



# DRAFT TECHNICAL MEMORANDUM

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## Region C Water Planning Group 2016 Regional Water Planning Cycle Non-Municipal Demand Projections, Livestock

**Project No.:** 0312-046-01

**Date:** March 1, 2012

**Prepared For:** Tom Gooch, Freese and Nichols, Inc.  
Amy Kaarlela, Freese and Nichols, Inc.  
Rachel Ickert, Freese and Nichols, Inc.

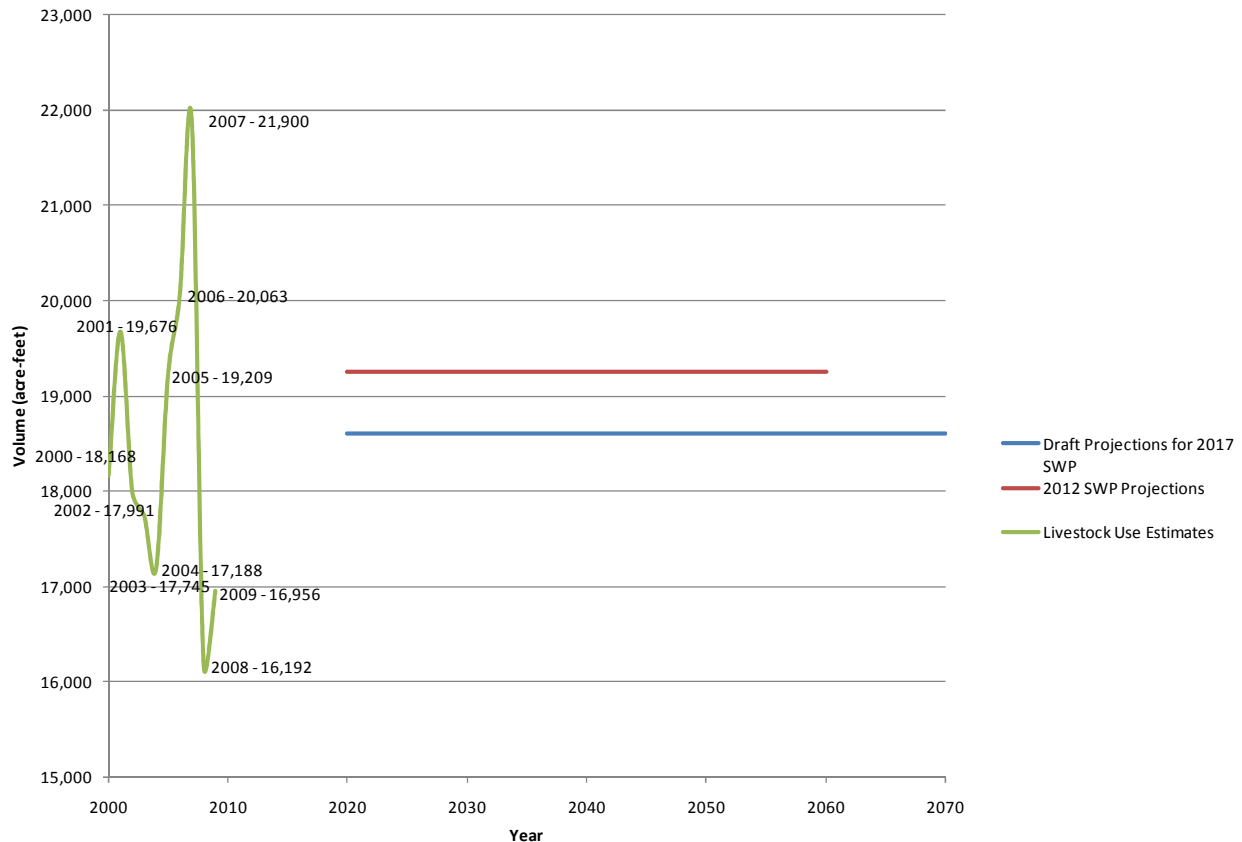
**Prepared By:** Preston Dillard, Alan Plummer Associates, Inc.  
Lauren Plunk, Alan Plummer Associates, Inc.

The *2016 Region C Water Plan* (hereafter referred to as the 2016 Plan) will incorporate projections for municipal demands, as well as non-municipal demands for irrigation, livestock, manufacturing, mining, and steam-electric power. The Texas Water Development Board (TWDB) provided the planning groups with draft non-municipal demand projections. The draft non-municipal demand projections will be reviewed by the individual planning groups, and recommendations will be provided to the TWDB. The TWDB will consider the recommended changes from the planning groups, and the final projections will ultimately be adopted by the planning groups and the TWDB and incorporated into the 2017 State Water Plan. The purpose of this technical memorandum is to document information related to historical livestock usage and provide information supporting recommended modifications to the draft livestock demands.

### BACKGROUND

Livestock water use is defined by the TWDB as water used in the production of livestock, both for drinking and for cleaning or environmental purposes. TWDB's draft non-municipal livestock demand projections for the 2017 State Water Plan utilize an average of the 2005-2009 livestock water use estimates as a base (2020 projection), and the rate of change for projections from the *2011 Region C Water Plan* is applied to the base for the years 2030-2070. The historical 2005-2009 use estimates are calculated by applying a water use coefficient for each livestock category to county level inventory estimates from the Texas Agricultural Statistics Service. Since the year 2000, the region-wide livestock water use estimates have ranged from 16,192 to 21,900 acre-feet (see Figure 1 for usage information by year). At the time this memo was written, historical data estimates are available through the year 2009.

**Figure 1. Region C Livestock – Comparison of Water Use Estimates and Projections**



Source: Texas Water Development Board

One or more of the following criteria must be verified by the Planning Group and the Executive Administrator for consideration of revising the livestock water use projections:

- Plans for the construction of a confined livestock feeding operation in a county at some future date.
- Other evidence of change in livestock inventory or water requirements that would justify a adjustment in the projected future rate of change in livestock water use.

The Planning Group must provide the Executive Administrator the following data associated with the identified criteria for justifying any adjustments to the livestock water demand projections:

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- Documentation of plans for the construction of a confined livestock feeding facility in a county at some future date will include the following:
  - Confirmation of land purchase or lease arrangements for the facility.
  - The construction schedule including the date the livestock feeding facility will become operational.
  - The daily water requirements of the planned livestock feeding facility.
- Other evidence that would document an expected increase or decrease in the livestock inventory in the county.

### **PROPOSED LIVESTOCK WATER USE**

A comparison of the draft projections for the 2017 SWP (provided by TWDB), the final 2012 SWP projections, and the proposed RCWPG revisions to the 2017 SWP projections is presented in Table 1 and Figure 2. The majority of the proposed RCWPG county-level projections are identical to the draft projections for the 2017 SWP. Deviations from the draft projections are explained below:

- Henderson County – The average livestock use provided for 2005-2009 in the draft projections (313 acre-feet/year) differs from the average livestock use provided in the historical water use estimates (490 acre-feet/year). It is recommended that the projections be adjusted to reflect the recalculated average.

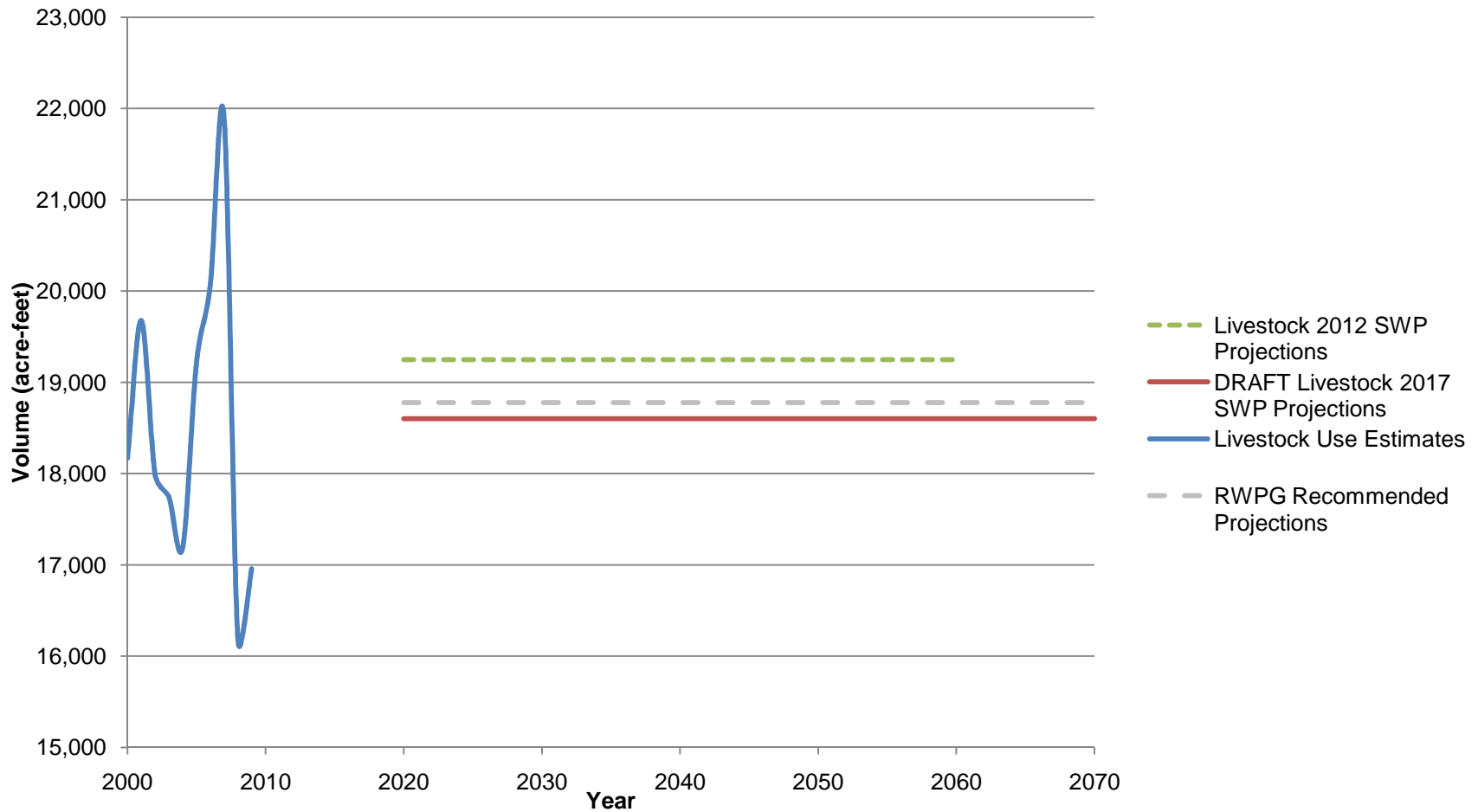
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**Table 1. Comparison of Livestock Demand Projections**

| County Name  | Draft Projections for 2017 SWP |               |               |               |               |               | 2012 SWP Projections |               |               |               |               | RWPG Revisions |               |               |               |               |               |
|--------------|--------------------------------|---------------|---------------|---------------|---------------|---------------|----------------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|
|              | 2020                           | 2030          | 2040          | 2050          | 2060          | 2070          | 2020                 | 2030          | 2040          | 2050          | 2060          | 2020           | 2030          | 2040          | 2050          | 2060          | 2070          |
| Collin       | 860                            | 860           | 860           | 860           | 860           | 860           | 884                  | 884           | 884           | 884           | 884           | 860            | 860           | 860           | 860           | 860           | 860           |
| Cooke        | 1,494                          | 1,494         | 1,494         | 1,494         | 1,494         | 1,494         | 1,898                | 1,898         | 1,898         | 1,898         | 1,898         | 1,494          | 1,494         | 1,494         | 1,494         | 1,494         | 1,494         |
| Dallas       | 854                            | 854           | 854           | 854           | 854           | 854           | 482                  | 482           | 482           | 482           | 482           | 854            | 854           | 854           | 854           | 854           | 854           |
| Denton       | 1,045                          | 1,045         | 1,045         | 1,045         | 1,045         | 1,045         | 1,235                | 1,235         | 1,235         | 1,235         | 1,235         | 1,045          | 1,045         | 1,045         | 1,045         | 1,045         | 1,045         |
| Ellis        | 905                            | 905           | 905           | 905           | 905           | 905           | 1,183                | 1,183         | 1,183         | 1,183         | 1,183         | 905            | 905           | 905           | 905           | 905           | 905           |
| Fannin       | 1,668                          | 1,668         | 1,668         | 1,668         | 1,668         | 1,668         | 1,270                | 1,270         | 1,270         | 1,270         | 1,270         | 1,668          | 1,668         | 1,668         | 1,668         | 1,668         | 1,668         |
| Freestone    | 1,852                          | 1,852         | 1,852         | 1,852         | 1,852         | 1,852         | 1,528                | 1,528         | 1,528         | 1,528         | 1,528         | 1,852          | 1,852         | 1,852         | 1,852         | 1,852         | 1,852         |
| Grayson      | 1,458                          | 1,458         | 1,458         | 1,458         | 1,458         | 1,458         | 1,297                | 1,297         | 1,297         | 1,297         | 1,297         | 1,458          | 1,458         | 1,458         | 1,458         | 1,458         | 1,458         |
| Henderson    | 313                            | 313           | 313           | 313           | 313           | 313           | 854                  | 854           | 854           | 854           | 854           | 490            | 490           | 490           | 490           | 490           | 490           |
| Jack         | 932                            | 932           | 932           | 932           | 932           | 932           | 1,025                | 1,025         | 1,025         | 1,025         | 1,025         | 932            | 932           | 932           | 932           | 932           | 932           |
| Kaufman      | 1,717                          | 1,717         | 1,717         | 1,717         | 1,717         | 1,717         | 1,545                | 1,545         | 1,545         | 1,545         | 1,545         | 1,717          | 1,717         | 1,717         | 1,717         | 1,717         | 1,717         |
| Navarro      | 1,544                          | 1,544         | 1,544         | 1,544         | 1,544         | 1,544         | 1,543                | 1,543         | 1,543         | 1,543         | 1,543         | 1,544          | 1,544         | 1,544         | 1,544         | 1,544         | 1,544         |
| Parker       | 1,544                          | 1,544         | 1,544         | 1,544         | 1,544         | 1,544         | 1,856                | 1,856         | 1,856         | 1,856         | 1,856         | 1,544          | 1,544         | 1,544         | 1,544         | 1,544         | 1,544         |
| Rockwall     | 117                            | 117           | 117           | 117           | 117           | 117           | 131                  | 131           | 131           | 131           | 131           | 117            | 117           | 117           | 117           | 117           | 117           |
| Tarrant      | 723                            | 723           | 723           | 723           | 723           | 723           | 803                  | 803           | 803           | 803           | 803           | 723            | 723           | 723           | 723           | 723           | 723           |
| Wise         | 1,575                          | 1,575         | 1,575         | 1,575         | 1,575         | 1,575         | 1,714                | 1,714         | 1,714         | 1,714         | 1,714         | 1,575          | 1,575         | 1,575         | 1,575         | 1,575         | 1,575         |
| <b>Total</b> | <b>18,601</b>                  | <b>18,601</b> | <b>18,601</b> | <b>18,601</b> | <b>18,601</b> | <b>18,601</b> | <b>19,248</b>        | <b>19,248</b> | <b>19,248</b> | <b>19,248</b> | <b>19,248</b> | <b>18,778</b>  | <b>18,778</b> | <b>18,778</b> | <b>18,778</b> | <b>18,778</b> | <b>18,778</b> |

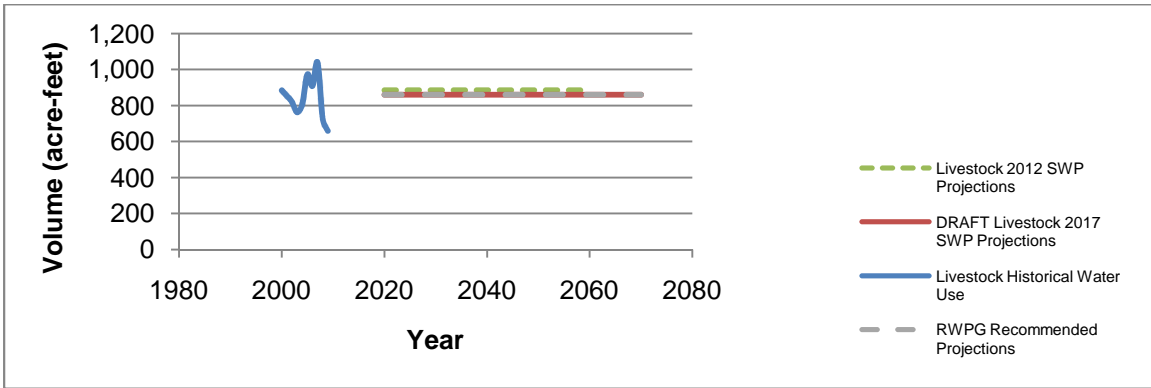
Indicates no changes are proposed from the draft projections for the 2017 SWP.

**Figure 2. Region C Livestock – Comparison of Water Use Estimates, 2012 State Water Plan Projection, Proposed Projections, and Revised Projections**

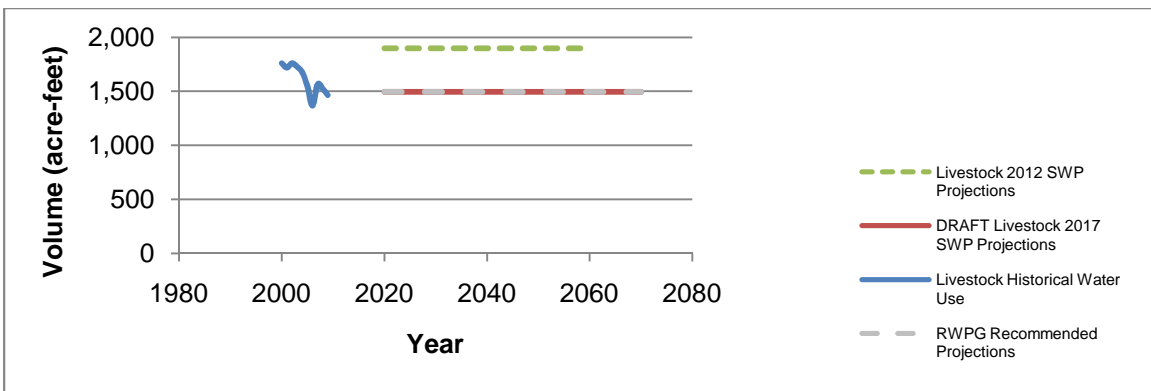


**Attachment A**  
**Livestock Demand by County**  
**Historical Usage and Projections Comparison**

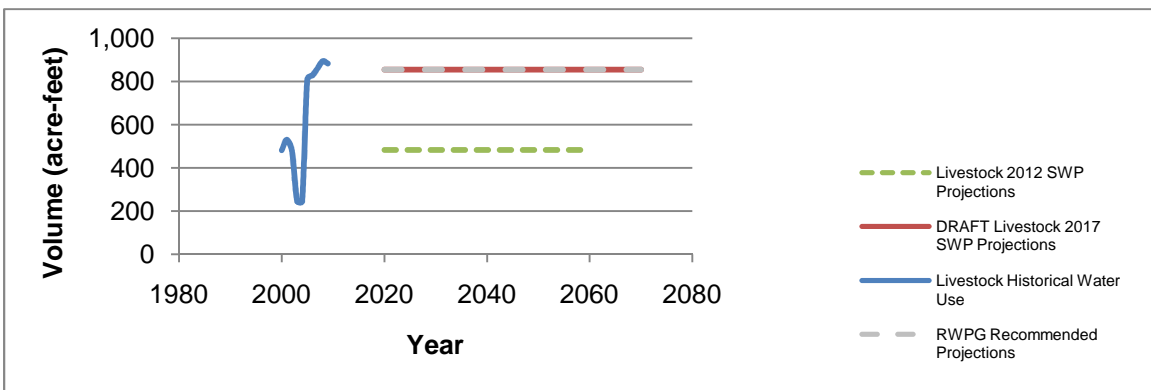
**Figure 1. Collin County Livestock Comparison**



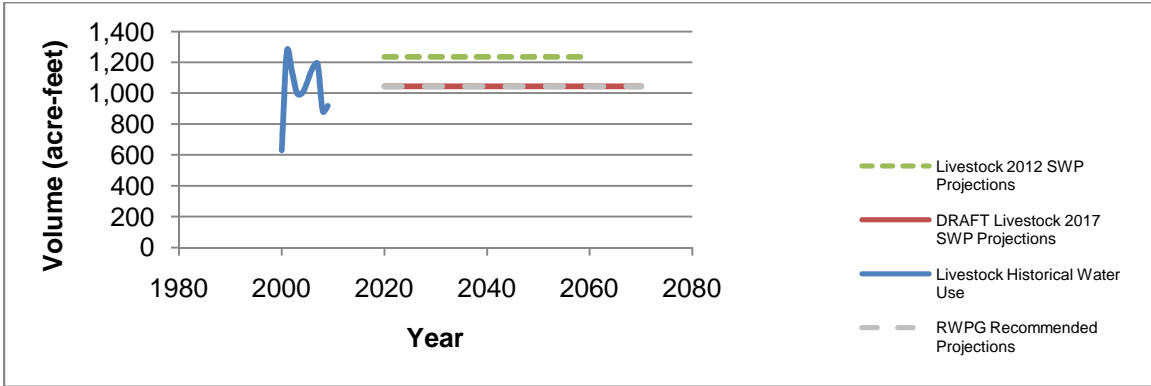
**Figure 2. Cooke County Livestock Comparison**



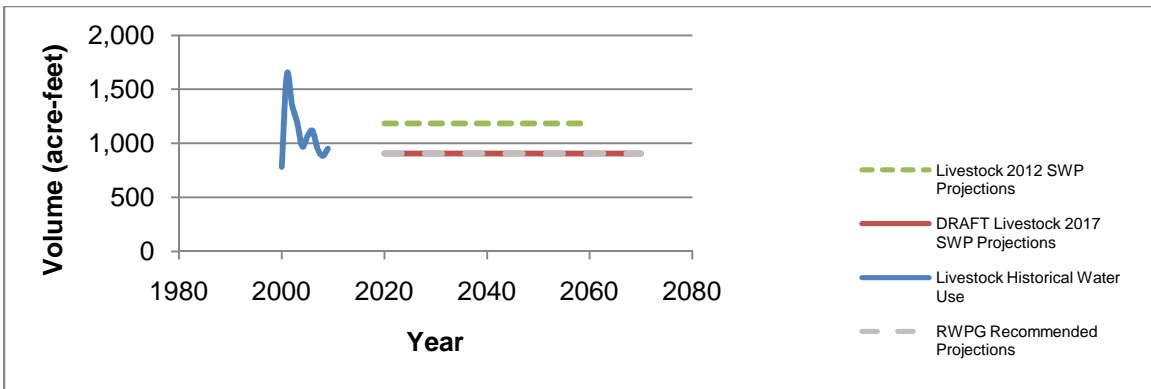
**Figure 3. Dallas County Livestock Comparison**



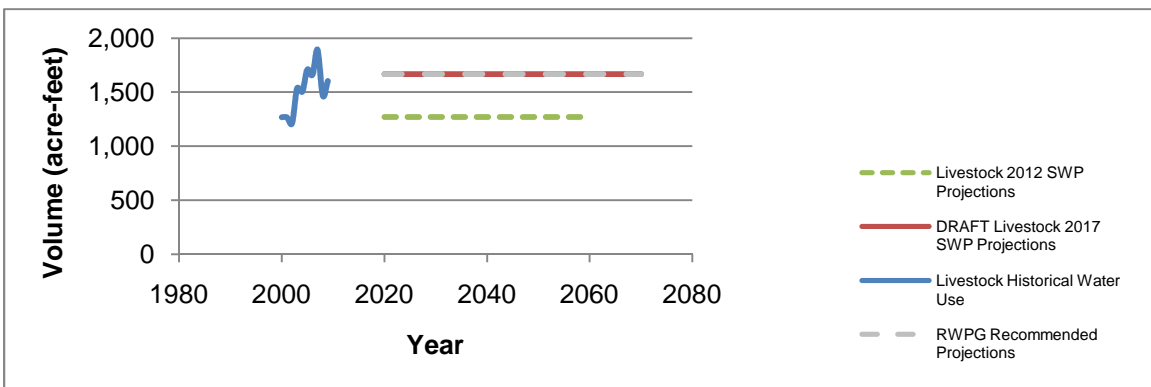
**Figure 4. Denton County Livestock Comparison**



**Figure 5. Ellis County Livestock Comparison**

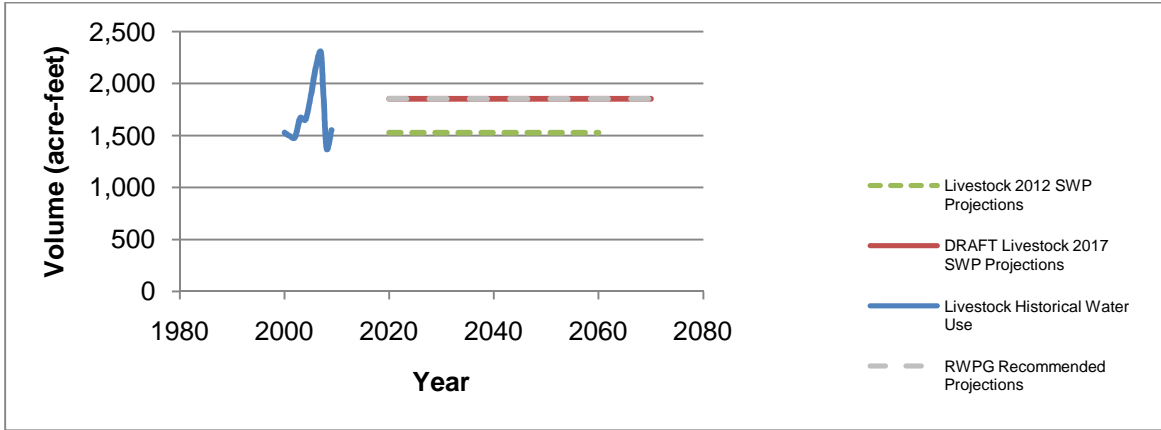


**Figure 6. Fannin County Livestock Comparison**

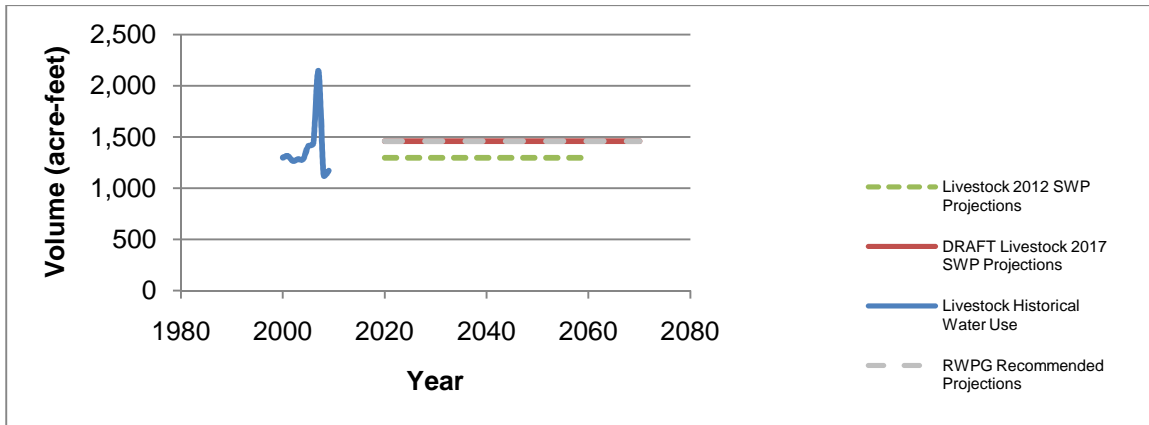




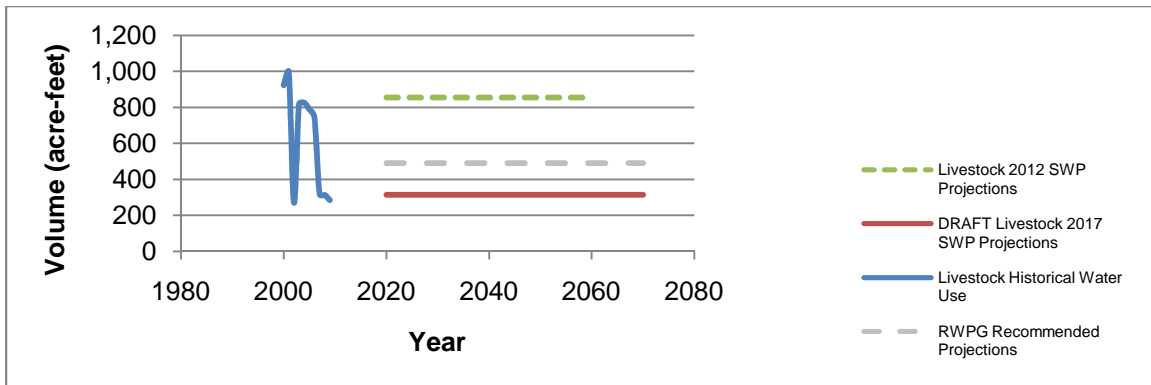
**Figure 7. Freestone County Livestock Comparison**



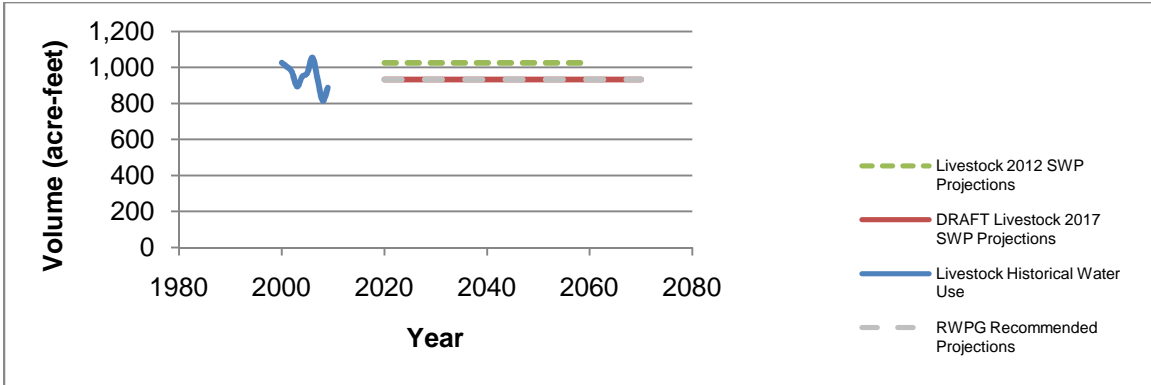
**Figure 8. Grayson County Livestock Comparison**



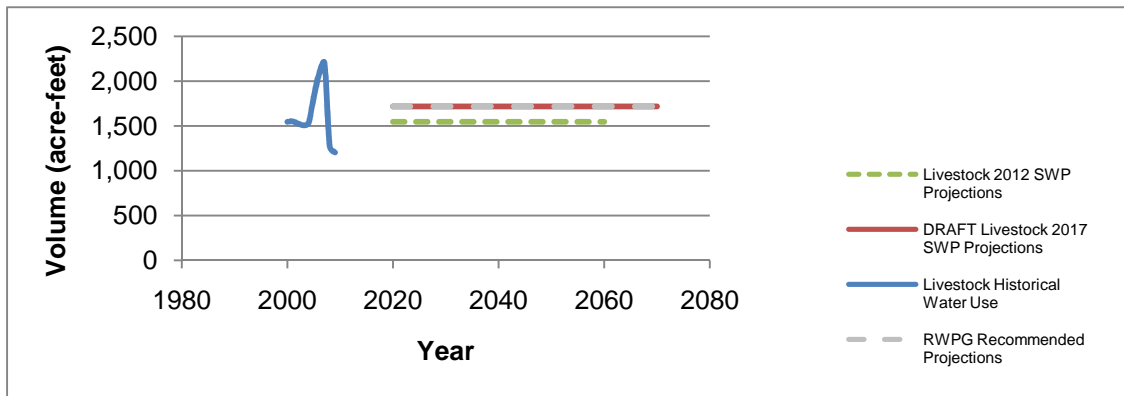
**Figure 9. Henderson County Livestock Comparison**



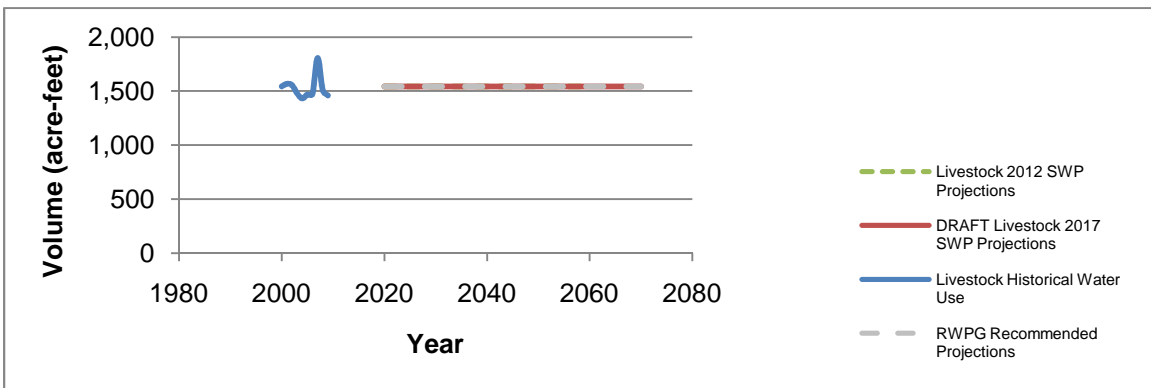
**Figure 10. Jack County Livestock Comparison**



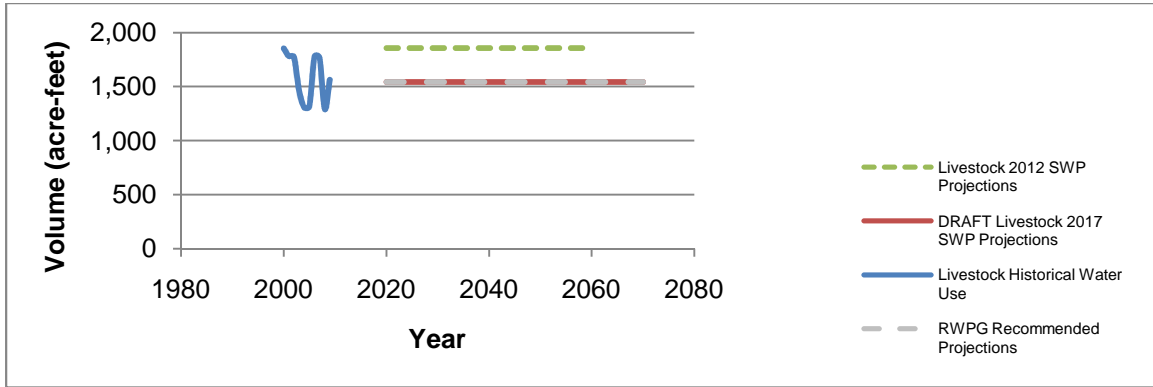
**Figure 11. Kaufman County Livestock Comparison**



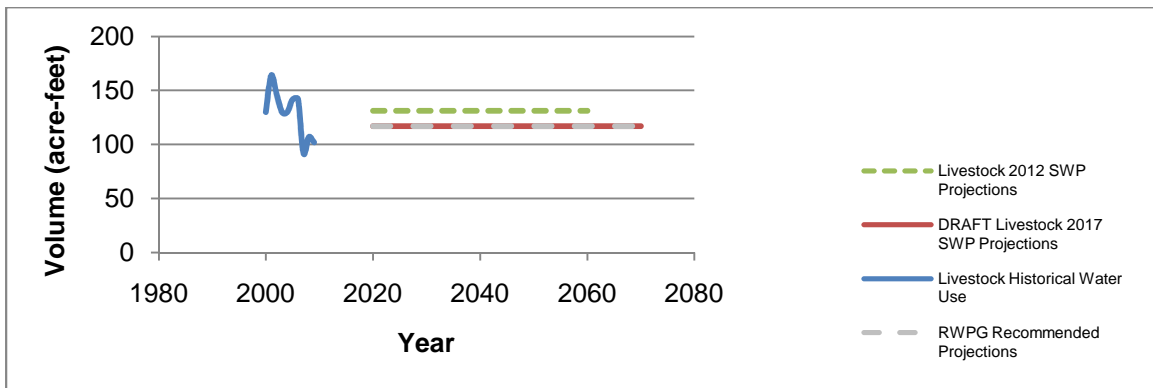
**Figure 12. Navarro County Livestock Comparison**



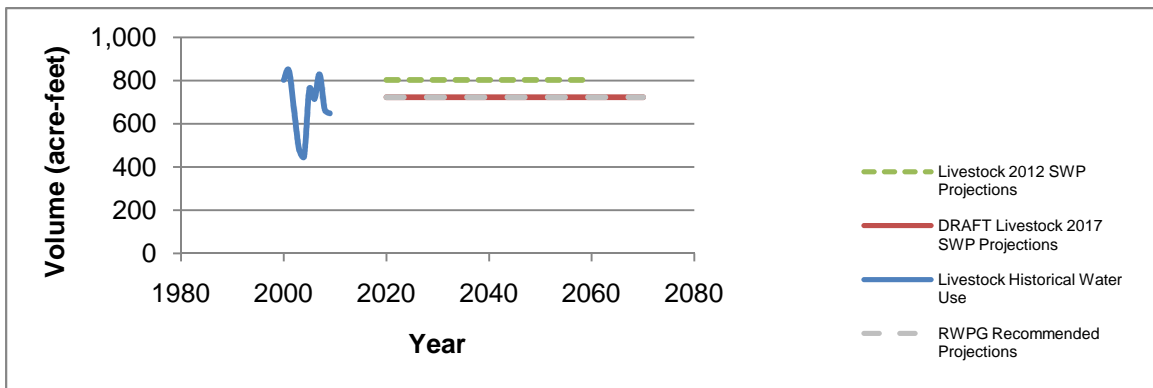
**Figure 13. Parker County Livestock Comparison**



**Figure 14. Rockwall County Livestock Comparison**



**Figure 15. Tarrant County Livestock Comparison**



**Figure 16. Wise County Livestock Comparison**

