

Potential Health Effects of Water Reuse in Kansas

A Health Impact Assessment

March 1, 2018 ♦ Topeka, Kansas

Carlie Houchen, M.P.H., Analyst, Kansas Health Institute
House Water & Environment Committee

ACKNOWLEDGEMENTS

Project team:



Funding provided by:



**Kansas Health
Foundation**

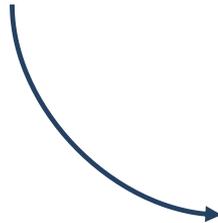
“

*“Evaluate the sources and potential
uses of lower quality water.”*

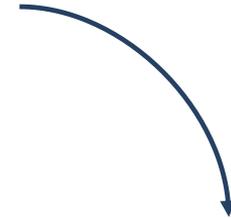
– The Kansas Water Vision

KEY HIA QUESTION

*How does the
proposed
project, plan, policy*



affect
Housing
Air quality
Noise
Safety
Social networks
Nutrition
Parks and natural space
Private goods and services
Public services
Transportation
Livelihood
Water quality
Education
Inequities



*and lead to
health outcomes?*

HEALTH FACTORS

The range of personal, social, economic and environmental factors which determine the health status of individuals or populations.



Physical environment

- e.g., air quality, water quality

Built environment

- e.g., buildings, roads, bike lanes

Livelihood

- e.g., income, employment

Social and community

- e.g., social support, family structure

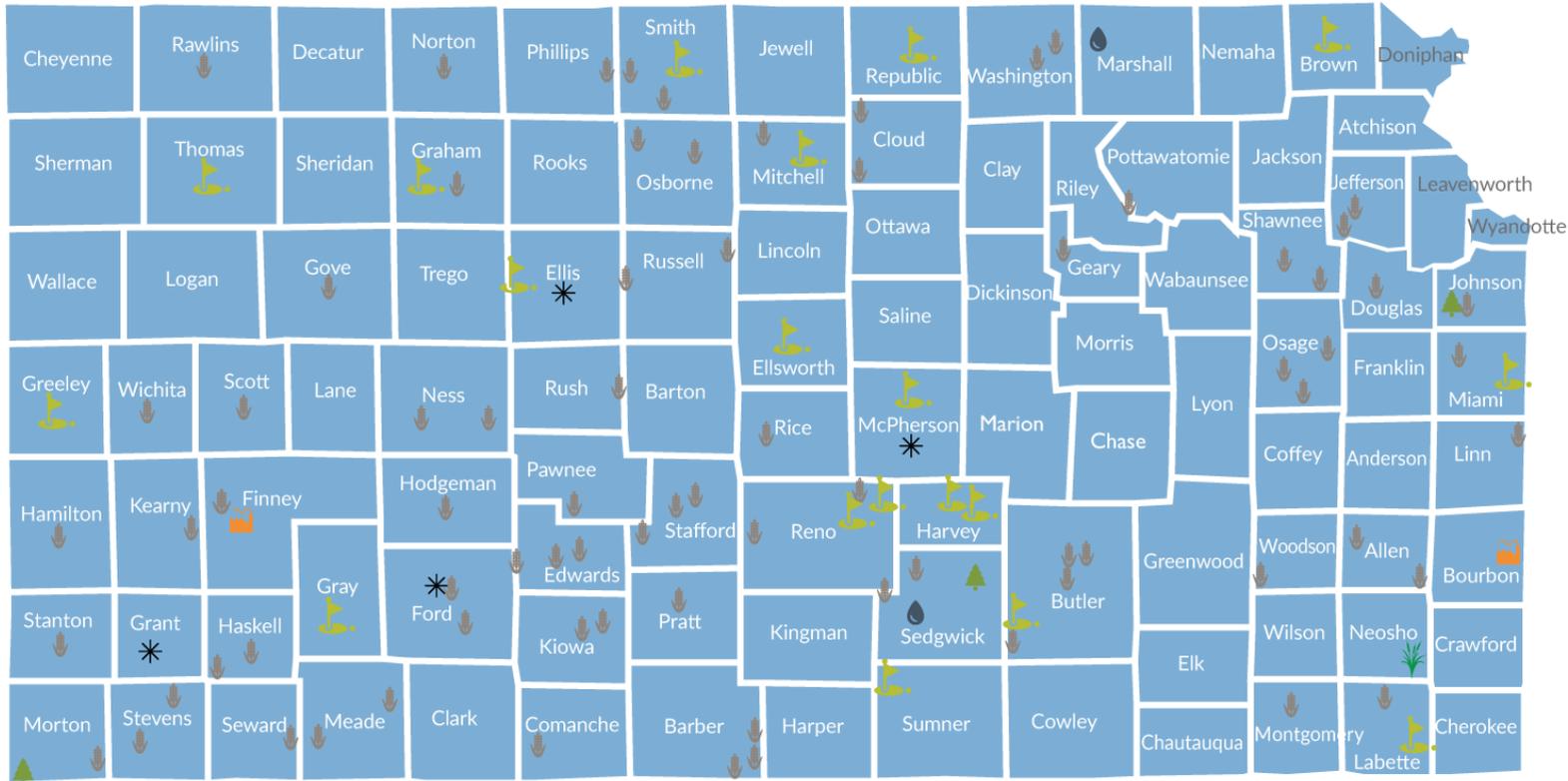
Lifestyle

- e.g., diet, exercise, alcohol and tobacco use

HEALTH IMPACT ASSESSMENT



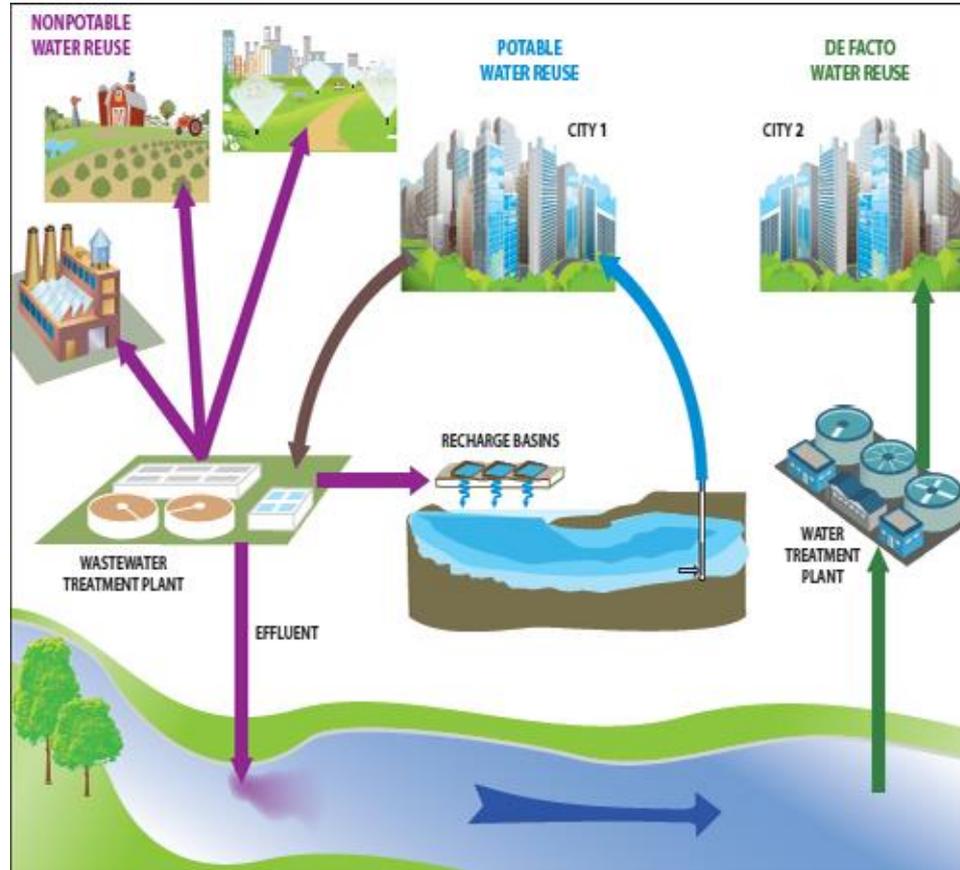
WATER REUSE IN KANSAS



Water Reuse Purpose

- Agriculture/Grass
- Industrial
- Golf Courses
- Wetlands
- Parks/Public Land
- Multiple Use
- Other

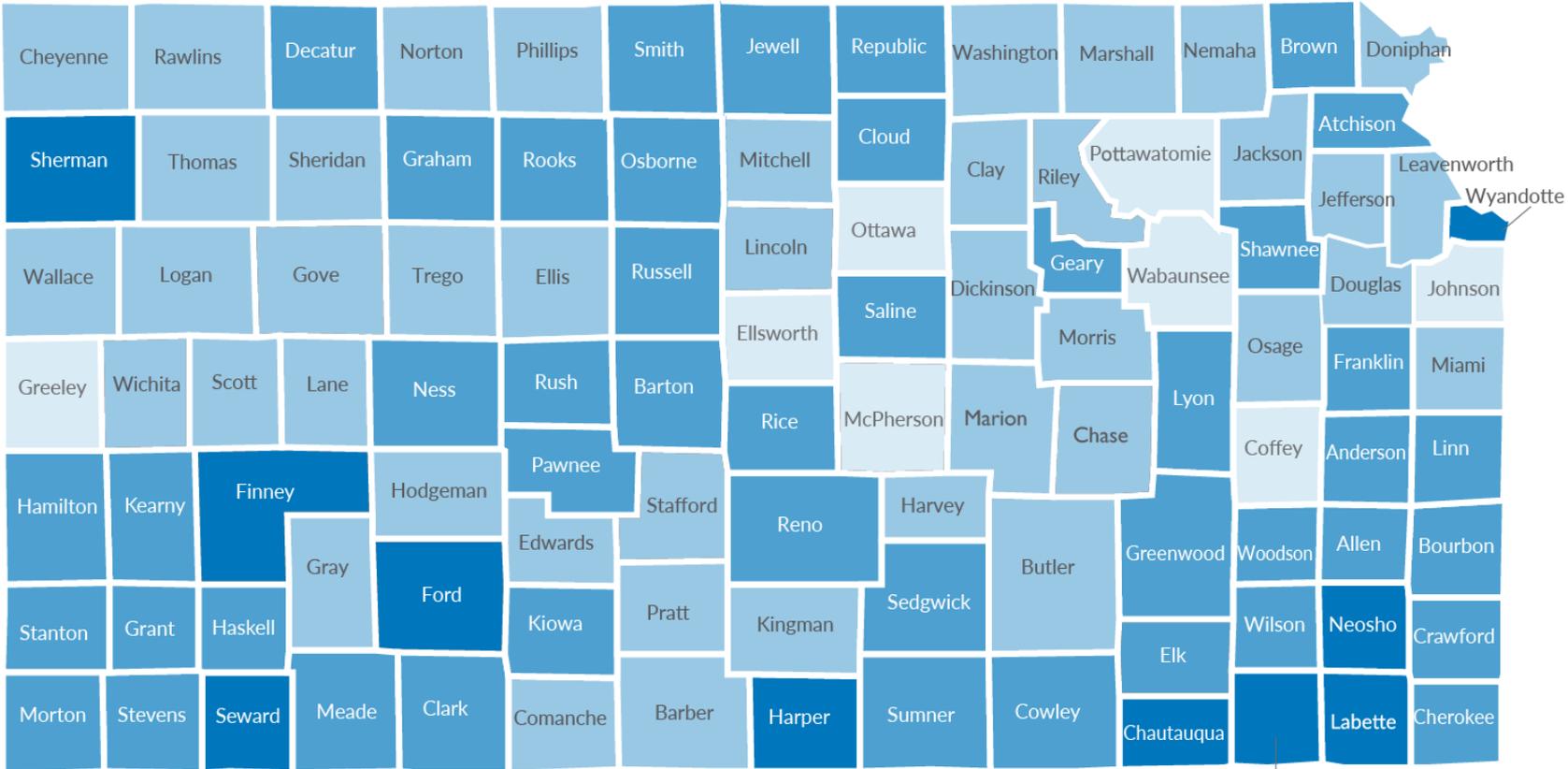
WATER REUSE



FINDINGS AND RECOMMENDATIONS

- Community sustainability
- Community perception of water quality
- Water quality
- Cost and utility rates
- Guidance and regulations

Community Sustainability Index in Kansas



Sustainability Index Score



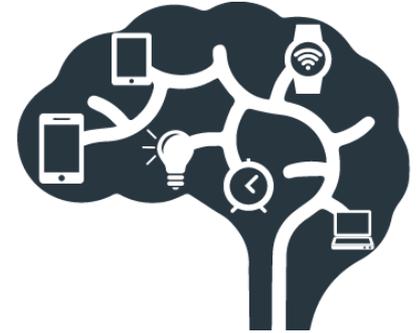
COMMUNITY PERCEPTION: FINDING & IMPACT

- **Finding:** The community's perception of water quality could decrease if they were not involved in the decision to reuse water
- **Health Impact:** Lead to an increase in the consumption of beverages other than municipal water

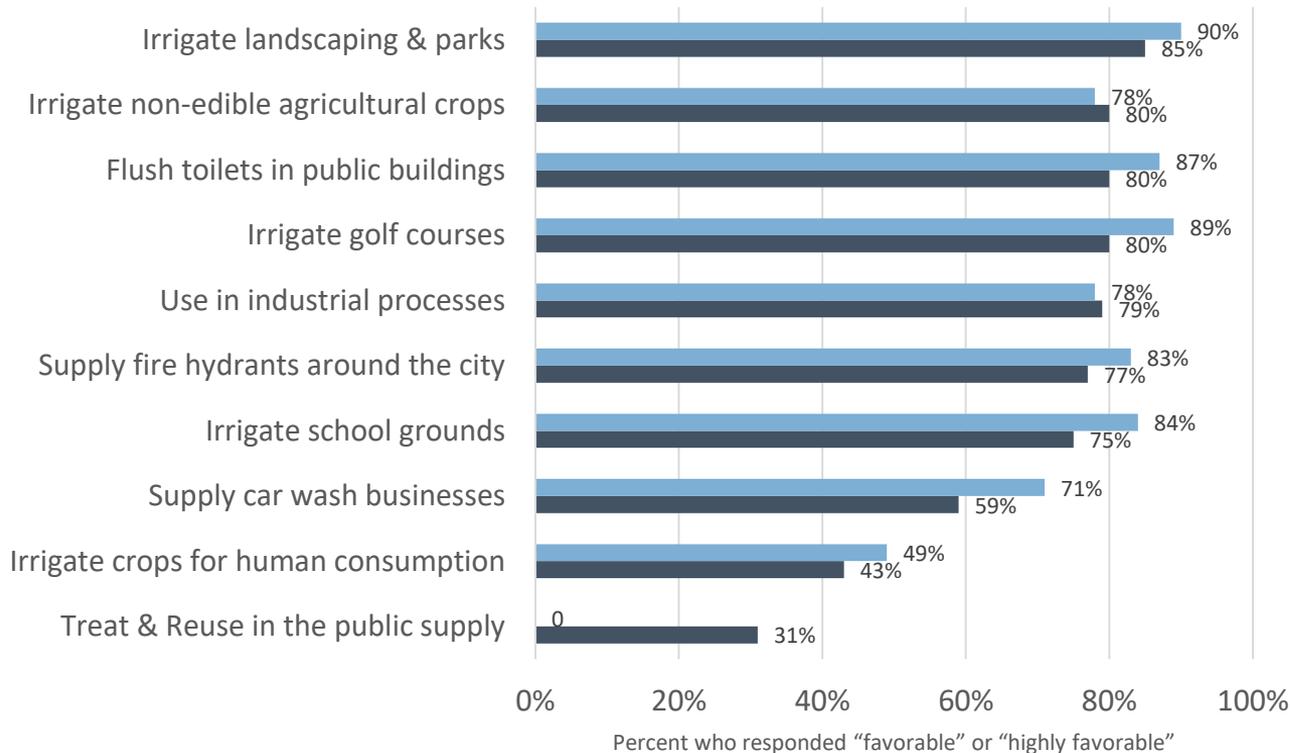
PERCEPTION OF WATER QUALITY

Two major components:

- “Yuck” factor
- Trust
 - In government to make decisions with the public’s best interests in mind
 - In technology to provide consistent quality product



FAVORABILITY OF WATER REUSE BY TYPE



Garden City: N = 154

Hays: N = 248

■ Hays ■ Garden City

WATER QUALITY: FINDING & IMPACT

- **Finding:** Water quality varies depending on intended end-use and funding
- **Health Impact:** As of December 2016, there have been no outbreaks of illness related to reuse

WATER QUALITY

- With current technology, effluent can be treated to a quality beyond potable water standards
- Some concern exists about disinfectant by-products and contaminants of emerging concern
- Potential risk of system failure



WATER QUALITY

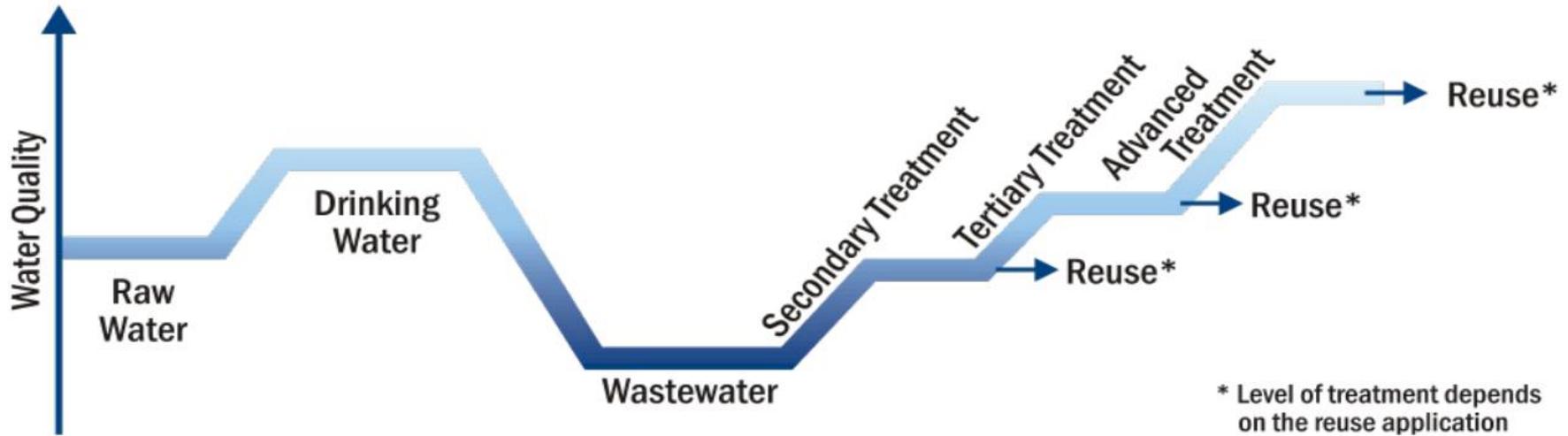


Figure 1-3
Treatment technologies are available to achieve any desired level of water quality

COSTS: FINDING & IMPACT

- **Finding:** Costs associated with reuse may or may not increase utility rates to the customer
- **Health Impact:** If utility rates increase, this could negatively impact financially vulnerable individuals

COST AND UTILITY RATES

- Cost varies greatly; each use has unique cost components
- Alternative financing mechanisms
- Impact on utility rates



GUIDANCE & REGULATIONS: FINDING & IMPACT

- **Finding:** Guidance and regulations to govern the use and treatment of reused water may be needed
- **Health Impact:** Regulations will protect public health



RECOMMENDATIONS:

GUIDANCE & REGULATIONS

- Take a holistic approach to all water-related decision-making, that considers the physical, social and economic conditions within a watershed, aquifer and river basin context.
- Developing clear and consistent regulations based on the best-available science and lessons learned from Kansas reuse projects and peer states. Update these regulations regularly to assure alignment with new evidence and standards.
- Establish process for coordination between water and wastewater utilities.
- Implementing a streamlined permitting process for reuse.

RECOMMENDATIONS:

WATER QUALITY

- Establishing a task force to address contaminants of emerging concern in reuse and the traditional water supply on an ongoing basis.
- Pursuing similar quality, monitoring and reporting requirements on bottled water as municipal water supplies.
- Educating and communicating with the public about water reuse.

RECOMMENDATIONS:

FUNDING

- Waiving or minimizing application fees and/or inspection fees for municipalities interested in pursuing water reuse efforts.
- Providing grant funding to municipalities or help municipalities apply for grant funding associated with water reuse.
- Dedicating funding to support long-term water planning efforts.
- Allowing the use of loan programs as incentive for private businesses to embark on water reuse efforts.



KANSAS
HEALTH
INSTITUTE

Informing Policy. Improving Health.

THANK YOU

Any questions?

You can connect with us at:

Carlie Houchen: chouchen@khi.org

Tatiana Lin: tlin@khi.org

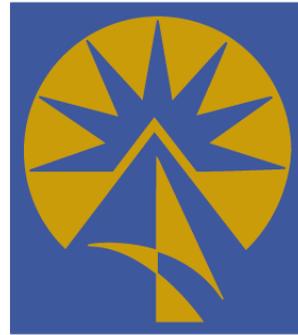
 212 SW 8th Avenue | Suite 300
Topeka, Kansas | 66603-3936

 785.233.5443

 khi.org

 /KHIorg

 @KHIorg



KANSAS
HEALTH
INSTITUTE

Informing Policy. Improving Health.