

**BEFORE THE OFFICE OF ADMINISTRATIVE HEARINGS**

**STATE OF KANSAS**

**IN THE MATTER OF**

<b>THE APPLICATION OF THE CITIES OF</b>	)	
<b>HAYS, KANSAS AND RUSSELL, KANSAS</b>	)	
<b>FOR APPROVAL TO TRANSFER WATER</b>	)	<b>OAH NO. 23AG0003 AG</b>
<b>FROM EDWARDS COUNTY, KANSAS</b>	)	
<b>PURSUANT TO THE KANSAS WATER</b>	)	
<b>TRANSFER ACT.</b>	)	

\_\_\_\_\_  
Pursuant to K.S.A. Chapter 77.

**REBUTTAL TESTIMONY OF STEPHEN F. HAMILTON, Ph.D.**

**ON BEHALF OF**

**THE CITIES OF HAYS AND RUSSELL, KANSAS**

1           **Q.     Please state your name and present position.**

2           A.     My name is Stephen F. Hamilton, Ph.D., Professor of Economics at California  
3 Polytechnic State University, San Luis Obispo.

4           **Q.     On whose behalf are you submitting testimony?**

5           A.     The City of Hays, Kansas and the City of Russell, Kansas (the “Cities”).

6           **Q.     Have you previously provided pre-filed testimony in this proceeding?**

7           A.     Yes, I have. I submitted Direct Testimony on behalf of the Cities, which included  
8 and incorporated my written expert report (the “Hamilton Report”) relating to the economic impact  
9 to the State of Kansas of the proposed water transfer.

10          **Q.     What is the purpose of your rebuttal testimony?**

11          A.     I will respond to portions of testimony submitted by Edward Harvey and his  
12 associated report (the “HE Report”), who testifies on behalf of Intervenor, the Water Protection  
13 Association of Central Kansas and Edwards County, Kansas.

14          **Q.     Please provide a summary of your rebuttals to the methodology and  
15 conclusions contained within Mr. Harvey’s pre-filed testimony and attachments to same.**

16          A.     Certainly. Below are my point-by-point responses to Mr. Harvey’s methodology  
17 and opinions, which are summarized on page 30 of the HE Report.

18               **“13. The gpcd water demand projection method (population times gallons  
19 per capita per day or gpcd) is appropriate in this instance.”**

20               **Rebuttal:** My Report projects future water demand by growing a city’s current water use  
21 at the rate of its projected population growth.<sup>1</sup> Qualitatively, this is equivalent to the so-called  
22 “demand projection” method the HE Report endorses because a city’s water use is the product of

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<sup>1</sup> Hamilton Report ¶ 97.

1 the city’s water use per capita (i.e., GPCD) and its population. Future water demand is therefore  
2 equal to a city’s current GPCD multiplied by its future population.

3 Quantitatively, the two reports use different values for (i) current GPCD; and (ii)  
4 population growth. For current GPCD, my Report is based on actual water consumption by water  
5 use sector in each city for the period 2018-2020. In contrast, the HE Report uses aggregate water  
6 consumption over the period 2008-2021 for Hays and does not utilize Russell’s actual water use  
7 data in its calculation.<sup>2</sup>

8 Importantly, the values for GPCD are more conservative in my Report compared to the HE  
9 Report (*see* bullet point 19 below for details).

10 For population, the HE Report relies on county-level population projections published by  
11 the University of Kansas, while my Report uses population projections developed in each city’s  
12 comprehensive plan.<sup>3</sup> The values for population growth are higher in my Report compared to the  
13 HE Report (*see* bullet point 20 below for details).

14 Table 1 below tabulates how using the assumptions in the HE Report would affect the  
15 economic loss calculation in my Report. It considers three scenarios: (i) using only the current  
16 GPCD assumption in the HE Report (which are higher than in my Report); (ii) using only the  
17 population growth assumption in the HE Report (which are lower than in my Report); and (iii)  
18 using both assumptions in the HE Report together. The latter scenario corresponds to replacing the  
19 assumptions in my Report with the values for GPCD and population growth from the HE Report  
20 in my model.

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<sup>2</sup> HE Report at 27.

<sup>3</sup> HE Report citing the Kansas Statistical Abstract at 14-17, 26-27.

1 **Table 1: Economic Loss Under HE Report Assumptions**

	<b>Average Loss Scenario<sup>4</sup></b>	<b>Adverse Scenario<sup>5</sup></b>
Hamilton Report	\$42 Million	\$117 Million
Using HE Report Assumptions		
Only Current GPCD	\$114 Million	\$293 Million
Only Population Growth	\$10 Million	\$18 Million
Both Current GPCD & Population Growth	\$30 Million	\$52 Million

2  
3 The values in Table 1 illustrate that even if I were to adopt the assumptions in the HE Report  
4 (which are unsupported), the qualitative conclusion in my Report remains the same. Absent the  
5 water transfer, future droughts put the Cities at risk of tens of millions of dollars in economic  
6 losses. The economic losses are larger when water conditions in the future mirror drier periods in  
7 the historic water record (e.g., the adverse scenario). Such periods of prolonged drought are  
8 projected to occur more frequently in the future.

9 **“14. The water demands projected by the Cities have been mis-**  
10 **characterized as equating to future water needs, which require that**  
11 **existing supplies be subtracted from future water demands.”**

12 **Rebuttal:** Conclusion 14 on page 30 of the HE Report is simply alluding to a different  
13 definition of “water needs.” In the Master Order, “reasonable needs” may be more appropriately  
14 interpreted as the upper limit of likely future demand; whereas in the HE Report, they appear to  
15 be interpreted as excess demand, i.e., the demand remaining after netting out existing supply. My  
16 Report also nets existing water supplies from future water needs, so this comment has no bearing  
17 on my analysis.

18 More troublesome, however, is that application of the methodology proposed by the HE  
19 Report would not improve the Cities’ water problems; in fact, it would make their circumstances

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<sup>4</sup> See Hamilton Report at pp. 33-34.

<sup>5</sup> See Hamilton Report at pp. 33-34.

1 even worse than they are now. The HE Report takes the Cities’ conservation measures, which were  
2 enacted *because* of their lack of drought-resistant water sources, and then caps the Cities’ available  
3 quantity based on GPCD values that are unheard of anywhere in the State of Kansas. The HE  
4 Report then uses that number as the basis for setting a purported *maximum* quantity of water the  
5 Cities should be permitted to divert.

6         Such analysis in the HE Report ignores the inevitable occurrence of serious drought and  
7 the fact that municipalities require more water during drought than in times of normal precipitation.  
8 As concluded by Dr. Layzell, there is ample evidence in the tree-ring fossil record of historical  
9 conditions “where drought conditions exceeded the severity of the 1930s and 1950s droughts.”<sup>6</sup>  
10 And Dr. Basara concludes that the risk of a decadal drought striking the Smoky Hill Watershed  
11 region during the 2055–2099 time period exceeds 80%, and could occur at any time.<sup>7</sup> In such an  
12 event, the sustainable yield from Hays’ *existing* sources would decrease to 840 acre-feet.<sup>8</sup> And in  
13 a 20-year drought, Hays would have just 480 acre-feet of water available per year—a quantity  
14 insufficient to support even basic needs of Hays’ *current* population.<sup>9</sup> This problem is exacerbated  
15 by the unsupported population projection the HE Report applies to the Cities. (*See also* bullet point  
16 20, below.)

17         Moreover, it is unclear, and the HE Report fails to address, why any municipality with a  
18 lack of access to drought-resistant water sources would go through the time and expense of  
19 acquiring new water supplies and navigating the regulatory hurdles of the Water Transfer Act if  
20 the end result of the process leaves the Cities in a worse situation than before initiating the

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<sup>6</sup> Hamilton Report ¶ 76.

<sup>7</sup> Hamilton Report ¶ 115.

<sup>8</sup> Hamilton Report ¶ 115.

<sup>9</sup> Hamilton Report ¶ 119.

1 proceeding. That is particularly true in a case such as this in which the Cities purchased the R9  
2 Ranch water rights—real property rights—on the open market.

3 **“15. More project planning is required to determine the net future water**  
4 **needs to evaluate the need for this Project.”**

5 **Rebuttal:** The HE Report provides no basis, proposed methodology, or supported opinions  
6 as to what “additional planning” “is required.” The HE Report also ignores the fact that the Cities’  
7 existing sources are inadequate to meet even their current demand even in the event of a 2- or 3-  
8 year “flash” drought as clearly demonstrated by the 2012–13 droughts which caused the Smoky  
9 Hill River and Big Creek—the Cities’ principal water resources—to run dry. And in the event of  
10 a 5-year or longer drought, the Cities will face existential water-shortage crises—scenarios that  
11 were clearly precipitating factors behind the Cities’ Water Transfer Application, but that are  
12 entirely ignored by the HE Report.

13 **“16. The long term, minimal growth or declining population trends for Hays**  
14 **and Russell are not unique for western Kansas, and these trends are**  
15 **not solely attributable to a lack of water.”**

16 **Rebuttal:** The HE Report provides no real analysis to support this opinion. Instead, the  
17 HE Report includes a laundry list of factors that purportedly influence commercial and residential  
18 development,<sup>10</sup> without identifying whether any of these factors (other than a lack of water) are  
19 applicable to Hays or Russell.

20 HE’s analysis of eight cities in western Kansas (Exhibit 3-4) suggests that water is  
21 important for economic growth in that region. Dodge City and Garden City—the only cities in  
22 Exhibit 3-4 with a similar population to Hays—have “become meat packing and agri-business  
23 centers, and also benefit from tourism,”<sup>11</sup> all of which require an abundant water supply. Moreover,

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<sup>10</sup> HE Report at 18.

<sup>11</sup> HE Report at 17.

1 the Dodge City and Garden City populations each grew at a rate of 1.1% over the period 1980-  
2 2020, which is larger than the 1% population growth projection used in my Report.

3 **“17. There is no justification for assuming that Hays and Russell will have**  
4 **the same growth rate going forward.”**

5 **Rebuttal:** My Report does not make this assumption.

6 **“18. The two percent annual growth rate through 2040 which the Cities**  
7 **adopted for project planning purposes is excessive and unsupported.”**

8 **Rebuttal:** My Report does not make this assumption.

9 **“19. The gpcd assumptions which the Cities applied are flawed and**  
10 **unreliable.”**

11 **Rebuttal:** This criticism does not apply to my Report. My Report uses the Cities’ actual  
12 water use by sector to estimate GPCD. Moreover, the calculation of initial water use is more  
13 conservative in my Report than in the HE Report. Specifically, for Hays the initial water use is set  
14 at 1,792 acre-feet in my Report, compared to 2,009 acre-feet in the HE Report.<sup>12</sup> For Russell, the  
15 initial water use is set at 974 acre-feet in my Report, compared to 1,078 acre-feet in the HE  
16 Report.<sup>13</sup> As shown in Table 1, using GPCD values from the HE Report would produce even larger  
17 economic losses than in my Report, which would make the water transfer more valuable to the  
18 State of Kansas.

19 Furthermore, the Cities should not be punished for their previous conservation efforts.  
20 Doing so would disincentivize municipalities, irrigators, and other Kansas water users from ever

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<sup>12</sup> This is calculated using two pieces of information from the HE Report: (i) Hays’ 2040 water demand is estimated at 2,136acre-feet; and (ii) Hays’ 2040 population increases by about 6.3 percent from its 2021 population. HE Report at 26.

<sup>13</sup> This is calculated using two pieces of information from the HE Report: (i) Russell’s 2040 water demand is estimated at 1,090 acre-feet; and (ii) Russell’s 2040 population increases by about 1.2 percent from its 2021 population. HE Report at 27.

1 voluntarily implementing measures that would cause their water use to decrease. The Cities should  
2 be rewarded, not punished, for their commendable conservation efforts.

3 **“20. The Cities’ individual water use and population data should have been**  
4 **used as the source for determining gpcd assumptions.”**

5 ***Rebuttal:*** The HE Report’s attempt to conflate the reasonable needs limitation in the  
6 Master Order with the statewide impacts of the Water Transfer reveals a fundamental  
7 misunderstanding made by the HE Report relating to the nature and scope of this proceeding. The  
8 reasonable needs limitation included in the Master Order constitutes a cap on the quantities  
9 available to the Cities based on the upper limits of their likely population growth using an equitable  
10 allocation of quantity of water in accordance with the water use of comparable communities in  
11 Kansas. Notwithstanding that fact, my Report indeed uses the Cities’ individual water use as the  
12 sources for determining water demand as a highly conservative method of measuring and  
13 comparing the statewide economic impacts of approving the water transfer with the statewide  
14 economic impacts of denying the water transfer. *See* bullet point 19 above.

15 My Report also relies on population projections developed in each city’s own  
16 comprehensive plan (1 percent for Hays and 0.25 percent for Russell). The HE Report instead  
17 relies on county-level population projection published by a third-party<sup>14</sup> and assumes a growth  
18 rate of 0.34 percent for Hays and 0.06 percent for Russell.

19 The use of county population growth rates in the HE Report is unreliable. To see this, note  
20 that the population growth in Hays has surpassed the population growth rate for Ellis County more  
21 than twofold over the period 1980-2020 (see HE Report Exhibit 3-1): Ellis County population  
22 grew at 0.26 percent vs. 0.65 percent for Hays over this period, and the Kansas Statistical Abstract

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<sup>14</sup> HE Report at 14-17, 26-27.



1 projects faster growth for Ellis County in the future. A growth rate of 0.34 percent for Hays is  
2 therefore unreliable.

3 The assumed population growth rates in my Report are justified based on a variety of  
4 factors, including:

5 1) A city’s comprehensive plan is built upon the unified vision of the  
6 community. Development strategies formulated in the comprehensive plan,  
7 including population projection, best reflect the city’s unique socio-  
8 economic circumstances and the collective aspiration of its citizens.

9 2) Other cities in Western Kansas, which are similar to Hays in size but have  
10 sufficient water supply, have managed to sustain population growth above  
11 one percent. As noted in the HE Report, two cities with comparable  
12 populations to Hays (Dodge City and Garden City) have managed to  
13 achieve a growth rate of 1.09 percent over the period 1980-2020.<sup>15</sup> Both  
14 cities have had significantly higher water use than Hays.<sup>16</sup>

15 3) Hays is home to a major regional university, which provides an additional  
16 source of population growth not available in either Garden City or Dodge  
17 City.

18 **“21. The Cities have robust conservation and drought emergency programs**  
19 **similar to many municipal programs throughout the western U.S.”**

20 **Rebuttal:** My Report acknowledges the commendable conservation efforts by the Cities  
21 and also notes that there are limits to water conservation. Absent the water transfer, when the Cities  
22 are forced to deal with insufficient water supply by restricting water use beyond what they have  
23 already accomplished, achieving further reductions in water use per capita is more costly because  
24 the most economical methods of conservation have already been exhausted.<sup>17</sup> This is an effect

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<sup>15</sup> HE Report at Exhibit 3-4.

<sup>16</sup> Over the period 2013-2017, average GPCD was 185 for Garden City and 134 for Dodge City, compared to just 84 for Hays. “Municipal Water Use in Kansas, 2017.” *Kansas Department of Agriculture, Division of Water Resources*. <[https://agriculture.ks.gov/docs/default-source/dwr-water-appropriation-documents/municipalsummaryreport2017.pdf?sfvrsn=fa6788c1\\_8](https://agriculture.ks.gov/docs/default-source/dwr-water-appropriation-documents/municipalsummaryreport2017.pdf?sfvrsn=fa6788c1_8)>.

<sup>17</sup> Hamilton Report ¶ 41.

1 known as “demand hardening” in the water economics literature, wherein past conservation efforts  
2 make water demand less elastic (i.e., less able to respond to future droughts).

3 **“22. A re-calculation of future water demand for the Cities, however**  
4 **preliminary, indicates that net future water needs for the Cities will be**  
5 **much less than the Cities have indicated in their KWTa Application**  
6 **and supporting information.”**

7 **Rebuttal:** The unsupported assumptions underlying the water demand notwithstanding  
8 (see responses to bullet points 13-14 and 19-20), the analysis in the HE Report completely ignores  
9 variability in water supply due to droughts and the Cities’ limited water supplies. Instead, it applies  
10 a simplistic assumption of a constant “safe yield” for all future periods. This assumption is not  
11 used in the water economics literature and is unreliable because water projects are designed for  
12 storage and conjunctive use of surface and groundwater that respond to variations in rainfall  
13 patterns over time. The assumption in the HE Report of constant water supply in every year of the  
14 Cities future is clearly unrealistic and unsupported.

15 The HE Report cites a 2003 Burns and McDonnell report as the basis for Hays’ yield from  
16 its existing water sources, which the HE Report refers to as the “safe yield.”<sup>18</sup> In contrast, I relied  
17 on the more recent 2023 Burns & McDonnell report to discuss the Cities’ wellfield yield based on  
18 updated data derived from aquifer health index and monitoring tools developed and implemented  
19 by Hays after the 2003 report utilized by the HE Report. The 2023 report I rely on in my Report  
20 for water supply is drought-specific and incorporates updated water conditions (see Table 1 in my  
21 Report). The 2003 report utilized by the HE Report also predates the Cities’ drought experience in  
22 2012–13, which revealed more than ever before how extremely vulnerable the Smoky Hill River  
23 and Big Creek are to flash droughts. (See, e.g., Figure 2 on page 11 of my Report showing a dry

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<sup>18</sup> At 27 and footnote 32.

1 Big Creek riverbed in July 2012.) There is no valid justification for selecting the reported 2003  
2 “safe yield” for every year in the future when more current and accurate information is available.

3 The HE Report assumption amounts to a scenario in which the Cities experience no  
4 droughts in the future and receive exactly the historical average water supply every year. This  
5 assumption does not track with the real world, as evidenced by historic water records for the State  
6 of Kansas, a fact underscored in the Basara and Layzell Reports. It makes no sense to model a  
7 future without droughts as the basis for future water needs when evaluating a transfer application  
8 that is premised on resolving the Cities’ drought-susceptible water supplies.

9 To see this, consider that minimum water needs for sanitation are roughly 1 gallon per  
10 person per day. Suppose a person faces variable water supply conditions throughout the year of  
11 0.5 gallon per day half the time and 2.5 gallons per day half the time. On average, the person has  
12 1.5 gallons of water available per day, which is enough to meet basic sanitation needs. But in  
13 reality, half of the time, basic sanitation needs would not be met. The HE Report essentially argues  
14 that there is no economic loss in this instance based on the average outcome, which is not a valid  
15 methodology.

16 Similarly, my Report shows that severe droughts, even if short-lived, can generate  
17 substantial economic losses to the State. As in the sanitation example above, losses in my Report  
18 do not occur every year and tend not to occur at all under average water supply conditions with  
19 the current population; however, this does not mean there is no economic loss over a 50-year  
20 period. Economic losses occur as the population grows and during drought periods, which are  
21 inevitable in Northwest Kansas. Variability in water supplies during wet periods and droughts  
22 cannot be ignored in reliable economic analyses.

1           The HE Report recalculation also relies on outdated or otherwise incorrect wellfield yield  
2 data. For Hays, the HE Report relies on a 2003 Burns & McDonnell report. Not only are the yield  
3 numbers in the 2003 report outdated, the HE Report also ignores drought restrictions in the report  
4 when considering yields from the Cities’ existing sources under varying hydrological conditions.  
5 Moreover, contrary to the claim in the HE Report that its analysis focuses on water supplies  
6 available in dry years, 2003 was a year with average precipitation for Hays.<sup>19</sup>

7           For Russell, the HE Report assumes a safe yield of 1,840 acre-feet, which is based on not-  
8 to-exceed limits set by the DWR,<sup>20</sup> but fails to recognize additional restrictions that limit maximum  
9 withdrawals to 881 acre-feet from existing wellfields and 767 acre-feet from surface water rights  
10 (for a combined 1,648 acre-feet).<sup>21</sup> More importantly, it ignores the fact that Russell’s existing  
11 sources will not reliably yield 1,648 acre-feet every year over time. For example, over the period  
12 2012-2022, Russell has diverted no more than 1,250 acre-feet of water and as little as 783 acre-  
13 feet.<sup>22</sup> My Report models Russell’s water supply based on drought-contingent supplies analyzed  
14 by Burns & McDonnell,<sup>23</sup> which is consistent with observed patterns of historical use. Specifically,  
15 my Report considers annual supply of 1,648 acre-feet for Russell absent drought, 1,152 acre-feet  
16 under moderate drought, and 789 acre-feet under exceptional drought, which reflects the fact that  
17 periodic droughts are part of the water future in the State of Kansas.<sup>24</sup>

18           Taken together, the HE Report recalculation is uninformative and unreliable.

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<sup>19</sup> In 2003, Ellis County has 22.8 inch of precipitation. Hays’ average precipitation is between 22-24 inches. “Monthly Precipitation Map.” *Kansas State university*. <<https://climate.k-state.edu/precip/county/>>.

<sup>20</sup> HE Report at 28.

<sup>21</sup> Hamilton Report ¶ 30.

<sup>22</sup> See, e.g., Water Use Reports for DWR File Nos. RS 008, 1,267, 1,861, and 17,586.

<sup>23</sup> Paul A. McCormick to David Traster and Daniel Buller. *Wellfield Yield for the City of Hays* (Mar 9, 2023).

<sup>24</sup> Hamilton Report n. 103.

1           **“23. Because of the R9 Ranch project costs, existing water customers in the**  
2           **two Cities will experience much higher water rates for the water they**  
3           **are presently consuming, yielding a cost to them without offsetting**  
4           **benefit.”**

5           **Rebuttal:** The HE Report provides no analysis whatsoever to support the claims that the  
6 project would lead to higher water rates and fails to address offsetting benefits. There is no valid  
7 basis for assuming that all (or any) of the costs relating to the water transfer project will be passed  
8 through to the Cities’ rate base. My understanding is that the City Manager for the City of Hays  
9 recently testified in his deposition that it was his intent to develop and deliver the project to the  
10 City without raising rates at all.<sup>25</sup> Moreover, the “costs” identified by the HE Report are not  
11 specific to transferring water from the R9 Ranch. Any water transfer project, regardless of the  
12 source, will have costs associated with completing the regulatory, design, and construction projects  
13 necessary to finalize the project. The R9 Ranch is the most economically feasible water supply  
14 available to meet the Cities’ long-term needs and will, unlike other alternatives, provide the Cities  
15 with a drought-resistant source of water.<sup>26</sup>

16           **“24. The R9 Ranch project represents a net cost, not a benefit, for the Cities**  
17           **and the State of Kansas.”**

18           **Rebuttal:** The conclusion that the R9 Ranch project represents a net cost, not a net benefit,  
19 lacks both economic foundation and supporting analysis. First, it ignores the investments in water  
20 infrastructure and the associated economic impact to the entire State of Kansas via supply chain  
21 and employment effects, which my Report analyzes using IMPLAN models. The relevant inquiry  
22 under the Water Transfer Act is whether the “benefits *to the state* for approving the transfer  
23 outweigh the benefits *to the state* for not approving the transfer.” K.S.A. 82a-1502(a). Unlike my

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<sup>25</sup> See, e.g., Dep. of Toby Dougherty, 56:6–58:11.

<sup>26</sup> See Am. Transfer Appl. at 11 and supporting references.

1 Report, the HE Report does not even attempt to measure the statewide economic impacts of  
2 approving versus denying the proposed transfer.

3 Second, the HE Report ignores the benefits to the Cities—and the State—by increasing the  
4 economic value of the water through reallocation to urban use. In other words, the HE Report only  
5 focuses on purported (albeit unsubstantiated) detriments associated with the water transfer; The  
6 HE Report never attempts to measure the beneficial impacts of the water transfer. Weighing costs  
7 without accounting for offsetting benefits is not a valid methodology.

8 Third, using a standard economic model of water valuation, my Report shows that  
9 approving the water transfer mitigates the risk of economic losses to the Cities from periodic water  
10 shortages, providing a direct benefit to water users as well as indirect and induced benefits to the  
11 State’s economy through supply chain development to support industrial and commercial uses in  
12 Kansas.

13 The HE Report is unreliable because it does not consider variable water availability to the  
14 Cities. Using annual averages is not appropriate for valuing improvements to water systems,  
15 because losses can be small (or even zero) under average hydrologic conditions, but at the same  
16 time be large and positive when averaged over long periods of time. My Report considers the entire  
17 economic loss distribution (i.e., losses over different draws from the hydrologic record), which is  
18 how average losses are calculated in the water economics literature.

19 **Q. Has this direct testimony been prepared by you or under your direct**  
20 **supervision?**

21 A. Yes, it has.

22 **Q. Does that conclude your testimony?**

23 A. Yes, it does.

**VERIFICATION**

STATE OF \_\_\_\_\_ )

COUNTY OF \_\_\_\_\_ )

I Stephen F. Hamilton, Ph.D., being duly sworn, on oath state that I have read the foregoing and know the contents thereof, and that the facts set forth therein are true and correct to the best of my knowledge and belief.

By:   
Stephen F. Hamilton, Ph.D.

The foregoing was subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
Notary Public

My Commission Expires:

\_\_\_\_\_

**See Attached Form for  
Notary Certificate**

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Luis Obispo

On June 27, 2023  
Date

before me, Destiney Villegas  
Here Insert Name of Officer

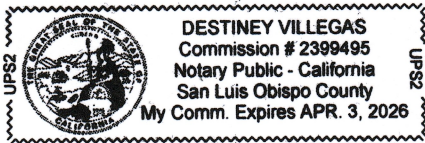
, Notary Public,

Personally appeared Stephen F. Hamilton  
Name(s) of Signer(s)

Who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.



Place Notary Seal Above

Signature Destiney Villegas  
Signature of Notary Public

## OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

### Description of Attached Document

Title or Type of Document: Rebuttal Testimony of Stephen F. Hamilton, Ph.D. on Behalf of the Cities of Hays, Russell, Kansas

Document Date: June 27, 2023

Number of Pages: 15 (+ Notary Page)

Signer(s) Other Than Named Above: \_\_\_\_\_

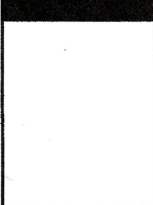
### Capacity(ies) Claimed by Signer(s)

Signer's name: \_\_\_\_\_

- Individual
- Corporate Officer — Title(s): \_\_\_\_\_
- Partner —  Limited  General
- Attorney in fact
- Trustee
- Guardian or Conservator
- Other: \_\_\_\_\_

Signer is Representing: \_\_\_\_\_

RIGHT THUMBPRINT



Signer's name: \_\_\_\_\_

- Individual
- Corporate Officer — Title(s): \_\_\_\_\_
- Partner —  Limited  General
- Attorney in fact
- Trustee
- Guardian or Conservator
- Other: \_\_\_\_\_

Signer is Representing: \_\_\_\_\_

RIGHT THUMBPRINT

