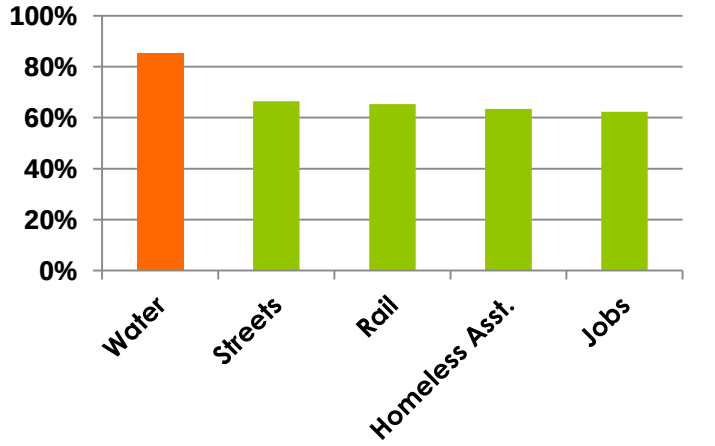
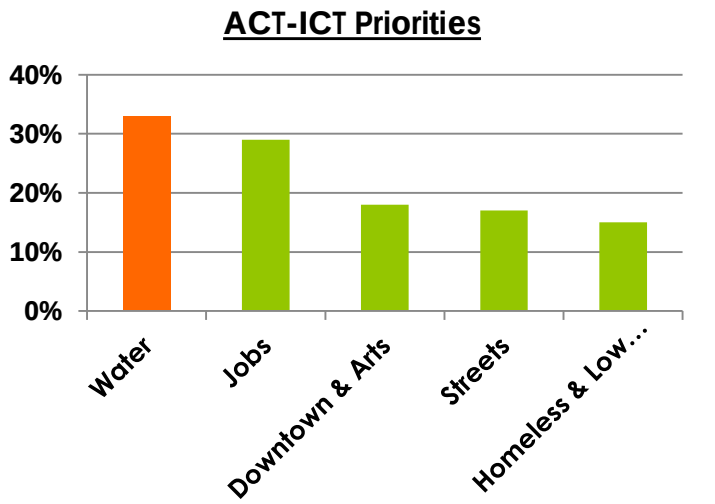
CITY OF WICHITA

WATER CONSERVATION & SUPPLY

April 8, 2014





Community Perspective on Water Supply Planning

Creating a reliable water source was the top priority in both the community survey and the ACT-ICT process.

Overview of Presentation

Water Conservation

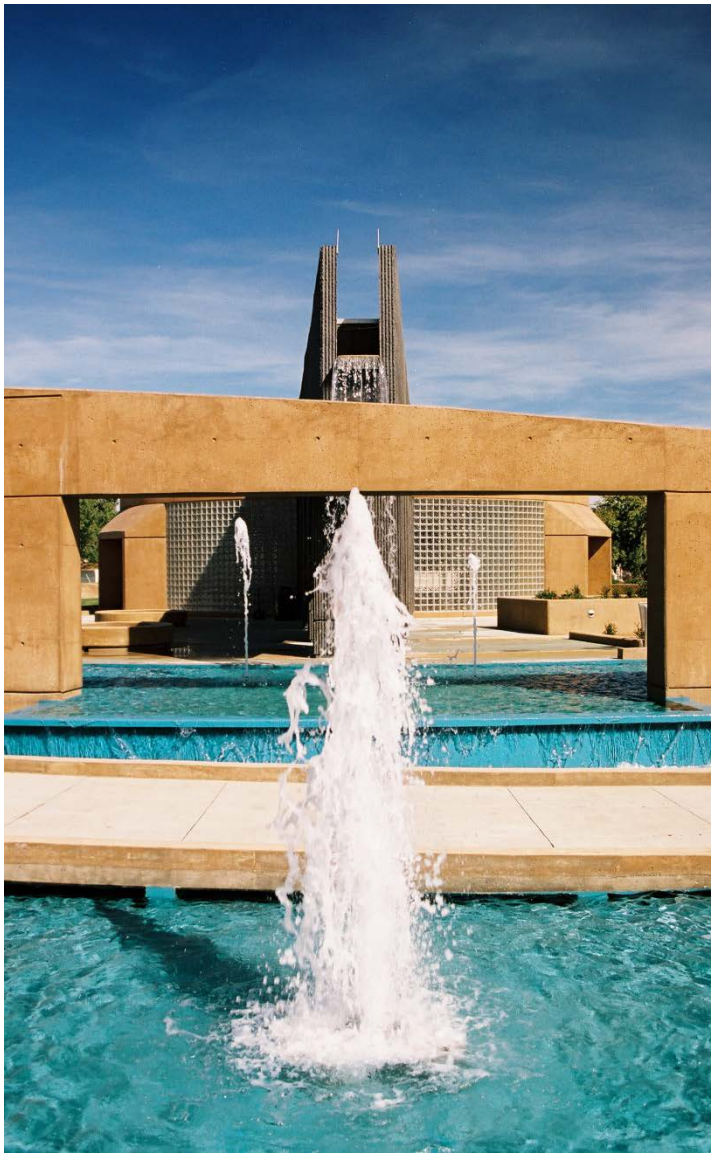
- Economic analysis of conservation scenarios
- Past and future programs

Aquifer Storage & Recovery Project

- History and status of the Phases I and II
- Updated projections of aquifer recharge

Water Supply Planning

- Demand and supply projections
- New supply options



Water Conservation

Analysis & Options

Economic Analysis

Conservation Value = S − R − C

S = Cost Savings from Delaying New Supply

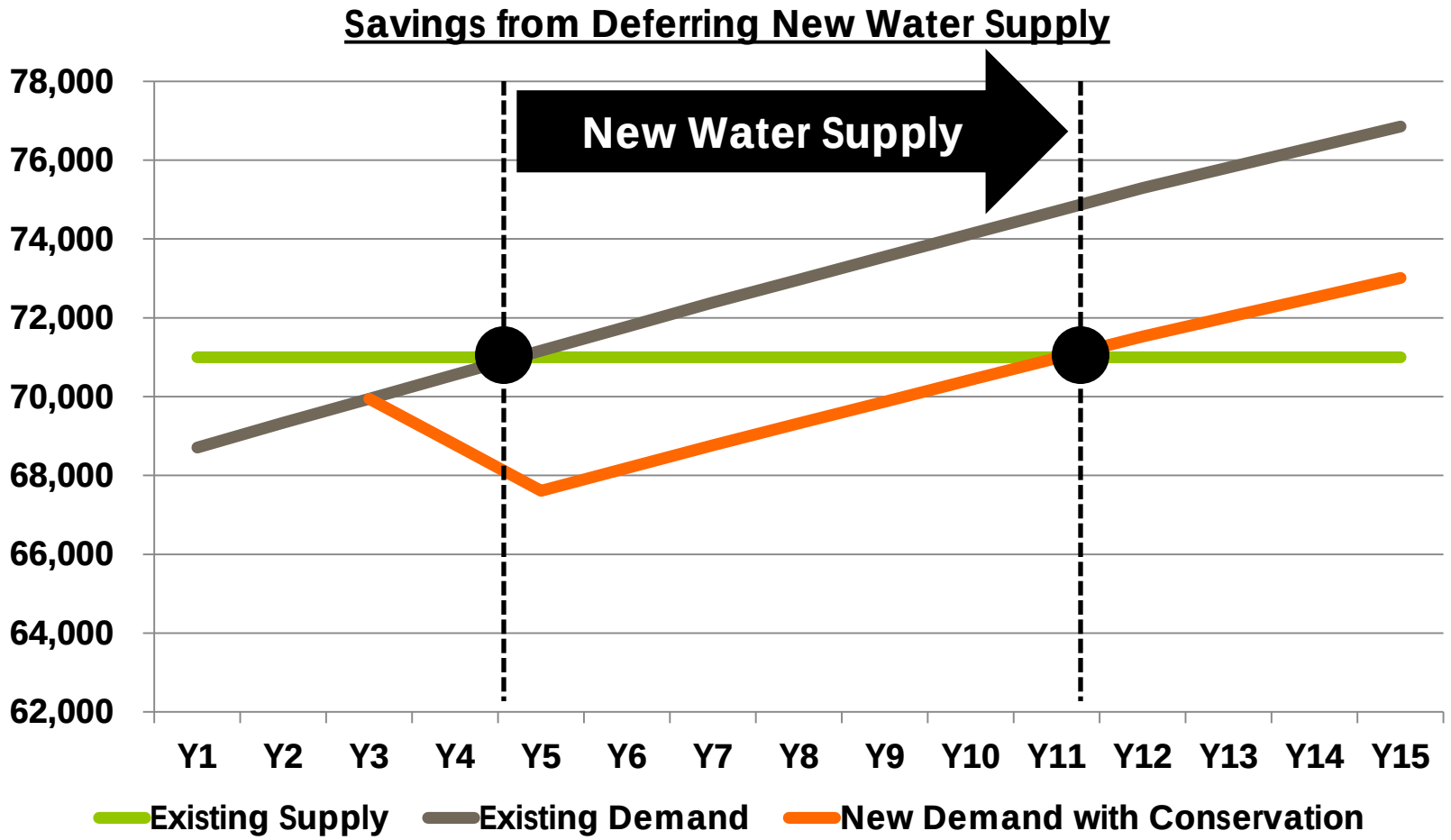
R = Revenue Lost through Conservation

C = Cost to Implement Conservation Strategies

- Calculating a conservation value provides an economics-based case for whether to proceed with measures that reduce water usage

- Present value is used to normalize time-value of City funds

Economic Analysis



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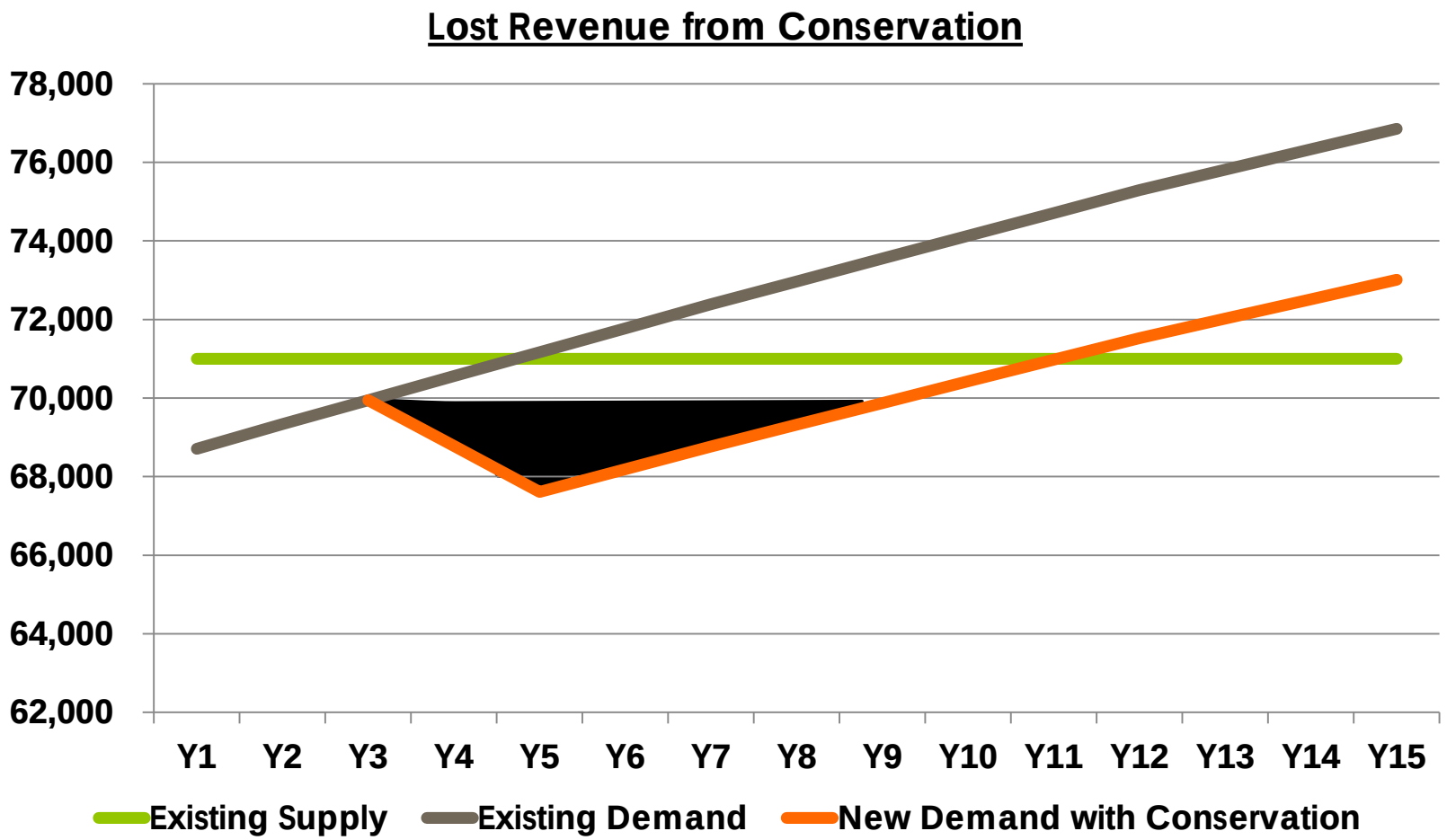
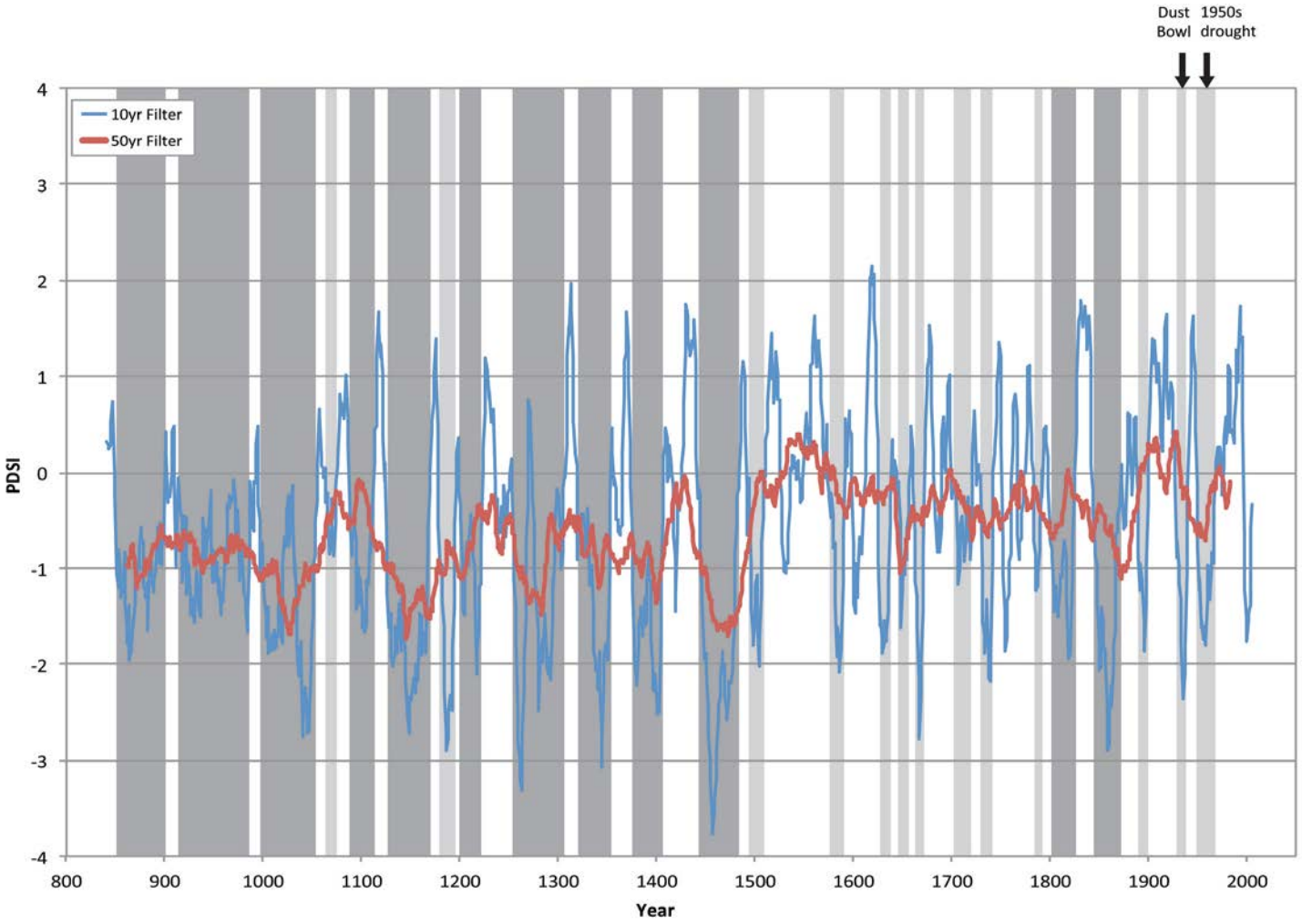
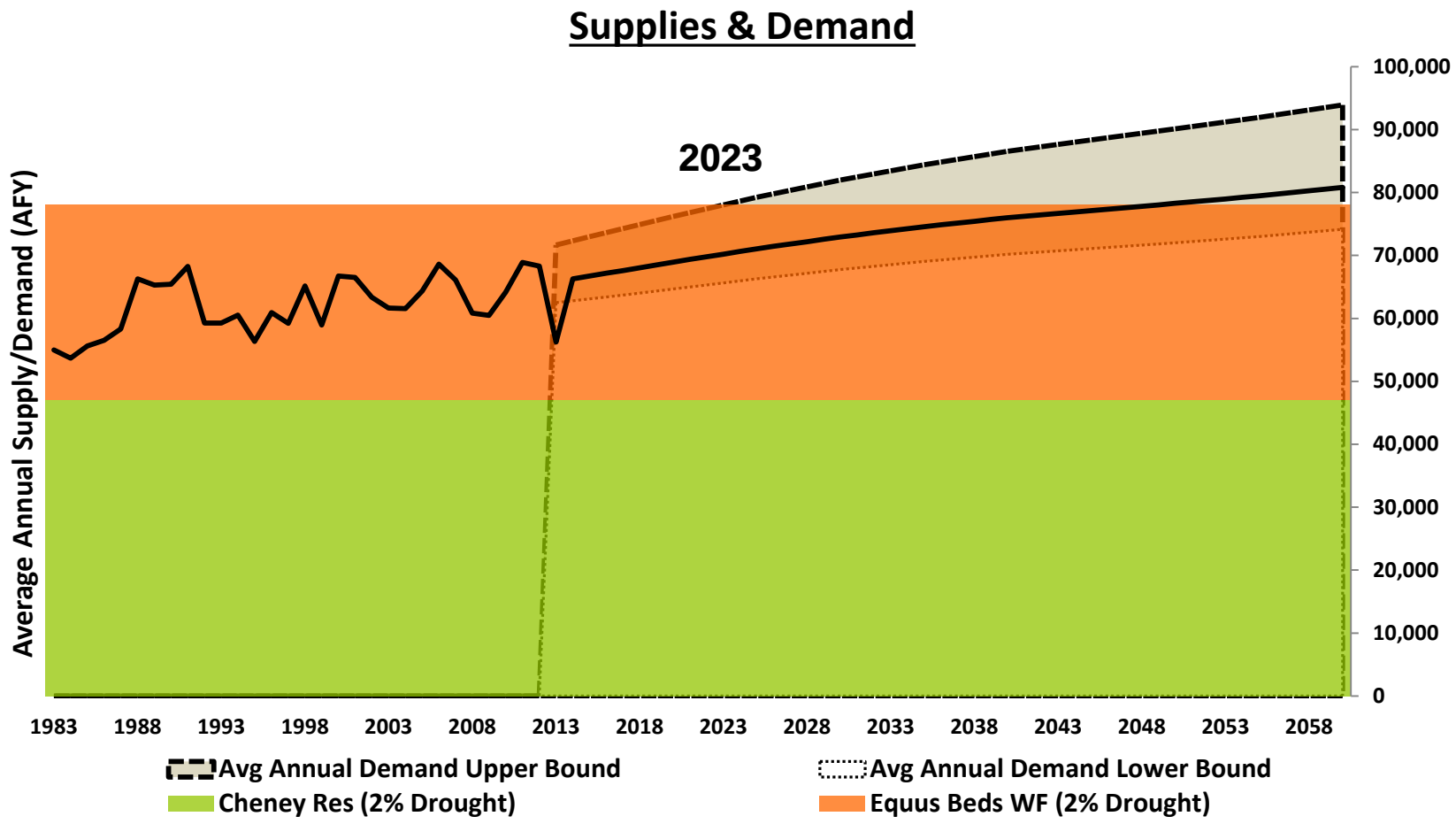


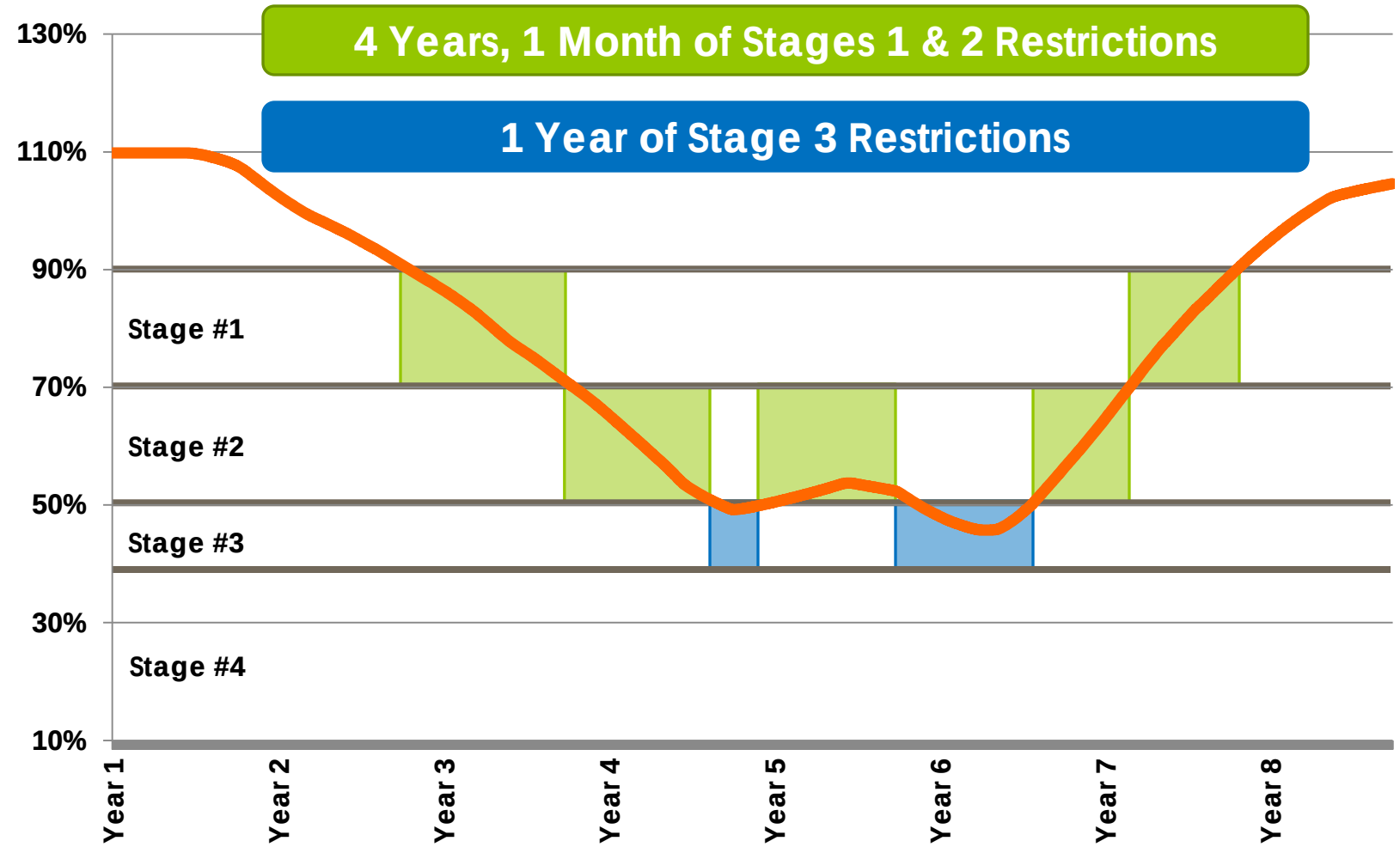
Drought History



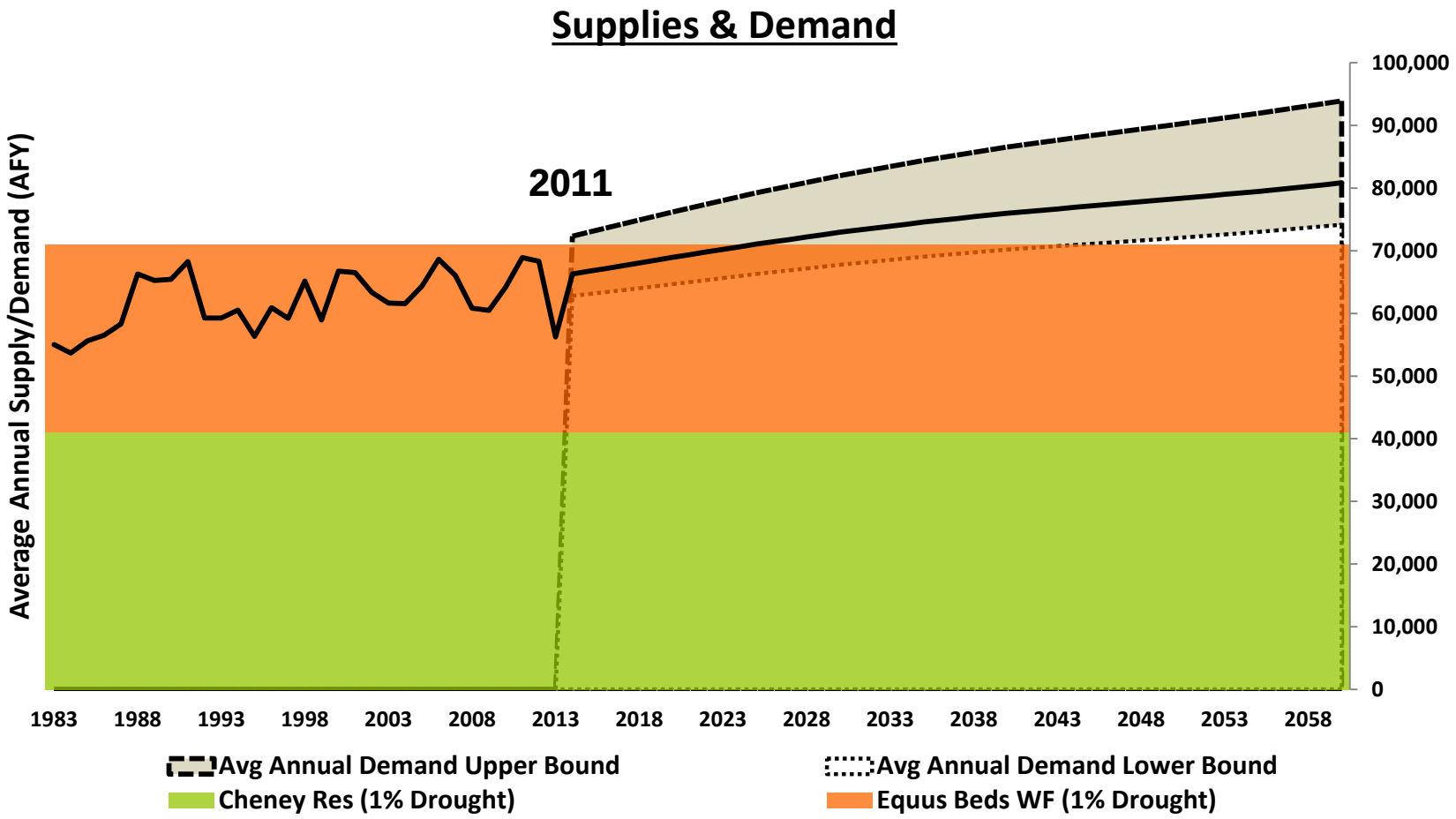
2% Design Drought



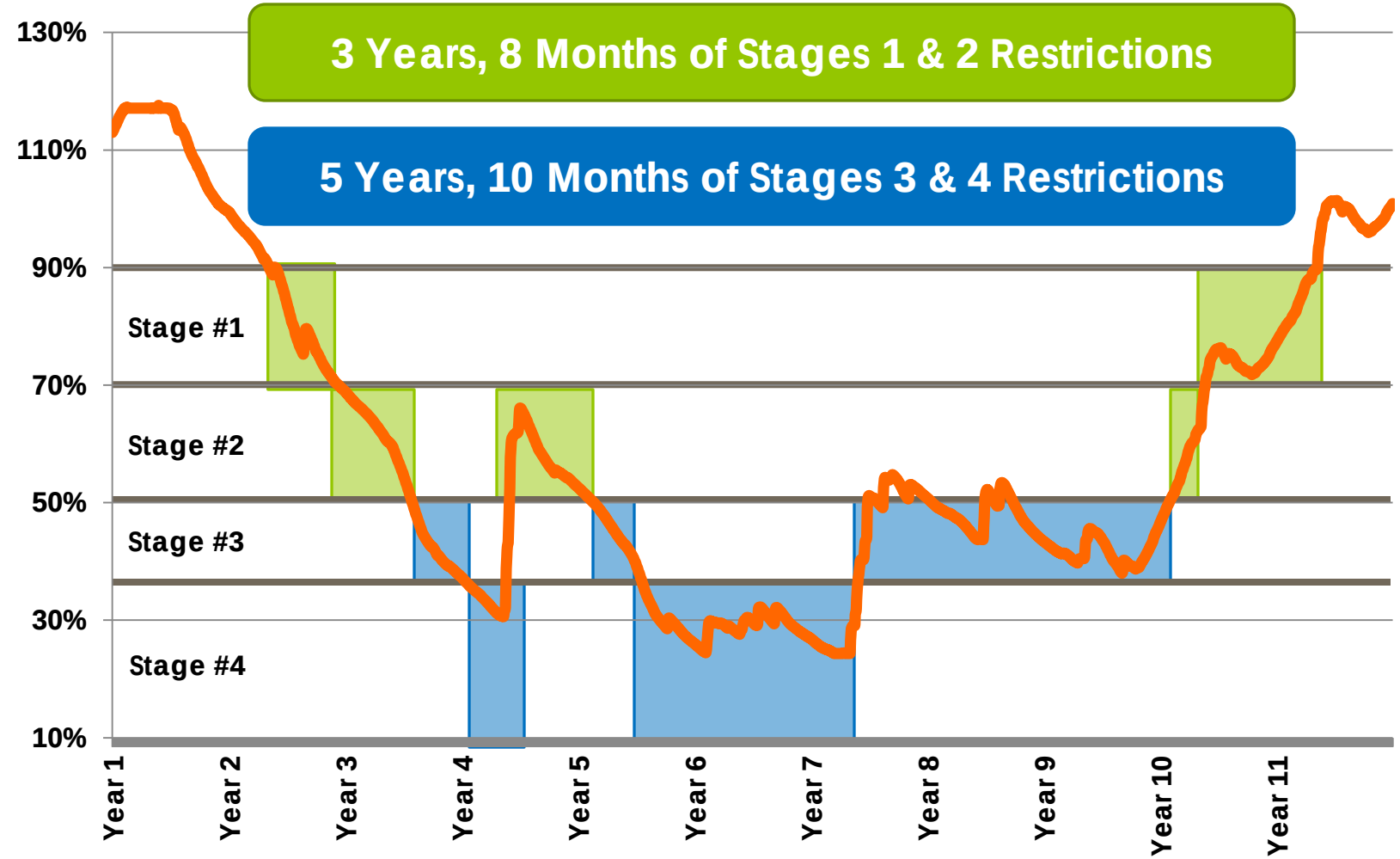
2% Drought Response



1% Design Drought



1% Drought Response



INTERNAL CONSERVATION PROGRAM

Action	Status	Estimated Gallon / $ Savings through 2013	Actual Gallon / $ Savings through 2013
New Taste & Odor Complaint Protocol	Ongoing	360,000 / $1,314	N/A
Watering Trees with Gray Water	Ongoing – expanding to additional wells in 2014	345,000 / $1,259	84,300 / $308
Filled Positions Responsible for Fixing Leaks	One Time Action	N/A	N/A
Eliminate Water from Community Risk Reduction Program	Resumed Normal Operation in 2013	45,000 / $164	N/A
Fountain Conservation	Resumed Normal Operation in 2013/2014	632,000 / $2,307	41,750 / $152
Place Grass in a Dormant State	Resumed Normal Operation in 2014	19,191,777 / $70,050	28,550,375 / $104,209
Raise Lawn Mower Height	Resumed Normal Operation in 2014	N/A	N/A
Waterless Street Sweeping Pilot	Pilot Concluded, Change Not Implemented	N/A	N/A
TOTALS		20,573,777 / $75,094	28,676,425 / $104,669

2013 Rebate Program

- Rebates were offered to single family residential water utility customers
- 2,718 participants with 3,805 devices
- Projected savings 280 acre feet (0.25 MGD)

	Budgeted	Actual	Remaining
Rebate (Residential)	$921,800	$360,234	**$561,566**
Rebate (Wholesale) i.e. Andover, Bel Aire, etc.	$78,200	$48,528	**$29,672**
Program Administration	$50,000	$22,447	**$27,553**
Balance	**$1,050,000**	**$431,209**	**$618,791**

Beneficial Conservation

- Goal is to generate conservation that benefits customers and the utility
- Avoid lost revenue by gradual, long-term conservation that targets lower cost water
- Seek conservation that minimizes impacts to customers' quality of life
- Helps minimize the chances of emergency restrictions during droughts

SUMMARY

Conservation Recommendation	2014 Costs	Full Implementation – Annual Totals	
		Cost	Water Savings
Recommendation: Continue these Strategies			
Internal Conservation	$0	$0	91 af (0.14%) – *one time only*
Rebate Program	$0	$430,809	280 af (0.44%)
Recommendation: Test these Strategies			
Modified Rebates	$450K	$1.2m - $3.0m	436 – 1,066 af (0.68% - 1.67%)
Scholastic Education	$0	$30K - $50K	14 – 65 af (0.02% - 0.10%)
Targeted Mailings	$0	$10K - $25K	28 – 99 af (0.04% - 0.16%)
Recommendation: Study these Strategies			
Landscape Incentives	$75k	*Unknown – Will be Determined During the Studies*	
Industrial Re-Use	$75k		

Aquifer Storage & Recovery

History & Current Status

ASR History

Year	Activity
1993	Integrated Local Water Supply Plan Adopted
2000	Phase I Design and Construction Initiated
2006	Completion of Phase I
2009	Began Phase II Construction
2010	Halted Construction on Phase II for Third-Party Review
2010	Restarted Phase II after Recommendation from HDR Engineering and Water Utilities Advisory Committee
2013	Phase II Construction Complete
2013	Phase II Commissioning
2013	Began Operating Phase II

ASR Phase I

- Test the approach and technology in the Little Arkansas River
- Consists of diversion wells, river intake, treatment plant, and four recharge wells
- Design volume: 10 MGD for 120 days a year
- Cost: Appx $38.9 million

ASR Phase II

- Replaced electrical grid: $21.6 million
- Rehabbed and improved wellfield: $99.2 million
- Maintained access roads: $1.2 million
- Built a new treatment plant and river intake: $82.6 million
- Expected volume: 30 MGD for 120 days

Rehab costs of $88 million and new supply costs of $116.6 million

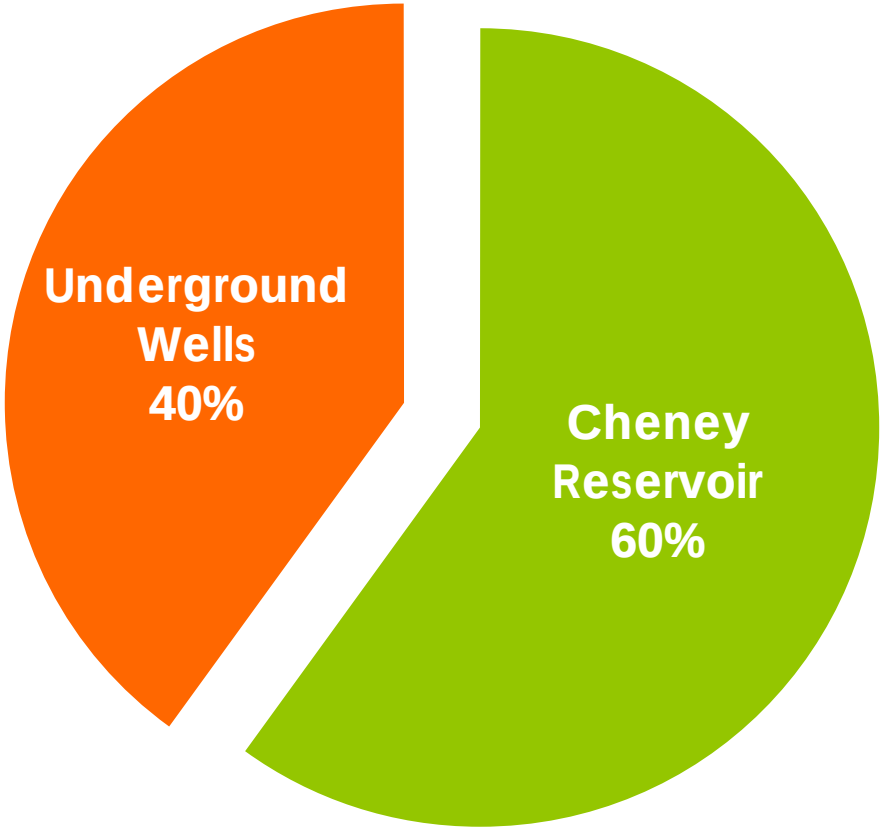
Current Status

- ASR meets objective to provide a source of water and slow chloride migration
- Produces less than originally estimated
- Does not provide enough new water by itself to meet drought needs
- New water source options would build sufficient resistance to future droughts

Water Supply Planning

Demand Projections & Options for New Sources

Current Supply Sources



Water Supply Options

	AF Yield	Capital	Cost/AF
1) Bank Storage Wells	**30,000**	**$501m**	**$16,700**
2) Bank Storage Wells, then ASR IIB	32,000	$578m	**$18,063**
3) Raw El Dorado to ASR IIB, then Bank Storage Wells	41,000	$824m	**$20,098**
4) Optimized ASR Facilities (ASR IIB)	**8,000**	**$198m**	**$24,750**
5) Raw El Dorado to ASR IIB	17,000	$444m	**$26,118**
6) Raw El Dorado to ASR	**14,000**	**$367m**	**$26,214**
7) Treated Re-Use to ASR IIB	26,000	$800m	**$30,769**
8) Purple Pipe System	**2,500**	**$120m**	**$48,000**
9) Treated El Dorado Water	**11,000**	**$16m**	**-----**

1) Bank Storage Wells

Description: A series of wells would be installed to capture water from the river, the levels of which would be boosted by treated water from the primary wastewater plant.

Firm Yield:	30,000 Ac. Ft.	Rate Impact:	80.7%
Year Drought Protection Ends:		2077	
Conservation for 1% Drought:		None Required	

Rate Impact Breakdown

Construction Costs		Operating Costs	
Capital	Rate Impact	Annual O&M	Rate Impact
*$418 million	60.0%	$17.0 million	20.7%

** The project would cost $501 million but would negate the need for budgeted CIP projects. That funding would be re-purposed to buy down the capital cost of the Bank Storage Wells to $418 million.*

4) Optimized ASR Facilities

Description: Existing Phase II facilities would be expanded by drilling 30 new wells to match injection capabilities with the 30 MGD capacity of the treatment plant.

Firm Yield:	8,000 Ac. Ft.	Rate Impact:	30.4%
Year Drought Protection Ends:	2024		
Conservation for 1% Drought:	0.50% annually from 2020-2060		

Rate Impact Breakdown

Construction Costs		Operating Costs	
Capital	Rate Impact	Annual O&M	Rate Impact
$198 million	28.4%	$1.6 million	2.0%

5) Raw Water from El Dorado

Description: Running a pipeline from El Dorado Reservoir would allow the City to transport raw water to the surface water treatment plant at ASR. The water would then be stored in the aquifer for use at a later date.

Firm Yield:	14,000 Ac. Ft.	Rate Impact:	57.8%
Year Drought Protection Ends:	2036		
Conservation for 1% Drought:	0.26% annually from 2020-2060		

Rate Impact Breakdown

Construction Costs		Operating Costs	
Capital	Rate Impact	Annual O&M	Rate Impact
$367 million	52.7%	$4.2 million	5.1%

8) Purple Pipe System

Description: A distribution system would be built to serve 18 industrial and 13 high irrigation customers with non-potable water, which was treated effluent from the wastewater plant.

Firm Yield:	2,500 Ac. Ft.	Rate Impact:	19.3%
Year Drought Protection Ends:		2015	
Conservation for 1% Drought:		1.0% from 2015-2019 0.75% from 2020-2035 0.40% from 2036-2060	

Rate Impact Breakdown

Construction Costs		Operating Costs	
Capital	Rate Impact	Annual O&M	Rate Impact
$120 million	17.2%	$1.7 million	2.1%

9) Treated Water from El Dorado

Description: The City of El Dorado has offered treated water to be delivered to the 21st & Webb booster station. Non-utility capital funding would pre-pay the water, so no annual purchase price is included. Without pre-payment, the City would pay $5.00 per thousand gallons ($18.3 million).

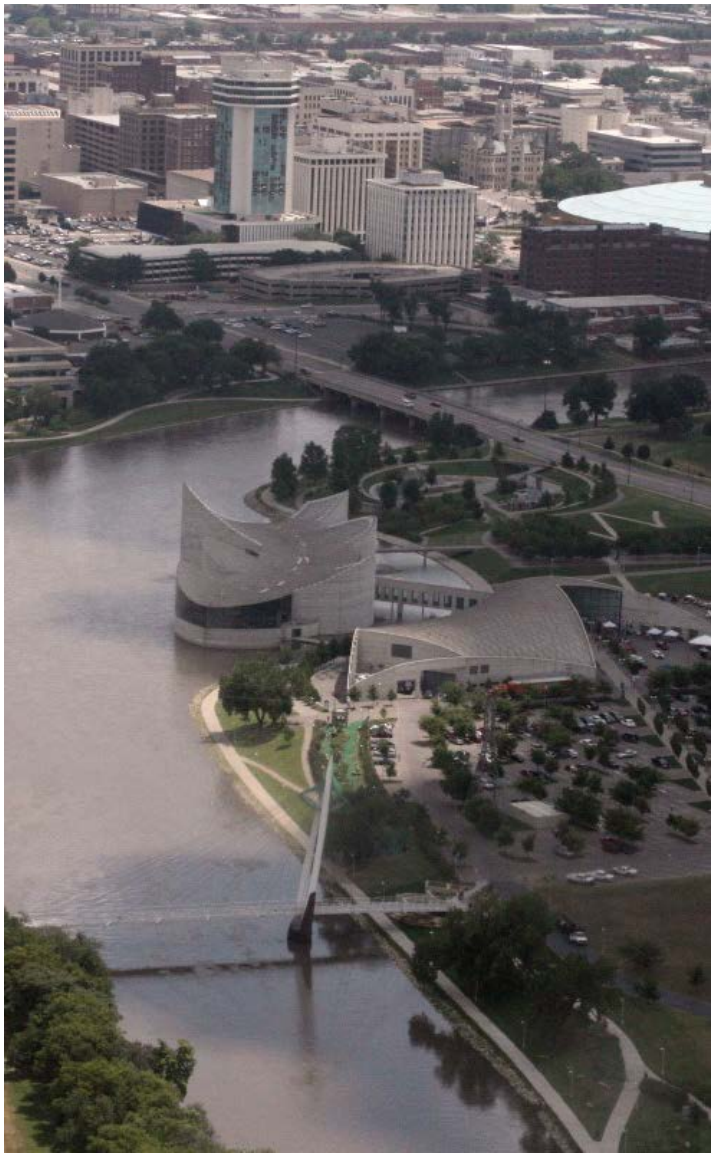
Firm Yield:	11,000 Ac. Ft.	Rate Impact:	3.0%
Year Drought Protection Ends:		2030	
Conservation for 1% Drought:		0.35% annually from 2020-2060	

Rate Impact Breakdown

Construction Costs		Operating Costs	
Capital	Rate Impact	Annual O&M	Rate Impact
$16 million	2.3%	$0.6 million	0.7%

WATER RESOURCE OPTIONS

	Option 1 Bank Storage Wells	Option 4 Optimized ASR (ASR IIB)	Option 5 Raw El Dorado Water	Option 8 Purple Pipe System	Option 9 Treated El Dorado Water
Firm Yield	**30,000 Ac. Ft.**	**8,000 Ac. Ft.**	**14,000 Ac. Ft.**	**2,500 Ac. Ft.**	**11,000 Ac. Ft.**
Capital Cost	$418 million	$198 million	$367 million	$120 million	$16 million
Less Non-Utility Capital Funds	($250 million)	($198 million)	($250 million)	($120 million)	($16 million)
Net Capital	**$168 million**	**$0**	**$117 million**	**$0**	**$0**
Revised Capital Rate Impact	24.1%	0.0%	16.8%	0.0%	0.0%
Operating Rate Impact	20.7%	2.0%	5.1%	2.1%	0.7%
Total with Other Funding	**44.8%**	**2.0%**	**21.9%**	**2.1%**	**0.7%**
Total without Other Funding	**80.7%**	**30.4%**	**57.8%**	**19.3%**	**25.3%**



Next Steps

- Refine water source options
- Determine two best options to consider
- Identify goals for conservation
- Deliver white paper in May summarizing water sources and conservation

Wichita Metro Chamber Water Task Force Recommendations

Goal: Identify long-term water-supply strategies and funding options.

- Dion Avello, Mayor, City of Derby
- Walter Berry, Berry Companies
- Carl Brewer, Mayor, City of Wichita
- Angela Buzard, representing REAP
- Wayne Chambers, CEO, High Touch
- Tim Chase, President, GWEDC
- Kevin Christopherson, Cessna
- Tom Dondlinger, Dondlinger Construction
- Debbie Gann, Spirit AeroSystems
- Steve Hieger, Oxy Chem
- Art Huber, Via Christi
- Mark Hutton, Hutton Construction
- Alan King, Public Works, City of Wichita
- Ben Lawrence, Mayor, City of Andover
- Robert Layton, Manager, City of Wichita
- Brian Leabo, Wesley Medical Center
- Karma Mason, iSi Environmental
- Ty Masterson, Kansas State Senate
- Janet Miller, Wichita City Council
- Dave Murfin, Murfin Oil
- Mark Nichols, Koch Industries
- Michael O'Donnell, Kansas State Senate
- Bill Pickert, BKD
- Gary Plummer, Wichita Metro Chamber
- Toni Porter, representing Congressman Pompeo
- Marc Rhoades, Kansas State House
- Andy Schlapp, WSU – representing Dr. Bardo
- Jim Skelton, Sedgwick County Commission
- Tracy Streeter, Director, Kansas Water Office
- David Traster, Foulston Siefkin
- Dave Unruh, Sedgwick County Commission
- Tod Wawzysko, Spirit AeroSystems
- Lyndy Wells, INTRUST Bank
- Rod Young, PEC
- Mike Zamrzla, representing Senator Moran

Water Task Force

Karma Mason, Task Force Chair

Overview

The Chamber's Water Task Force, comprised of both public and private partners, recommends that the City of Wichita maximize the long-term water-supply needs of this community and its regional customers.

The Water Task Force believes education, conservation, new sources, and water reuse are key elements of any long-term water-supply solution.

The Water Task Force encourages the City to look at the most cost-effective way, including capital outlay and on-going operating costs, to find a sustainable long-term supply.

Once the City identifies costs and proposed funding options, the Chamber would like to evaluate and provide further input. Additionally, the Chamber will continue to monitor/address water issues as they emerge.

Recommendations

- Follow state guidelines and use 2% drought scenario for future water needs planning.
- Pursue conservation measures including an understandable rate structure that covers fixed costs and rewards conservation. Drought- tolerant landscaping guidelines, lawn-watering restrictions and reward/incentive programs should be key elements of these measures.
- Implement and communicate an aggressive drought plan with well-defined triggers.

Recommendations

- Purchase raw water from El Dorado to supplement the City's water-supply and/or to recharge the Equus Beds using existing ASR infrastructure.
- Partner with large industrial users, developers and others to facilitate water reuse, including gray-water, remediated groundwater and other opportunities.
- Extend Wichita's long-term water-supply by tapping into the alluvial aquifer (Indirect Potable Reuse - IPR) in south Wichita.

Recommendations

- Create and implement a comprehensive educational and public relations campaign regarding implementation of the drought plan, conservation efforts and reuse.
- Continue to identify new regional water-supply options.

WATER RESOURCE OPTIONS

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