

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS  
STATE OF KANSAS**

IN THE MATTER OF THE APPLICATION OF  
THE CITIES OF HAYS, KANSAS  
AND RUSSELL, KANSAS FOR APPROVAL TO  
TRANSFER WATER FROM EDWARDS  
COUNTY PURSUANT TO THE KANSAS  
WATER TRANSFER ACT

OAH Case No. 23AG0003 AG

**PREPARED DIRECT TESTIMONY OF EDWARD HARVEY ON BEHALF OF  
WATER PROTECTION ASSOCIATION OF CENTRAL KANSAS AND  
EDWARDS COUNTY, KANSAS (COLLECTIVELY "INTERVENORS")**

**May 30, 2023**

## **A. INTRODUCTION**

**Q Please state for the record your name, position, and business address.**

**A** Edward Harvey. I am the founder and Principal of Harvey Economics. My business address is 469 South Cherry Street - Suite 100, Denver, Colorado 80246.

**Q. What is your educational and professional background?**

**A** I have a strong educational background and extensive experience in the field of resource economics, specifically in the context of water resource management. I hold a Master of Science in Business Administration (MSBA) with a specialization in Economics from the University of Denver, as well as a Bachelor of Arts (BA) degree in Economics, also from the University of Denver.

With a total of 50 years of professional experience, I have spent the past 20 years working at Harvey Economics, where I have focused on conducting economic studies related to water, mineral, energy, and environmental resource use. My expertise lies in analyzing the economic and financial impacts of water availability, drought, water quality, infrastructure development, irrigation, water conservation, and non-structural water resource issues.

As a part of my professional involvement, I have been affiliated with several reputable organizations. These include the Colorado Commission for Judicial Performance, the American Water Works Association (AWWA) and the Colorado Water Congress. These affiliations allow me to stay up-to-date with the latest developments and best practices in the field of water resource management.

**Q Please describe your experience and qualifications.**

**A** My experience and qualifications are more comprehensively described in the attached curriculum vitae, which is Exhibit 1 to this testimony. I have dedicated the majority of my career to studying the economic impacts of water, mineral, energy, and environmental resource use, as well as community changes in the western United States. With over 50 years of experience in this field, I have conducted a wide range of studies and analyses, including financial feasibility studies, rate studies, economic impact assessments, future resource demand analyses, and resource valuation studies.

Throughout my career, I have focused on conducting economic studies related to water availability, drought, water quality, infrastructure development, irrigation, water conservation, and non-structural water resource issues. I have worked extensively on projects involving water supply planning, water demand projections, and evaluating the economic and socioeconomic implications of various water-related initiatives.

Some notable projects I have been involved in include the Halligan Water Supply Project EIS in Colorado, where I led the development of long-term water demand projections and evaluated the impacts of expanding Halligan Reservoir on water rates and connection fees, socioeconomic and land use resources. I also played a key role in the Moffat Collection System Project EIS, conducting economic, financial and social

impact analyses for the expansion of an existing water supply reservoir for Denver Water.

In addition, I have worked on water projects such as the Lake Ralph Hall EIS in Texas, the Windy Gap Firming Project EIS in Colorado, and the Northern Integrated Supply Project (NISP) EIS in Colorado, where I provided expertise in developing water demand projections, assessing project purpose and need, and evaluating the financial feasibility and socioeconomic impacts of proposed water supply projects.

My experience extends to groundwater management, water transfers, and irrigation water allocation. I have conducted analyses of groundwater pumping fees, examined the economic effects of water transfers, and provided expert testimony in arbitration and legal proceedings related to water rights and allocation.

Furthermore, I have worked on studies assessing regional economic impacts, long-term water demand projections, and the effects of water supply projects on various sectors such as agriculture, tourism, construction, public facilities, and fiscal impacts.

Overall, my qualifications and experience enable me to provide comprehensive and insightful analysis of water-related issues, offering valuable expertise in understanding the economic implications, resource demands, and sustainability considerations associated with water resource development and management.

**Q Did you collaborate with anyone at HE in preparing your report?**

A Yes. Susan Walker.

**Q What is Ms. Walker's background and experience?**

A Susan H. Walker is a Director at Harvey Economics and has been an invaluable member of the company since 2005. Her expertise lies in planning endeavors related to water, energy, tourism, and other natural resource sectors. With a focus on economic and demographic research, analysis, and modeling, Ms. Walker has completed various projects involving rate studies, demand projections, socioeconomic impact analysis, cost-benefit analysis, project financing, and resource and facility valuation.

Throughout her career, Ms. Walker has worked with municipalities, utilities, special districts, private industry, as well as county, state, and federal agencies. Her project experience showcases her ability to tackle complex assignments and provide comprehensive insights into economic and water-related issues.

One notable project is the BennT Creek Regional Water Authority Growth Projections Study in Colorado, where Ms. Walker developed projections of housing unit growth for the Authority's water service areas. This involved incorporating information from real estate developers, state and county planning documents, zoning regulations, historical growth trends, and economic prospects to estimate future water demands.

In the Morgan County Quality Water District Growth Study, Ms. Walker conducted a comprehensive study on population and economic growth in rural Morgan County, Colorado, to project future water demands for the district. Her work involved

analyzing economic and demographic factors influencing regional growth and developing projections for residential, commercial, industrial, and agricultural customers over a 50-year period.

Currently, Ms. Walker is working on the Eagle County Water Demand Projections project in Colorado. Collaborating with the Eagle River Water & Sanitation District and Upper Eagle Regional Water Authority, she is responsible for preparing long-term water demand projections based on historical and projected population growth, economic conditions, conservation efforts, and water losses.

In addition to these projects, Ms. Walker has contributed her expertise to the Halligan Water Supply Project EIS, White River Reservoir Project, Parker Water Project, Chino Valley Water Demands and Water Pipeline, Platte River Basin Water Plan Update, Northern Integrated Supply Project EIS, Upper Gunnison Demand Management Impact Study, and more. Her work spans across different states and involves assessing future water demands, economic impacts, project financing, and benefit-cost analysis.

Overall, Susan H. Walker's extensive experience, expertise in economic and demographic research, and her contributions to a wide range of water-related projects make her a valuable asset to Harvey Economics and the field of natural resource economics.

**Q On whose behalf are you testifying today?**

A I am appearing on behalf of Water PACK and Edwards County, Kansas. Water PACK is an association of agricultural producers and businesses organized to promote, foster, and encourage the beneficial, economical, and sustainable use of quality water. Many of its members are located in proximity to the R9 Ranch in Edwards County, Kansas which is the water source that is the subject of the applicant cities transfer application. Edwards County is the geographic locale in which the R9 Ranch is located.

**Q What have you reviewed to prepare this testimony and your report?**

A We reviewed and evaluated the KWTa Application and supporting information submitted by the Cities and other publicly available information, including the Water Transfer Act and the implementing administrative regulations.

**Q Are you familiar with the Kansas Water Transfer Act, K.S.A. 82a-1501, et.seq.?**

A. Yes.

**Q Are you familiar with the Water Transfer Act implementing regulations, K.A.R. 5-50-1, et.seq.?**

A Yes.

**B. THE R9 PROJECT**

**Q What is your understanding of the purpose of the R9 Ranch project?**

A The R9 Ranch project involves extracting and transporting water from the R9 Ranch in Edwards County to the Cities of Hays and Russell via a pipeline. The purpose is to meet a portion of the future water needs of the Cities.

**Q Who retained Harvey Economics (HE) and why?**

A Harvey Economics (HE) was retained by the law firm Lee Schwalb LLC, representing WaterPACK and Edwards County in the KWTa proceedings, to evaluate the net future water needs of the Cities of Hays and Russell pertaining to the need for the R9 Ranch project.

**Q What are your principal conclusions with respect to your evaluation of the net future water needs for the Cities of Hays and Russell?**

1. The GPCD water demand projection method (population times gallons per capita per day or GPCD) is appropriate in this instance.
2. The water demands projected by the Cities have been mischaracterized as equating to future water needs, which require that existing supplies be subtracted from future water demands.
3. More project planning is required to determine the net future water needs to evaluate the need for this Project.
4. The long-term, minimal growth or declining population trends for Hays and Russell are not unique for western Kansas, and these trends are not solely attributable to a lack of water.
5. There is no justification for assuming that Hays and Russell will have the same growth rate going forward.
6. The two percent annual growth rate through 2040, which the Cities adopted for project planning purposes, is excessive and unsupportable.
7. The GPCD assumptions applied by the Cities are flawed and unreliable.
8. The Cities' individual water use and population data should have been used as the source for determining GPCD assumptions.
9. The Cities have robust conservation and drought emergency programs similar to many municipal programs throughout the western U.S.
10. A recalculation of future water demand for the Cities, however preliminary, indicates that net future water needs for the Cities will be much less than the Cities have indicated in their KWTa Application and supporting information.
11. Due to the R9 Ranch project costs, existing water customers in the two Cities will experience much higher water rates for the water they are presently consuming, resulting in a cost to them without offsetting benefit.
12. The R9 Ranch project represents a net cost, not a benefit, for the Cities and the State of Kansas.

These conclusions, based on the analysis conducted by Harvey Economics, provide key insights into the appropriateness of the GPCD method, the discrepancy between water demands and water needs, the population growth assumptions, and the overall viability and financial impact of the R9 Ranch project. The Cities must undertake additional project planning and evaluation to fully assess the net future water needs and the cost-benefit dynamics of the project.

**Q Did you review the 2019 Master Order Contingently Approving Change Applications Regarding R9 Water Rights?**

A Yes.

**Q Did the Master Order address the Reasonable-Need Limitations for the Cities?**

A Yes, at Subsection XIII.B.b, Bates page KDA 000102.

**Q What were the Reasonable-Need Limitations presented in the 2019 Master Order?**

A The Reasonable-Need Limitations presented in the 2019 Master Order were 5,670.2 acre-feet for Hays and 1,815.0 acre-feet for Russell. These limitations were based on the Cities' population and GPCD water demand projections.

**Q How does HE view the water needs projected by the Cities?**

A Water demands projected by the Cities have been misinterpreted as future water needs. Future water needs should account for existing water supplies subtracted from future water demands.

**Q What methodology did the Cities use to determine their future water demands?**

A The Cities used the GPCD (gallons per capita per day) water demand projection method. This method requires population projections for a certain jurisdiction to be applied to an assumed water use per capita measure for that jurisdiction. Both Cities assumed an average annual growth rate of two percent through 2041 and applied a simple average GPCD for their respective water regions to those population projections. Russell also included additional projected industrial water demands.

**Q What is HE's opinion on the GPCD water demand projection method?**

A We consider the GPCD water demand projection method (population multiplied by gallons per capita per day or GPCD) to be appropriate in this case. However, HE has numerous, serious issues with how this method was implemented in this instance, specifically the growth assumption and the GPCD values used by the Cities as inputs into their calculations of future water demand.

**Q Is there justification for assuming the same growth rate for Hays and Russell in the future?**



A There is no justification for assuming that Hays and Russell will have the same growth rate going forward. The demographic and economic base of each city are different. Each city's growth rate should be considered separately.

**Q Is the Cities' growth assumption appropriate?**

A The assumption of two percent annual population growth appears to be based on outdated information – historical growth from as far back as 1950. Recent trends indicate much lower growth rates for Hays and population decline for Russell. The Cities have not provided sufficient support to substantiate a two percent annual growth rate over the next 20 years.

**Q What are the actual growth rates for the Cities of Hays and Russell?**

A Over the last four decades, growth for Hays has averaged about 0.65 percent per year, with slower growth (0.29 percent per year) between 2010 and 2020. Russell has experienced a continuously declining population since 1980. The slow or declining growth is unlikely attributed to water availability solely, but most likely influenced by various factors.

Population projections developed by the University of Kansas suggest a 0.34 percent annual growth rate for Hays and a 0.06 percent annual growth rate for Russell through 2045, based on the future outlook for Ellis and Russell counties. Those projections, based on current data and information, differ significantly from the Cities' growth assumption.

**Q How does HE view the population trends of Hays and Russell?**

A We note that the long-term trends of minimal growth or declining populations in Hays and Russell are not unique to those cities. Many communities in western Kansas are experiencing similar trends. Those trends are the result of many factors, and are not solely due to a lack of water.

**Q Are the Cities' GPCD values appropriate?**

A The GPCD assumptions applied by the Cities are flawed and unreliable for several reasons.

1. The Cities' use of simple regional average GPCD values, instead of City specific GPCD values, does not account for the differences in populations served by individual water providers and does not reflect the specific economic, demographic and housing characteristics of Hays or Russell, which may differ from other communities within their respective regions.

2. The Cities' assumed GPCD values reflect the average over the 5-year period between 2011 and 2015 are insufficient and out of date. More recent and longer term historical GPCD data is now available for both Cities, as well as for other water providers across the State. The more recent data indicates a decreasing trend in GPCD for the majority of communities in Region 5 and Region 6ML.

The Cities' individual population and water use data should have been utilized to determine the GPCD values used to calculate future water demands. Additionally, the

most recent and up to date GPCD data for each City should be used to determine future water demands.

**Q How do the revised population projections and GPCD assumptions affect the water demand calculations?**

A Applying the revised population projections and appropriate GPCD values, HE estimates a lower water demand for both Cities. For example, using Hays' long-term average GPCD of 86, the estimated 2040 water demand is about 62 percent less than the City's calculation of reasonable need. For Russell, application of an average GPCD of 79, plus inclusion of 700 acre-feet of additional industrial demand, would result in an estimated 2040 water demand that is about 40 percent less than indicated by that Russell's calculation of reasonable need.

**Q What water supplies do the Cities have, and how does it relate to their net water need?**

A HE extracted information about the Cities' water supplies from publicly available documents and studies. However, many of those reports were more than 10 years old and may not include complete information on the Cities current water supplies. The Cities each have their own portfolio of water supplies, primarily dependent on groundwater sources. The safe annual yield available from those supplies reflects water available in dry years. Estimates of the Cities' safe annual yield from available supplies were developed by the Cities' engineers or other consultants. HE estimated the 2040 water demands for each City and compared them to the estimates of current safe annual yield to determine the net water need for each City.

**Q What are the estimated net water needs for the Cities based on the R9 Ranch project?**

A HE's estimates of 2040 water demands for each City, considering revised population projections and appropriate GPCD values, are presented in Exhibit ES-1 in the HE report. These estimates provide an indication of the net water needs for each City in relation to their existing water supplies.

HE's preliminary recalculation of future water demand indicates that the net future water needs for the Cities are highly likely to be significantly lower than what the Cities have indicated in their KWTa Application and supporting information. HE acknowledges that there is much information that would be required to confirm or modify this preliminary assessment of net future water need.

**Q What does HE recommend regarding the evaluation of net future water needs?**

A We suggest that more project planning with better data is necessary to accurately determine the net future water needs and assess the requirement for the R9 Ranch project.



**Q Do the Cities have conservation and drought emergency programs?**


**A** Yes. The Cities have robust conservation and drought emergency programs, similar to many municipal programs throughout the western United States.

**Q How will the R9 Ranch project impact existing water customers?**

Due to the costs associated with the R9 Ranch project, existing water customers in the two Cities will experience much higher water rates for the water they presently consume. This results in a cost to them without an offsetting benefit.

**A What is HE's overall assessment of the need for the R9 Ranch project?**

We conclude the need for the R9 Ranch project is premised upon insufficient data faulty calculations, and upon unsupportable assumptions. We believe it represents a net cost, rather than a benefit, for both the Cities and the State of Kansas.

  
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Edward Harvey

Colorado  
Denver  
State of ~~Kansas~~ )  
County of ~~Johnson~~ )

Subscribed, acknowledged and sworn to before me by Edward Harvey this 25<sup>th</sup> day of May 2023.

(Seal)

JOSUE HUERTA-CABALLERO  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20184014410  
MY COMMISSION EXPIRES APRIL 29, 2024

  
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Signed