

MUNICIPALITY WATER CONSERVATION SOLUTIONS



City of Salina

Martha Tasker, Director of Utilities

Kansas Water Symposium

March 7, 2015





Presentation Outline

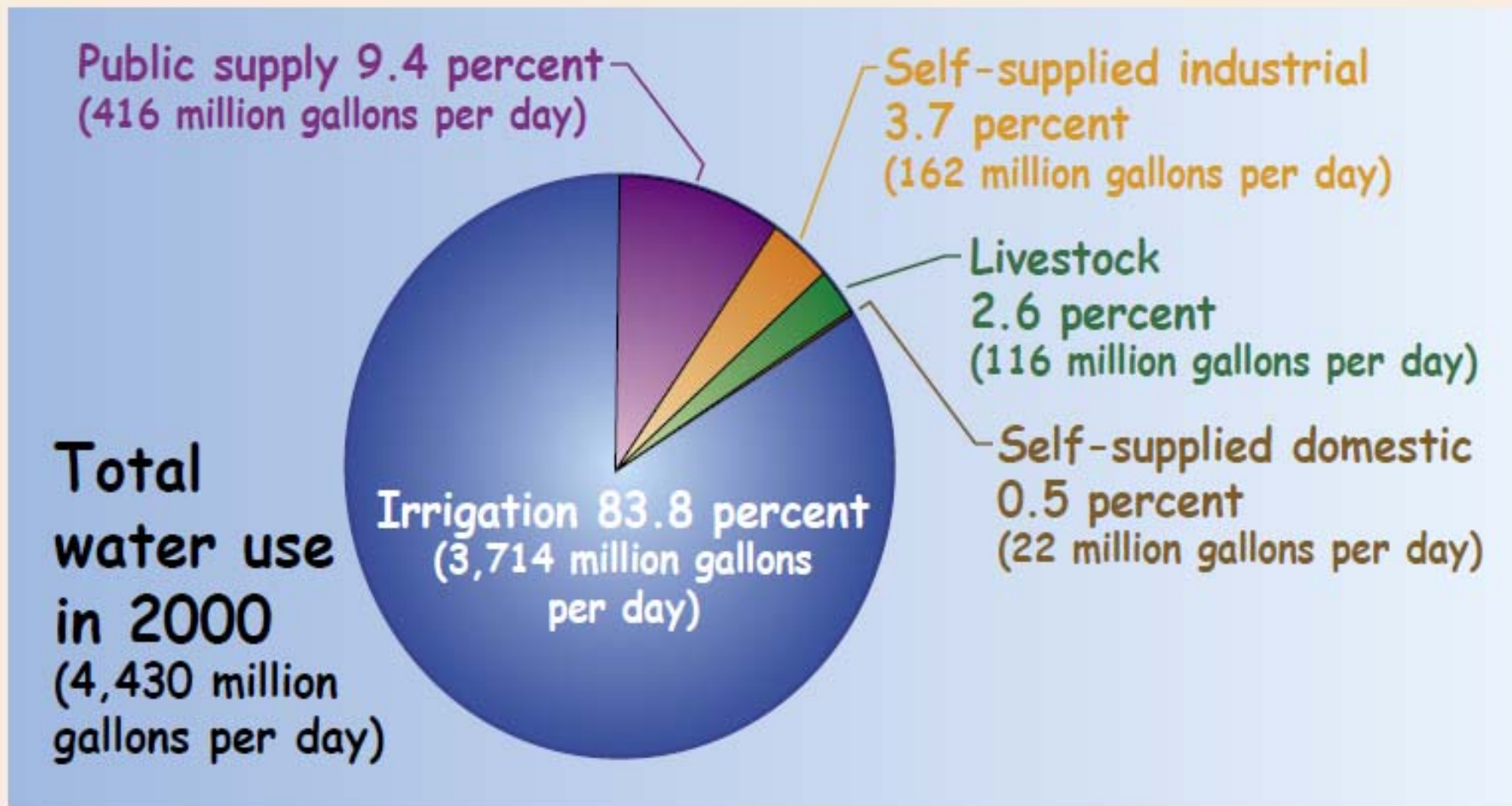


- Water Use in Kansas
- Public Water Supply in Kansas
- Water Conservation Solutions
- Importance of Water Conservation
- Water Conservation in Salina
- Drought Water Supply in Salina
- Governor's Draft 50 Year Water Vision
- Questions





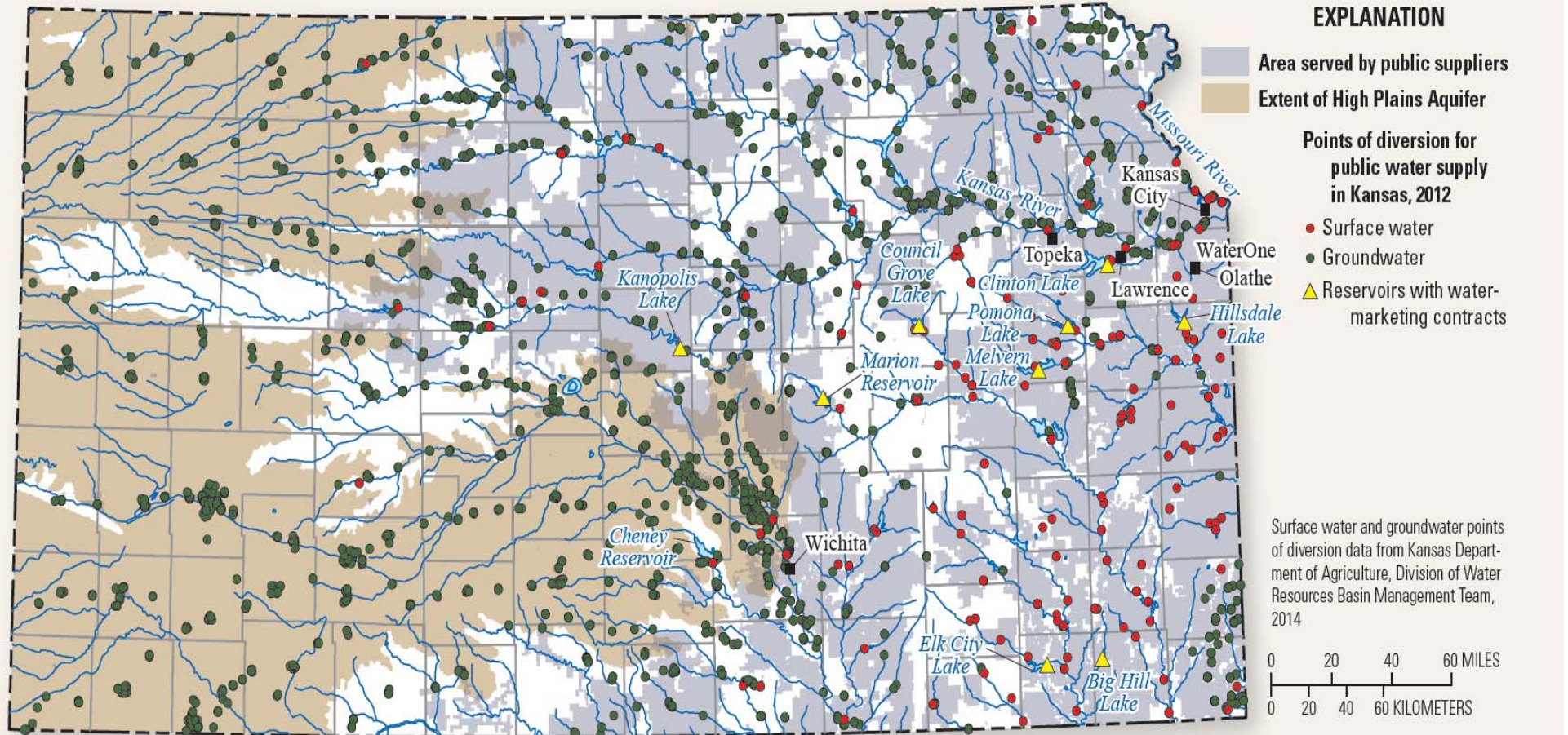
Major Categories of Water Use in Kansas 2000



C/O USGS: "Water Use in Kansas, 1990-2012"



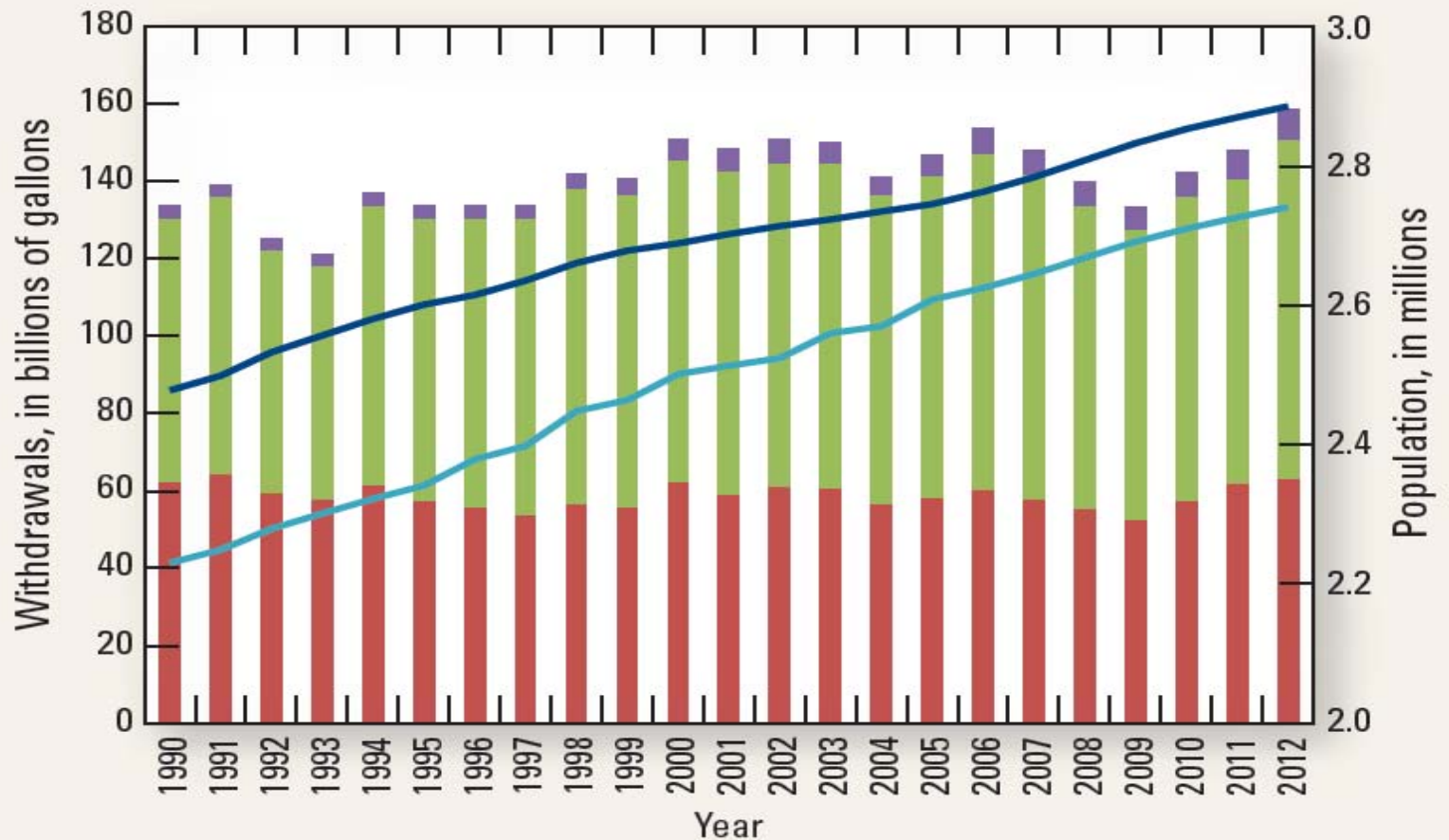
Location of Public Water Supply Points of Diversion in 2012



C/O USGS: "Public-Supply Water Use in Kansas, 1990-2012"



Annual Public Supply Withdrawals by Source and Population in Kansas (1990-2012)



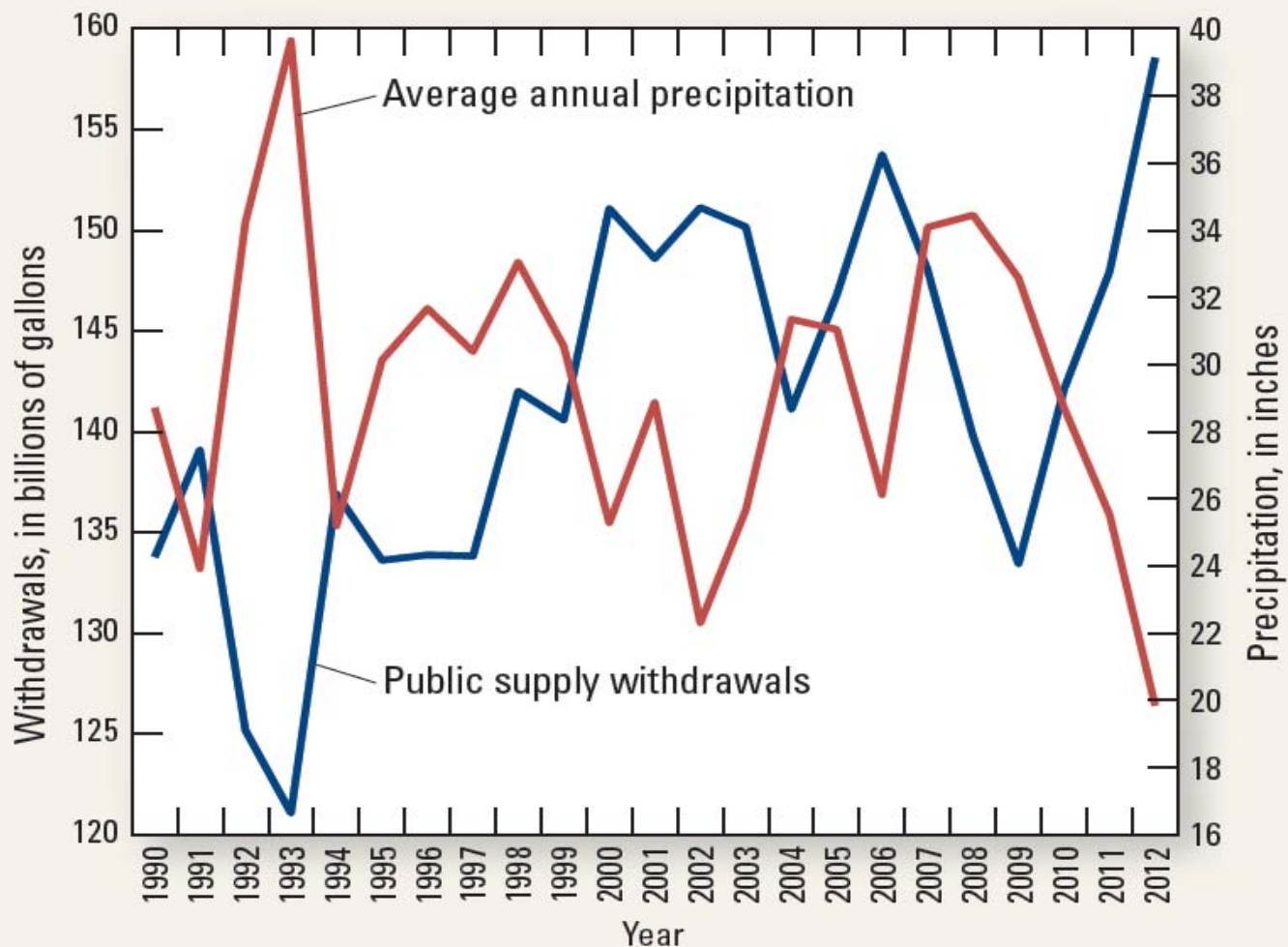
EXPLANATION

- **Surface water—Marketing contract** — **Total population**
- **Surface water—Water rights** — **Estimated population served**
- **Groundwater—Water rights**

C/O USGS:
 “Public-Supply
 Water Use in
 Kansas, 1990-2012”



Annual Public Supply Withdrawals and Average Annual Precipitation in Kansas (1990-2012)



Precipitation data from National Oceanic and Atmospheric Administration, National Climatic Data Center, 1990–2012

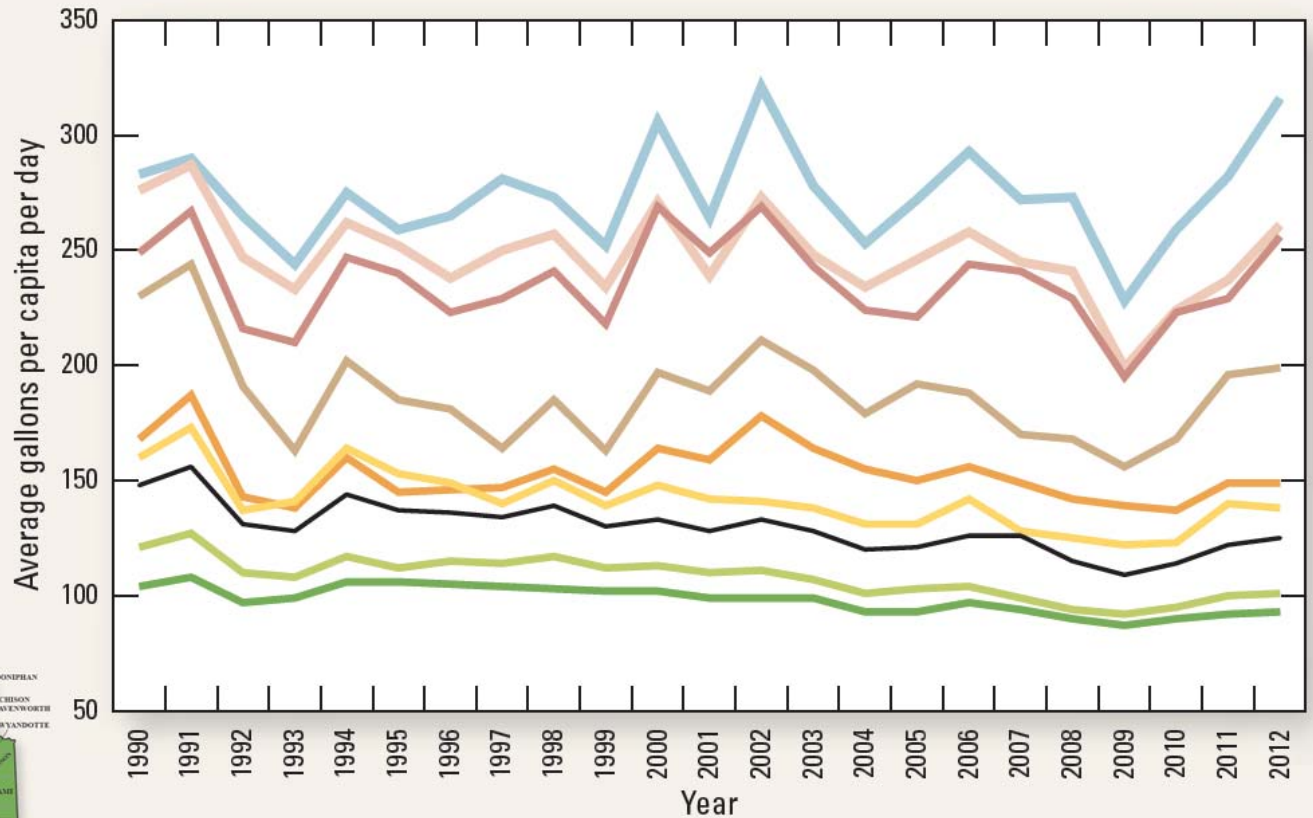


Regional and State Gallons per Capita per Day Averages (1990-2012)

EXPLANATION

Average gallons per capita per day by region (fig. 4)

- Region 1
- Region 2
- Region 3
- Region 4
- Region 5
- Region 6
- Region 7
- Region 8
- State average



EXPLANATION

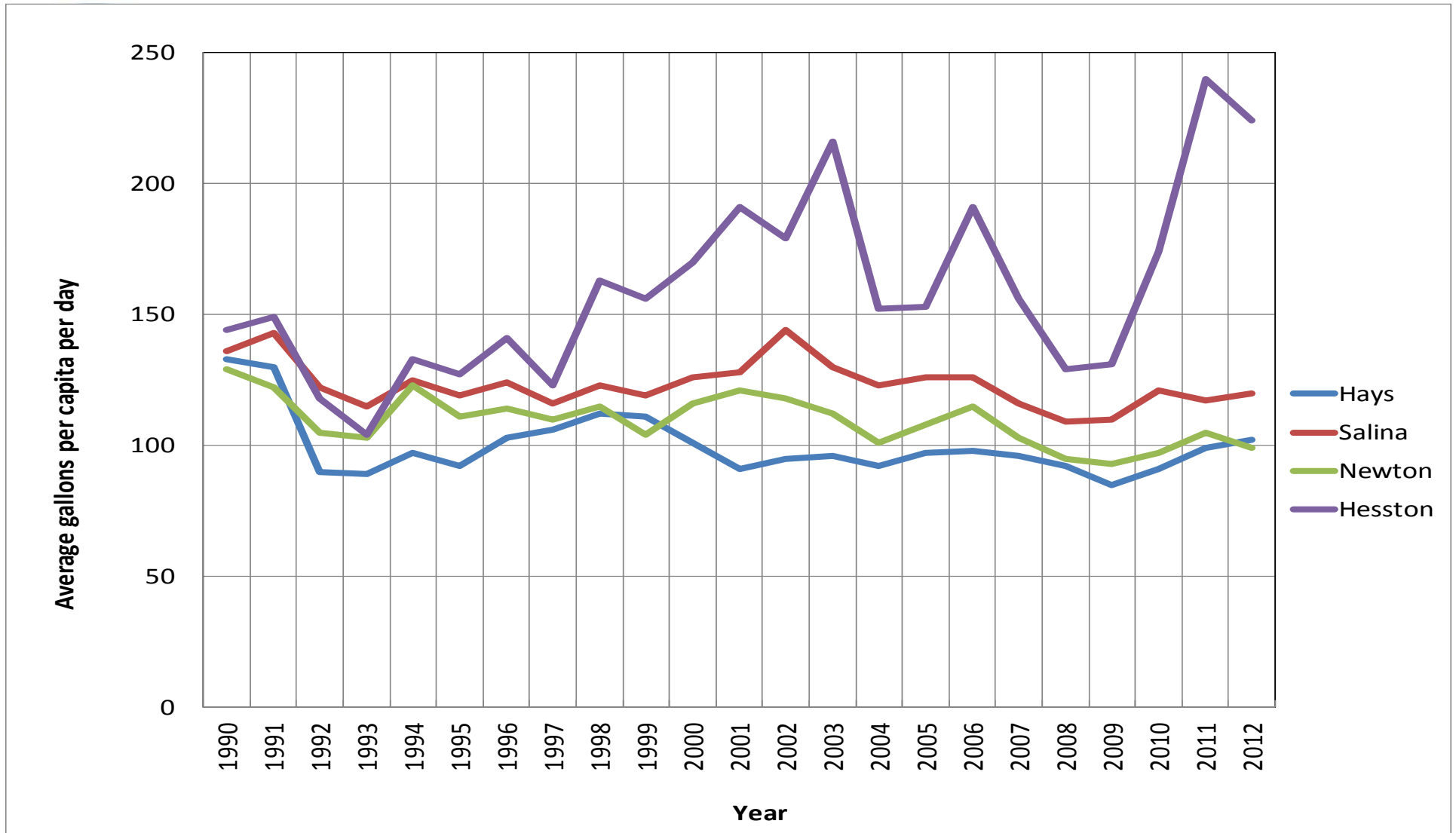
Regions used to compute average annual per capita water use—Number in parentheses is number of public water suppliers in each region in 2012

- Region 1 (16)
- Region 2 (24)
- Region 3 (20)
- Region 4 (27)
- Region 5 (48)
- Region 6 (106)
- Region 7 (254)
- Region 8 (180)

C/O USGS: "Public-Supply Water Use in Kansas, 1990-2012"



Hays, Salina, Newton and Hesston Gallons per Capita Per Day (1990-2012)





Kansas Water Office Water Conservation Guidelines

2007 Kansas Municipal Water Conservation Plan Guidelines



Kansas Water Office
901 S. Kansas Avenue
Topeka, KS 66612-1249
785-296-3185
www.kwo.org

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August 2007





Municipal Water Conservation Plan



- Long-Term Water Use Efficiency
 - Water Use Conservation Goal (GPCD)
 - Water Conservation Practices (Education/Management/Regulation)



- Drought Response Plan
 - Drought Stage Triggers
 - Water System Drought Stages
- Monitor/Evaluate/Revise Plan





Municipal Water Conservation Solutions



- Incentives
- Education
- Regulation





Incentive Programs

- **Toilet Rebate**
 - 1.28 G/F \$50 Rebate
 - 1.00 G/F \$100 Rebate
 - 0.80 G/F \$150 Rebate
- **Washing Machine Rebates**
 - 60% Less Water
 - Energy Efficient Tier 2 / Tier 3
 - \$100 Rebate
- **Showerhead and Faucet Replacement**
 - Exchange Required
 - Showerhead: 1.0 – 1.5 gpm Free
 - Sink Aerators: Free
- **Cool Season Turf Rebate**
 - \$1 per sq. ft.
 - Min. – 100 sq. ft.
 - Max – 1,000 sq. ft.
 - \$100 - \$1,000 per Property





Education

- Information on water conserving landscape practices: publications, local news media and seminars
- Water bills in gallons
- Water Conservation Tips: City website, utility offices and water bills
- Information on lawn water requirements
- Water conservation classes
- Board of Education and Teachers: classroom lectures, incentives for children, conduct home checks



Regulation



- Water Conservation Devices – Low Flow Requirements
- Waste of Water Regulations
- Outdoor Watering Restrictions
- Water Conservation Rebate Program
- Domestic Well Outdoor Watering Restrictions
- Water Conserving Landscape Principles



Regulation



- **Landscape Irrigation Ordinance – Hays**

- 5 ft. Non-Irrigated Buffer Zone Around Hard Surfaces
- Residential Properties
 - 5,000 sq. ft. Warm Season Turf – Max
 - 2,000 sq. ft. Cool Season Turf – Max
 - Balance in Xeriscaping
- Commercial Properties
 - No more than 30% (2,000 sq. ft.) Cool Season Turf
 - 5,000 sq. ft. Irrigated Turf
 - 30% Minimum Xeriscaping





Installed Under NEW Regulations

C/O Hays, Kansas Legislation



Water Emergency in Salina

- Water Emergency (2006)
- Raw Water Supply Plan (2008-2010)
- Updated Water Conservation Plan (2013)

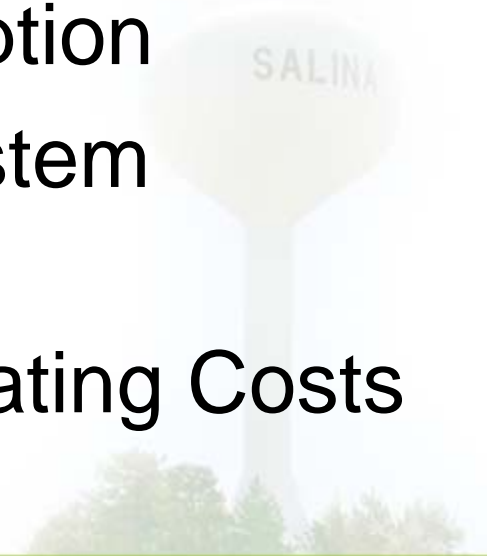




Importance of Water Conservation



- Typically – Drought or Emergency Water Shortage
- Changing – As Water Supplies Diminish
- Achieve More Efficient Use of Limited Water Resource
- Viable Long-Term Supply Option
- Avert Water/Wastewater System Expansions
- Savings in Capital and Operating Costs





Water Conservation Regulations in Salina



- **New or Renovated Construction (2008)**

- Toilets: 1.6 G/F
- Shower Heads: 2.5 GPM or Less



- **Water Conservation Ordinance**

- Prohibits Waste of Water (2008)
- Prohibits Outdoor Watering 10 a.m. – 6 p.m. June 1st through September 30th (2008)
- Adopt Water Conservation Rebate Program (2008)
- Private Domestic Wells Follow Ordinance (2013)
- Develop Ordinance for Water Conserving Landscape Principles (2015)



Water Conservation In Salina

- **Water Conservation Rates (2008)**
 - Unit Block Rate: \$4.45/1000 G
 - Metered Consumption Through Excess Use Baseline
 - Excess Use Charge: \$8.90/1000 G
 - Metered Consumption Above Excess Use Baseline
 - All Irrigation Meters: \$8.90/1000 G
 - Excess Use Charge
 - Excess Use Baseline
 - Winter Quarter Average (WQA) – January, February, March
 - Minimum Winter Quarter Average (MWQA) – 6,000 Gallons
 - Equals the Greater of 120% of the WQA or 120% of the MWQA
- **Leak Survey (2011)**
 - Equipment detects leak noise along pipeline
 - Reduces the cost of lost water through leakage
 - Conserves raw water resource
- **Water Meter Replacement (2011-2014)**
 - Accurate Water Use
 - Test Every 5 Years





Drought Response Plan In Salina

	Watch	Warning	Emergency
Treatment Operations	75% capacity or more for three consecutive days	90% capacity or more for three consecutive days	100% capacity or more for three consecutive days
River(May-September)	Discharge at Mentor Gage is less than 30 cfs and in a generally declining trend for at least 7 consecutive days	Discharge at Mentor Gage is less than 20 cfs and in a generally declining trend for at least 5 consecutive days	Discharge at Mentor Gage is less than 15 cfs and in a generally declining trend for at least 3 consecutive days
River(October-April)	Discharge at Mentor Gage is less than 20 cfs and in a generally declining trend for at least 7 consecutive days	Discharge at Mentor Gage is less than 10 cfs and in a generally declining trend for at least 5 consecutive days	Discharge at Mentor Gage is less than 5 cfs and in a generally declining trend for at least 3 consecutive days
Groundwater	When groundwater is the only source and the depth of water at Oakdale Monitoring Well is less than 32 ft	When groundwater is the only source and the depth of water at Oakdale Monitoring Well is less than 30 ft	When groundwater is the only source and the depth of water at Oakdale Monitoring Well is less than 28 ft.



Drought Response Plan in Salina



- **Water Watch—Probability of Water Shortage/Not a Serious Threat**

- Voluntarily reduce outdoor water usage and to make efficient use of indoor water



- **Water Warning—Water Supplies Declining/Reduce Nonessential Uses**

- Odd/even lawn watering system on all City residents
- Commercial/Industrial owners will be allowed to preserve vegetation required by the City's landscape ordinance
- Refilling of swimming pools will be allowed one day a week after sunset
- Waste of water will be prohibited
- Home outdoor washing of vehicles restricted to once per week on Saturdays only
- Restrictions will be imposed on all City residents, including private domestic well owners
- Restrictions will be imposed on all City residents, including private domestic well owners





Drought Response Plan in Salina

- **Water Emergency-Water Supply is Limited/Mandatory Restriction on Outdoor Uses**
 - Outdoor water use will be banned
 - Waste of water will be prohibited





Water Conservation Goals In Salina



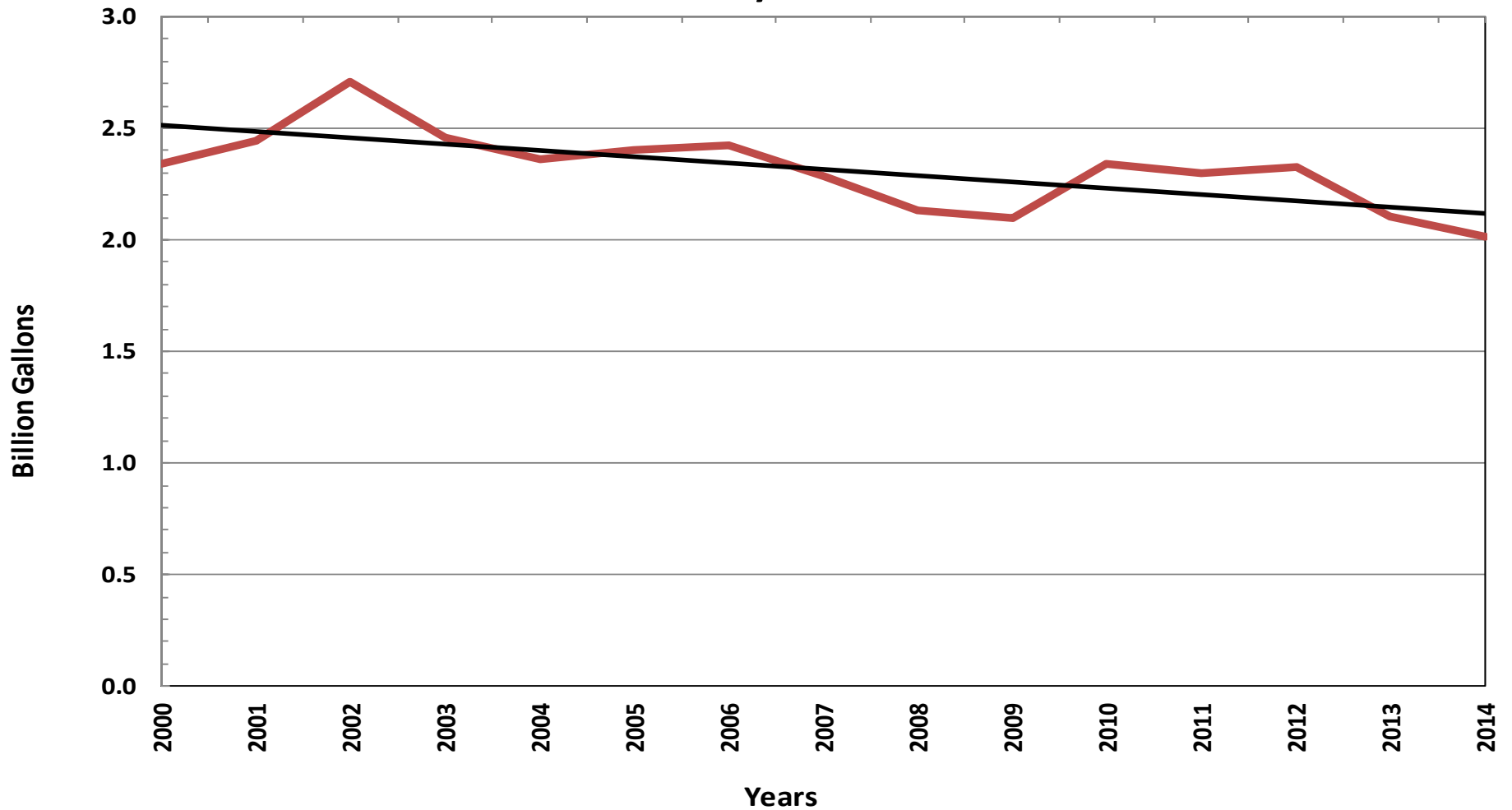
- Reduce Overall Water Demand
- Reduce Peak Day Water Demand
- Improve Efficiency in Water Use
- Reduce Water Loss / Waste





Reduced Overall Water Demand in Salina

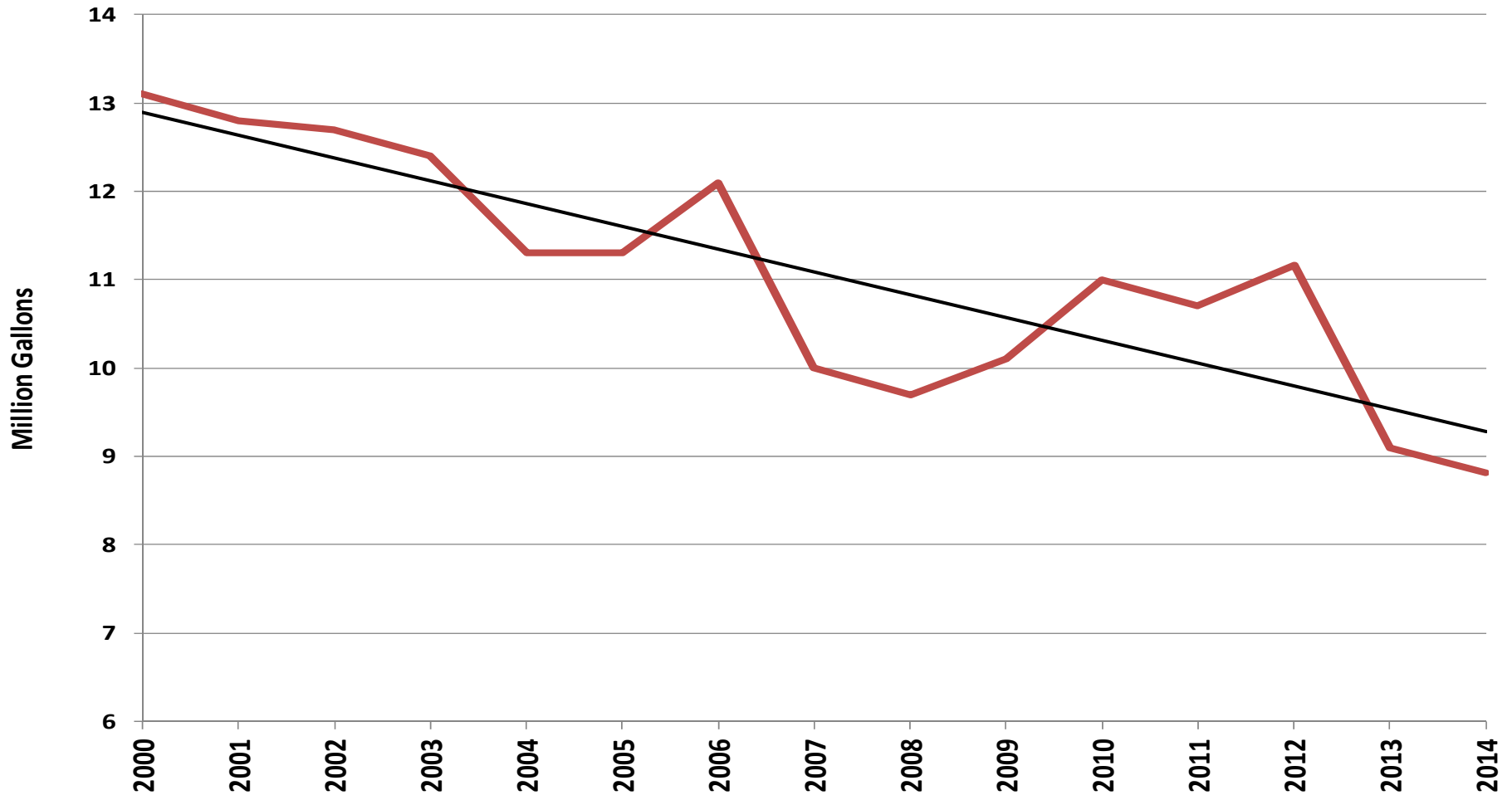
Yearly Demand





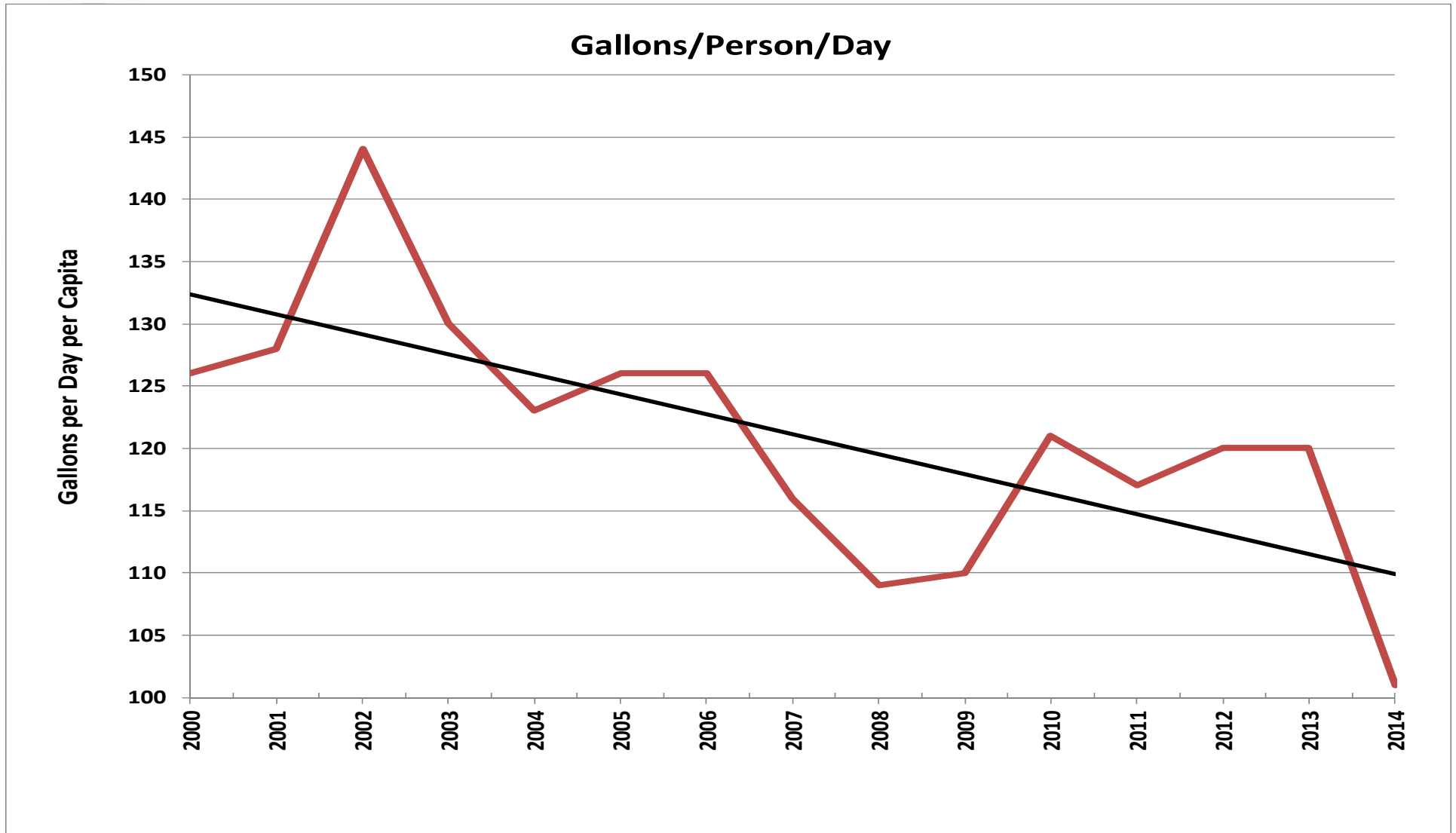
Reduced Peak Day Water Demand In Salina

Peak Day Gallons





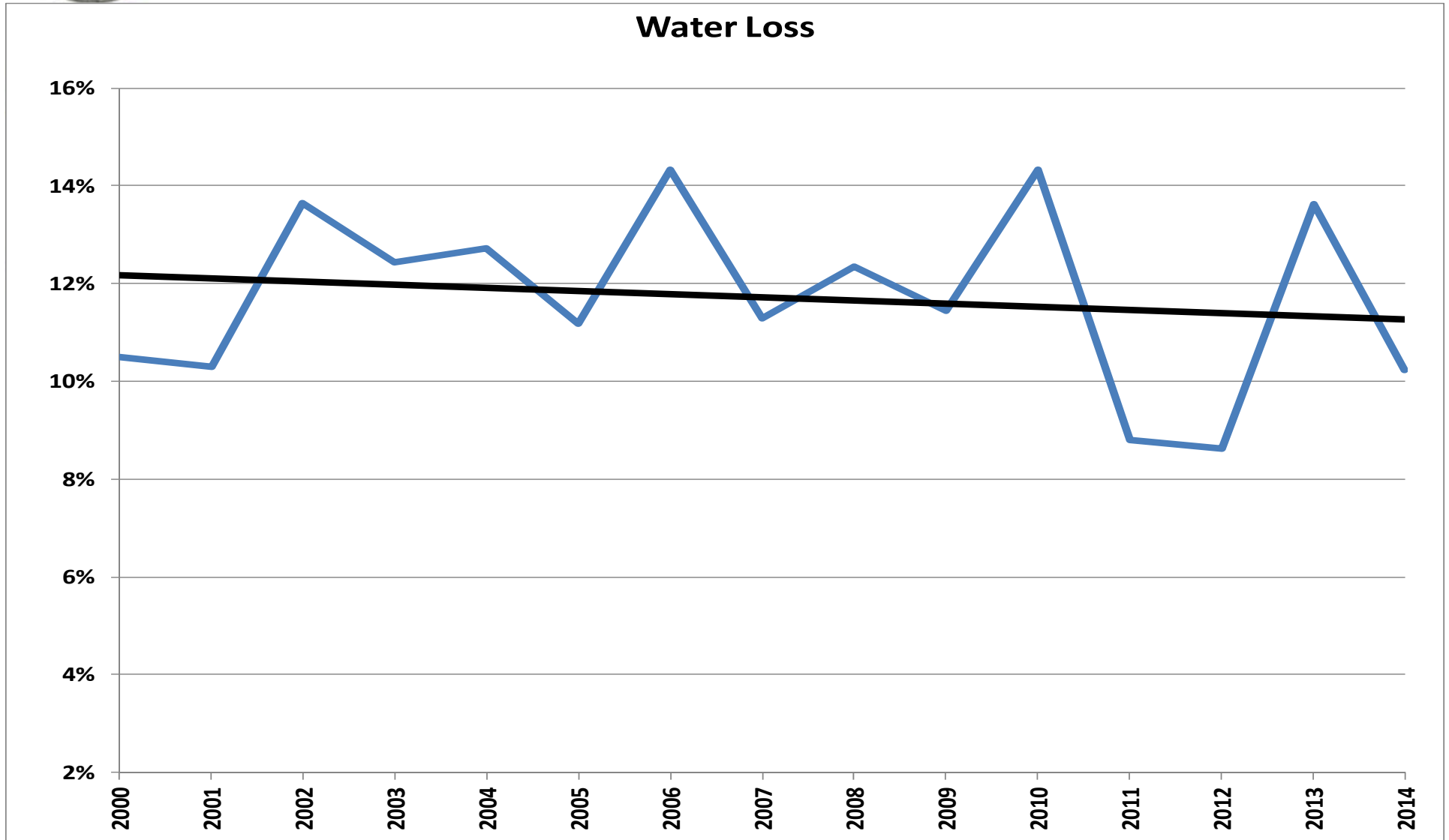
Improved Efficiency in Water Usage In Salina



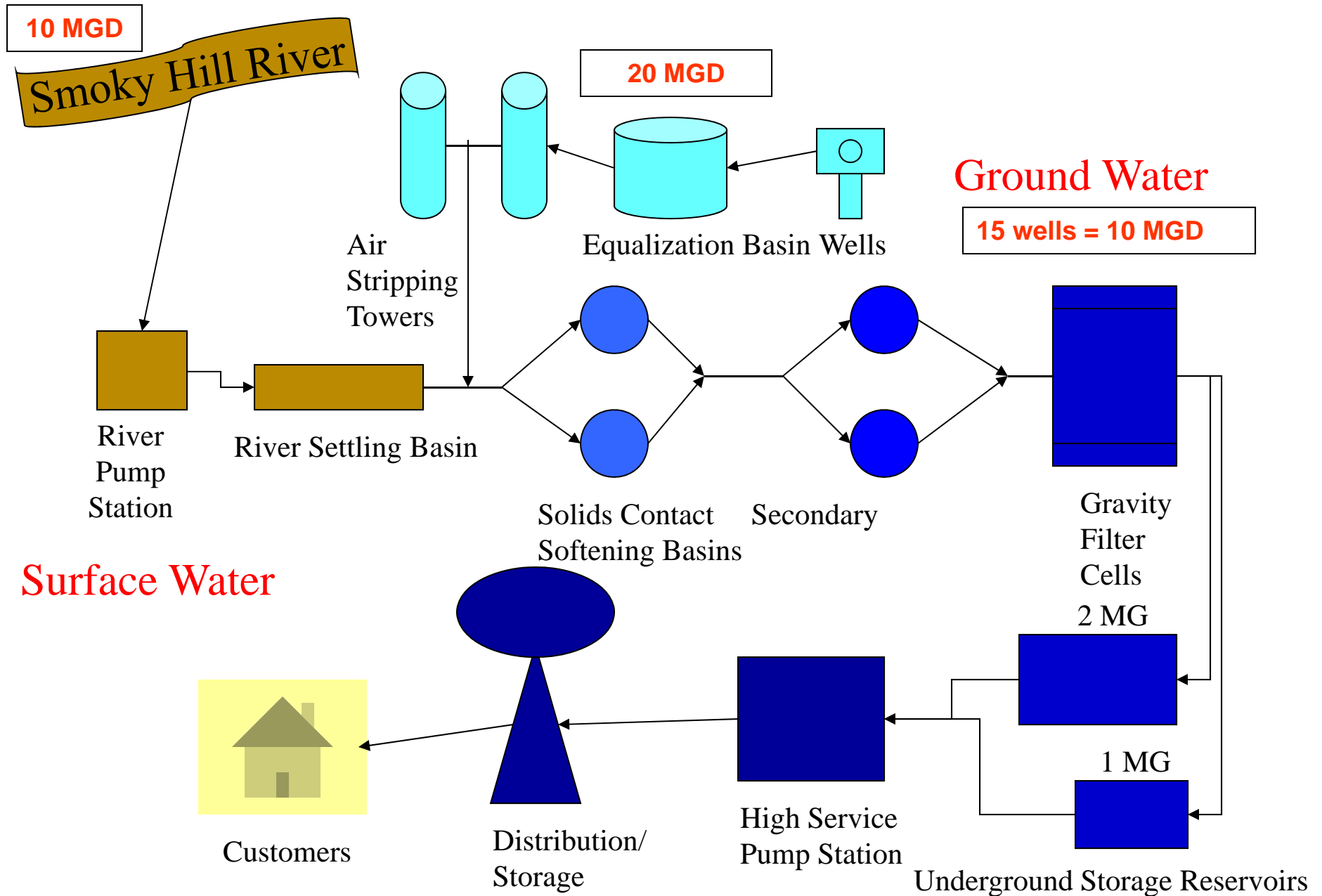


Reduced Water Loss/Waste In Salina

Water Loss



Salina WTP Process Flow





Adequate Water Supply During Prolonged Drought In Salina

- Maintain surface water supply – Smoky Hill River
- Increase capacity Downtown Well Field
- South Well Field / Water Treatment Plant
- Smoky Hill Access District
- WWTF Effluent Reuse





Governor's Draft 50 Year Water Vision

- 20% Per Capita Reduction
- 20% Statewide Reduction
- Zero Reduction in Groundwater
- Importance of Water Conservation/Public Education
- Locally Driven Plans
- Development of Conservation Guidelines
- Value of Water
- More Efficient Water Use
- Rate Structure Effectiveness for Conservation





QUESTIONS?

**Thanks for attending,
if you wish to contact me
martha.tasker@salina.org**

