GMA12 SOCIOECONOMIC IMPACTS CONSIDERATIONS

Presented
by
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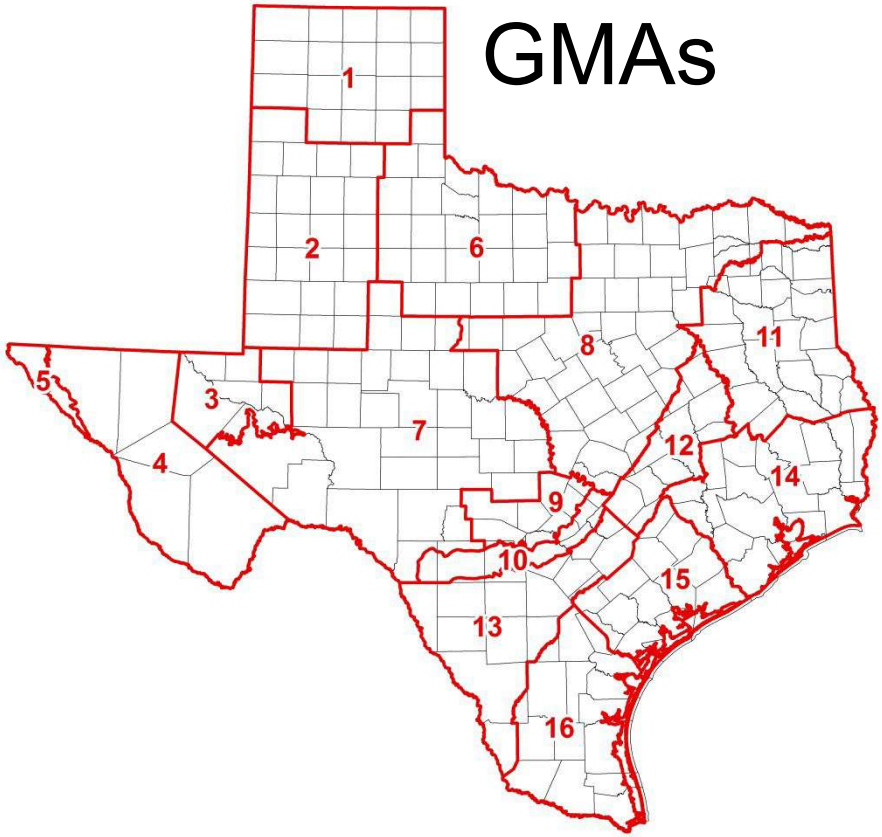
TWC Section 36.108 (d)

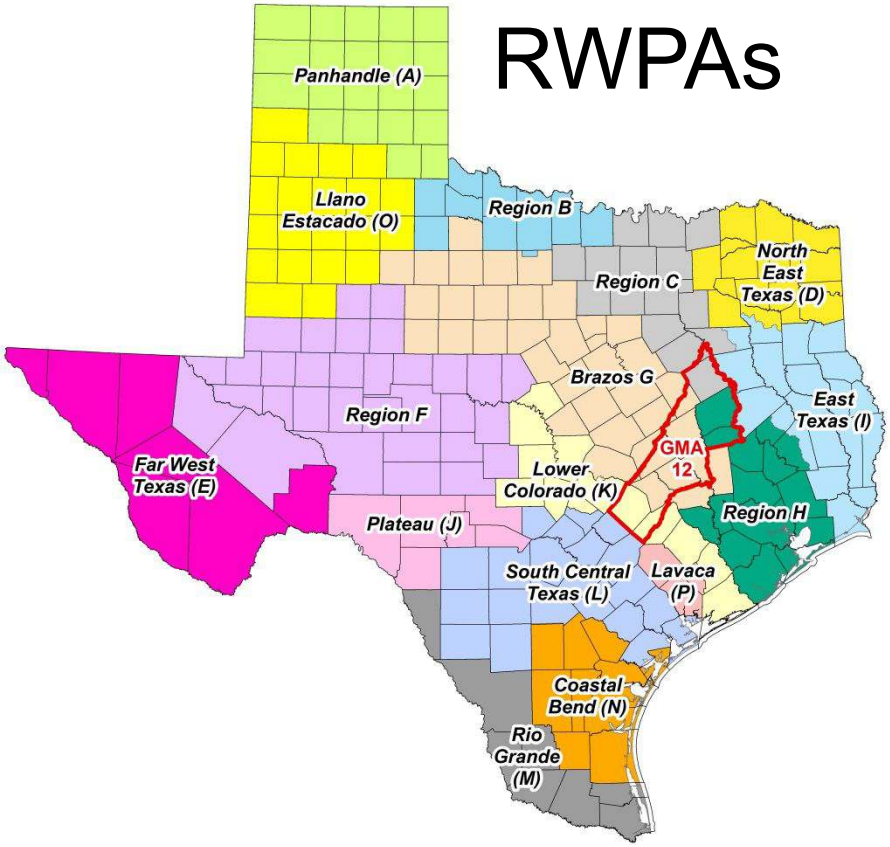
- Before voting on proposed desired future conditions . . . the districts shall consider:
  - Aquifer uses and conditions
  - Needs and strategies
  - Hydrogeologic conditions
  - Environmental impacts
  - Subsidence
  - **Socioeconomic impacts**
  - Private Property rights
  - Feasibility
  - Any other relevant information

One of Today's Considerations

- TWC Section 36.108 (d) (6) – socioeconomic impacts reasonably expected to occur

Regional Planning





Socioeconomic Impacts and Water Planning in Texas – A Brief History

- Texas Water Code Chapter 16.051 (a) the board shall prepare, develop, formulate, and adopt a comprehensive state water plan that …shall provide for…further economic development (companion provision in TWC Chapter 16.053 (a, b) for regional water plans).
- Texas Administrative Code (TAC), Title 31, Chapter 357.7 (4)(A) states, *"The executive administrator shall provide available technical assistance to the regional water planning groups, upon request, on water supply and demand analysis, including methods to evaluate the social and economic impacts of not meeting needs."*

Socioeconomic Impacts and Water Planning in Texas – A Brief History (cont.)

- TAC, Title 31, Chapter 357.40 (a) RWPs shall include a quantitative description of the socioeconomic impacts of not meeting the identified water needs pursuant to §357.33 (c) of this title (relating to Needs Analysis: Comparison of Water Supplies and Demands).

Socioeconomic Impacts Analysis

- Executed by TWDB at request of RWPGs
- Uses water supply needs from Regional Water Plan
- Analysis attempts to measure the impacts in the event that water user groups do not meet their identified water supply needs associated with normal and drought conditions
- Multiple impacts examined
  - Sales, income and tax revenue
  - Jobs
  - Population
  - School enrollment
- Results of analysis are incorporated into final Regional Water Plan

Socioeconomic Impacts Analysis, cont.

Socioeconomic impact of not meeting water supply needs vs. impact of proposed desired future conditions

- Regional Water Planning (from TWDB)
  - Generate Input-Output Models combined with Social Accounting Models (IO/SAM) and develop economic baselines. Utilizes IMPLAN (Impact for Planning Analysis) software.
    - Economic baseline developed for counties, planning regions, and the state based on variables for 528 economic sectors as follows:

Water Supply Needs and DFCs

Socioeconomic impact of not meeting water supply needs vs. impact of proposed desired future conditions

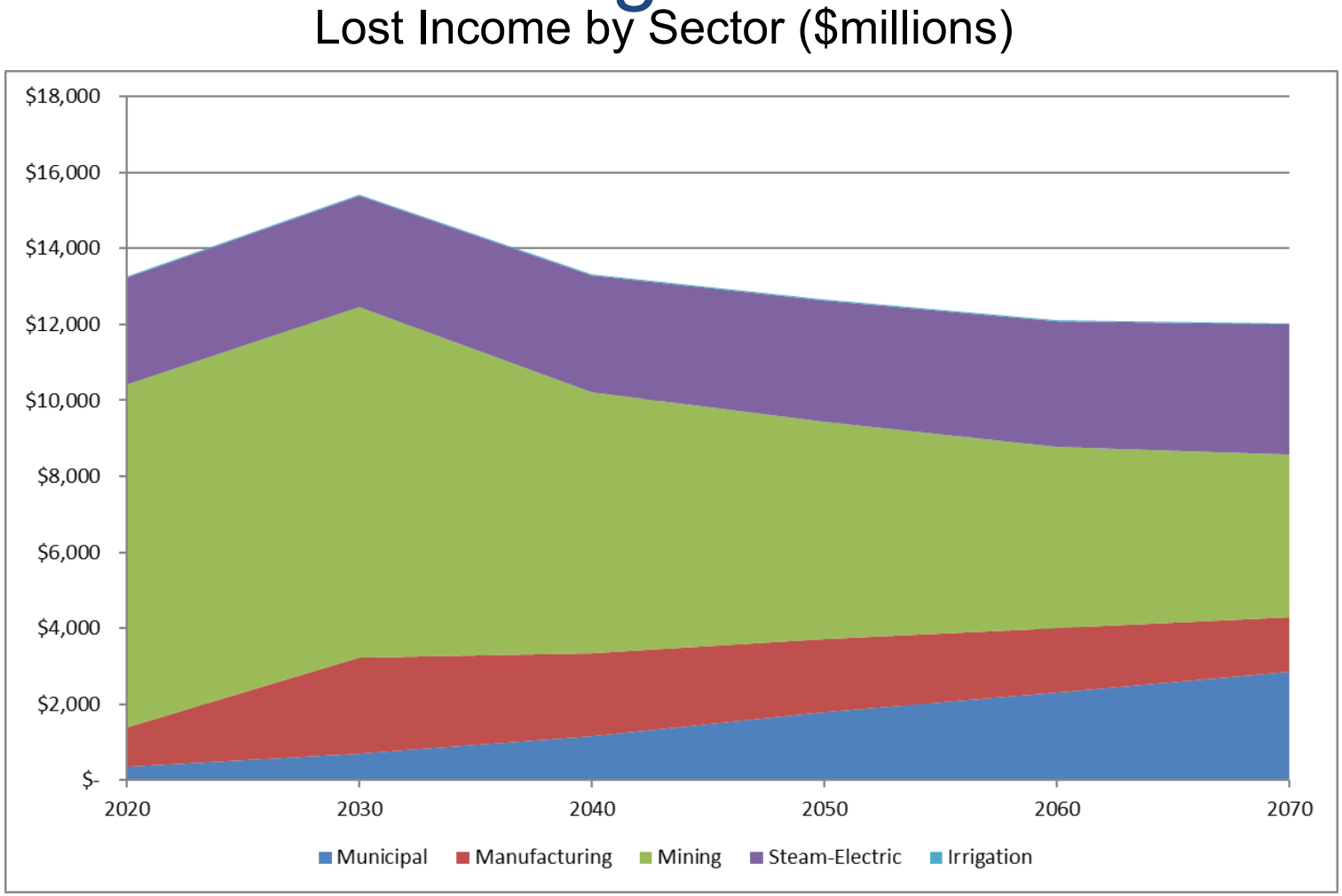
- Output – total production of goods and services measured by gross sales revenues
- Final sales – sales to end user in Texas (a region) and exports out of region
- Employment – number of full and part-time jobs required by a given industry
- Regional income – total payroll cost paid by industries, corporate income, rental income, and interest payments
- Business taxes – sales, excise, fees, licenses and other taxes paid during normal operations

Water Supply Needs and DFCs, cont.

Socioeconomic impact of not meeting water supply needs vs. impact of proposed desired future conditions

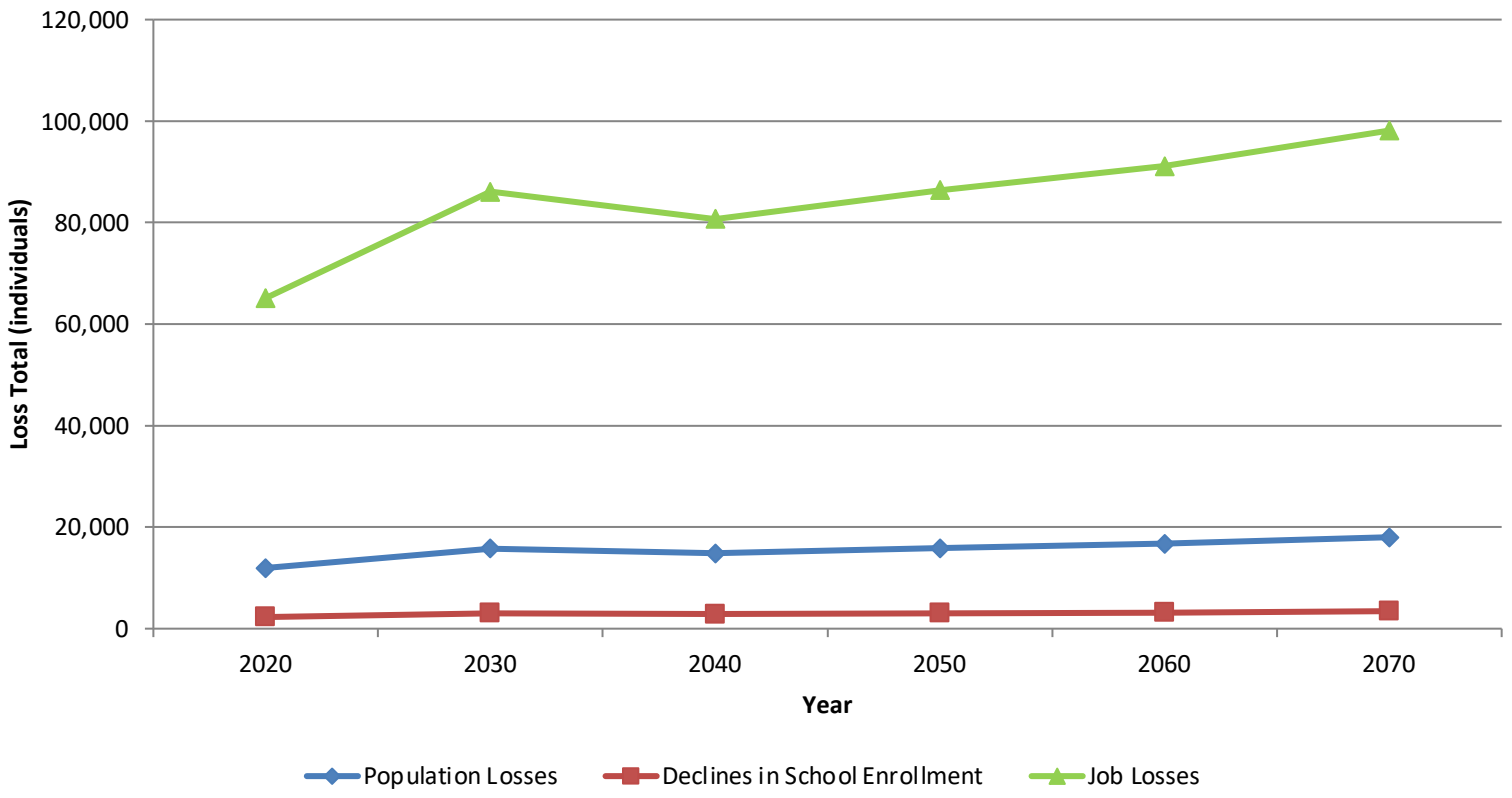
- Regional Water Planning (from TWDB – cont.)
  - Estimate direct and indirect impacts to business, industry and agriculture
  - Impact associated with domestic water usage
- While useful for planning purposes, socioeconomic impacts developed for regional water planning do not represent a benefit-cost analysis
- Analysis is executed for water user groups with needs for additional water supply.

Socioeconomic Impacts Analysis – 2021 Brazos G Regional Water Plan



For full analysis, see TWDB correspondence submitted by Dr. John R. Ellis, dated November, 2019 titled "Socioeconomic Impacts of Projected Water Shortages for the Brazos G (Region G) Regional Water Planning Area

Social Impacts of Water Shortages in Region G



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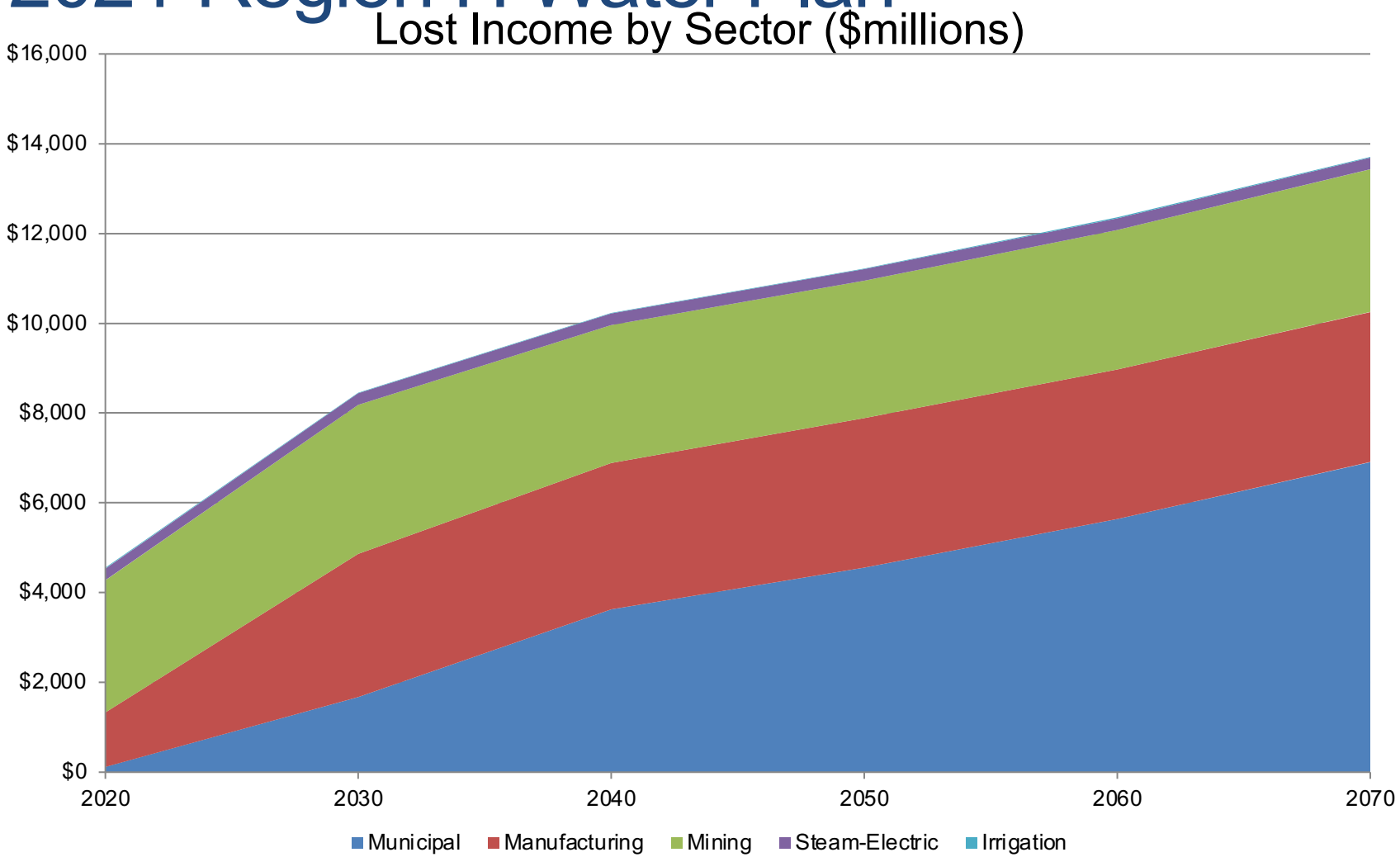
Examples of Impacts by County for the Brazos G Regional Water Planning Area

MUNICIPAL ($millions)	2010	2020	2030	2040	2050	2060
Bryan						
Consumer Surplus	$ -	$ 0.17	$ 0.95	$ 3.44	$ 10.25	$ 30.89
Employment Loss	0	129	930	2,660	4,966	7,919
Income Loss	$ -	$ 6.75	$ 48.53	$ 138.83	$ 259.24	$ 413.37
Tax Loss	$ -	$ 0.70	$ 5.01	$ 14.32	$ 26.74	$ 42.64
Utility Revenue Loss	$ -	$ 4.49	$ 10.85	$ 19.03	$ 29.19	$ 46.55
Utility Tax Loss	$ -	$ 0.09	$ 0.22	$ 0.38	$ 0.58	$ 0.93
College Station						
Consumer Surplus	$ -	$ 0.60	$ 4.70	$ 13.59	$ 13.45	$ 13.40
Employment Loss	0	300	1,854	3,355	3,340	3,336
Income Loss	$ -	$ 15.67	$ 96.79	$ 175.10	$ 174.36	$ 174.11
Tax Loss	$ -	$ 1.62	$ 9.98	$ 18.06	$ 17.99	$ 17.96
Utility Revenue Loss	$ -	$ 7.94	$ 20.19	$ 30.56	$ 30.43	$ 30.39
Utility Tax Loss	$ -	$ 0.16	$ 0.40	$ 0.61	$ 0.61	$ 0.61
Southwest Milam WSC						
Consumer Surplus	$ -	$ 0.01	$ 0.03	$ 0.02	$ 0.03	$ 0.04
Employment Loss	0	0	1	0	1	1
Income Loss	$ -	$ 0.01	$ 0.03	$ 0.02	$ 0.03	$ 0.05
Tax Loss	$ -	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.01
Utility Revenue Loss	$ -	$ 0.08	$ 0.14	$ 0.12	$ 0.14	$ 0.18
Utility Tax Loss	$ -	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00

WUG level detail on socioeconomic impacts for the 2021 Region Water Plans provided by TWDB Dr. John R. Ellis, October 2020

Socioeconomic Impacts Analysis – 2021 Region H Water Plan



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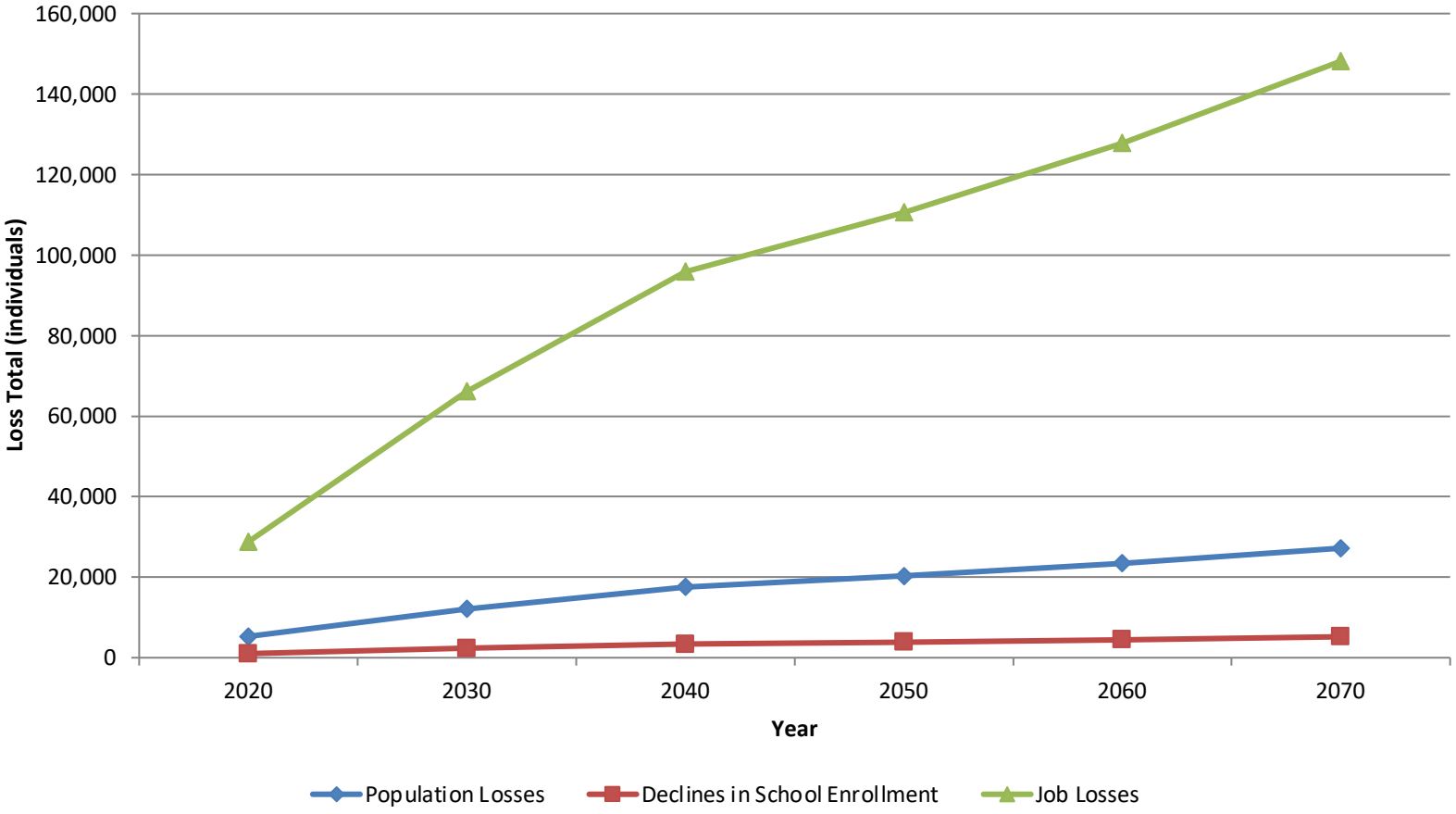
Social Impacts of Water Shortages in Region H



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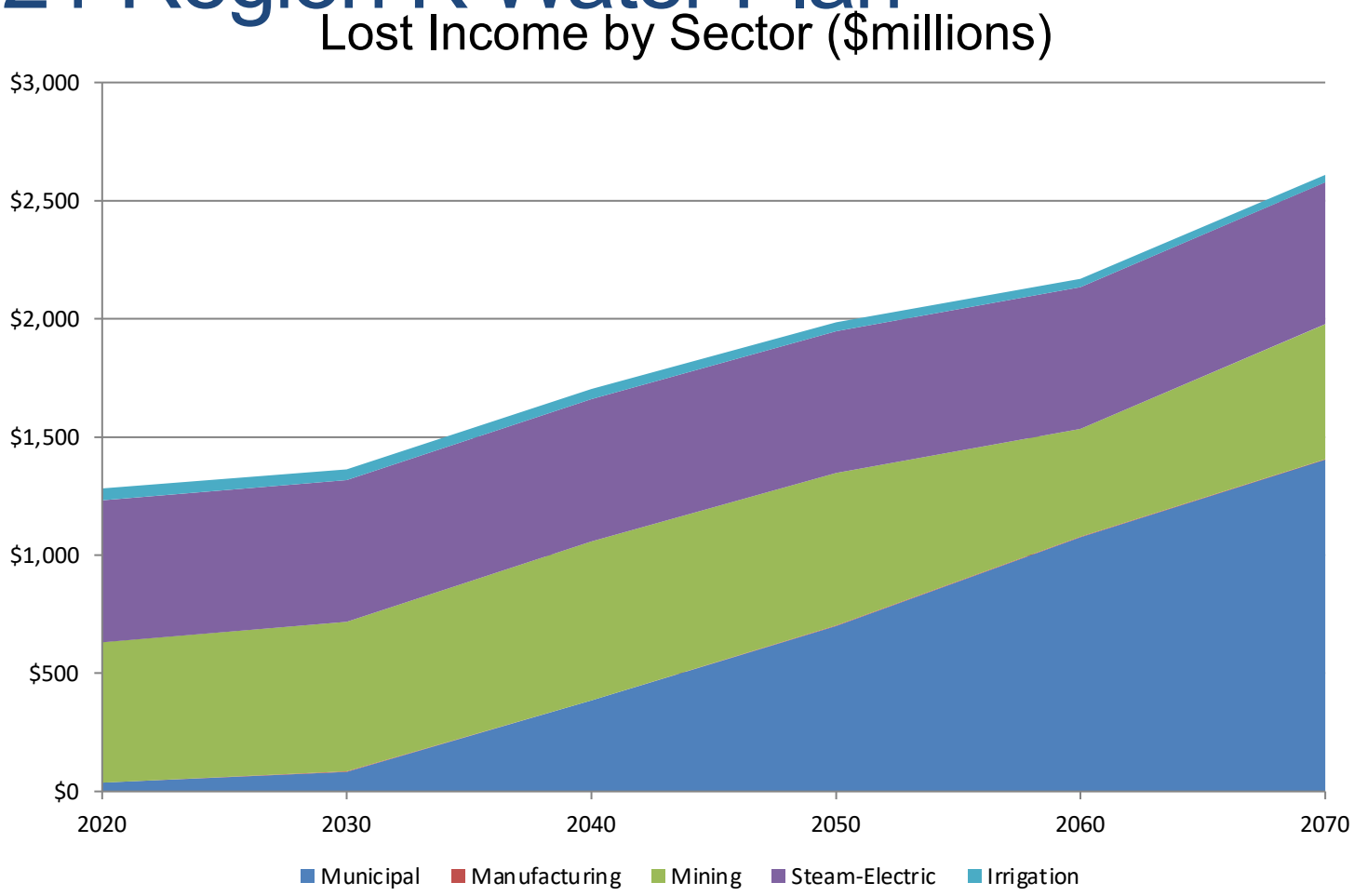
Examples of Impacts by County for the Region H Regional Water Planning Area

MANUFACTURING ($millions)						
	2010	2020	2030	2040	2050	2060
Leon County						
Employment Loss	0	74	74	74	74	74
Income Loss	$ -	$ 9.25	$ 9.25	$ 9.25	$ 9.25	$ 9.25
Tax Loss	$ -	$ 0.85	$ 0.85	$ 0.85	$ 0.85	$ 0.85
MINING ($millions)						
	2010	2020	2030	2040	2050	2060
Madison County						
Employment Loss	0	2,096	414	0	0	0
Income Loss	$ -	$ 334.73	$ 66.03	$ -	$ -	$ -
Tax Loss	$ -	$ 46.82	$ 9.24	$ -	$ -	$ -

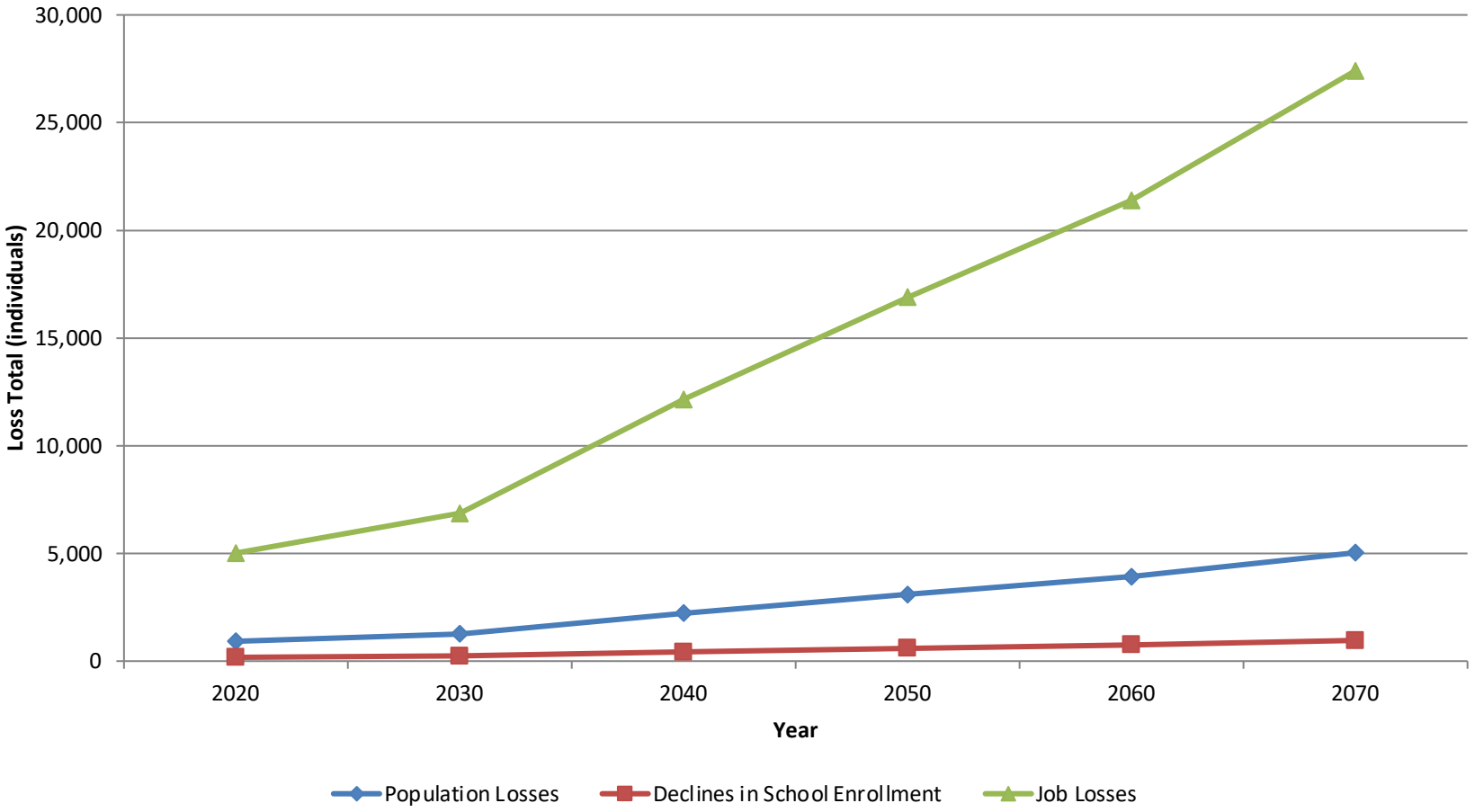
WUG level detail on socioeconomic impacts for the 2021 Region Water Plans provided by TWDB Dr. John R. Ellis, October 2020

Socioeconomic Impacts Analysis – 2021 Region K Water Plan



For full analysis, see TWDB correspondence submitted by Dr. John R. Ellis, dated November 2019, titled "Socioeconomic Impacts of Projected Water Shortages for the Lower Colorado (Region K) Regional Water Planning Area

Social Impacts of Water Shortages in Region K



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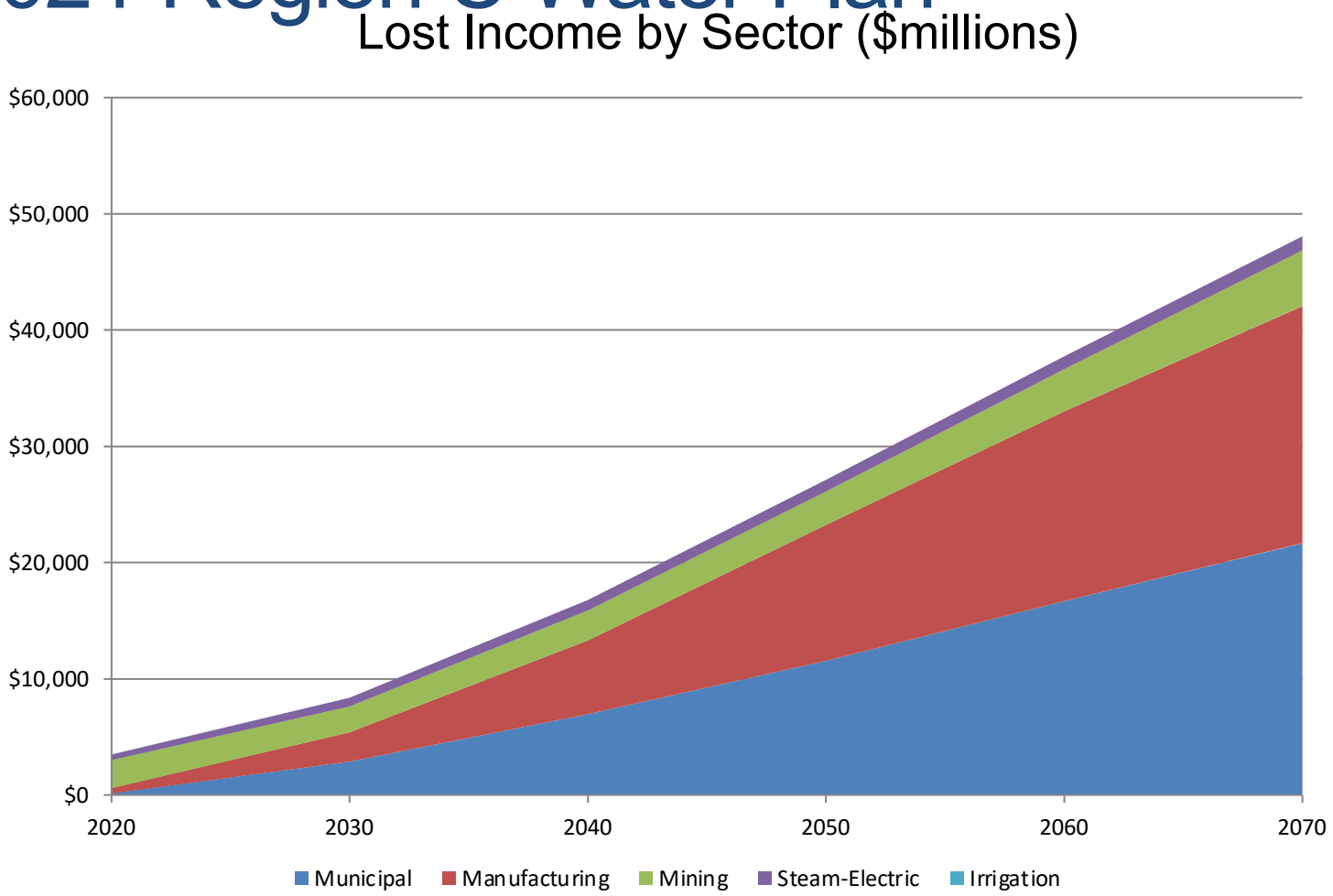
Examples of Impacts by County for the Region K Regional Water Planning Area

MUNICIPAL ($millions)	2010	2020	2030	2040	2050	2060
Aqua WSC						
Consumer Surplus	$ 0.01	$ 1.51	$ 6.60	$ 19.57	$ 87.19	$ 262.64
Employment Loss	0	80	299	620	1,122	1,753
Income Loss	$ -	$ 5.09	$ 18.92	$ 39.19	$ 70.94	$ 110.80
Tax Loss	$ -	$ 0.44	$ 1.63	$ 3.37	$ 6.10	$ 9.53
Utility Revenue Loss	$ 0.85	$ 10.61	$ 21.67	$ 35.10	$ 63.54	$ 99.23
Utility Tax Loss	$ 0.02	$ 0.21	$ 0.43	$ 0.70	$ 1.27	$ 1.98
Austin						
Consumer Surplus	$ -	$ -	$ -	$ -	$ -	$ 0.71
Utility Revenue Loss	$ -	$ -	$ -	$ -	$ -	$ 55.99
Utility Tax Loss	$ -	$ -	$ -	$ -	$ -	$ 1.12
Barton Creek West						
Consumer Surplus	$ 0.39	$ 0.93	$ 1.69	$ 2.43	$ 3.15	$ 4.12
Employment Loss	12	18	23	27	30	33
Income Loss	$ 0.78	$ 1.12	$ 1.45	$ 1.69	$ 1.88	$ 2.11
Tax Loss	$ 0.07	$ 0.10	$ 0.12	$ 0.15	$ 0.16	$ 0.18
Utility Revenue Loss	$ 0.60	$ 0.86	$ 1.11	$ 1.30	$ 1.44	$ 1.62
Utility Tax Loss	$ 0.00	$ 0.01	$ 0.01	$ 0.01	$ 0.01	$ 0.01
Bastrop						
Consumer Surplus	$ -	$ -	$ 0.40	$ 3.59	$ 14.72	$ 44.46
Employment Loss	0	0	301	1,427	2,582	4,118
Income Loss	$ -	$ -	$ 19.06	$ 90.20	$ 163.19	$ 260.31
Tax Loss	$ -	$ -	$ 1.64	$ 7.75	$ 14.03	$ 22.38
Utility Revenue Loss	$ -	$ -	$ 3.46	$ 8.51	$ 15.40	$ 24.56
Utility Tax Loss	$ -	$ -	$ 0.04	$ 0.09	$ 0.16	$ 0.26
Bastrop County WCID #2						
Consumer Surplus	$ -	$ -	$ -	$ -	$ 0.24	$ 2.77
Employment Loss	0	0	0	0	3	17
Income Loss	$ -	$ -	$ -	$ -	$ 0.21	$ 1.06
Tax Loss	$ -	$ -	$ -	$ -	$ 0.02	$ 0.09
Utility Revenue Loss	$ -	$ -	$ -	$ -	$ 1.25	$ 3.33
Utility Tax Loss	$ -	$ -	$ -	$ -	$ 0.01	$ 0.04

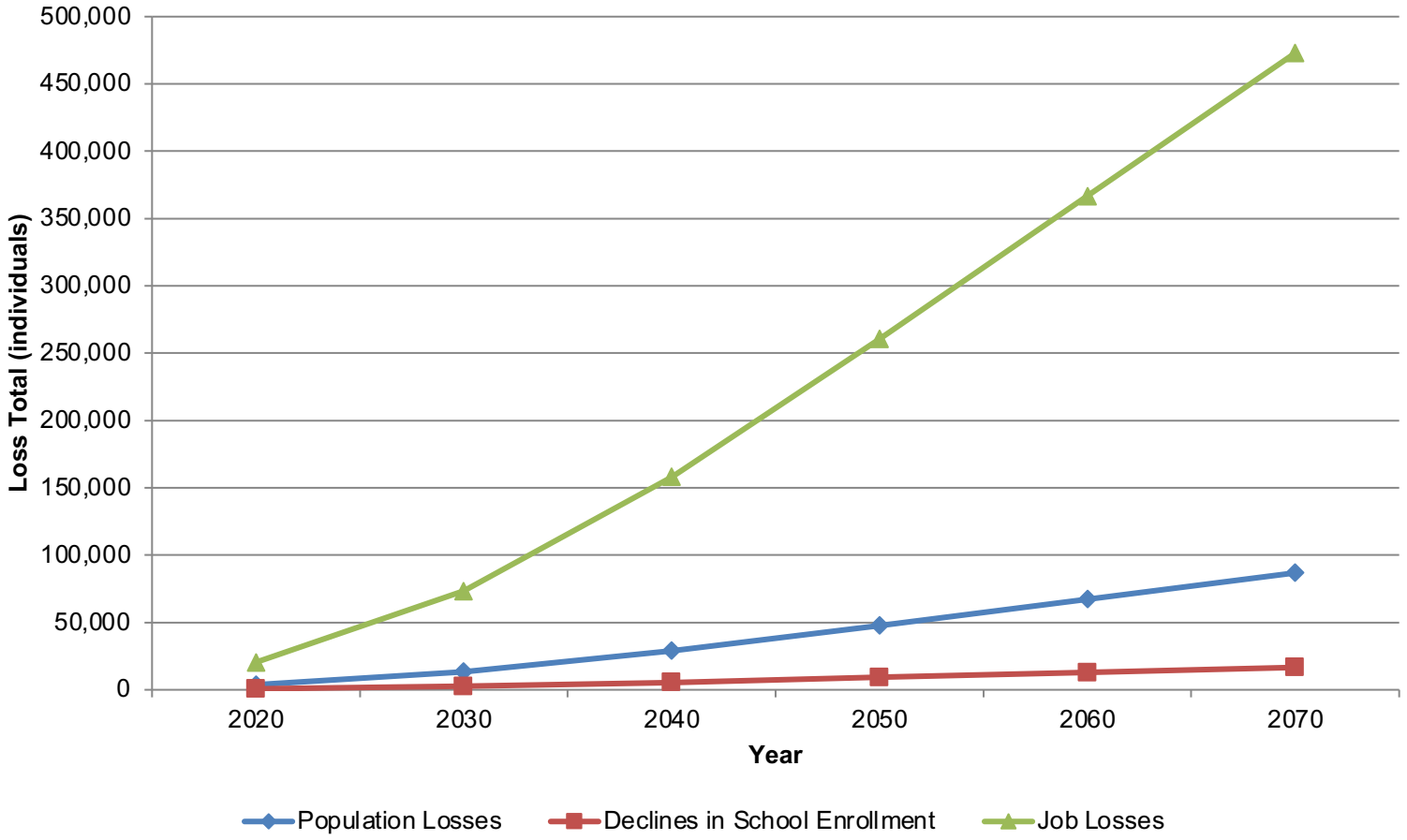
WUG level detail on socioeconomic impacts for the 2021 Region Water Plans provided by TWDB Dr. John R. Ellis, October 2020

Socioeconomic Impacts Analysis – 2021 Region C Water Plan



For full analysis, see TWDB correspondence submitted by Dr. John R. Ellis, dated November, 2019, titled "Socioeconomic Impacts of Projected Water Shortages for the Region C Regional Water Planning Area

Social Impacts of Water Shortages in Region C



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Examples of Impacts by County for the Region C Regional Water Planning Area

STEAM-ELECTRIC ($millions)						
	2010	2020	2030	2040	2050	2060
Freestone County						
Income Loss	$ 483.46	$ 541.70	$ 589.21	$ 630.66	$ 660.81	$ 684.82

MUNICIPAL ($millions)						
	2010	2020	2030	2040	2050	2060
Fairfield						
Consumer Surplus	$ -	$ -	$ -	$ 1.33	$ 3.91	$ 14.34
Employment Loss	0	0	0	139	239	415
Income Loss	$ -	$ -	$ -	$ 9.83	$ 16.92	$ 29.31
Tax Loss	$ -	$ -	$ -	$ 0.77	$ 1.32	$ 2.30
Utility Revenue Loss	$ -	$ -	$ -	$ 3.20	$ 4.94	$ 8.57
Utility Tax Loss	$ -	$ -	$ -	$ 0.03	$ 0.05	$ 0.09

WUG level detail on socioeconomic impacts for the 2021 Region Water Plans provided by TWDB Dr. John R. Ellis, October 2020

Potential Socioeconomic Impact of Proposed DFCs (cont.)

- TWC Chapter 36.108(d) and (d)(6) states, "the districts shall consider groundwater availability models and other data or information for the management area and shall propose for adoption desired future conditions for the relevant aquifers within the management area. Before voting on the proposed desired future conditions of the aquifers…the districts shall consider **socioeconomic impacts reasonably expected to occur**;"
- Proposed DFCs are descriptions of specific times (decadal) of groundwater development effects in a management area.
- This requirement was added to the requirements of joint planning with the passage of Senate Bill 660 in 2011.

Potential Socioeconomic Impact of Proposed DFCs (cont.)

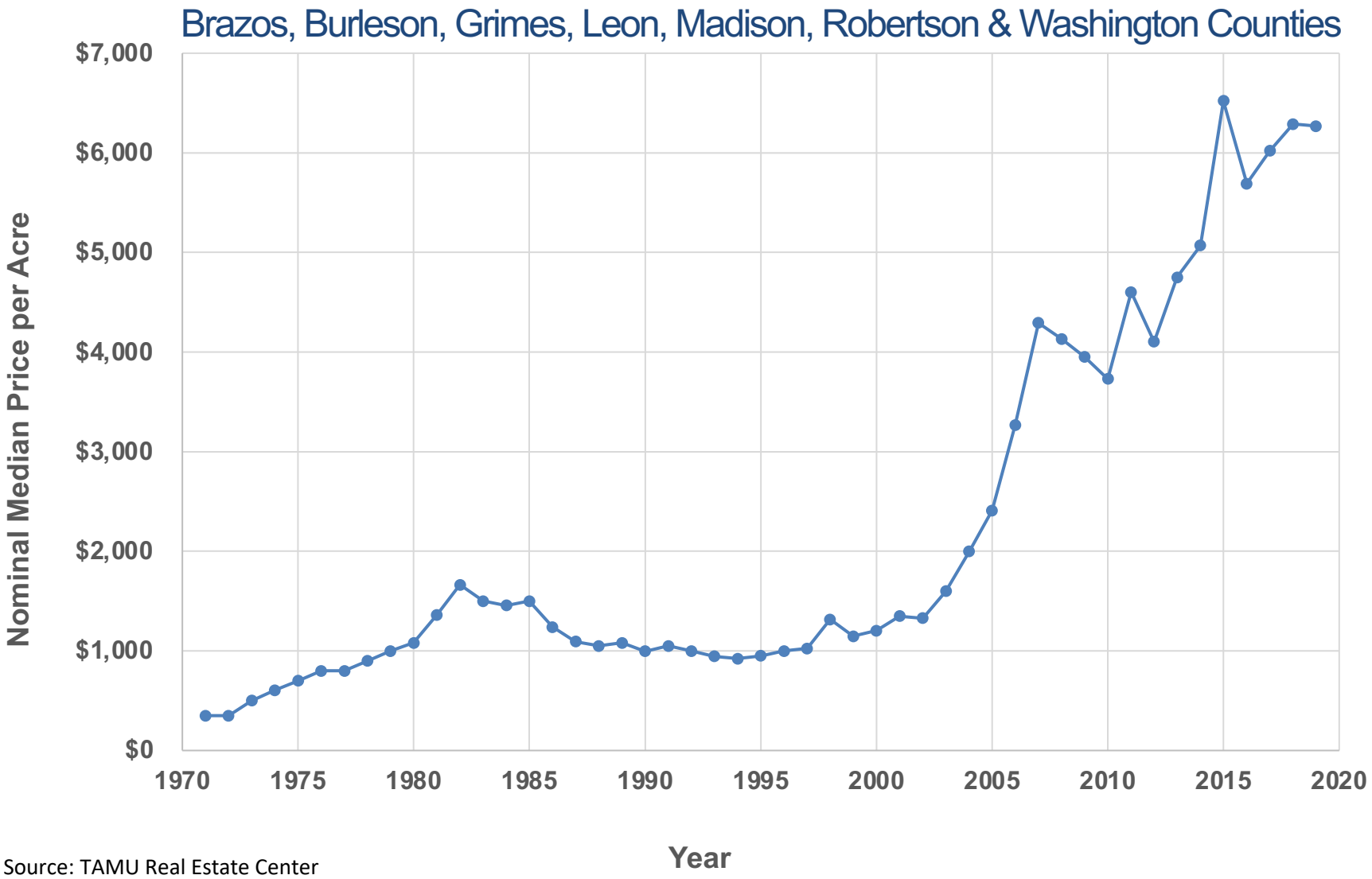
- From a qualitative perspective, both positive and negative socioeconomic impacts may potentially result from implementation of proposed DFCs.
  - Proposed DFCs may require conversion of part or all of a supply to an alternative supply or supplies, which may have increased costs associated with infrastructure, operation and maintenance.
  - Proposed DFCs may reduce the costs of groundwater pumping equipment or new well construction
  - Proposed DFCs should help ensure part or all of a long-term supply for an area.

Potential Socioeconomic Impact of Proposed DFCs (cont.)

- Proposed DFCs may serve to sustain/enhance economic growth due to assurances provided by an adequate and/or diversified water portfolio.
- Alternatives to proposed DFCs may result in short-term reduction in utility rates due to reduction in cost of water management strategy implementation.
- Alternatives to proposed DFCs may result in significant but unquantified production costs due to lower pumping rates from wells or continuing lower water levels in wells.
- Alternatives to proposed DFCs may result in a reduced or larger groundwater supply being available on a long-term basis.

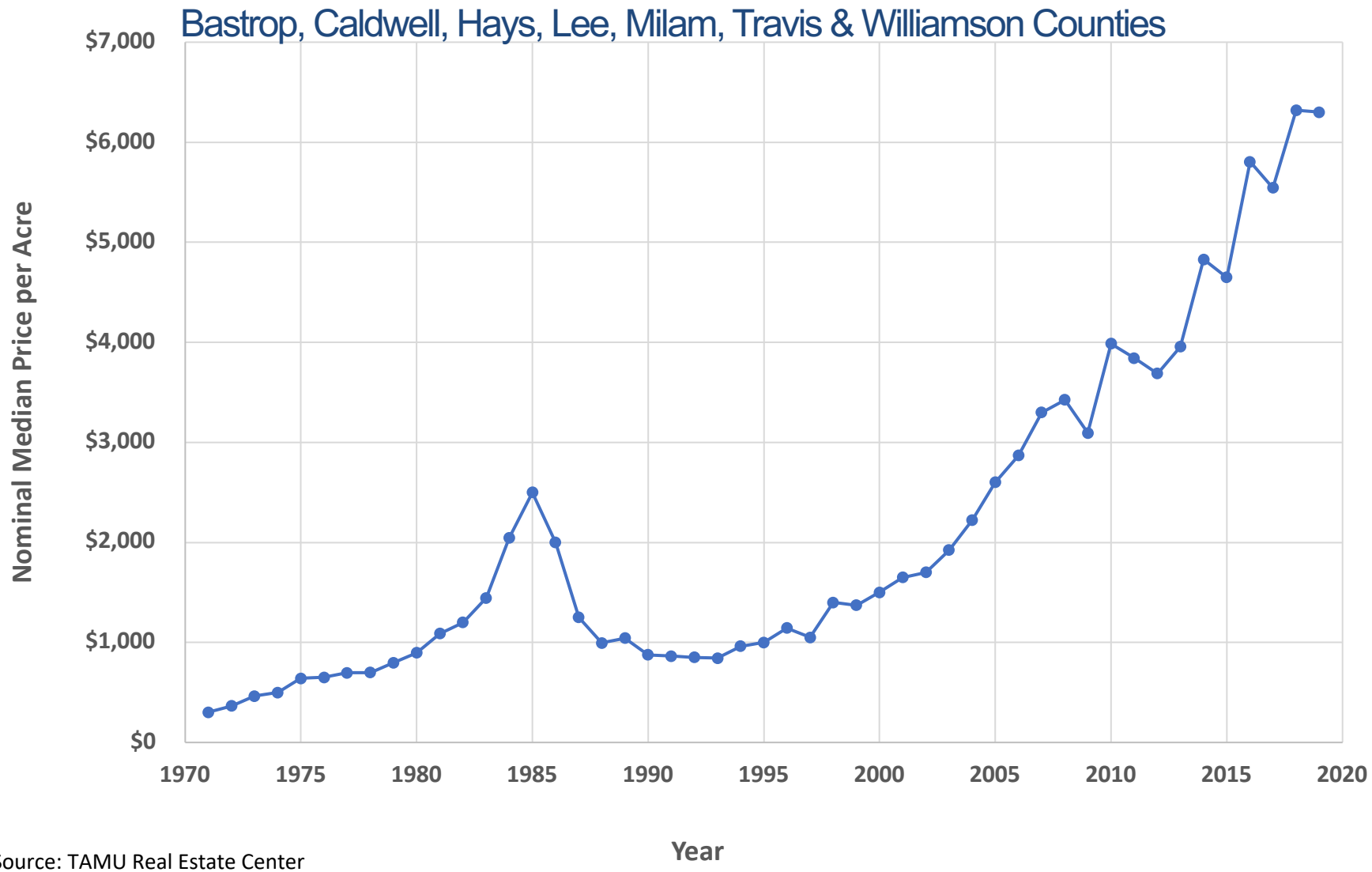

Questions
Thank you!

Rural Land Price Data – Brazos (LMA 27)



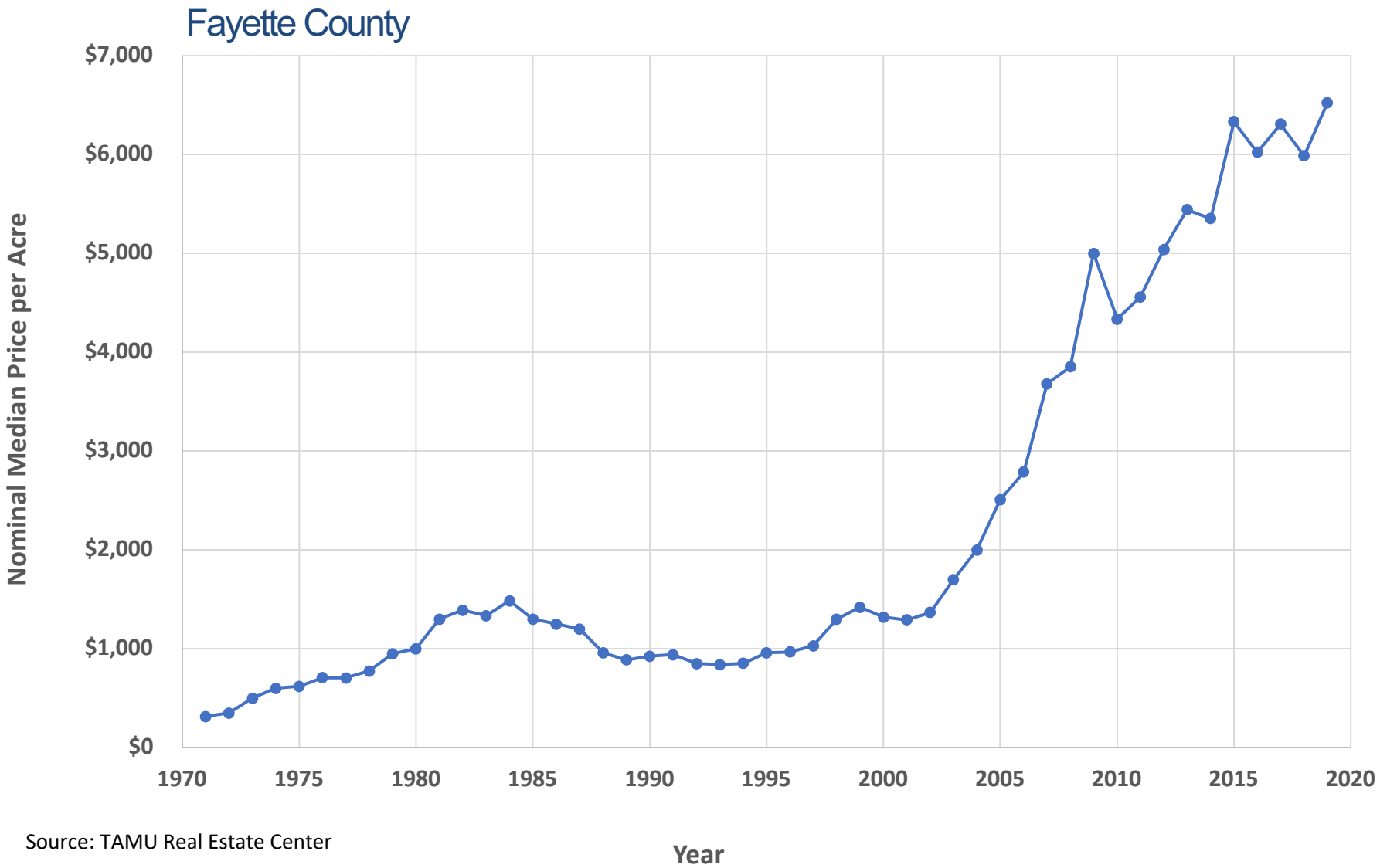
Source: TAMU Real Estate Center

Rural Land Price Data – Blacklands South (LMA 26)



Source: TAMU Real Estate Center

Rural Land Price Data – Coastal Prairie North (LMA 19)



Source: TAMU Real Estate Center