplies from southern Hays County to the Wimberley/Woodcreek Area.**

# Facilities Expansions

<i>WUG</i>	<i>Description</i>	<i>Total Capacity of Facilities Expansion (acft/yr)</i>	<i>Project Cost</i>	<i>Annual Cost</i>
Atascosa Rural WSC	(4) 12-in. dia. transmission pipeline connection	11,372	\$80,855,000	\$7,559,000
Hays County	18 mile, 26 in Diameter transmission pipeline	15,314	\$52,174,000	\$6,535,000
City of Helotes	12-in. dia. transmission pipeline connection. 8-in. dia Sewer line.	2,843	\$3,597,000	\$300,000
GBRA	5 MGD WTP Expansion and Pump Stations	5,600	\$13,528,000	\$678,000
Gonzales County WSC	(2) 12-in. dia. transmission pipeline connection	5,686	\$19,562,000	\$861,000
Springs Hill WSC	Expansion of Lake Placid WTP capacity from 1 MGD to 2MGD	1,120	\$2,542,000	\$806,000
SAWS	Water Integration Pipeline 60" diameter pipeline, 48" diameter Pipeline, storage Tanks, Pumps, Delivery Point Facilities.	84,000	\$205,000,000	Phased
SAWS	Medina Lake Optimization,	N/A	\$4,100,000	\$343,085
SAWS	Direct Pipeline from Dos Rios WWTP to Calaveras Lake (CPS)	50,000	\$30,000,000	\$2,500,000
Port O' Connor	Treatment Expansion for two wells and distribution system improvements.	672	\$21,534,000	Phased
CCMA	WWTP Expansion (3.8 MGD), New Mid-Cibola WWTP (0.5 MGD). Distribution Facilities.	4,816	\$23,316,500	\$4,400,000

**DRAFT**  
**(Updated 4-2-2015)**

## ***Direct Recycled Water Programs***

- Supply and Availability:
  - For Non-Potable Uses Only
    - Irrigation of Parks and Golf Courses
    - Industrial Cooling and Processes
  - Limited by WWTP Production (Typically 50-65% of Total Demand)
  - Limited by Customers Within Economical Distance from WWTPs
- Potential WUGs Identified in 2016 SCTRWP:
  - City of San Marcos\*
  - City of New Braunfels\*
  - City of Kyle\*
  - **SAWS**
  - **SARA**
  - **CCMA**



**DRAFT (Updated 4-2-2015)**

1

## ***Direct Recycled Water Programs***

- Type 1 – Public or food crops generally can come in contact with reuse water.
- Type 2 – Public or food crops cannot come in contact with reuse water.

<b><i>Scenario #</i></b>	<b><i>Treatment</i></b>	<b><i>Distribution</i></b>
1	Existing WWTP <b><u>is achieving treatment that meets the Type 1 effluent requirements.</u></b> Treatment upgrade includes only the addition of chlorine for distribution.	Treated wastewater is supplied to demand location(s) from central WWTP by addition of piping and pump station.
2	Existing WWTP <b><u>is nearly achieving treatment that meets the Type 1 effluent requirements.</u></b> Treatment upgrade includes tertiary treatment and chlorine.	Treated wastewater is supplied to demand location(s) from central WWTP by addition of piping and pump station.

**DRAFT (Updated 4-2-2015)**

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## ***Direct Recycled Water Programs***

- Potential Environmental Issues

Implementation Measures	Development of additional wastewater treatment plant facilities, distribution pipelines, and pump stations.
Environmental Water Needs / Instream Flows	Potential low impacts on instream flows due to decreased effluent/return flows; possible increased water quality.
Bays and Estuaries	Potential low negative impact due to reduced freshwater inflow and nutrient loading.
Localized Fish and Wildlife Habitat	Variable impacts depending on changes in volume of effluent return flows; in the case of substantially reduced stream flows, potential high negative impact to fish and wildlife habitat.
Cultural Resources	None anticipated.
Threatened and Endangered Species	None anticipated with recommended WMSs.

DRAFT (Updated 4-2-2015)

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## ***Direct Recycled Water Programs***

- Facilities:
  - Potential Upgrades to existing WWTPs
  - Dedicated Recycle Distribution System
    - Pump Stations
    - Transmission Pipelines (Purple Pipe)
    - Storage Tanks
  - Distribution Systems May Need to be Sized for Peak Demands for Short Durations (Irrigation)

- Cost:

### ***Short-Term (Debt Service Period)\****

Scenario	Capacity (MGD)			
	0.5	1	5	10
1	\$1,047	\$770	\$564	\$502
2	\$2,144	\$1,440	\$775	\$631

\* Cost in \$/acft/yr

### ***Long-Term (Beyond Debt Service Period)\****

Scenario	Maximum Capacity (MGD)			
	0.5	1	5	10
1	\$191	\$163	\$110	\$96
2	\$837	\$545	\$230	\$167

\* Cost in \$/acft/yr

DRAFT (Updated 4-2-2015)

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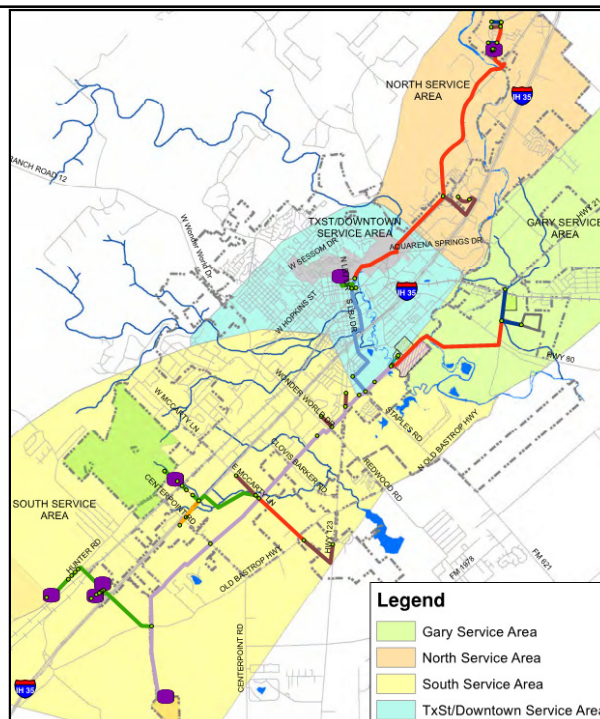
## City of San Marcos

- Existing Recycled Water Program:
  - Existing users include a power generating plant and a cement manufacturing plant (224 acft)
  - Reclaimed water pump station located at the San Marcos WWTP
  - No additional treatment needed (Existing = Type 1)
  - 18-inch pipeline that extends approximately 8.5 miles
- Potential Demand estimated to be ~2,100 acft/yr
- Project costs are approximately \$22.1 million
- Unit Cost = \$869/acft/yr
- **Goal to be 0 discharge by 2070**

DRAFT (Updated 4-2-2015)

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## City of San Marcos



DRAFT  
(Updated 4-2-2015)

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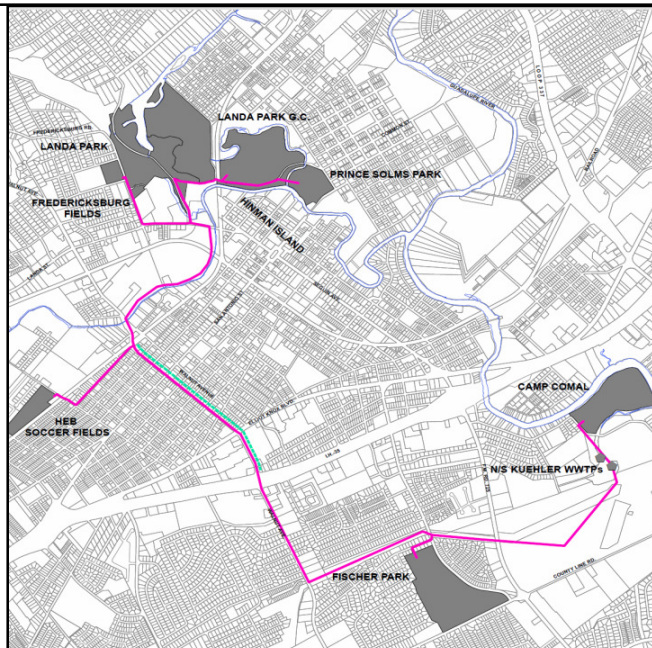
## ***New Braunfels Utilities***

- Existing Recycled Water Program:
  - Sundance Park (up to 2 MG/month)
  - 10-inch pipeline extends approximately 0.75 miles
  - Recycled water from Gruene WWTP
- Approximately 173 acres of potential irrigated parkland
- Proposed expanded system to rely on South Kuehler WWTP
- Potential Demand estimated to be 906 acft/yr
- Potential reduction in potable water use for irrigation
- Project costs are approximately \$5.2 million
- Unit Cost = \$481/acft/yr
- **Goal to be 0 discharge by 2070**

DRAFT (Updated 4-2-2015)

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## ***New Braunfels Utilities***



DRAFT  
(Updated 4-2-2015)

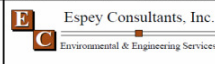


FIGURE 9  
ALTERNATIVE 1  
SOUTH TRIB.-WALNUT AVE.

8



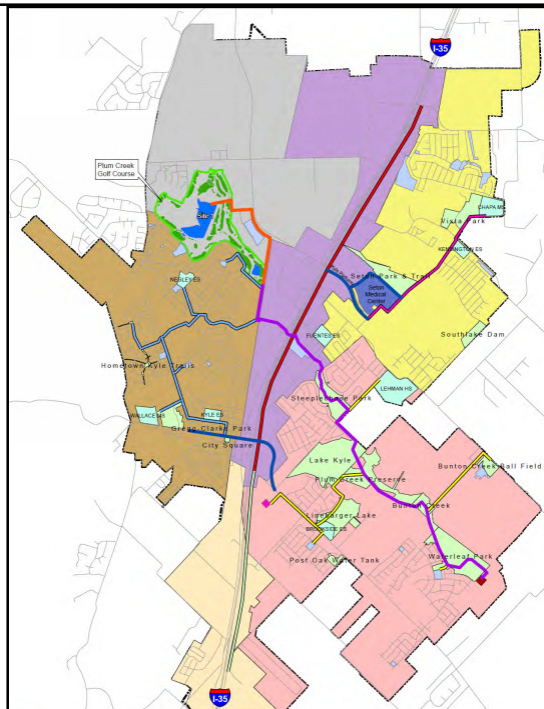
## City of Kyle

- Recycled water currently in use
  - Plum Creek Golf Course (privately owned)
- Parks are presently maintained without supplemental irrigation
- Average wastewater flows are projected to exceed 4 MGD by 2035
- Additional treatment required for Type 1 standards
- Potential Demand estimated to exceed 1,325 acft/yr
- Project costs are approximately \$11.2 million
- Unit Cost = \$710/acft/yr
- **Goal to be 0 discharge by 2070**

DRAFT (Updated 4-2-2015)

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## City of Kyle



DRAFT (Updated 4-2-2015)

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### ***Additional Recycle Expansions***

- **SAWS:**
  - Recycle expansion of 40,000 acft/yr (in lieu of 15,000 acft/yr expansion)
  - Direct Reuse Pipeline of 50,000 acft/yr to delivery water to CPS
- **SARA: Future (2070) net discharges to stream will be 4,355 acft/yr for stream maintenance. All other reuse will be consumed.**
- **CCMA: Future (2070) reuse will be 90% of WWTP influent**

DRAFT (Updated 4-2-2015)

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### **Summary of Recycle WMS**

Entity	Capacity (acft)	Project Costs	Annual Costs	Unit Costs (\$/acft)
CCMA	27,270	\$163,595,239	\$13,689,540	\$502
Kyle	4,368	\$37,074,649	\$3,102,382	\$710
New Braunfels	11,709	\$67,279,580	\$5,629,910	\$481
San Marcos	8,341	\$86,664,302	\$7,252,011	\$869
SARA	6,075	\$108,897,000	\$9,112,000	\$1,500
SAWS	40,000	\$170,830,000	\$18,316,000	\$458

DRAFT (Updated 4-2-2015)

12

# **2016 South Central Texas Regional Water Plan Initially Prepared Plan**

## **Cumulative Effects & Environmental Assessments of Regional Water Plan Implementation**

*April 2, 2015*

1

### **Cumulative Effects of the 2016 Plan (Chapter 6)**

- Describe the Potential Impacts of the Regional Water Plan and How the Plan is Consistent with Long-term Protection of Water Resources, Agricultural Resources, and Natural Resources
- Hydrologic Assessments
  - Reporting of Groundwater Levels Based on Full Use of the MAGs
  - Evaluation of Surface Water Flows at 7 Locations Throughout the Region
- Environmental Assessment

**DRAFT (4-2-15)**

2

## Cumulative Effects of the 2016 Plan (Chapter 6)

- Evaluate Streamflows and Estuary Inflows for 2 Scenarios

- Baseline (SCTRWP Surface Water Supply Evaluation)

- Edwards Springflows with EAHCP Implementation
- Effluent Consistent with 2011 Reported Discharges, Adjusted for Current Levels of Reuse
- Water Rights at Full Authorized Consumptive Levels

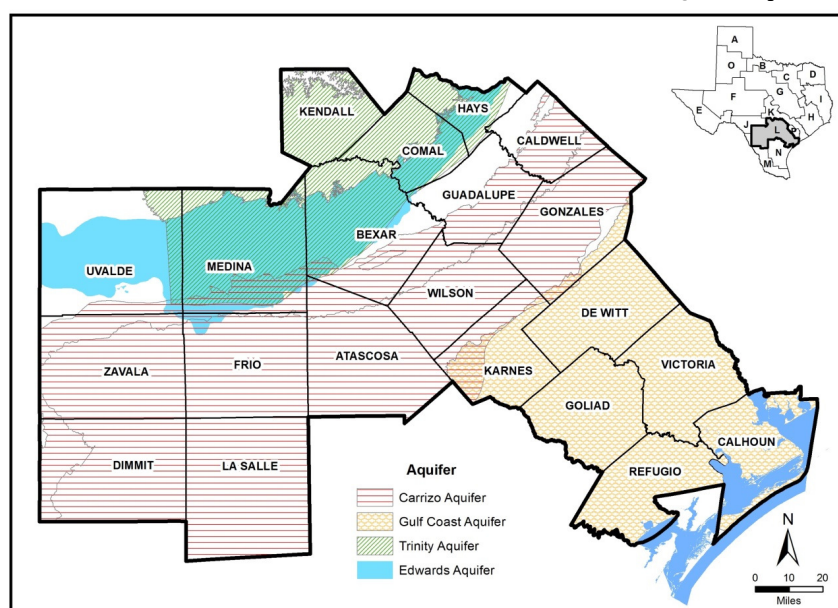
- With RWP Implementation

- Edwards Springflows with EAHCP Implementation
- Effluent Consistent with Projected Discharge Levels, Adjusted for Planned Level of Reuse
- Water Rights at Full Authorized Consumptive Levels
- Effects of Implementation of All Recommended WMS through 2070

DRAFT (4-2-15)

3

## Cumulative Effects of the 2016 Plan (Chapter 6)



DRAFT (4-2-15)

## Cumulative Effects of the 2016 Plan (Chapter 6)

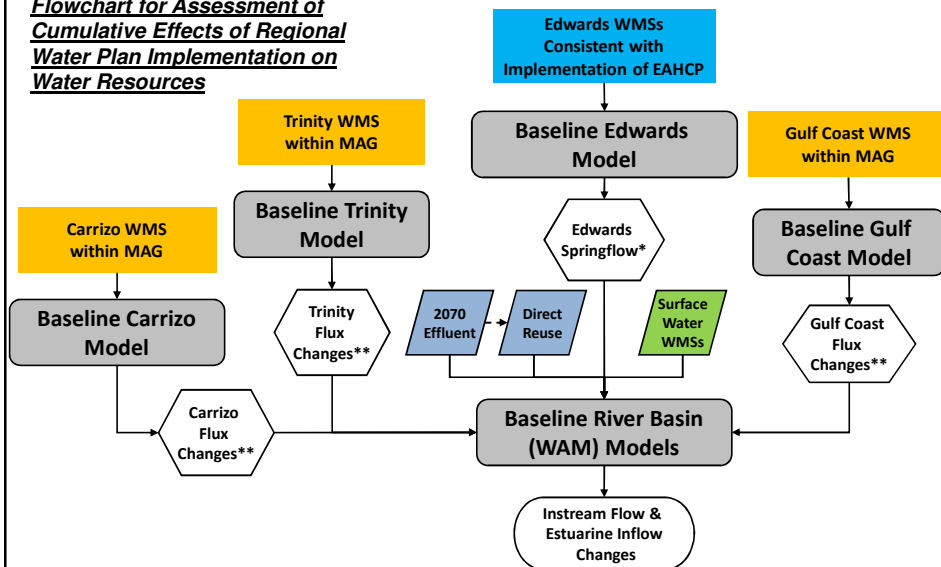
### Guadalupe – San Antonio River Basin

- 1) Guadalupe River above Comal River @ New Braunfels
- 2) San Marcos River @ Luling
- 3) Guadalupe River @ Victoria
- 4) San Antonio River near Falls City
- 5) San Antonio River @ Goliad
- 6) Guadalupe River @ Saltwater Barrier near Tivoli
- 7) Guadalupe Estuary



## Cumulative Effects of the 2016 Plan (Chapter 6)

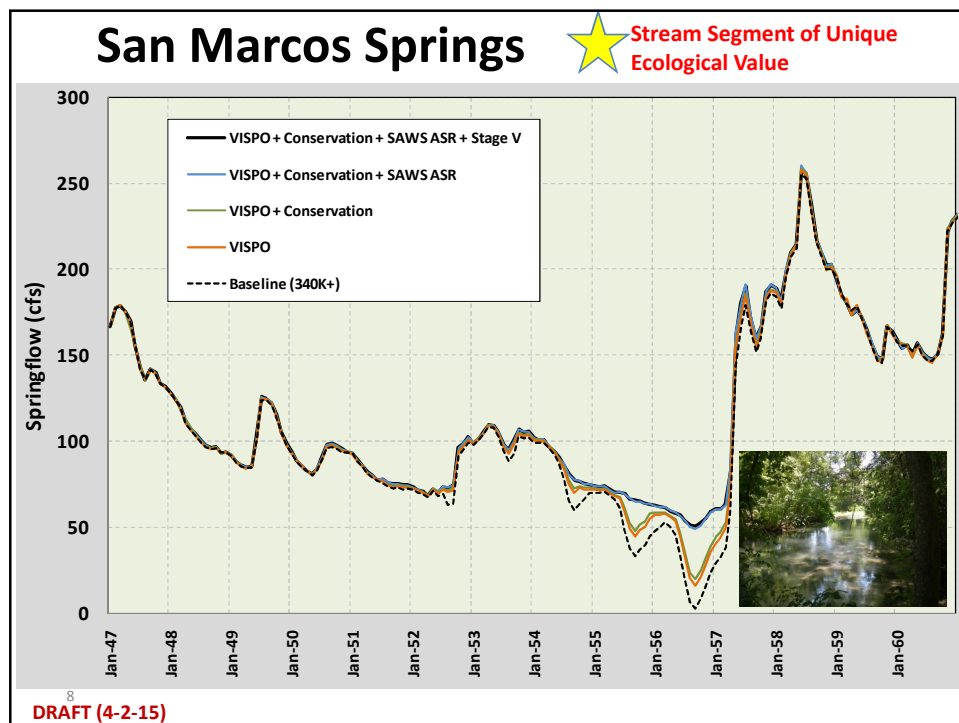
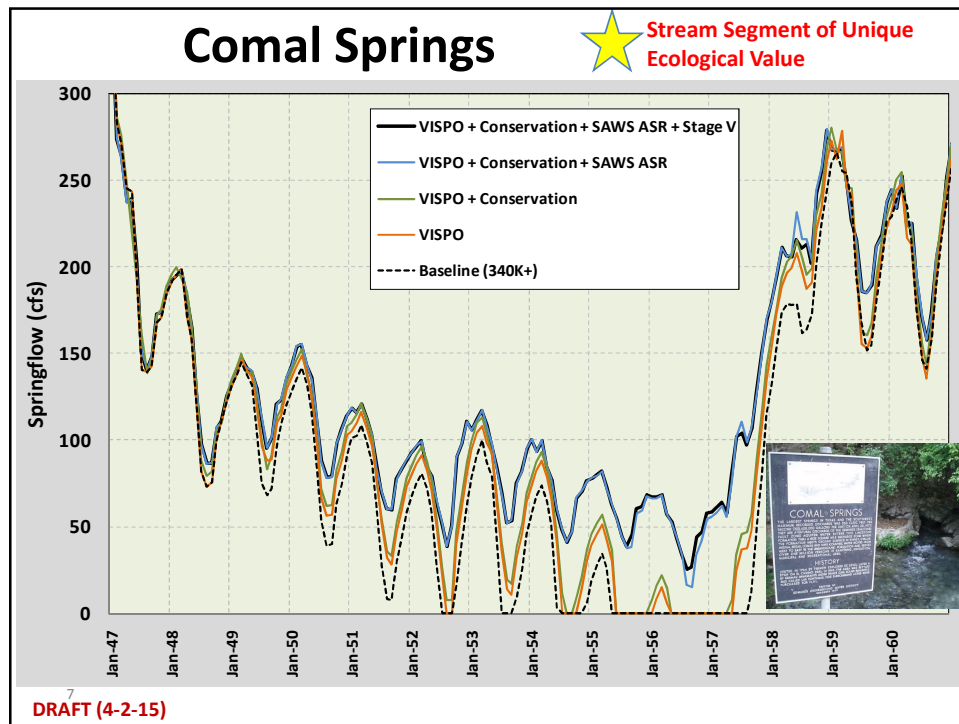
### Flowchart for Assessment of Cumulative Effects of Regional Water Plan Implementation on Water Resources

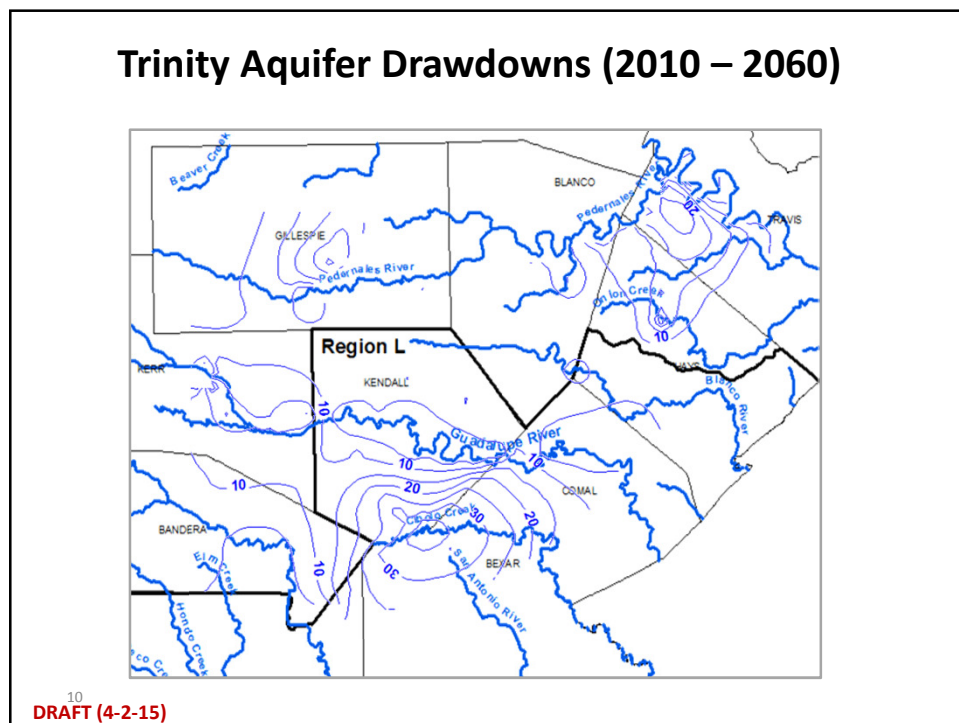
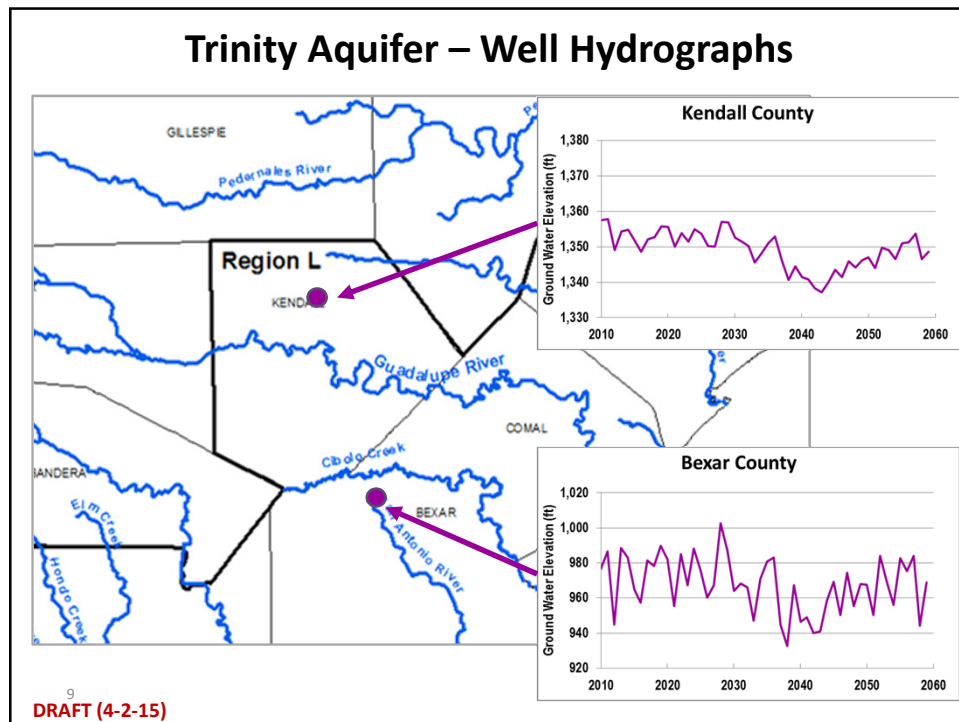


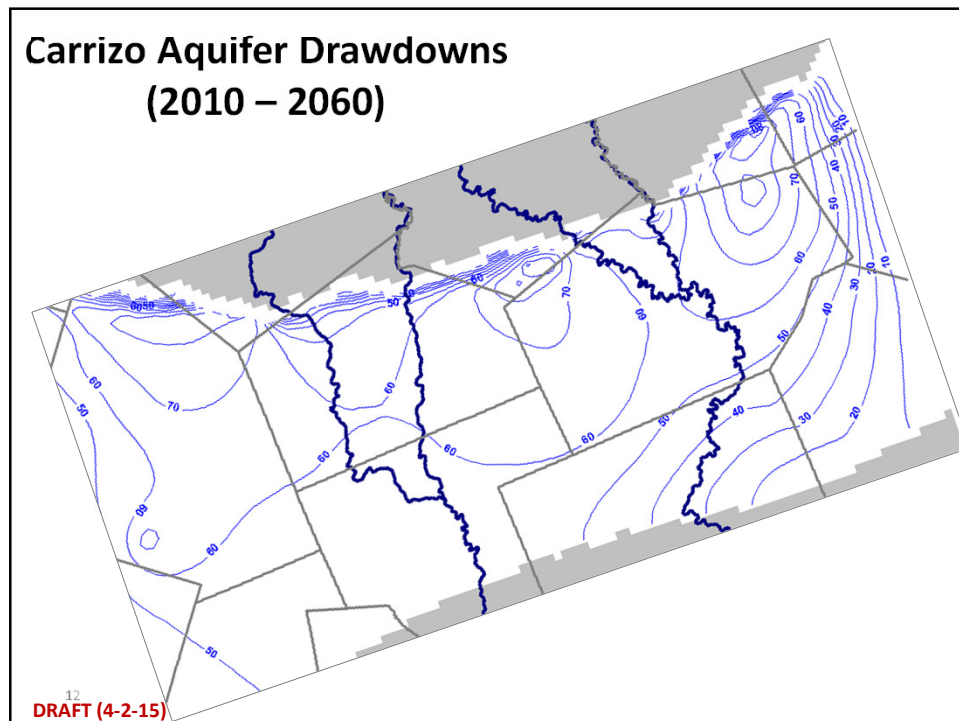
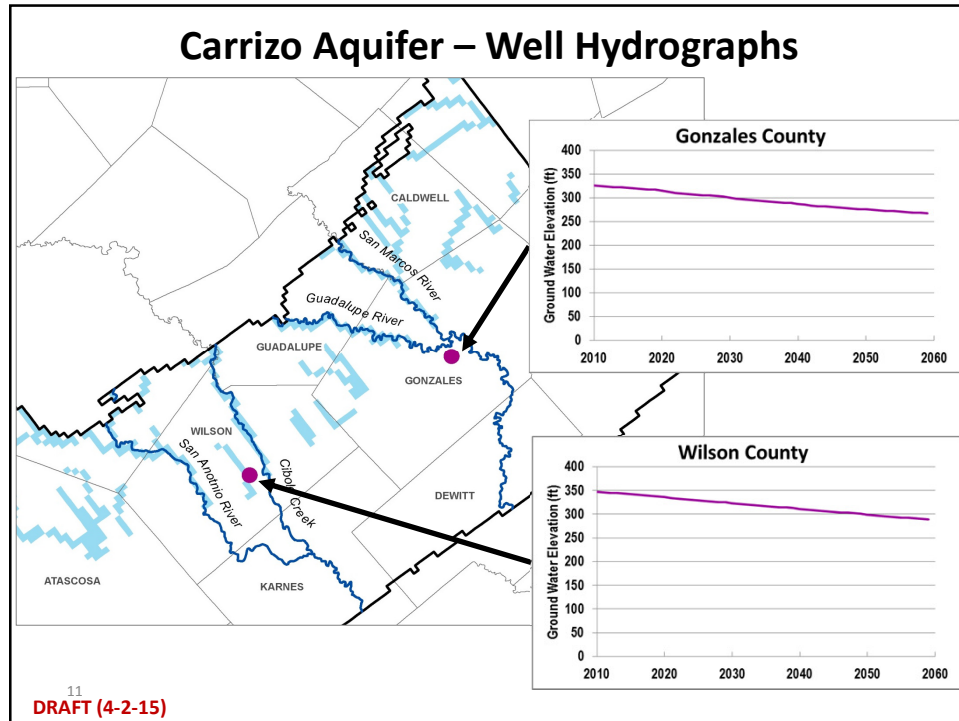
\* Springflows Consistent with Full EAHCP Implementation

\*\* Flux Changes at Full MAG Pumpage Levels

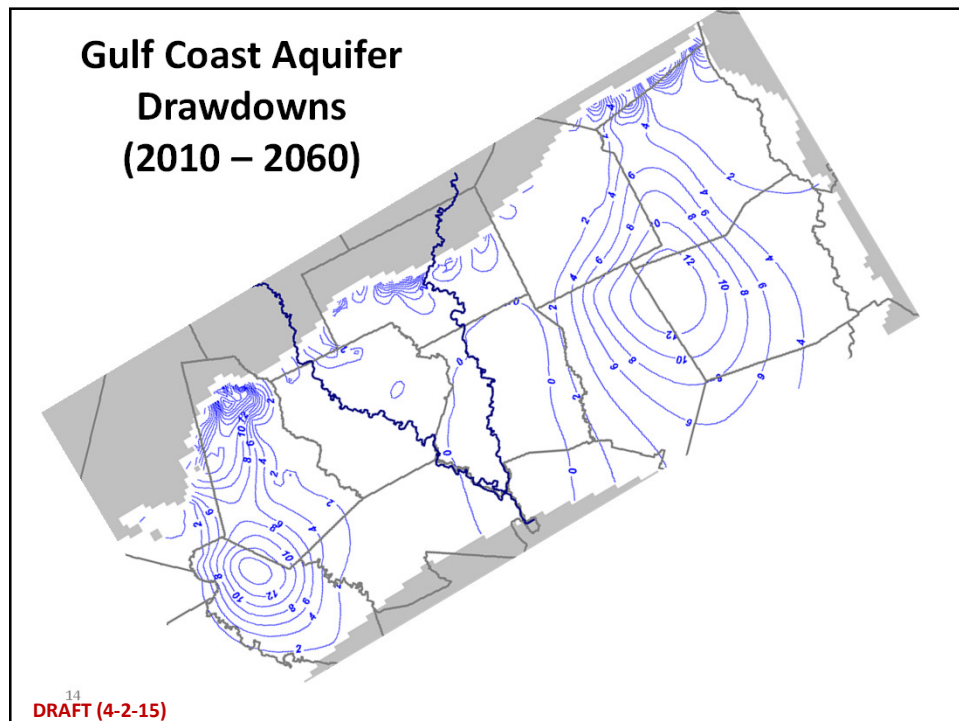
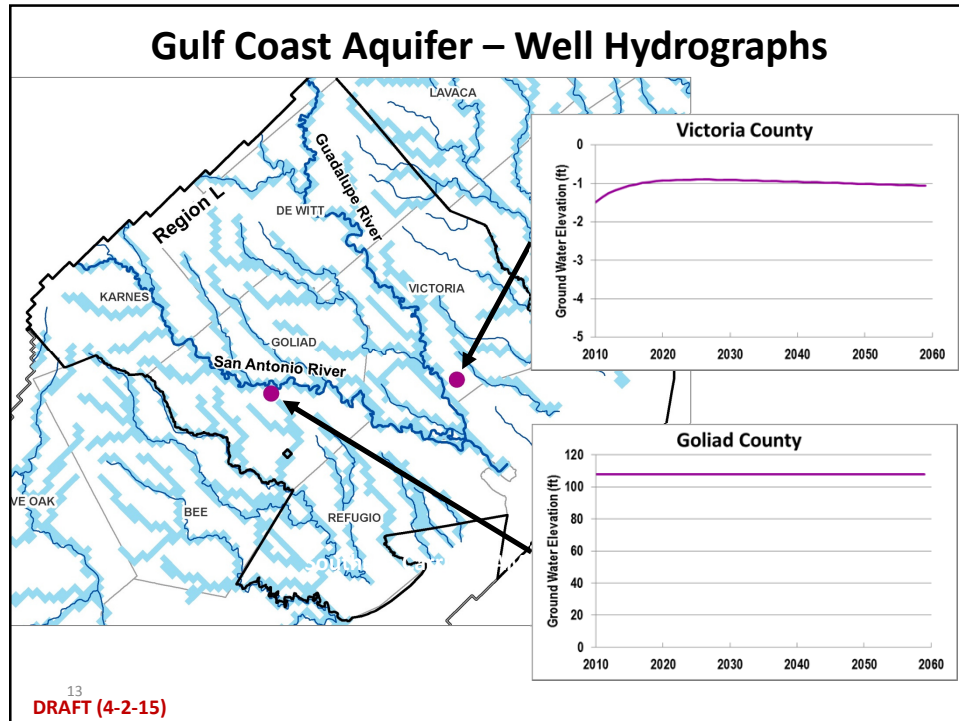
2016 South Central Texas  
Initially Prepared Plan







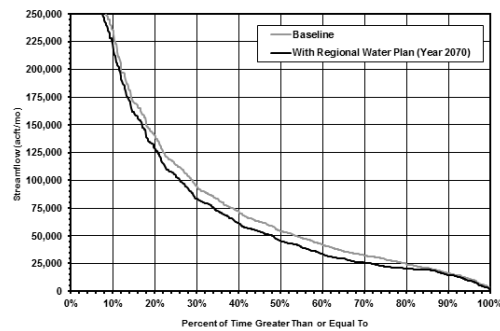
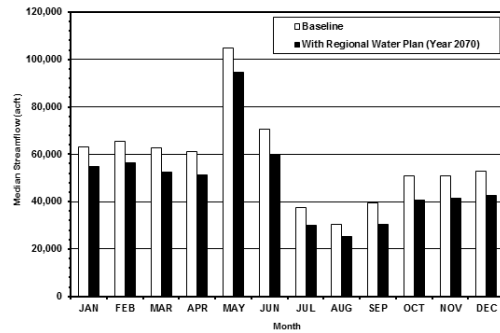






## Cumulative Effects of SCTRWP

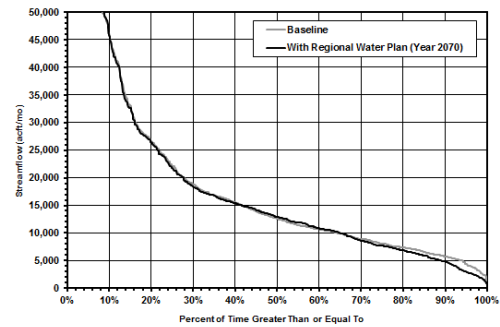
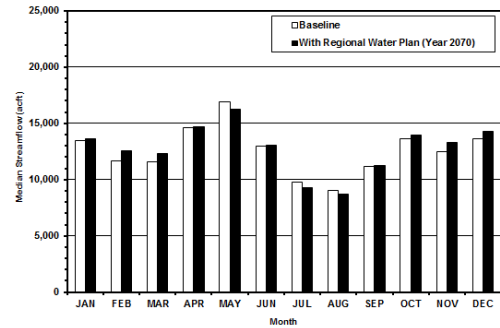
### Guadalupe River @ Victoria



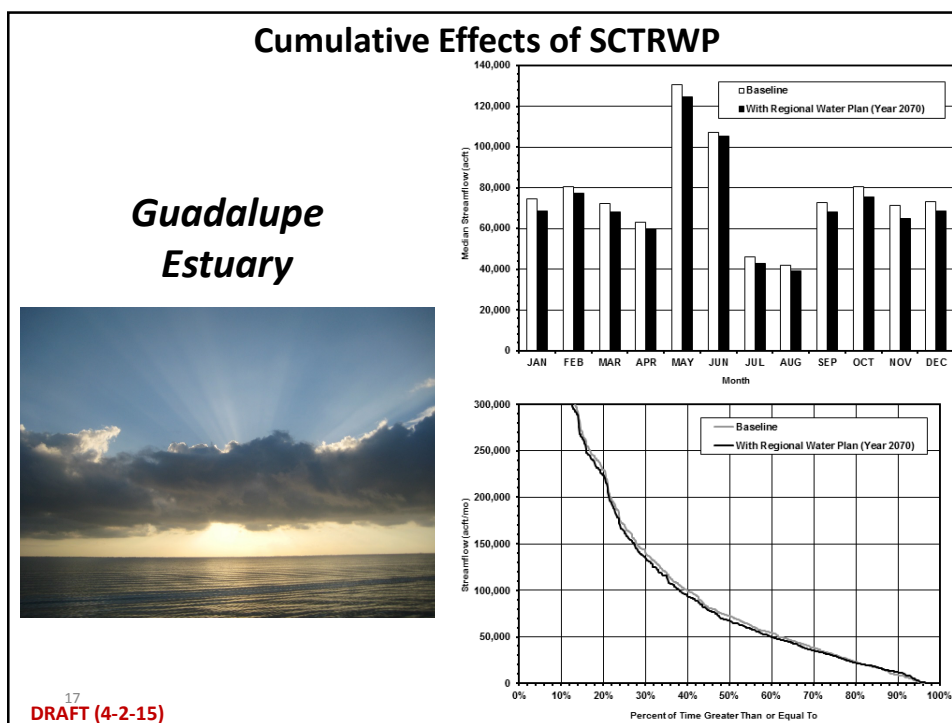
15  
DRAFT (4-2-15)

## Cumulative Effects of SCTRWP

### San Antonio River @ Falls City



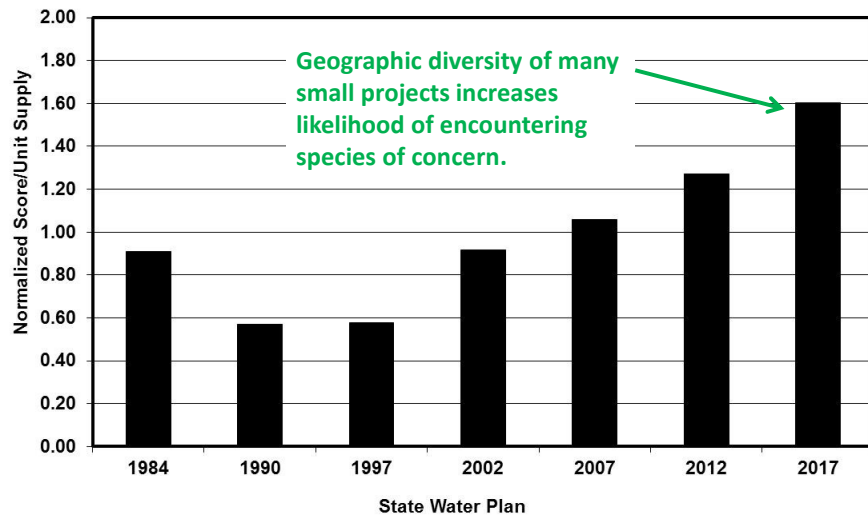
16  
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## Environmental Assessment

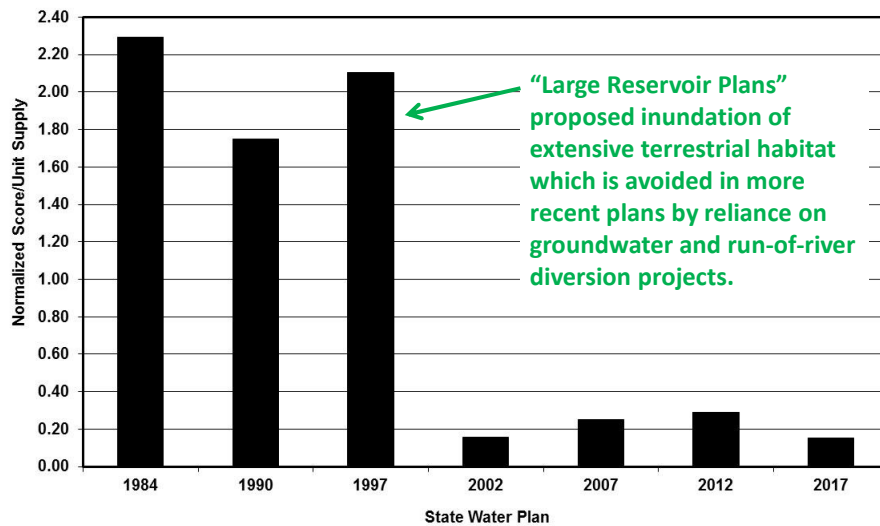
- Comparison of the 2016 Regional Water Plan with Past State Water Plans in Terms of Cumulative Potential Impacts Associated with Implementation & Long-term Operations of Recommended Water Management Strategies
- Matrix-Based Approach Considering the Following:
  - Endangered & Threatened Species
  - Vegetation & Wildlife Habitats
  - Water Quality & Aquatic Habitats
  - Cultural Resources

### Cumulative Potential Impact Scores for Endangered & Threatened Species



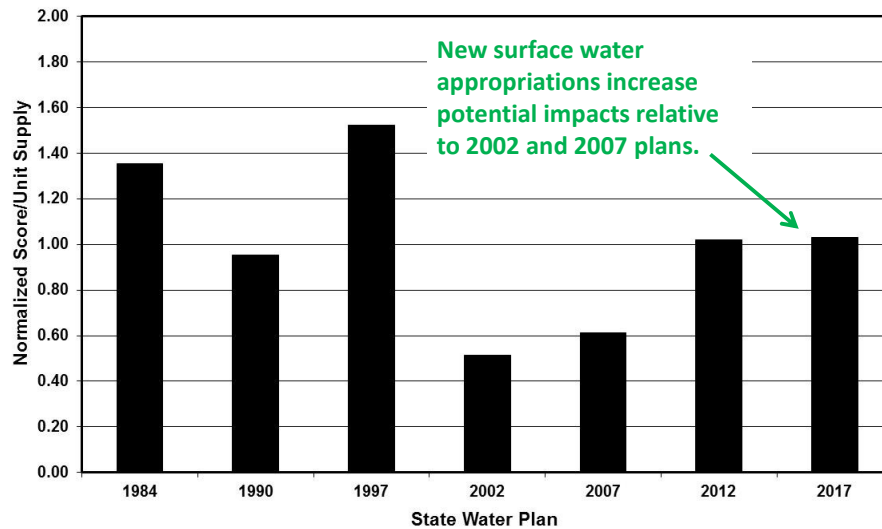
19

### Cumulative Potential Impact Scores for Vegetation & Wildlife Habitats



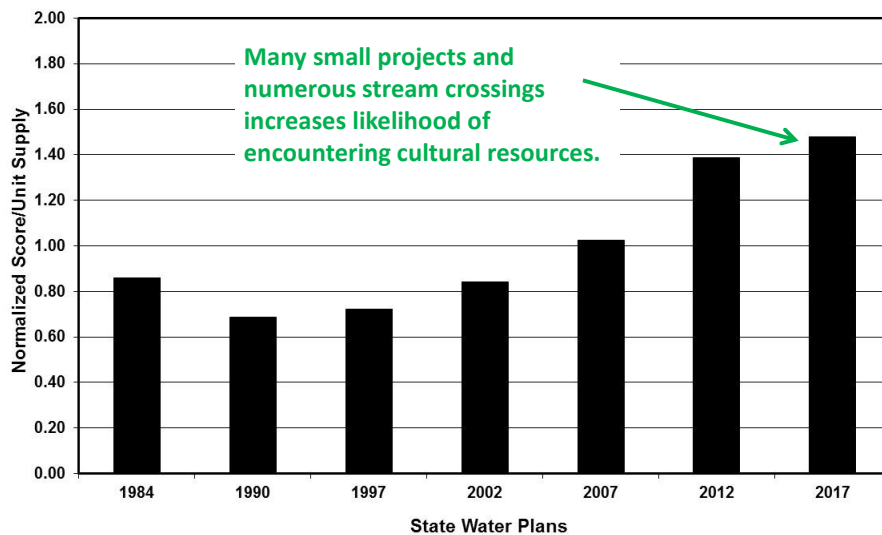
20

### Cumulative Potential Impact Scores for Water Quality & Aquatic Habitats

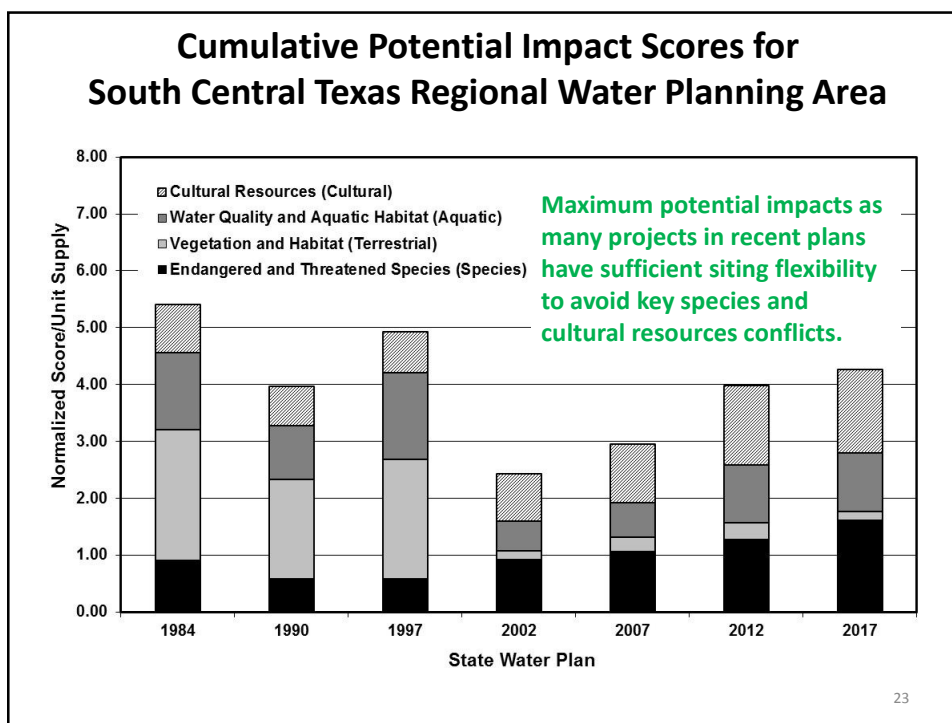


21

### Cumulative Potential Impact Scores for Cultural Resources



22



### Potential Effects on Stream Segments Recommended for Designation as Having Unique Ecological Value

- Nueces, Frio, and Sabinal Rivers - No recommended water management strategies affect the segments recommended for designation.
- San Marcos River – Implementation of the EAHCP is expected to enhance biological and hydrologic functions as well as water quality and protection of endangered species.
- Comal River – Implementation of the EAHCP is expected to enhance biological and hydrologic functions as well as water quality and protection of endangered species.

### **Selected Environmental **Concerns** of Initially Prepared 2016 Region L Plan**

- 1) Reductions in instream flows and freshwater inflows to bays & estuaries associated with surface water supply and direct consumptive reuse projects.
- 2) Projects located in stream segments identified by TPWD as ecologically significant.
- 3) Effects on small springs associated with groundwater development.
- 4) Intake siting, brine disposal, and effects on marine species and habitat associated with seawater desalination projects.

<sup>25</sup>  
**DRAFT (4-2-15)**

### **Selected Environmental **Benefits** of Initially Prepared 2016 Region L Plan**

- 1) Emphasis on Conservation, Drought Management, groundwater development, and use of existing surface water rights avoids or delays projects with greater impacts.
- 2) Implementation of the Edwards Aquifer Habitat Conservation Plan and development of non-Edwards supplies contribute to springflow maintenance and endangered species protection.
- 3) Plan avoids impacts associated with development of new mainstem reservoirs.
- 4) Long-term reliance on seawater desalination perceived to have fewer associated impacts than development of new (fresh) surface water supplies.

<sup>26</sup>  
**DRAFT (4-2-15)**

# Discussion

DRAFT (4-2-15)

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2016 SCTRWP Potentially Feasible Water Management Strategies

	Water Management Strategy	YR 2070 Supply (acft/yr)	Unit Cost (\$/acft/yr)	Sponsor	Notes
Recommended Water Management Strategies	Conservation	Varies	Varies	All Municipal Users	
	Drought Management	Varies	Varies	Municipal Users	Those with Needs in YR 2020
	CRWA Wells Ranch - Phase 2 - MAG-Limited	7,829*	\$800	CRWA	Limited to 7,658 acft/yr in YR 2030
	Brackish Wilcox Groundwater for CRWA - MAG-Limited	3,839	\$2,619	CRWA	
	CRWA Siesta Project	5,042	\$1,186	CRWA	
	Edwards Transfers, Carrizo Transfers, or Trinity	300	TBD	CRWA	
	Carrizo Aquifer (Wilson Co) - MAG-Limited	0	N/A	CVLGC	
	Carrizo Aquifer (Wilson Co) w/ Conversions	10,000	\$1,834+	CVLGC	
	GBRA Mid-Basin Project (ASR)	50,000	\$1,637	GBRA	
	GBRA Lower Basin Storage (500 acre site)	51,800	\$140	GBRA	
	GBRA Lower Basin New Appropriation	42,000	\$591	GBRA	
	Integrated Water-Power Project	100,000	\$2,393	GBRA	
	Victoria County Steam-Electric Project	29,100	\$1,225	GBRA	
	Western Canyon WTP Expansion	N/A	N/A	GBRA	Up to 5,600 acft/yr of Capacity
	Hays/Caldwell PUA Project - Phase I & II - MAG-Limited	21,833	\$1,926	HCPUA	
	Lavaca Off-Channel Reservoir	16,963	\$867	LNRA	6,963 acft/yr for Region N
	Brackish Wilcox Groundwater for SAWS - MAG-Limited	5,622	\$1,289	SAWS	
	Expanded Local Carrizo - MAG-Limited	5,419	\$700	SAWS	
	Vista Ridge Consortium - MAG-Limited	34,894	\$2,177	SAWS	
	Expanded Brackish Project - MAG-Limited	0	N/A	SAWS	
	SAWS Seawater Desalination	84,023	\$2,713	SAWS	75 MGD of Potable Supply
	Advanced Meter Infrastructure for SAWS	5,598	\$216	SAWS	Supply in terms of Saved Water (Leaks)
	SAWS Conservation Goals	2,792	TBD	SAWS	Varies from 2,792 acft/yr to 15,974 acft/yr
	Long-term Drought Management for SAWS	68,190	\$342	SAWS	
	SAWS Direct Reuse	40,000	\$458	SAWS	
	Water Resources Integration Pipeline	N/A	N/A	SAWS	
	Dos Rios WWTP - CPS Pipeline	50,000	N/A	SAWS	Direct Recycle Pipeline to Lake Braunig
	Expansion Carrizo Aquifer (Guadalupe County)	5,720	\$1,070	SSLGC	
	Brackish Wilcox (Gonz Co) - MAG-Limited	1,392*	\$5,032	SSLGC	Limited to 0 acft/yr in YR 2030
	TWA Carrizo Project - MAG-Limited	15,000*	\$2,490	TWA	Limited to 14,680 acft/yr in YR 2030
	TWA Trinity Project	5,000	\$613	TWA	
	New Braunfels ASR + WTP Expansion	8,300	\$462	NBU	
	New Braunfels Trinity	1,090	\$634	NBU	
	Direct Reuse/Recycle	11,709	\$481	NBU	Zero discharge by 2070
	Hays Forestar Project - MAG-Limited	12,356	\$1,942	Hays County	
	Wimberley/Woodcreek Project	N/A	N/A	Hays County	Potential Upsizing for Region K (4,000 acft/yr)
	Uvalde ASR - MAG-Limited	1,155	\$2,803	Uvalde	
	Victoria ASR	7,900	\$192	Victoria	
	Victoria Groundwater-Surface Water Exchange	8,544	\$0	Victoria	Based on current Victoria County GCD permits
	Brackish Wilcox for SS WSC - MAG-Limited	0	N/A	SS WSC	
	Facilities Expansions	N/A	N/A	Municipal Users	Atascosa Rural WSC, Helotes, Gonzales Co WSC, Springs Hill WSC, Yancey WSC, Port O'Connor, and CCMA
	Edwards Transfers	11,772	Varies	Municipal Users	Sabinal, Uvalde, Castroville, East Medina SUD, Hondo, La Coste, Natalia, Yancey WSC, Medina Co Other, Alamo Heights, Atascosa Rural WSC, Converse, Kirby, Leon Valley, SAWS, Shavano Park, Windcrest, CRWA, and Lytle
	Local GW (Carrizo)	2,812	Varies	Municipal Users	Cotulla (YR 2050 Needs), La Salle Co Other (YR 2050 Needs), Floresville, Pearsall, Polonia WSC, and Sunko WSC
	Local GW (Wilcox)	2,023	Varies	Crystal Clear WSC	
	Local GW (Gulf Coast)	151	Varies	Municipal Users	Kenedy
	Local GW (Trinity)	9,298	Varies	Municipal Users	Boerne, Garden Ridge, Crystal Clear WSC, and Mountain City
	Local GW (BS Edwards - Brackish)	392	Varies	County Line SUD	
	Local GW (Leona Gravel)	869	Varies	Municipal Users	Castroville, East Medina Co WSC, La Coste, Natalia, and Yancey WSC
	Local Carrizo Conversion (Irrigation)	819	Varies	Municipal Users	Benton City, Polonia WSC, Pearsall, and SS WSC
	Local Carrizo Conversion (Mining)	456	Varies	Municipal Users	Cotulla and La Salle Co Other (YR 2050 Needs)
	Local Yegua-Jackson Conversion (Mining)	249	Varies	Karnes City	336 acft/yr in YR 2020
	Purchase from CRWA	N/A	Varies	8 Municipal Users	Moves water from CRWA to 8 WUGs
	Purchase from CVLGC	N/A	Varies	2 Municipal Users	Moves water from CVLGC to 2 WUGs
	Purchase from GBRA	N/A	Varies	10 Mun/Ind/SE Users	Moves water from GBRA to 10 WUGs
	Purchase from HCPUA	N/A	Varies	3 Mun Users + 1 WWP	Moves water from HCPUA to 3 WUGs & CRWA
	Purchase from LNRA	10,000	Varies	Calhoun Co Ind (Formosa)	New Supply Developed by the Lavaca Off-Channel WMS
	Purchase from SAWS	N/A	Varies	7 Mun/Ind Users	Moves water from SAWS to 7 WUGs
	Purchase from SSLGC	N/A	Varies	4 Municipal Users	Moves water from SSLGC to 4 WUGs
	Purchase from TWA	N/A	Varies	4 Municipal Users	Moves water from TWA to 4 WUGs
	Direct Reuse/Recycle	27,270	\$502	CCMA	Recycle 90% of WWTP Influent
	Direct Reuse/Recycle	4,368	\$710	Kyle	Zero discharge by 2070
	Direct Reuse/Recycle	8,341	\$869	San Marcos	Zero discharge by 2070
	Direct Reuse/Recycle	6,075	\$1,500	San Antonio River Authority	
	Surface WRs	N/A	N/A	Municipal Users	
	Balancing Storage	N/A	N/A	Municipal Users	
Alternative Water Management Strategies	CRWA Wells Ranch - Phase 2 - Envisioned	10,629	TBD	CRWA	
	Brackish Wilcox Groundwater for CRWA - Envisioned	14,700	\$2,197	CRWA	
	Carrizo Aquifer (Wilson Co) - Envisioned	10,000	\$1,834	CVLGC	
	Luling ASR	4,277	\$1,086	GBRA	
	MBWSP - Carrizo Groundwater (Option 0)	15,000	\$1,665	GBRA	
	MBWSP - Surface Water w/ Off-Channel Reservoir (Option 2A)	25,000	\$2,561	GBRA	
	MBWSP - Conjunctive Use w/ ASR (Option 3A)	42,000	\$1,836	GBRA	
	Hays Forestar Project - Envisioned	45,000	\$1,331	Hays County	
	Hays/Caldwell PUA Project - Phase I & II - Envisioned	35,690	\$1,664	HCPUA	
	HCPUA/TWA/GBRA Shared Facilities Project	86,513	\$1,736	Multiple	
	HCPUA/TWA Joint	40,690	\$1,885	Multiple	
	Brackish Wilcox Groundwater for SAWS - Envisioned	33,600	\$988	SAWS	
	Expanded Local Carrizo - Envisioned	30,000	\$553	SAWS	
	Vista Ridge Consortium - Envisioned	50,000	\$1,976	SAWS	
	Expanded Brackish Project - Envisioned	50,000	\$2,041	SAWS	
	Brackish Wilcox for SS WSC - Envisioned	1,120	\$2,554	SS WSC	
	Brackish Wilcox (Gonz Co) - Envisioned	5,000	\$2,124	SSLGC	
	TWA Carrizo Project - Envisioned	15,000	\$2,440	TWA	
	Uvalde ASR - Envisioned	4,000	\$1,629	Uvalde	
Other	Storage Above Canyon (ASR)	504	\$11,875	GBRA	
	Brush Management in Gonzales Co - 10% Participation	1,370	\$1,209	TBD	
	Brush Management in Gonzales Co - 30% Participation	4,631	\$937	TBD	
	Brush Management in Gonzales Co - 50% Participation	6,925	\$1,015	TBD	



## **Agenda Item 5**

Legislative Update

## **Agenda Item 6**

Regional Water Alliance Budget Update

## RWA Expenditure Status Report– FY 2015

	Budget	Actual	Encumbrance	Remaining
Professional Services	\$6,000.00	\$3,871.49	\$1,128.51	\$1,000.00
Labor	\$5,376.18	\$3,426.33	\$0.00	\$1,949.85
Other	\$200.00	\$86.81	\$0.00	\$113.19
<b>TOTAL</b>	<b>\$11,576.18</b>	<b>\$7,384.63</b>	<b>\$1,128.51</b>	<b>\$3,342.09</b>

2016 Dues: \$4,200.00 (January 2016)

## **Agenda Item 7**

Other Business/ New Business