# APPENDIX E: ECONOMIC STUDIES AND UPDATES BY DR. TERRY CLOWER*

# 2012, 2007, AND 2004

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# Update of the Economic, Fiscal, and Developmental Impacts of the Proposed Lower Bois d'Arc Reservoir Project

*Prepared for:*

**North Texas Municipal Water District**

*By:*

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# Executive Summary

This report provides an update of the 2007 and 2004 previous assessments of the economic, developmental, and fiscal impacts of the Lower Bois d'Arc Creek Reservoir that will be developed by the North Texas Municipal Water District (NTMWD). Construction and related spending estimates are based on projections updated in 2011 and include updated planning for ancillary infrastructure development.

- Construction of the dam to impound the proposed Lower Bois d'Arc Reservoir, intake pump station, water treatment plant, terminal storage reservoirs, and associated pipeline infrastructure will cost in the range of $385.4 million and $ 426.0 million, including planned future water treatment plant expansions. Depending on exact expenditures, local economic activity in Fannin County will increase between $509 million and $563 million during the construction phase of the reservoir development and subsequent expansion of the water treatment plant. This activity will contribute between $211 million and $234 million in gross county product and support between 4,999 and 5,525 person-years of employment with associated labor income of between $165 million and $183 million.
- It is anticipated that land acquisition for the reservoir and related mitigation areas will cost about $75 million, representing a boost to landowner household income. Assuming that local property owners take about 20 percent of this value as household income, with the remainder being used for personal and business investments, a portion of land acquisition costs will support new spending in the Fannin County area. This additional spending will create about $11 million in new economic activity in the county and support over $3.4 million in local labor income.
- Combined with the impacts of household spending supported by anticipated land acquisition payments, the total economic impacts related to the construction of the dam, pump stations, water treatment plant, and related infrastructure will boost economic activity in Fannin County by between $521 million and $574 million, support from 5,105 to 5,631 person years of employment, and pay $169 million to $186 million in labor income.[1]
- The economic activity associated with creating the Lower Bois d'Arc Creek will likely spill over to neighboring counties. Estimates of total economic activity associated with dam and other infrastructure development in the region including Fannin, Collin, Delta, Lamar, and Hunt counties will be between $682 million and $833 million.
- After construction of the dam and pipeline is completed, ongoing impacts from the operation and maintenance of these infrastructures will support about 24 Fannin County jobs and spur about $2 million in new economic activity per year.
- Once the lake is impounded, new recreational spending will likely arrive in Fannin County as visitors come to fish, boat, and participate in other water-recreation activities.

[1] Some estimates do not precisely sum due to the rounding of figures in the text.

These visitors will bring $17 million to $22 million in new annual spending to the local economy.

- The lake will also likely attract many new residents to Fannin County. It is estimated that over a 30-year period at least 1,100 new full-time resident households will be established around the lake. An additional 2,100 residences will likely be built as vacation/weekend/second homes. These new households will be in addition to any other growth projected for Fannin County. The construction of these homes will bring an average of about 133 jobs per year to the local economy over the development period.
- The reservoir will also support new industrial and commercial activities beyond those described for the hospitality industry. Using Texas Water Development Board usage estimates, it is projected that $145 million in new economic activity in Fannin County (supporting over 1,600 jobs) could be made possible by the availability of a new reliable water resource.
- The pace and quality of development will depend on many market-related factors. One of the most critical factors will be the extent to which counties, cities, and towns adopt well-reasoned development plans to promote quality growth while also ensuring that infrastructure development and publicly-provided services keep pace with new demand. Examples of infrastructures will include electric services, roads, water services, and public safety and other municipal services.
- Spending by new residents in the local economy will increase economic activity in Fannin County by $81 million to $89 million each year. This analysis also suggests that economic activity in the larger region, including Fannin, Hunt, Delta, Grayson, and Lamar counties, will rise by as much as $116 million per year in response to having these new residents living near the proposed reservoir. This activity will support 857 to 947 jobs paying $21.9 million to 24.3 million in annual labor income in the five county region.
- Once developed, the proposed reservoir will enhance the region's attractiveness as a business location. As a recreational amenity, the lake will enhance the quality of life features of the region, which are an increasingly important factor in business site location decisions.
- Local taxing jurisdictions will enjoy not only substantial temporary gains in revenues from business activities related to construction of the dam, pipelines and related infrastructure, and new housing, they will also see new revenues based on increased property values and spending by visitors and residents. Property taxes on new housing alone will add $1.9 million to county tax revenues net of any losses due to the impoundment of the reservoir and related environmental mitigation. Similarly, net gains in area school district revenues will be $3.9 million per year at full development. Local taxes on retail sales will generate at least $303,000 per year with an additional $183,000 per year provided by hotel occupancy taxes.

This report includes one attachment. Attachment A is an economic and fiscal impacts analysis of operations at the Riverby Ranch in Fannin County, Texas, which has been purchased by the NTMWD to mitigate environmental impacts related to the development of the Lower Bois d'Arc Creek Reservoir.

**Table ES1**
**Temporary Local Economic Impacts of Construction of the Lower Bois d'Arc Creek Reservoir Dam Fannin County**

| Description | Impact | |
|---|---|---|
| **Dam Construction, Pipeline Construction, Water Treatment Plant, Pump Station and other infrastructure** | | |
| Description | Range of Impacts | |
| Economic Activity | $509,330,002 | $562,943,686 |
| Gross County Product | $211,355,290 | $233,603,216 |
| Labor Income | $165,237,561 | $182,630,989 |
| Person-Years of Employment | 4,999 | 5,525 |
| Property Income | $36,367,192 | $40,195,318 |
| Indirect Business Taxes | $9,750,537 | $10,776,909 |

*Sources:* North Texas Municipal Water District, Author's estimates.

**Table ES2**
**Economic and Fiscal Impacts of Household Spending Derived from Land Sales**

| Description | Impact |
|---|---|
| Land Acquisition Costs | $75,230,000 |
| Economic Activity | $11,346,692 |
| Gross County Product | $7,158,139 |
| Labor Income | $3,411,702 |
| Person-Years of Employment | 106 |
| Property Income | $2,817,739 |
| Indirect Business Taxes | $928,698 |

*Sources:* North Texas Municipal Water District, Authors' estimates.

**Table ES3**
**Total Local Economic Impacts of Development of the Lower Bois d'Arc Creek Reservoir Dam on Fannin County**

| Description | Impact | |
|---|---|---|
| Includes Dam, Pipeline, Water Treatment Plant, Pump Station and Land Acquisition Costs | | |
| Description | Range of Impacts | |
| Economic Activity | $520,676,694 | $574,290,378 |
| Gross County Product | $218,513,429 | $240,761,355 |
| Labor Income | $168,649,265 | $186,042,691 |
| Person-Years of Employment | 5,105 | 5,631 |
| Property Income | $39,184,931 | $43,013,057 |
| Indirect Business Taxes | $10,750,537 | $11,705,607 |

*Sources:* North Texas Municipal Water District, Author's estimates.

**Table ES4**
**Recurring Annual Local Economic Impacts**
(2011 dollars)

| Description | Impact |
|---|---|
| **Dam, Pump Station, Pipeline, and Water Treatment Plant Operations**<br>Impacted counties: Fannin | |
| Economic Activity | $2,137,000 |
| Labor Income | $769,000 |
| Jobs | 24 |
| **Recreational Visitor Spending** | |
| Annual Spending | $16,748,000 to $21,982,000 |
| Economic Activity | $21,176000 to $28,233,000 |
| Labor Income | $6,235000 to $8,344,000 |
| Jobs | 295 to 393 |
| **Resident Spending**<br>Permanent and Weekend/Vacation Residents: Fannin, Lamar, Grayson, Hunt, Delta | |
| Economic Activity | $105,294,000 to $ 116,378,000 |
| Labor Income | $21,940,000 to $24,250,000 |
| Jobs | 857 to 947 |
| **New Industrial and Commercial Activities**<br>Based on Projected Water Usage | |
| Economic Activity | $145,197,000 |
| Labor Income | $48,111,000 |
| Jobs | 1,607 |

*Source*: Author's estimates.

**Table ES5**
**Recurring Annual Fiscal Impacts of New Housing Developments and Resident and Recreational Out-of-Area Visitor Spending***

| Description | Impact |
|---|---|
| Total Taxable Value of Housing (permanent & weekend residents) | $326,200,000 |
| Reduction in Property Value due to Inundation and Mitigation** | ($10,484,000) |
| Net gain in Taxable Property Values | $315,716,000 |
| Estimated New County Property Tax Revenues | $1,920,000 |
| Estimated New School District Property Tax Revenues | $3,910,000 |
| Total Potential*** Municipal Sales Taxes (0.01 rate) | $303,000 |
| Hotel Occupancy Tax Revenues* | $183,000 |

* At build out.
** Assumes operating impact on Legacy Ridge County Club.
*** Value will be impacted by land annexation and business location decisions.
*Source:* Author's estimates.

## *Section 1: Introduction*

Addressing future water needs for the North Texas Municipal Water District's service area has led to the consideration of developing several new water supplies. One proposal is for a reservoir to be located along the Lower Bois d'Arc Creek just northeast of the City of Bonham in Fannin County. The following report updates the findings of the 2007 and 2004 analyses of the economic, fiscal, and developmental impacts of this proposed reservoir.

Our estimates of the economic impacts of the reservoir and related economic activity are based on the IMPLAN input-output economic modeling system developed by the Minnesota IMPLAN Group. The modeled impacts include the direct effects of spending for construction activities and consumption spending, the indirect effects of local vendors providing goods and services to the primary firms, and the induced impacts of employees of these firms spending a portion of their earnings in the local economy. The impacts estimated in this analysis include:

- Economic Activity: The total value of transaction from direct, indirect, and induced effects.
- Contributions to Gross County/Area Product: A value-added measure equivalent to national Gross Domestic Product.
- Labor Income: Includes salaries, wages, proprietor's income, and certain benefits.
- Employment/Jobs: Employment estimates are expressed differently if the supporting spending is temporary or recurring. The construction/development phases of building the dam, related infrastructure, and new housing are temporary – once construction is completed, the impacts cease. The model employed in this analysis provides an estimate of the number of jobs associated with a given level of spending, but since that spending will occur over several years, the jobs impacts occur over several years. For example, if the construction of a new building takes three years to complete and will support 300 jobs, the estimate is not saying there will be 300 jobs each lasting for three years. Rather the estimate is saying there will be 300 person-years of employment supported. On average, the impact of the building construction would be 100 jobs per year; however, construction employment is highly variable based on the phase of the construction program, so the actual job impacts at any given time could vary dramatically. Therefore, jobs related to temporary expenditures are expressed as person-years of employment. For recurring spending such as pump station operations, tourist spending, and household spending, the impact estimates are considered recurring and the job estimates are for "permanent" jobs each year.
- Property Income: This category of impacts includes rents, royalties, dividends, and corporate profits supported by the new economic activity. For example, a worker at a new lake front hotel rents a house in Fannin County. The rent received by that worker's landlord is a property income.
- Indirect Business Taxes: This source of state and local government revenue includes sales and use taxes, property taxes, fees for permits and licenses, and other sources of revenue associated with indirect business transactions and induced household spending related to the spending categories included in this analysis.

This report begins with an economic overview of Fannin County and then proceeds to measure the new employment, income, spending, and tax revenues that will attend the construction and operations of the dam and related transportation, storage, and treatment facilities. Then the

"ancillary" development likely to occur in conjunction with the dam is explored, in particular the construction of new homes and recreationally based businesses. New and recurring income, employment, and economic activity associated with this ancillary development are estimated. Finally, the impact of the proposed project on revenues to local taxing jurisdictions is examined.

## *Section 2: Economic Overview of Fannin County*

Like many rural counties in Texas, Fannin County saw its historical peak of population and economic activity around the turn of the 20th century. The 1900 census showed a population of 51,793. Cotton and corn production were the chief crops in an economy dominated by agricultural production. Later in the 20th century, dairy operations rose in prominence, but the county suffered tremendous economic losses during the depression years and after World War II. Children of farmers sought their fortunes elsewhere. By 1970, the population had dropped to 22,705. However, after 1970 the population stabilized and began to slowly increase. In 2010 Fannin County's population had risen back to 33,915, though the growth rate in the past ten years has slowed substantially compared to the 1990s at 8.6 percent versus 22.8 percent, respectively.

As can be seen in Figure 1, year-over-year employment change in Fannin County has typically trailed the state as a whole – sometimes dramatically. These data suggest that one critical economic development strategy for Fannin County should be to diversify their economic base, particularly toward industries with greater stability over time.

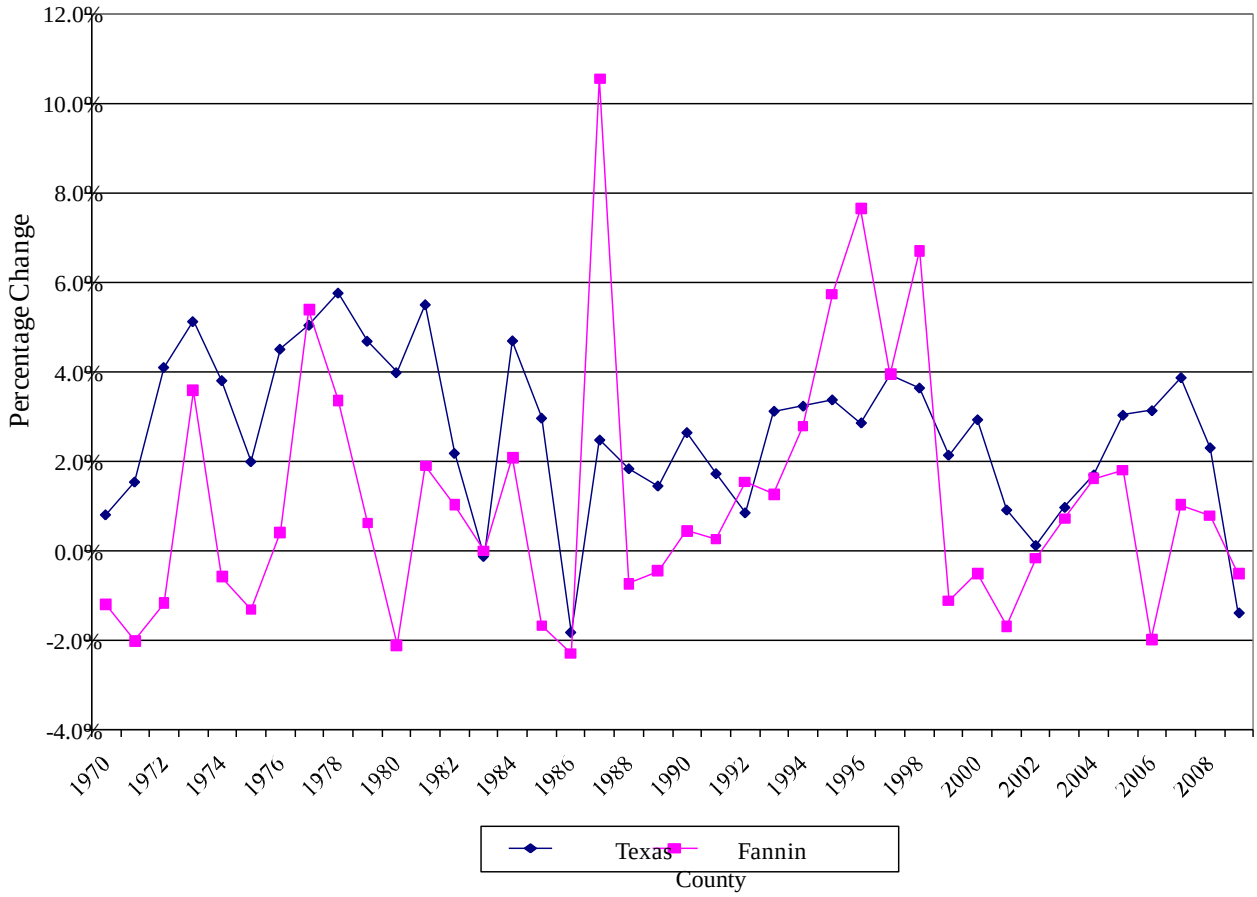
The proposed reservoir offers several economic development opportunities for Fannin County. In addition to the substantial economic activity that would be generated by construction projects related to the reservoir over a multi-year period, the new lake would attract recreational users whose spending, in turn, would spur investment in new hospitality venues. By supporting new residents and hosting new recreation-based industries, the proposed reservoir offers an excellent diversification opportunity for Fannin County.

## *Section 3: Economic Impacts of Dam and Related Infrastructure Construction*

In this section we examine the economic impacts of the construction of the proposed Lower Bois d'Arc Reservoir dam and related infrastructure. These estimates are based on the latest cost projections for the facilities expressed in current year (2011) dollars.

Economic impact assessments for the dam and related infrastructure construction projects are examined in two models. The first looks at the impacts that will likely remain in Fannin County. However, based on the size of the development projects, businesses and residents of nearby counties will also benefit from the economic activity associated with the construction of the dam. For purposes of this analysis, we have included an estimate of the total impacts that will likely occur in a wider economic area defined by Fannin, Delta, Lamar, Grayson and Hunt counties.

**Figure 1**
**Year-to-Year Percentage Change**
**Total Employment State of Texas and Fannin County**
**1970-2009**




Source: U.S. Department of Commerce

The most recent estimates call for expenditures on dam construction to be about $112 million, including design, engineering, and related costs. In addition, related infrastructure including a water treatment plant, storage reservoirs, transport pipeline, water intake pump station, and related facilities add about $293 million to construction expenditures. This includes future planned expansions of the water treatment plant. To allow for changes in materials and other costs, we generally express cost estimates and the resulting economic impacts as a range of possible values.[2] Total expenditures for the Lower Bois d'Arc Creek reservoir and related infrastructure will be between $385 million and $426 million over several years. Based on the relative presence, or absence, of industries providing materials and supporting services to dam construction projects, some of the economic activity will "leak" out of the local area. Even so,

[2] Some spending categories, such as lake area housing construction and the impacts of new industrial activity, remain single point estimates.

these expenditures will increase total economic activity in Fannin County by $509 million to $563 million and boost gross county product (value added) by $211 million to $234 million (see Table 1). This new activity will create over 5,000 person years of employment and increase local labor income by somewhere between $165 million and $183 million. In addition, property incomes will increase by $36 million to $40 million. Indirect business taxes will boost state and local tax revenues by $9.8 million to $10.8 million.

**Table 1**
**Temporary Local Economic Impacts of Construction of the Lower Bois d'Arc Creek Reservoir Dam Fannin County**

| Description | Impact | |
|---|---|---|
| **Dam Construction, Pipeline Construction, Water Treatment Plant, Pump Station and other infrastructure** | | |
| Description | Range of Impacts | |
| Economic Activity | $509,330,002 | $562,943,686 |
| Gross County Product | $211,355,290 | $233,603,216 |
| Labor Income | $165,237,561 | $182,630,989 |
| Person-Years of Employment | 4,999 | 5,525 |
| Property Income* | $36,367,192 | $40,195,318 |
| Indirect Business Taxes** | $9,750,537 | $10,776,909 |

* Includes rents, royalties, dividends, and corporate profits.
** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending.
*Sources:* North Texas Municipal Water District, Author's estimates.

Property owners for the land that will be consumed by the lake and the additional acreage that may be set aside for flood easements and environmental mitigation purposes will be compensated. These payments to land owners represent a transfer of income to the local economy supporting new spending in the region. Acquiring the land for the reservoir and related mitigation lands will be expected to cost about $75 million. Most of the affected landowners will be area residents. Assuming that about 20 percent of the land purchase price is taken as household income, as opposed to reinvesting the proceeds into other assets, we estimate that proceeds of land sales will boost local economic activity by about $11 million, supporting about $3.4 million in labor income for Fannin County workers (see Table 2).

When added to the impacts of construction activities, the non-recurring impacts of development the Lower Bois d'Arc Creek Reservoir will boost economic activity in Fannin County by somewhere between $521 and $574 million, increase county gross product $219 to $241 million, and support 5,105 to 5,631 person-years of employment. Labor income associated with these jobs will be between $169 million and $186 million; and property income will rise by $39 million to $43 million. Indirect business taxes will rise by $10.8 to $11.7 million (see Table 3).

**Table 2**
**Economic and Fiscal Impacts of Household Spending Derived from Land Sales**

| Description | Impact |
|---|---|
| Land Acquisition Costs | $75,230,000 |
| Economic Activity | $11,346,692 |
| Gross County Product | $7,158,139 |
| Labor Income | $3,411,702 |
| Person-Years of Employment | 106 |
| Property Income* | $2,817,739 |
| Indirect Business Taxes** | $928,698 |

* Includes rents, royalties, dividends, and corporate profits.
** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending.
*Sources:* North Texas Municipal Water District, Authors' estimates.

**Table 3**
**Temporary Local Economic Impacts of Development of the Lower Bois d'Arc Creek Reservoir Dam on Fannin County**

| Description | Impact | |
|---|---|---|
| Includes Dam, Pipeline, Water Treatment Plant, Pump Station and Land Acquisition Costs | | |
| Description | Range of Impacts | |
| Economic Activity | $520,676,694 | $574,290,378 |
| Gross County Product | $218,513,429 | $240,761,355 |
| Labor Income | $168,649,265 | $186,042,691 |
| Person-Years of Employment | 5,105 | 5,631 |
| Property Income* | $39,184,931 | $43,013,057 |
| Indirect Business Taxes** | $10,750,537 | $11,705,607 |

* Includes rents, royalties, dividends, and corporate profits.
** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending.
*Sources:* North Texas Municipal Water District, Author's estimates.

Looking at the expanded economic region defined by Fannin, Collin, Lamar, Delta, Grayson and Hunt counties, the impacts are larger reflecting these additional counties' abilities to attract a portion of the jobs and business activity related to the development of the reservoir. Including the spillover to these adjacent counties, total economic activity associated with property acquisition and the construction of the Lower Bois d'Arc Creek reservoir dam and other infrastructure rises to between $682 million and $833 million during the reservoir development phase. The increase in gross area product will be $347 million to $425 million. Total labor income paid in the six-county region will increase between $256 to $313 million through the creation of between 5,430 and 6,636 person-years of employment. Property income will also

rise to between $73 million and $89 million, while state and local governments will see between $18.7 million and $22.8 million in revenue from indirect business taxes (see Table 4).

**Table 4**
**Temporary Local Economic Impacts of Development of the Lower Bois d'Arc Creek Reservoir Dam Fannin, Collin, Delta, Lamar, Grayson, and Hunt Counties**

| Description | Impact | |
|---|---|---|
| Includes Dam, Pipeline, Water Treatment Plant, Pump Station and Land Acquisition Costs | | |
| Description | Range of Impacts | |
| Economic Activity | $681,688,798 | $833,175,198 |
| Gross Regional Product | $347,401,467 | $424,601,793 |
| Labor Income | $255,942,225 | $312,818,275 |
| Person-Years of Employment | 5,430 | 6,636 |
| Property Income* | $72,807,443 | $88,986,875 |
| Indirect Business Taxes** | $18,651,798 | $22,796,642 |

* Includes rents, royalties, dividends, and corporate profits.
** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending.
*Sources:* North Texas Municipal Water District, Author's estimates.

## *Section 4: Ongoing Economic Impacts of Dam and Pipeline Operations*

Once the dam and pipeline are built, ongoing operations and maintenance of these infrastructures will continue to provide a modest number of jobs and a minor boost to local economic activity. Recurring maintenance and operating expenditures for the dam and related infrastructures will increase local economic activity by about $2.1 million each year in Fannin County. This activity will support 24 direct and indirect jobs paying about $769,000 in labor income (see Table 5).

**Table 5**
**Recurring Annual Local Economic Impacts of Dam, Pipeline and Related Infrastructure Operations in Fannin County**

| Description | Impact |
|---|---|
| Economic Activity | $2,137,000 |
| Gross County Product | $1,346,000 |
| Labor Income | $769,000 |
| Employment | 24 |
| Property Income* | $486,000 |
| Indirect Business Taxes** | $91,000 |

* Includes rents, royalties, dividends, and corporate profits.
** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending.
*Sources:* North Texas Municipal Water District, Author's estimates.

## *Section 5: Developmental Impacts of the Proposed Reservoir*

In addition to the one-time and recurring impacts described above, the impoundment of a 16,641-acre reservoir in Fannin County would have substantial spillover benefits on the local economy. This section considers the impacts associated with recreational spending based at the reservoir and the economic and fiscal consequences for the region from attracting new permanent and weekend residents.

### *5.1 Impacts of recreational users*

The "field of dreams" scenario often works for lakes. If you build a publicly accessible water recreation resource, visitors will use it. The North Texas region currently has many excellent reservoirs supporting water-based recreational activities. However, some of these reservoirs are so overcrowded that water accidents occur with increasing frequency. As the Dallas-Fort Worth (DFW) population continues to grow over the next 30 years, demand for water recreation sites will increase, and Fannin County is ideally situated to capture more than a fair share of this recreational activity.

Unfortunately, few studies offer specific guidance on estimating the magnitude of the economic impacts that will attend increased recreational visitors to Fannin County when the proposed reservoir is fully developed. However, in the mid-1990s, Texas A&M, working for the Texas Parks and Wildlife Department and the Sabine River Authority, surveyed anglers at Lake Fork to assess their levels of local spending. Over two-thirds of the survey respondents were non-local residents, with about one-third hailing from outside of Texas. Non-local angler-visitors to Lake Fork spent an estimated $14.5 million in Wood, Rains, and Hopkins counties during their fishing trips for food, lodging, and supplies. This level of spending encourages business development and supports jobs. While some of this employment will be seasonal, North Texas weather patterns permit water-based recreation on a year-round basis.

Other lake-based recreation activities will draw additional out-of-area visitors to the region. While we do not suggest that the new reservoir will soon enjoy Lake Fork's national reputation as a fishing lake, when combined with non-angler spending it is estimated that non-local recreation visitors will add $16.7 million to $22 million in new spending for dining, food, retail goods, and lodging to the Fannin County economy. This spending will generate between $21.2 million and $28.2 million in economic activity, support 295 to 393 new jobs, and increase local labor income by $6.2 million to $8.3 million (see Table 6). Undoubtedly, bringing new recreational visitors to the area will present opportunities for businesses located in adjacent counties, especially Lamar County. However, given existing amenities and attractions in the City of Bonham, most of the recreational spending is expected to stay in Fannin County.

In addition to recreational spending by visitors to the reservoir, the designated mitigation area in the northern part of Fannin County will potentially be used for some type of recreational activities that would draw additional visitor spending to the area. However, the specific uses of

the mitigation land have not been determined at the time of this analysis and therefore those potential impacts are not included here.

**Table 6**
**Recurring Annual Local Economic Impacts of**
**Recreational Out-of-Area Visitor Spending**

| Description | Impact |
|---|---|
| Annual Spending: Recreational Visitors | $16,748,000 to $21,982,000 |
| Economic Activity | $21,176,000 to $28,233,000 |
| Labor Income | $6,235,000 to $8,344,000 |
| Employment | 295 to 393 |

*Source:* Author's estimates.

### *5.2 Impacts of new permanent and weekend residents*

One trend clearly evident in north and northeast Texas is that counties with substantial reservoirs have enjoyed greater population growth than counties without these important amenities. Many recreational lake visitors eventually decide to move close to their favorite reservoirs. Carefully managed residential development can prove to be a tremendous economic boon for lake county economies.

Fannin County is well-positioned to take full advantage of opportunities to attract new permanent and weekend residents to the reservoir. The proposed dam, which will be on the north side of the reservoir, will be only 50 miles from McKinney and 80 miles from downtown Dallas. Already, spillover growth from the DFW Metroplex is reaching the Bonham area. Within reasonable travel time to big-city amenities, yet removed from most urban disamenities, we expect the proposed reservoir to attract at least 1,100 full- time resident households over and above anticipated growth for the area over the next 30 years. Recognizing the impacts of the Great Recession and sub-prime lending crisis has had on regional and national housing markets, the original assessment of potential growth will still hold true, since the reservoir will not be impounded until well after local housing markets have recovered. Therefore, new households will be expected to bring almost $60 million in new income to the area. In addition, at least 2,100 new dwellings will be constructed in the area surrounding the reservoir as weekend/vacation homes and investment properties. The estimate of these weekender residences is likely understated. However, while relative proximity to the Metroplex will encourage permanent residents that same proximity will lower demand for weekend/vacation housing. Nonetheless, it is estimated that weekend and vacation resident will bring an equivalent of $10 million in household income that will in turn be used for local purchases. In sum, and in keeping with our aforementioned approach of expressing spending estimates as a range of possibilities, we estimate new household spending from vacation and permanent lake-area residents will total about $71 million to $78 million per year.

Modeling the combined incomes of permanent residents and the proportional income of weekend residents using regionally based estimates of spending, the Fannin County economy will realize a

net increase in economic activity of between $80.7 million and $89.2 million each year once full development is reached. This activity will support 517 to 572 permanent employment (jobs) paying $13.3 million to $14.7 million in labor income (see Table 7).

**Table 7**
**Recurring Annual Local Economic Impacts of New Resident Spending**

| Description | Impact |
|---|---|
| Fannin County | |
| Annual Spending | $70,891,000 to $77,764,000 |
| Economic Activity | $80,726,000 to $89,223,000 |
| Labor Income | $13,332,000 to $14,735,000 |
| Employment | 517 to 572 |
| Fannin, Hunt, Delta, Grayson, and Lamar counties | |
| Economic Activity | $105,294,000 to $116,378,000 |
| Labor Income | $21,940,000 to $24,250,000 |
| Employment | 857 to 947 |

*Source:* Author's estimates.

It is likely that businesses located in Hunt, Lamar, Grayson, and Delta counties, as well as Fannin County, will offer goods and services to the new permanent and weekend residents. Including the economic activity that is likely to go to these other counties, spending by households drawn to the new reservoir will increase economic output in the broader region by $105 million to $116 million, boost local labor income by $22 million to $24 million, and support between 857 to 947 permanent jobs.

It should be strongly emphasized that the pace and quality of development will depend on many market-related factors. **One of the most critical factors will be the extent to which counties, cities, and towns adopt well-reasoned development plans to promote quality growth while also ensuring that infrastructure development and publicly-provided services keep pace with new demand.** Examples of infrastructure would include such things as electric services, roads, water services, and public safety and other municipal services.

### *5.3 Impacts of new housing construction*

These projections assume that the new permanent and weekend resident households will be single-family units. This is consistent with most of the development trends experienced in other lake counties. Even if residential real estate demand shifts to the inclusion of multi-family properties, the costs of development, and hence the economic and fiscal impacts, will be within the range of possibilities projected below.

Because of recent housing market volatility, the estimates of housing prices have been retained from the 2007 study. Undoubtedly, this approach results in a more conservative estimate of the likely impacts of housing development near the new reservoir. The estimated average cost of land and improvements for permanent-resident dwellings will be about $127,000. Based on the

findings of nationwide housing studies, vacation and weekend homes will likely be valued somewhat less than those of permanent residents. An average market value of $115,000 per weekend dwelling is assumed. About 25 percent of the housing values will represent land. Therefore, based on earlier estimates of the number of households that will eventually occupy the areas around the proposed reservoir, almost $288 million in new residential construction activity will be expected to occur primarily in Fannin County over a 30- year period. These construction activities will boost the local economy by about $432.5 million supporting almost 4,000 person-years of employment that will pay over $102 million in labor income (see Table 8).

**Table 8**
**Local Economic Impacts of Housing Construction**
(30-year development)

| Description | Impact | |
|---|---|---|
| | Total | Average Annual[3] |
| Construction Spending | $287,805,000 | $9,594,000 |
| Economic Activity | $432,538,000 | $14,418,000 |
| Labor Income | $102,123,000 | $3,404,000 |
| Person-Years of Employment | 3,997 | 133 |

*Source:* Author's estimates.

### *5.4 Business development and recruitment*

One of the key attractions for new residents, including business people making location choices for plant sites, distribution centers, and other industrial land uses, is the presence of recreational amenities and quality-of-life features. These characteristics have become critical in the site selection process. Given Fannin County's existing locational advantages, the presence of a new reservoir providing a reliable source of water for industrial uses will enhance the county's ability to attract and retain businesses. To estimate the magnitude of the economic activity that could be gained through expanded business activities, projected water demand estimates from the Texas Water Development Board (TWDB)[4] and the previously described IMPLAN model are utilized.

Based on its latest published estimates, the TWDB expects manufacturing industry water use to rise in Fannin County by eight acre-feet per year between 2020 and 2030. Water used for steam electricity generation is expected to increase by 436 acre-feet per year. Livestock and irrigation uses are not expected to increase over this period, which is reasonable given the impact of the lake's impoundment on these land uses. Mining industry activities are also not expected to increase.[5] Municipal uses are expected to rise by 1,326 acre feet per year. While much of this

[3] Housing construction will not be evenly distributed across the period of development
[4] Though the TWBD estimates do not specifically include the proposed reservoir, they provide a reasonable basis for conservatively estimating future economic activity.
[5] Projected water usage for livestock and irrigation purposes are substantially lower than current usage estimates.

increase in municipal usage will be accounted for by the increase in households described earlier, some of the increase will be due to increased commercial and other non-manufacturing business activities not previously described in this analysis.

Based on year 2000 data for Fannin County and production input data from the IMPLAN model, we estimate the current economic value of goods production per acre-foot of water used for several product categories. Multiplying these values by the projected increase in water usage suggests that manufacturing, commercial,[6] and electricity generating activities will increase by $117.9 million annually in Fannin County. While there are many factors that drive economic development, without the water resources made available by the proposed reservoir, it is unlikely that Fannin County will see this increase in economic activity.

Increasing Fannin County's direct economic activity would also create spin-off indirect and induced economic impacts as described earlier in this report. However, two adjustments are required to improve the accuracy of estimating these indirect and induced impacts. Firstly, induced (household spending) impacts are not included in order to avoid double counting the impacts of permanent resident spending described above that would be employed by companies creating this new business activity. Secondly, current economic models of Fannin County do not adequately represent how the economy will operate 25 years from now. Therefore Rockwall County impact multipliers are used, which currently has a population about equal to TWBD's projected population for Fannin County in 2020.[7] Increasing Fannin County's industrial and commercial output by $117.9 million will result in $145 million in economic activity, boost area labor income by $48 million, and support over 1,600 jobs (see Table 9).

**Table 9**
**Economic Impacts of New Industrial and Commercial Activities**
(10-year increase after reservoir development)

| Description | Annual Impact |
|---|---|
| New Direct Activity | $117,866,000 |
| Economic Activity | $145,197,000 |
| Labor Income | $48,111,000 |
| Employment | 1,607 |

*Source:* Authors' estimates.

## *Section 6: Local Fiscal Impacts*

This section estimates some of the new tax revenues that will be enjoyed by counties and school districts adjusted for the loss of taxable land in the impoundment and mitigation areas. The analysis of foregone tax revenues from property inundation, environmental mitigation area, and

[6] No more than 20 percent of municipal water usage is assumed for commercial business activities.
[7] Local officials in Fannin County suggest that the TWBD population projections are substantially underestimated. While concurring with these officials, the TWBD data enhance the conservative nature of these estimates.

the redrawing of flood plain maps are based on the 2007 analysis with property valuations increased to reflect estimated average growth of valuations in Fannin County through 2011.

The Lower Bois d'Arc Creek Reservoir will be expected to cover more than 16,000 acres. (This does not include the proposed environmental mitigation area at Riverby Ranch.) As noted above, the reservoir will attract residential, commercial, and industrial property development, substantially boosting property tax revenues for local taxing jurisdictions. However, as NTMWD acquires property for the reservoir, local tax rolls will be reduced somewhat before much of the anticipated new development occurs. This analysis estimates potential tax losses for the county, the City of Bonham, and affected school districts in the near-term.

The area of land the NTMWD will acquire can generally be described as southwest of the proposed dam, at or below 545 feet above mean sea level. The affected land parcels are identified using Geographic Information System (GIS) data and software that was provided by the consulting engineers on the Lower Bois d'Arc Creek Reservoir project. Data are obtained from the Fannin County Appraisal District showing the size and taxable value in 2007 for each parcel that will lose land to the reservoir. This includes those parcels that will lose only a portion of their land to the lake and/or flood plain area.

In all, there are about 556 unique parcels at or below the 545-foot elevation level. Of these, we found taxable values for 502 parcels, leaving 54 without data. For those parcels not wholly within the land purchase area, aerial photography and tax records were used to assess the potential loss of taxable improvements on each parcel in the reservoir and flood plain area. For purposes of this analysis, no allowances were made for moving structures. If a structure is located within the 545 elevation line, it is considered lost for taxation purposes.

It is important to clarify that the estimates presented here represent taxable values and not market values. What's more, the assessed values are net of agricultural and homestead exemptions. It is assumed that any exemptions will continue after the reservoir land purchase.

For those parcels without valuation data from the Fannin County Appraisal District online database, aerial photography and GIS software were used to identify taxable improvements and land that NTMWD will purchase from each parcel. Land valuations for these parcels are based on the average taxable value of land for all other parcels, about $305 per acre including exemptions in 2007. Since 2007, taxable property values in Fannin County, like most areas, have been affected by the downturn in the real estate market. It is estimated that real property valuations net of new development have increased 0.67% per year since 2007 for an average taxable value of about $313 per acre. We assigned this estimated valuation to each school district based on their relative portion of land in the reservoir area.

There are two parcels without data that are treated differently. These two parcels include portions of the Legacy Ridge Country Club, comprising about 47 acres. Fiscal impact estimates for Fannin County, the City of Bonham, and the Bonham Independent School District (ISD) that include an estimated taxable value of the country club are presented below. However, it is

possible that the country club will still be operationally viable once the flood plain lines are redrawn. Therefore, the actual impact on tax revenues may be substantially less than shown when the full value of the country club is removed from the tax rolls.

The findings presented below are estimates. There has been no independent verification of the accuracy of the Fannin County Appraisal District online database, nor has there been direct engagement in specific surveys to gauge the accuracy of the map images provided by the project engineers. These estimates should be used for planning purposes only. As property values will begin to rise based on new development near the new reservoir, the annual tax losses will diminish and turn to net new revenues for local taxing jurisdictions. Estimates of temporary tax losses are shown in Table 10. In addition to the inundation area, the Riverby Ranch has been acquired by NTMWD to serve as proposed environmental mitigation for the reservoir. See Attachment A for the 2012 Economic Impacts of the Riverby Ranching Operations. Prior to acquisition, this property had an appraised value of slightly more than $4 million, including improvements, and generated just under $78,000 per year in total property taxes, about $52,000 of which went to the Sam Rayburn ISD.

**Table 10**
**Temporary Annual Tax Revenue Impacts of Land Acquisition for the Lower Bois d'Arc Creek Reservoir**
(2011 valuation estimates, including mitigation area)

| Entity | Value Before | Value After | Difference | Tax Rate | Temporary Tax Loss |
|---|---|---|---|---|---|
| Bonham ISD | $1,545,679 | $1,206,037 | $339,643 | 0.011505 | $3,908 |
| Including golf course | $2,593,067 | $1,206,037 | $1,387,030 | 0.011505 | $15,958 |
| Dodd City ISD | $3,429,167 | $2,318,673 | $1,110,493 | 0.01115 | $12,382 |
| Honey Grove ISD | $3,965,947 | $2,114,933 | $1,851,014 | 0.0135912 | $25,158 |
| Sam Rayburn ISD | $7,696,517 | $1,550,066 | $6,146,451 | 0.012039 | $73,997 |
| Fannin County | $16,641,590 | $7,194,981 | $9,446,608 | 0.006081 | $57,445 |
| Including golf course | $17,678,708 | $7,194,981 | $10,483,726 | 0.006081 | $63,752 |
| City of Bonham | $36,909 | $29,571 | $7,338 | 0.0067 | $49 |
| Including golf course | $1,074,027 | $29,571 | $1,044,456 | 0.0067 | $6,998 |
| **Total Loss not/including golf course** | | | | | **$172,938** |
| **Total Loss including golf course** | | | | | **$198,244** |

*Sources:* Fannin County Appraisal District, North Texas Municipal Water District, Freese & Nichols, Author's estimates.

The taxable value of permanent and weekend resident housing at full development is estimated at $326.2 million[8], which would generate an estimated $5.9 million in county and school district revenues. Therefore, the net increase in tax revenues will be about $5.7 million at full development, of which $3.9 million will be enjoyed by school districts in Fannin County. Importantly, much of this gain in school district revenues will not be accompanied by a proportionate increase in students since a large percentage of the estimated valuations are for weekend or vacation residences. Area municipalities and townships could also benefit from

[8] The average value of homestead, senior citizen, disabled, veteran and other exemptions is estimated at 15 percent of total valuation.

increased property tax revenues depending on the degree to which their taxing jurisdictions are expanded to include land adjacent to the proposed reservoir (see Table 11).

Taxable retail sales in Fannin County will increase as new residents and visitors come to the area. Taking a very conservative approach, it is estimated that local sales tax revenues could increase by $303,000 or more per year. Hotel revenues for room rentals are expected to be at least $3.7 million per annum. Based on a local bed-tax rate of five percent, these expenditures will boost local tax receipts by an additional $183,000 annually. These estimates do not consider the additional taxable property value that will be created as stores, bait shops, hotels/resorts, restaurants, and other businesses locate around the lake.

**Table 11**
**Recurring Annual Fiscal Impacts of New Housing Developments and Resident and Recreational Out-of-Area Visitor Spending**

| Description | Impact |
|---|---|
| Total Taxable Value of Housing (permanent & weekend residents) | $326,200,000 |
| Reduction in Property Value due to Inundation and Mitigation** | ($10,484,000) |
| Net gain in Taxable Property Values | $315,716,000 |
| Estimated New County Property Tax Revenues | $1,920,000 |
| Estimated New School District Property Tax Revenues | $3,910,000 |
| Total Potential Municipal Sales Taxes (0.01 rate)* | $303,000 |
| Hotel Occupancy Tax Revenues* | $183,000 |

* Value will be impacted by land annexation and business location decisions.
** Includes golf course.
*Source:* Author's estimates.

## *Section 7: Conclusions*

The proposed Lower Bois d'Arc Reservoir will provide tremendous short-term economic gains to Fannin County that will certainly spill over to residents and businesses in surrounding counties as the dam and related infrastructures are constructed over a multi-year period. Construction spending for the dam and water transport infrastructure will add as much as $563 million to local economic activity and provide more than 5,500 person-years of employment.

Recurring operations supporting the dam and related infrastructure will create new opportunities for local businesses by adding $2.1 million in annual local economic activity and supporting about 24 jobs. Once impounded, the lake will attract substantial new private investment by hospitality firms anxious to provide services, meals, and specialty retail goods to the lake's recreational users. Out-of-area recreational users are projected to spend upwards of $22 million per year in the local economy. In addition, as seen with other Texas lakes, residents will be attracted to the region to take advantage of the new recreational amenities, bringing substantial new local spending to the area at full development. These new personal outlays will increase local economic activity by up to $89 million per year and up to about 570 jobs. The reservoir

will provide water resources that will in turn support additional business development in Fannin County. Using conservative TWBD usage estimates, new industries attracted by the enhanced water resource will add $145 million in new economic activity in the county supporting 1,600 jobs. Any comparable industrial investment offering this magnitude of economic benefit would probably require exceptional incentive packages from state, county, and municipal governments. Construction of housing units for permanent and weekend residents will likely be spread over a 30-year period, providing long-term employment and business opportunities in the construction trades.

An expanded tax base will be another payoff from the ancillary development that will attend construction of the reservoir, allowing local governments to provide a broader range of public services while maintaining competitive tax rates. In sum, the economic opportunities supported by the proposed reservoir will promote sustainable development while diversifying the local job base.

# ATTACHMENT A

# Briefing Paper
# The Economic Impacts of Riverby Ranch Operations
**Prepared by Terry L. Clower**
**April 25, 2012**

**Briefing Paper**

**The Economic Impacts of Riverby Ranch Operations**

**Prepared by Terry L. Clower**

**April 25, 2012**

The following reports the findings of the economic and fiscal impacts analysis of operations at the Riverby Ranch in Fannin County, Texas. The ranch has been purchased by the North Texas Municipal Water District as a designated environmental mitigation area to meeting statutory requirements related to the development of the Lower Bois d'Arc Creek Reservoir. Though the ranch has been purchased, it is currently being leased by previous owners and is still in operation. Operations at the ranch will likely continue unless the proposed reservoir is impounded. The loss of operations at Riverby Ranch, which largely consist of raising cattle, would somewhat offset the economic activity that would occur in the area during and after reservoir development. All figures are reported in 2011 dollars.

The following estimates focus on the economic impacts in Fannin County. Based on information provided by the previous owner/current executive of Riverby Ranch, many of the cattle trading activities currently based at Riverby would not cease, but would likely be transferred out of Fannin County once the mitigation plan is implemented. In addition, the fiscal impacts reported here are based on indirect spending activities and do not include the loss of taxable property value when the North Texas Municipal Water District purchased the ranch, which is addressed by payments in lieu of taxes by the Water District.

Our estimates of the economic and fiscal impacts of closing operations at Riverby Ranch are based on data provided by Riverby executives and analyzed using the IMPLAN economic input-output model developed by the Minnesota Implan Group (MIG, Inc.). This model is widely used in academic and professional research. Direct ranch spending data are not reported to protect data confidentiality.

Based on current operations, Riverby Ranch creates $13.5 million in economic activity in Fannin County.

This economic activity supports 264 jobs paying about $962,000 in salaries, wages, and benefits. However, most of these jobs are part-time positions employed during key ranching operations. It is likely that some of these jobs are itinerant in nature.

Gross county product is boosted by less than $3 million suggesting the total impacts of Riverby Ranch operations have a modest impact on the local economy.

Property income associated with the ranch operating would decrease by $1.6 million, once ranch operations cease.

State tax revenues would decline by about $244,000 per year and local tax jurisdictions would fall about $100,000,

**The Economic and Fiscal Losses from Ceasing Operations at Riverby Ranch**
**Fannin County Impacts**
2011 dollars

| Description | Impact |
|---|---|
| Economic Impact | $13,524,000 |
| Gross County Product (value added) | $2,935,000 |
| Employment (full- and part- time) | 264 |
| Labor Income (salaries, wages, benefits) | $962,000 |
| Property Income (rents, royalties, dividends, corporate profits) | $1,596,000 |
| State taxes (sales taxes, fees, other business taxes) | $244,000 |
| Local Taxes (property taxes, sales and use taxes, fees)* | $98,000 |

* Does not include direct property taxes paid by the ranch prior to being acquired by the North Texas Municipal Water District.

*Sources*: Riverby Ranch, IMPLAN, Author's estimates.

# ATTACHMENT B

# The Economic, Fiscal, and Developmental Impacts of the Proposed Lower Bois d'Arc Creek Reservoir Project: An Updated Assessment

**Prepared by Terry L. Clower, Ph.D.**
**Bernard L. Weinstein**
**September 2007**

# The Economic, Fiscal, and Developmental Impacts of the Proposed Lower Bois d'Arc Creek Reservoir Project: An Updated Assessment

*Prepared for:*

**The North Texas Municipal Water District**

*By:*

**Terry L. Clower, Ph.D.***
**Bernard L. Weinstein**

**September 2007**

# Executive Summary

This report updates the findings of our 2004 analysis of the economic, developmental, and fiscal impacts of the Lower Bois d'Arc Creek reservoir that will be developed by the North Texas Municipal Water District.

- Construction of the dam to impound the proposed Lower Bois d'Arc Creek Reservoir, the intake pump station, and other related expenditures will cost about $100 million. In addition, construction spending for other related infrastructure in Fannin County, including a water intake pump station, transport pipeline and related facilities will add another $181 million to local spending for the reservoir. In total, current estimates call for infrastructure spending in Fannin County to be between $267 million and $295 million over a four to five year period. Depending on exact expenditures, local economic activity will increase between $303 million and $335 million during the construction phase of the reservoir development. This activity will support in the range of 1,600 to over 1,760 person-years of employment with associated salaries and wages of between $53.6 million and $59.2 million.

- Including infrastructure development that will occur in Collin County, total water transmission and treatment facilities associated with the Lower Bois d'Arc Creek Reservoir will cost in the range of $365 million to $403 million boosting economic activity in Fannin and Collin counties by a combined $536 million to $593 million, supporting over 4,000 person-years of employment and paying upwards of $200 million in salaries and wages.

- After construction of the dam and pipeline is completed, on-going impacts from the operation and maintenance of these infrastructures will support about 20 full-time-equivalent direct and indirect jobs and spur about $4 million in new economic activity per year.

- Once the lake is impounded, new recreational spending will arrive in Fannin County as visitors come to fish, boat, and participate in other water-recreation activities. These visitors will bring $16 million to $21 million in new annual spending to the local economy.

- The lake will also attract many new residents to Fannin County. We estimate that over a 30-year period at least 1,100 new permanent households will be established around the lake. An additional 2,100 residences will likely be built as vacation/weekend/second homes. These new households will be in addition to any other growth projected for Fannin County. The construction of these homes will bring an average of over 133 jobs per year to the local economy over the development period.

- The reservoir will also support new industrial and commercial activities beyond those described in the hospitality industry. Using Texas Water Development Board usage estimates, we project that $139 million in new economic activity in Fannin County

supporting over 1,600 permanent jobs could be made possible by the availability of a new reliable water resource.

- The pace and quality of development will depend on many market-related factors. One of the most critical factors will be the extent to which counties, cities, and towns adopt well-reasoned development plans to promote quality growth while also ensuring that infrastructure development and publicly-provided services keep pace with new demand. Examples of infrastructures would include such things as electric services, roads, water services, and public safety and other municipal services.

- Spending by new residents in the local economy will increase economic activity in Fannin County by $67 million to $74 million each year. Our analysis also suggests that economic activity in the larger region including Fannin, Hunt, Delta, and Lamar counties will rise by as much as $91 million per year in response to having these new residents living near the proposed reservoir. This activity will support well over 700 permanent jobs paying about $17 million in annual salaries and wages.

- Once developed, the proposed reservoir will enhance the region's attractiveness as a business location. As a recreational amenity, the lake will enhance the quality of life features of the region, which are an increasingly important factor in business site location decisions.

- Local taxing jurisdictions will enjoy not only substantial temporary gains in revenues from business activities related to construction of the dam, pipelines and related infrastructure, and new housing, they will also see new revenues based on increased property values and spending by visitors and residents. Property taxes on new housing alone will add $1.9 million to county tax revenues net of any losses due to the lake impoundment and related environmental mitigation. Similarly, net gains in area school district revenues will exceed $5 million per year at full development. Local taxes on retail sales will generate at least $290,000 per year with an additional $175,000 per year provided by hotel occupancy taxes.

# Table ES1

## Temporary Local Economic Impacts of Construction Of the Lower Bois d'Arc Creek Reservoir Dam

| Description | Impact |
|---|---|
| **Dam Construction, Pipeline Construction, Pump Station and other infrastructure**<br>Impacted counties: Fannin.<br>Construction period: 4-5 years. | |
| Construction costs | $ 267,279,000 to $ 295,414,000 |
| Total economic activity | $ 302,931,000 to $ 334,819,000 |
| Total salaries and wages | $ 53,579,000 to $ 59,219,000 |
| Total person-years of employment | 1,596 to 1,764 |
| Property Income* | $ 14,773,000 to $ 16,328,000 |
| Indirect Business Taxes** | $ 2,663,000 to $ 2,944,000 |

* Includes rents, royalties, dividends, and corporate profits. ** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending. Sources: North Texas Municipal Water District, authors' estimates.

# Table ES1 -- continued

## Temporary Local Economic of Pipeline, Treatment Plant, and Related Infrastructure Construction

| Description | Impact |
|---|---|
| **Pipeline, Storage, and Treatment Facilities Construction**<br>Impacted counties: Fannin, Collin.<br>Construction period: 3-4 years. | |
| Construction costs | $ 365,001,000 to $ 403,422,000 |
| Total economic activity | $ 536,540,000 to $ 593,018,000 |
| Total salaries and wages | $ 180,658,000 to $ 199,674,000 |
| Total person-years of employment | 4,122 to 4,556 |
| Other property income* | $ 53,308,000 to $ 58,919,000 |
| Indirect business taxes** | $ 12,147,000 to $ 13,426,000 |

* Includes rents, royalties, dividends, and corporate profits. ** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending. Sources: North Texas Municipal Water District, authors' estimates.

# Table ES2

**Recurring Annual Local Economic Impacts**
(2007 dollars)

| Description | Impact |
|---|---|
| **Dam, Pump Station, Pipeline, and Treatment Plant Operations**<br>Impacted counties: Fannin, Collin | |
| Total economic activity | $ 3,966,000 |
| Total salaries and wages | $ 825,000 |
| Total full-time-equivalent employment | 20 |
| **Recreational Visitor Spending** | |
| Total annual spending | $ 16,000,000 to $ 21,000,000 |
| Total economic activity | $ 20,230,000 to $ 26,972,000 |
| Total salaries and wages | $ 5,957,000 to $ 7,972,000 |
| Total full-time-equivalent employment | 295 to 393 |
| **Resident Spending**<br>Permanent and Weekend/Vacation Residents: Fannin, Lamar, Hunt, Delta | |
| Total economic activity | $ 82,303,000 to $ 90,967,000 |
| Total salaries and wages | $ 17,150,000 to $ 18,955,000 |
| Total full-time-equivalent employment | 701 to 775 |
| **New Industrial and Commercial Activities**<br>Based on Projected Water Usage | |
| Total economic activity | $ 138,710,000 |
| Total salaries and wages | $ 45,961,000 |
| Total full-time-equivalent employment | 1,607 |

Source: Authors' estimates

# ES3

**Recurring Annual Fiscal Impacts of New Housing Developments and Resident and Recreational Out-of-Area Visitor Spending+**

| Description | Impact |
|---|---|
| Total taxable value of housing (permanent and weekend residents) | $ 326,200,000 |
| Reduction in property value due to inundation and mitigation | ($ 10,524,000) |
| Net gain in taxable property values | $ 315,676,000 |
| Estimated new county property tax revenues | $ 1,894,000 |
| Estimated new school district property tax revenues | $ 5,118,000 |
| Total potential* municipal sales taxes (0.01 rate) | $ 290,000 |
| Hotel occupancy tax revenues* | $ 175,000 |

+ at buildout * Value will be impacted by land annexation and business location decisions.
Source: Authors' estimates

***Section 1: Introduction***

Addressing future water needs for the North Texas Municipal Water District's service area has led to the consideration of developing several new water supplies. One proposal is for a reservoir to be located along the Lower Bois d'Arc Creek northeast of the City of Bonham in Fannin County. The following report updates the findings of our 2004 analysis of the economic, fiscal, and developmental impacts of this proposed reservoir.

Our estimates of the economic impacts of the reservoir and related economic activity are based on the IMPLAN input-output economic modeling system developed by the Minnesota IMPLAN Group. The modeled impacts include the direct effects of spending for construction activities and consumption spending, the indirect effects of local vendors providing goods and services to the primary firms, and the induced impacts of employees of these firms spending a portion of their earnings in the local economy.

We begin with an economic overview of Fannin County and then proceed to measure the new employment, income, spending, and tax revenues that will attend the construction and operations of the dam and related transportation, storage, and treatment facilities. We then explore the "ancillary" development likely to occur in conjunction with the dam, in particular the construction of new homes and recreationally based businesses. New and recurring income, employment, and economic activity associated with this ancillary development are estimated. Finally, we examine the impact of the proposed project on revenues to local taxing jurisdictions.

***Section 2: Economic overview of Fannin County.***

Like many rural counties in Texas, Fannin County saw its historical peak of population and economic activity around the turn of the 20th century. The 1900 census showed a population of 51,793. Cotton and corn production were the chief crops in an economy dominated by agricultural production. Later in the 20th century, dairy operations rose in prominence, but the county suffered tremendous economic losses during the depression years and after World War II. Children of farmers sought their fortunes elsewhere. By 1970, the population had dropped to 22,705. However, after 1970 the population stabilized and began to slowly increase. Today Fannin County is home to over 33,000 residents and during the decade of the 1990s actually grew faster than the state as a whole (26 percent increase versus 22.8 percent increase) as spillover growth from Dallas' northern suburbs reached the county.

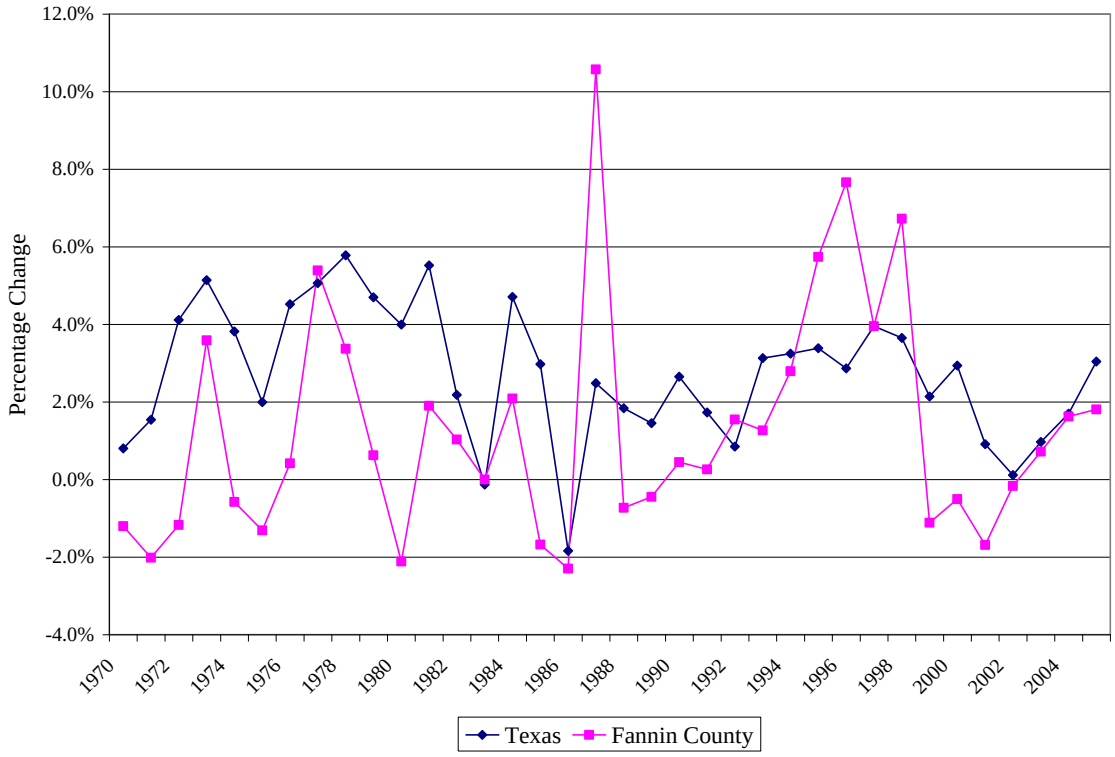
As can be seen in Figure 1, year-over-year employment change in Fannin County has not seen consistent growth as shown for the state. With the exception of 1986 and 1994-1997, the county has lagged state economic performance, sometimes dramatically. These data suggest that one critical economic development strategy for Fannin County should be to diversify the economic base, particularly toward industries with greater stability over time.

The proposed reservoir offers several economic development opportunities for Fannin County. In addition to the substantial economic activity that would be generated by construction projects related to the reservoir over a multi-year period, the new lake would attract recreational users whose spending, in turn, would spur investment in new hospitality venues. By supporting new residents and hosting new recreation-based

industries, the proposed reservoir offers an excellent diversification opportunity for Fannin County.

## Figure 1

**Year-to-Year Percentage Change**
**Total Employment State of Texas and Fannin County**
**1970-2005**




Source: US Department of Commerce.

***Section 3: Economic impacts of dam and related infrastructure construction.***

In this section we examine the economic impacts of the construction of the proposed Lower Bois d'Arc Creek Reservoir dam and related infrastructure. These estimates are based on the latest cost projections for the facilities expressed in current year (2007) dollars.

Economic impact assessments for the dam and related infrastructure construction projects are examined in two models. The first looks at the impacts that will likely

remain in Fannin County. However, based on the size of the development projects, businesses and residents of nearby counties will also benefit from the economic activity associated with the construction of the dam. For purposes of this analysis, we have included an estimate of the total impacts that will likely occur in a wider economic area defined by Fannin, Delta, Lamar, and Hunt counties.

The most recent estimates call for expenditures on dam construction to be about $100 million. In addition, related infrastructure including transport pipeline, a water intake pump station, and related facilities add about $181 million to construction expenditures. Total expenditures for the Lower Bois d'Arc Creek reservoir and related infrastructure in Fannin County will be between $267 million and $295 million over a four to five year period. Based on the relative presence, or absence, of industries providing materials and supporting services to dam construction projects, some of the economic activity will "leak" out of the local area. Even so, these expenditures will increase total economic activity in Fannin County by $303 million to $335 million (see Table 1). This new activity will create over 1,500 person years of employment that will increase local labor income (salaries, wages, and benefits) by somewhere between $53.5 million and $59 million. In addition, property incomes in the form of rent, royalties, corporate profits, and dividends will increase by $14 million to $16 million. Business taxes from indirect transactions will boost state and local tax revenues by $2.7 million to $2.9 million.

Looking at the expanded economic region defined by Fannin, Lamar, Delta, and Hunt counties, the impacts are slightly larger reflecting these additional counties' abilities to attract a portion of the jobs and business activity related to the development of the

reservoir. Including the spillover to these adjacent counties, total economic activity associated with the construction of the Lower Bois d'Arc Creek reservoir dam and other infrastructure rises to between $330 million to over $364 million during the four to five year period. Total labor income paid in the four-county region will increase to $76 to $84 million through the creation of between 2,200 and 2,400 total temporary jobs. Property income will also rise to between $21.7 million and $24 million, while state and local government will see between $4 million and $4.5 million in revenue from indirect business taxes including sales taxes, property taxes, and fees for permits and licenses.

## Table 1

**Temporary Local Economic Impacts of Construction Of the Lower Bois d'Arc Creek Reservoir Dam**

| Description | Impact |
|---|---|
| **Dam Construction, Pipeline Construction, Pump Station and other infrastructure**<br>Impacted counties: Fannin.<br>Construction period: 4-5 years. | |
| Construction costs | $ 267,279,000 to $ 295,414,000 |
| Total economic activity | $ 302,931,000 to $ 334,819,000 |
| Total salaries and wages | $ 53,579,000 to $ 59,219,000 |
| Total person-years of employment | 1,596 to 1,764 |
| Property Income* | $ 14,773,000 to $ 16,328,000 |
| Indirect Business Taxes** | $ 2,663,000 to $ 2,944,000 |
| **Dam Construction, Pipeline Construction, Pump Station and other infrastructure**<br>Impacted counties: Fannin, Hunt, Lamar, Delta.<br>**Construction period: 4-5 years.** | |
| Total economic activity | $ 329,871,000 to $ 364,595,000 |
| Total salaries and wages | $ 76,275,000 to $ 84,304,000 |
| Total person-years of employment | 2,240 to 2,476 |
| Property Income* | $ 21,745,000 to $ 24,033,000 |
| Indirect Business Taxes** | $ 4,093,000 to $ 4,524,000 |

* Includes rents, royalties, dividends, and corporate profits. ** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending. Sources: North Texas Municipal Water District, authors' estimates.

Property owners for the land that will be consumed by the lake and the additional acreage that may be set aside for flood easements and environmental mitigation purposes will be compensated. These payments to land owners represent a transfer of income to the local economy supporting new spending in the region.

In addition to construction activities in Fannin County, Collin County will see a share of the economic benefits of the reservoir development including pipeline, terminal storage facilities and a water treatment plant. These infrastructure components will be located in either Fannin County or Collin County. These facilities will cost between $365 million and $403 million to build. This spending, which includes the Fannin County spending described above, will generate between $536 million and $593 million in economic activity in the Fannin/Collin Counties region during the development phase. Between 4,122 and 4,556 person-years of employment will be supported and labor income will rise by $180 million to $200 million (see Table 2). Property income will rise between $53 million and $59 million. Finally, state and local governments will gain an estimated $12 million to $13.4 million in taxes and fees.

## Table 2

**Temporary Impacts of Transmission and Treatment Infrastructure Construction**

| Description | Impact |
|---|---|
| **Pipeline, Storage, and Treatment Facilities Construction**<br>Impacted counties: Fannin, Collin. Construction period: 3-4 years. | |
| Construction costs | $ 365,001,000 to $ 403,422,000 |
| Total economic activity | $ 536,540,000 to $ 593,018,000 |
| Total salaries and wages | $ 180,658,000 to $ 199,674,000 |
| Total person-years of employment | 4,122 to 4,556 |
| Other property income* | $ 53,308,000 to $ 58,919,000 |
| Indirect business taxes** | $ 12,147,000 to $ 13,426,000 |

* Includes rents, royalties, dividends, and corporate profits. ** Includes property taxes, sales taxes, and fees for permits and licenses paid on secondary transactions from water district spending. Sources: North Texas Municipal Water District, authors' estimates.

***Section 4: On-going economic impacts of dam and pipeline operations***

Once the dam and pipeline are built, on-going operations and maintenance of these infrastructures will continue to provide a modest number of jobs and a minor boost to local economic activity. Recurring maintenance and operating expenditures for the dam and related infrastructures are expected to increase local economic activity by about $4 million each year in Fannin and Collin counties combined. This activity will support 20 full-time-equivalent (FTE) direct and indirect jobs paying about $825,000 in annual wages and salaries (see Table 2).

## Table 2

**Recurring Annual Local Economic Impacts of Dam, Pipeline and Related Infrastructure Operations (Fannin and Collin Counties)**

| Description | Impact |
|---|---|
| Total economic activity | $ 3,966,000 |
| Total salaries and wages | $ 825,000 |
| Total full-time-equivalent employment | 20 |
| Indirect state and local business taxes | $ 151,000 |

Source: Authors' estimates

***Section 5: Developmental impacts of the proposed reservoir***

In addition to the one-time and recurring impacts described above, the impoundment of a 16,526 acre reservoir in Fannin County would have substantial spillover benefits on the local economy. In this section we consider the impacts that will follow new recreational spending based at the reservoir and the economic and fiscal consequences for the region from attracting new permanent and weekend residents.

*5.1 Impacts of recreational users*

The "field of dreams" scenario often works for lakes. If you build a publicly accessible water recreation resource, visitors use it. The north Texas region currently has many excellent reservoirs supporting water-based recreational activities. However, some of these reservoirs are so overcrowded that water accidents occur with increasing frequency. As the DFW population continues to grow over the next 30 years, demand for water recreation sites will increase, and Fannin county is ideally situated to capture more than a fair share of this recreational activity.

Unfortunately, few studies offer specific guidance on estimating the magnitude of the economic impacts that will attend increased recreational visitors to Fannin County when the proposed reservoir is fully developed. However, in the mid-1990s, Texas A&M, working for the Texas Parks and Wildlife Department and the Sabine River Authority, surveyed anglers at Lake Fork to assess their levels of local spending. Over two-thirds of the survey respondents were non-local residents, with about one-third hailing from outside of Texas. Non-local angler-visitors to Lake Fork spent an estimated $14.5 million in Wood, Rains, and Hopkins counties during their fishing trips for food, lodging, and supplies. This level of spending encourages business development and supports jobs. While some of this employment will be seasonal, north Texas weather patterns permit water-based recreation on a year-round basis.

Other lake-based recreation activities will draw additional out-of-area visitors to the region. We are not suggesting that the proposed reservoir will rise to Lake Fork's national reputation as a fishing lake, but when combined with non-angler spending, we estimate that non-local recreation visitors will add $16 million to $21 million in new

spending for dining, food, retail goods, and lodging to the Fannin County economy. This spending will generate between $20.2 million and $26.9 million in economic activity, support 300 to 400 new jobs, and increase local earnings by $6 million to $7.9 million (see Table 3). Undoubtedly, bringing new recreational visitors to the area will present opportunities for businesses located in adjacent counties, especially Lamar County. However, given existing amenities and attractions in the City of Bonham, we expect that most of the recreational spending will stay in Fannin County.

## Table 3

**Recurring Annual Local Economic Impacts of Recreational Out-of-Area Visitor Spending**

| Description | Impact |
|---|---|
| Total annual spending: recreational visitors | $ 16,000,000 to $ 21,000,000 |
| Total economic activity | $ 20,230,000 to $ 26,972,000 |
| Total salaries and wages | $ 5,957,000 to $ 7,972,000 |
| Total full-time-equivalent employment | 295 to 393 |

Source: Authors' estimates

*5.2 Impacts of new permanent and weekend residents*

One trend clearly evident in north and northeast Texas is that counties with substantial reservoirs have enjoyed greater population growth than counties without these important amenities. Many recreational lake visitors eventually decide to move close to their favorite reservoirs. Carefully managed residential development can prove to be a tremendous economic boon for lake county economies.

Fannin County is well-positioned to take full advantage of opportunities to attract new permanent and weekend residents to the reservoir. The proposed dam, which will be on the north end of the reservoir, will be only 50 miles from McKinney and 80 miles from downtown Dallas. Already, as indicated earlier, spillover growth from the Dallas-

Fort Worth Metroplex is reaching the Bonham area. Within reasonable reach of big-city amenities, yet removed from most urban disamenities, we expect the proposed reservoir to attract at least 1,100 full-time resident households over and above anticipated growth for the area over the next 30 years. Though this may not seem like a huge number of new households, at least by urban development standards, these new households will bring $57 million in new income to the area.

In addition, at least 2,100 new dwellings will be constructed in the area surrounding the reservoir as weekend/vacation homes and investment properties. Our estimate of these weekender residences is likely understated. However, we caution that while relative proximity to the Metroplex will encourage permanent residents, it will lower demand for weekend/vacation housing. Nonetheless, we estimate that weekend and vacation resident will bring an equivalent of $9.6 million in household income that will be used for local purchases.

Modeling the combined incomes of permanent residents and the proportional income of weekend residents using regionally based estimates of spending, we find the Fannin County economy will realize a net increase of between $77 million and $85 million each year once full development is reached. This activity will support 517 to 572 permanent jobs paying $12.8 million to $14 million in salaries and wages (see Table 4).

It is likely that businesses located in Hunt, Lamar, and Delta counties, as well as Fannin County, will offer goods and services to the new permanent and weekend residents. Including the economic activity that is likely to go to these other counties, spending by households drawn to the new reservoir will increase economic output in the

broader region by $82.3 million to $91 million, boost local income by $17 million to $19 million, and support between 701 to 775 permanent jobs.

We strongly emphasize that the pace and quality of development will depend on many market-related factors. **One of the most critical factors will be the extent to which counties, cities, and towns adopt well-reasoned development plans to promote quality growth while also ensuring that infrastructure development and publicly-provided services keep pace with new demand.** Examples of infrastructures would include such things as electric services, roads, water services, and public safety and other municipal services.

## Table 4

**Recurring Annual Local Economic Impacts of New Resident Spending**

| Description | Impact |
|---|---|
| Fannin County Impacts | |
| Total annual spending | $ 67,724,000 to $ 74,290,000 |
| Total economic activity | $ 77,119,000 to $ 85,237,000 |
| Total salaries and wages | $ 12,736,000 to $ 14,077,000 |
| Total full-time-equivalent employment | 517 to 572 |
| Fannin, Hunt, Delta, and Lamar County Impacts | |
| Total economic activity | $ 82,303,000 to $ 90,967,000 |
| Total salaries and wages | $ 17,150,000 to $ 18,955,000 |
| Total full-time-equivalent employment | 701 to 775 |

Source: Authors' estimates

*5.3 Impacts of new housing construction*

In our projections we have assumed that the new permanent and weekend resident households will be single-family units. This is consistent with most of the development trends experienced in other lake counties. Even if residential real estate demand shifts to the inclusion of multi-family properties, the costs of development, and hence the economic and fiscal impacts, will be within the range of possibilities projected below.

Because of recent housing market volatility, we have retained the estimates of housing prices from our earlier study. Undoubtedly, this approach results in a more conservative estimate of the likely impacts of housing development near the new reservoir.

We estimate the average cost of land and improvements for permanent-resident dwellings will be about $127,000. Based on the findings of nationwide housing studies, vacation and weekend homes will likely be valued somewhat less than those of permanent residents. We assume an average market value of $115,000 per weekend dwelling. About 25 percent of the housing values will represent land; therefore, based on our earlier estimates of the number of households that will eventually occupy the areas around the proposed reservoir, we expect almost $288 million in new residential construction activity to occur primarily in Fannin county over a 30 year period. These construction activities will boost the local economy by about $14.5 million per year, on average,[1] support an average of 133 long-term FTE jobs, and boost local income by $3.4 million (see Table 5).

## Table 5

**Local Economic Impacts of Housing Construction**
(30-year development)

| Description | Impact | |
|---|---|---|
| | Total | Average Annual |
| Construction spending | $ 287,805,000 | $ 9,594,000 |
| Total economic activity | $ 432,538,000 | $ 14,418,000 |
| Total salaries and wages | $ 102,123,000 | $ 3,404,000 |
| Total full-time-equivalent employment | 3,997 | 133 |

Source: Authors' estimates

[1] Housing construction will not be evenly distributed across the period of development.

*5.4 Business development and recruitment*

One of the key attractions for new residents, including business people making location choices for plant sites, distribution centers, and other industrial land uses, is the presence of recreational amenities and quality-of-life features. These characteristics have become critical in the site selection process. Given Fannin County's existing locational advantages, the presence of the new reservoir providing a reliable source of water for industrial uses will enhance the county's ability to attract and retain businesses. To estimate the magnitude of the economic activity that could be gained through expanded business activities, we utilized projected water demand estimates from the Texas Water Development Board (TWDB)[2] and the previously described IMPLAN model.

Based on its latest published estimates, the TWDB expects manufacturing industry water use to rise in Fannin County by 8 acre feet per year between 2020 and 2030. Water used for steam electricity generation is expected to increase by 436 acre feet per year. Livestock and irrigation uses are not expected to increase over this period, which is reasonable given the impact of the lake's impoundment on these land uses. Mining industry activities are also not expected to increase.[3] Municipal uses are expected to rise by 1,326 acre feet per year. While much of this increase in municipal usage will be accounted for by the increase in households described earlier, some of the increase will be due to increased commercial and other non-manufacturing business activities not previously described in this analysis.

[2] Though the TWBD estimates do not specifically include the proposed reservoir, they provide a reasonable basis for conservatively estimating future economic activity.
[3] Projected water usage for livestock and irrigation purposes are substantially lower than current usage estimates.

Using 2000 usage data for Fannin County and adjusted commodity production estimates from IMPLAN,[4] we estimated the current economic value of production per acre foot of water used by use-category. Multiplying these values by projected increase in water usage suggests that manufacturing, commercial,[5] and electricity generating activities will increase by $112.6 million annually in Fannin County. While there are many factors that drive economic development, without the water resources made available by the proposed reservoir, it is unlikely that Fannin County will see this increase in economic activity.

Increasing Fannin County's direct economic activity would also create spin-off indirect and induced economic impacts as described earlier in this report. However, two adjustments are required to improve the accuracy of estimating these indirect and induced impacts. First, we will not include the induced (household spending) impacts to avoid double counting the impacts of permanent resident spending described above that would be employed through this new business activity. Secondly, current economic models of Fannin County do not adequately represent how the economy will operate 25 years from now. We therefore used impact multipliers for Rockwall County, which currently has a population about equal to TWBD's projected population for Fannin County in 2020. [Local officials in Fannin County suggest that the TWBD population projections are substantially underestimated. We concur with these officials; however, using the TWBD data enhances the conservative nature of our estimates.] Increasing Fannin County's industrial and commercial output by $112.6 million will result in $138.7 million in

[4] Adjusted for the loss of the local meat packing operation.
[5] We assumed that no more than 20 percent of municipal water usage is for commercial business activities.

economic activity, boost area labor income by $46 million, and support over 1,600 jobs (see Table 6).

## Table 6

**Economic Impacts of New Industrial and Commercial Activities**
(10-year increase after reservoir development)

| Description | Annual Impact |
|---|---|
| New Direct Activity | $ 112,610,000 |
| Total economic activity | $ 138,710,000 |
| Total salaries and wages | $ 45,961,000 |
| Total full-time-equivalent employment | 1,607 |

Source: Authors' estimates

***Section 6: Local fiscal impacts***

In this section, we estimate some of the new tax revenues that will be enjoyed by counties and school districts. We will also consider the impacts on local property taxes from the loss of taxable land in the lake impoundment and mitigation areas.

Taxable value of permanent and weekend resident housing at full development is estimated at $326.2 million[6]. Of course, some diminution of taxable values will occur as a result of land inundation and environmental mitigation. Most of the land to be inundated is agricultural. Fannin County assess taxable values for agricultural land according to the nature of the land, the use of the land, and irrigation status. These valuations range from $65 per acre for native grasslands that are not irrigated to $323 per acre for irrigated land or land in horticultural uses. We have assumed that of the 16,526 acres that will be inundated and the estimated 30,000 acres that may be required for environmental mitigation, 50 percent is irrigated crop land valued at $323 per acre for tax

[6] The average value of homestead, senior citizen, disabled, veteran and other exemptions is estimated at 15 percent of total valuation.

purposes, 30 percent is valued at $157 per acre, and that 20 percent is improved land at $88 per acre. (Typically irrigated land is not used for environmental irrigation; therefore, our approach will tend to overstate potential tax losses.) Therefore, the inundation of land and mitigation areas for the reservoir will remove $10.5 million in taxable value from the local tax rolls. Therefore, the net increase in taxable value will be $315.7 million, an increase of 22 percent over Fannin County 2003 total taxable property values. This increase in valuation will generate about $1.9 million per year to the county and over $5 million per year to area school districts under current law. Importantly, much of this gain in school district revenues will not be accompanied by a proportionate increase in students since a large percentage of the estimated valuations are for weekend or vacation residences. Area municipalities and townships could also benefit from increased property tax revenues depending on the degree to which their taxing jurisdictions are expanded to include land adjacent to the proposed reservoir (see Table 7).

Taxable retail sales in Fannin County will increase as new residents and visitors come to the area. Taking a very conservative approach, we estimate that local sales tax revenues could increase by $290,000 or more per year. Hotel revenues for room rentals are expected to be at least $3.5 million per annum. Based on a local bed-tax rate of 5 percent, these expenditures will boost local tax receipts by an additional $175,000 annually. Our estimates do not consider the additional taxable property value that will be created as stores, bait shops, hotels/resorts, restaurants, and other businesses locate around the lake.

## Table 7

**Recurring Annual Fiscal Impacts of New Housing Developments and Resident and Recreational Out-of-Area Visitor Spending**

| Description | Impact |
|---|---|
| Total taxable value of housing (permanent and weekend residents) | $ 326,200,000 |
| Reduction in property value due to inundation and mitigation | ($ 10,524,000) |
| Net gain in taxable property values | $ 315,676,000 |
| Estimated new county property tax revenues | $ 1,894,000 |
| Estimated new school district property tax revenues | $ 5,118,000 |
| Total potential* municipal sales taxes (0.01 rate) | $ 290,000 |
| Hotel occupancy tax revenues* | $ 175,000 |

* Value will be impacted by land annexation and business location decisions. Source: Authors' estimates

### *Section 7: Conclusions*

The proposed Lower Bois d'Arc Creek Reservoir will provide tremendous short-term economic gains to Fannin County that will certainly spill over to residents and businesses in surrounding counties as the dam and related infrastructures are constructed over a multi-year period. Construction spending for the dam and transport infrastructure will add over $267 million to local economic activity and provide more than 1,600 person-years of employment. The dam will also create new opportunities for local businesses by adding $4 million in annual local economic activity and supporting about 20 permanent jobs.

Once impounded, the lake will attract substantial new private investment by hospitality firms anxious to provide services, meals, and specialty retail goods to the lake's recreational users. Out-of-area recreational users are projected to spend $16 million to $21 million per year in the local economy. In addition, as seen with other Texas lakes, residents will be attracted to the region to take advantage of the new recreational amenities, bringing substantial new local spending to the area at full

development. These new personal outlays will increase local economic activity by over $80 million per year and support more than 700 permanent jobs. The reservoir will provide water resources that will support additional business development in Fannin County. Using conservative TWBD usage estimates, $138.7 million in new economic activity would be supported in the county adding an additional 1,600 jobs to area payrolls. Any comparable industrial investment offering this magnitude of economic benefit would probably require exceptional incentive packages from state, county, and municipal governments. Construction of housing units for permanent and weekend residents will likely be spread over a 30-year period providing long-term job and business opportunities in the construction trades.

An expanded tax base will be another payoff from the ancillary development that will attend construction of the reservoir, allowing local governments to provide a broader range of public services while maintaining competitive tax rates. In summary, the economic opportunities supported by the proposed reservoir will promote sustainable development while diversifying the local job base.

# ATTACHMENT C

# The Economic, Fiscal, and Developmental Impacts of the Proposed Lower Bois d'Arc Creek Reservoir Project

**Prepared by Terry L. Clower, Ph.D.**
**Bernard L. Weinstein**
**September 2004**

# The Economic, Fiscal, and Developmental Impacts of the Proposed Lower Bois d'Arc Reservoir Project

*Prepared for:*

**The North Texas Municipal Water District**

*By:*

**Terry L. Clower, Ph.D.***
**Bernard L. Weinstein**

**September 2004**

* Professor and Assistant Professor, Institute of Applied Economics, University of North Texas. Views expressed by the authors are theirs alone and do not necessarily reflect those of the university or its Board of Regents.

# Executive Summary

- Construction of the dam to impound the proposed Lower Bois d'Arc Reservoir and intake pump station will cost between $181 million and $200 million. Depending on exact expenditures, local economic activity will increase between $231 million and $256 million during the four to five year project. This activity will support in the range of 2,000 to almost 2,300 person-years of employment with associated salaries and wages of between $60.3 million and $66.7 million.

- The proposed pipeline, storage, and facilities to treat water from the Lower Bois d'Arc Reservoir will cost in the range of $233 million to $257 million boosting economic activity in Fannin and Collin counties by a combined $320 million to $354 million, supporting over 2,000 person-years of employment and paying upwards of $104 million in salaries and wages.

- After construction of the dam and pipeline is completed, on-going impacts from the operation and maintenance of these infrastructures will support about 20 full-time-equivalent direct and indirect jobs and spur about $3.7 million in new economic activity per year.

- Once the lake is impounded, new recreational spending will arrive in Fannin County as visitors come to fish, boat, and participate in other water-recreation activities. These visitors will bring $15 million to $20 million in new annual spending to the local economy.

- The lake will also attract many new residents to Fannin County. We estimate that over a 30-year period at least 1,100 new permanent households will be established around the lake. An additional 2,100 residences will likely be built as vacation/weekend/second homes. These new households will be in addition to any other growth projected for Fannin County. The construction of these homes will bring an average of over 133 jobs per year to the local economy over the development period.

- The reservoir will also support new industrial and commercial activities beyond those described in the hospitality industry. Using Texas Water Development Board usage estimates, we project that $139 million in new economic activity in Fannin County supporting over 1,600 permanent jobs could be made possible by the availability of a new reliable water resource.

- The pace and quality of development will depend on many market-related factors. One of the most critical factors will be the extent to which counties, cities, and towns adopt well-reasoned development plans to promote quality growth while also ensuring that infrastructure development and publicly-provided services keep pace with new demand. Examples of infrastructures would include such things as electric services, roads, water services, and public safety and other municipal services.

- Spending by new residents in the local economy will increase economic activity in Fannin County by $63 million to $69 million each year. Our analysis also suggests that economic activity in the larger region including Fannin, Hunt, Delta, and Lamar counties will rise by as much as $85 million per year in response to having these new residents living near the proposed reservoir. This activity will support well over 700 permanent jobs paying about $16 million in annual salaries and wages.

- Once developed, the proposed reservoir will enhance the region's attractiveness as a business location. As a recreational amenity, the lake will enhance the quality of life features of the region, which are an increasingly important factor in business site location decisions.

- Local taxing jurisdictions will enjoy not only substantial temporary gains in revenues from business activities related to construction of the dam, pipelines and related infrastructure, and new housing, they will also see new revenues based on increased property values and spending by visitors and residents. Property taxes on new housing alone will add $1.9 million to county tax revenues net of any losses due to the lake impoundment and related environmental mitigation. Similarly, net gains in area school district revenues will approach $5 million per year at full development. Local taxes on retail sales will generate at least $290,000 per year with an additional $175,000 per year provided by hotel occupancy taxes.

## Table ES1

**Temporary Local Economic Impacts of Dam, Pipeline, and Related Infrastructure Construction**

| Description | Impact |
|---|---|
| **Dam Construction**<br>Impacted counties: Fannin.<br>Construction period: 4-5 years. | |
| Construction costs | $ 181,070,000 to $ 200,130,000 |
| Total economic activity | $ 225,859,000 to $ 249,634,000 |
| Total salaries and wages | $ 56,286,000 to $ 62,211,000 |
| Total person-years of employment | 1,937 to 2,141 |
| **Dam Construction**<br>Impacted counties: Fannin, Hunt, Lamar, Delta.<br>**Construction period: 4-5 years.** | |
| Total economic activity | $ 231,393,000 to $ 255,750,000 |
| Total salaries and wages | $ 60,339,000 to $ 66,690,000 |
| Total person-years of employment | 2,069 to 2,287 |

Sources: North Texas Municipal Water District, authors' estimates.

## Table ES1 -- continued

**Temporary Local Economic Impacts of Dam, Pipeline, and Related Infrastructure Construction**

| Description | Impact |
|---|---|
| **Pipeline, Storage, and Treatment Facilities Construction**<br>Impacted counties: Fannin, Collin.<br>Construction period: 3-4 years. | |
| Construction costs | $ 233,035,000 to $ 257,670,000 |
| Total economic activity | $ 319,982,000 to $ 353,664,000 |
| Total salaries and wages | $ 94,334,000 to $ 104,264,000 |
| Total person-years of employment | 2,009 to 2,220 |

Sources: North Texas Municipal Water District, authors' estimates.

## Table ES2

**Recurring Annual Local Economic Impacts**
(2004 dollars)

| Description | Impact |
|---|---|
| **Dam, Pump Station, Pipeline, and Treatment Plant Operations**<br>Impacted counties: Fannin, Collin | |
| Total economic activity | $ 3,726,000 |
| Total salaries and wages | $ 773,000 |
| Total full-time-equivalent employment | 20 |
| **Recreational Visitor Spending** | |
| Total annual spending | $ 15,000,000 to $ 20,000,000 |
| Total economic activity | $ 18,871,000 to $ 25,160,000 |
| Total salaries and wages | $ 5,577,000 to $ 7,437,000 |
| Total full-time-equivalent employment | 295 to 393 |
| **Resident Spending**<br>Permanent and Weekend/Vacation Residents: Fannin, Lamar, Hunt, Delta | |
| Total economic activity | $ 76,775,000 to $ 84,857,000 |
| Total salaries and wages | $ 15,998,000 to $ 17,682,000 |
| Total full-time-equivalent employment | 701 to 775 |
| **New Industrial and Commercial Activities**<br>Based on Projected Water Usage | |
| Total economic activity | $ 138,710,000 |
| Total salaries and wages | $ 45,961,000 |
| Total full-time-equivalent employment | 1,607 |

Source: Authors' estimates

# ES3

## Recurring Annual Fiscal Impacts of New Housing Developments and Resident and Recreational Out-of-Area Visitor Spending+

| Description | Impact |
|---|---|
| Total taxable value of housing (permanent and weekend residents) | $ 326,200,000 |
| Reduction in property value due to inundation and mitigation | ($ 11,921,000) |
| Net gain in taxable property values | $ 314,279,000 |
| Estimated new county property tax revenues | $ 1,886,000 |
| Estimated new school district property tax revenues | $ 4,902,000 |
| Total potential* municipal sales taxes (0.01 rate) | $ 290,000 |
| Hotel occupancy tax revenues* | $ 175,000 |

+ at buildout * Value will be impacted by land annexation and business location decisions.
Source: Authors' estimates

***Section 1: Introduction***

Addressing future water needs for the North Texas Municipal Water District's service area has led to the consideration of developing several new water supplies. One proposal is for a reservoir to be located along the Lower Bois d'Arc Creek just northeast of the City of Bonham in Fannin County. The following reports our findings of an analysis of the economic, fiscal, and development impacts of this proposed reservoir.

Our estimates of the economic impacts of the reservoir and related economic activity are based on the IMPLAN input-output economic modeling system developed by the Minnesota IMPLAN Group. The modeled impacts include the direct effects of spending for construction activities and consumption spending, the indirect effects of local vendors providing goods and services to the primary firms, and the induced impacts of employees of these firms spending a portion of their earnings in the local economy. All costs and impacts are expressed in constant 2004 dollars.

We begin with an economic overview of Fannin County and then proceed to measure the new employment, income, spending, and tax revenues that will attend the construction and operations of the dam and related transportation, storage, and treatment facilities. We then explore the "ancillary" development likely to occur in conjunction with the dam, in particular the construction of new homes and recreationally based businesses. New and recurring income, employment, and economic activity associated with this ancillary development are estimated. Finally, we examine the impact of the proposed project on revenues to local taxing jurisdictions.

***Section 2: Economic overview of Fannin County.***

Like many rural counties in Texas, Fannin County saw its historical peak of population and economic activity around the turn of the 20th century. The 1900 census showed a population of 51,793. Cotton and corn production were the chief crops in an economy dominated by agricultural production. Later in the 20th century, dairy operations rose in prominence, but the county suffered tremendous economic losses during the depression years and after World War II. Children of farmers sought their fortunes elsewhere. By 1970, the population had dropped to 22,705. However, after 1970 the population stabilized and began to slowly increase. Today Fannin County is home to about 32,000 residents and during the decade of the 1990s actually grew faster than the state as a whole (26 percent increase versus 22.8 percent increase) as spillover growth from Dallas' northern suburbs reached the county. Total goods and services produced in the county currently exceed $1.1 billion each year. The three largest non-government industries, by value of output, include plastics products manufacturing, production of non-ferrous wire, and automobile dealerships.[1]

As can be seen in Figure 1, year-over-year employment change in Fannin County has not seen consistent growth as shown for the state. With the exception of 1986 and 1994-1997, the county has lagged state economic performance, sometimes dramatically. These data suggest that one critical economic development strategy for Fannin County should be to diversify their economic base, particularly toward industries with greater stability over time.

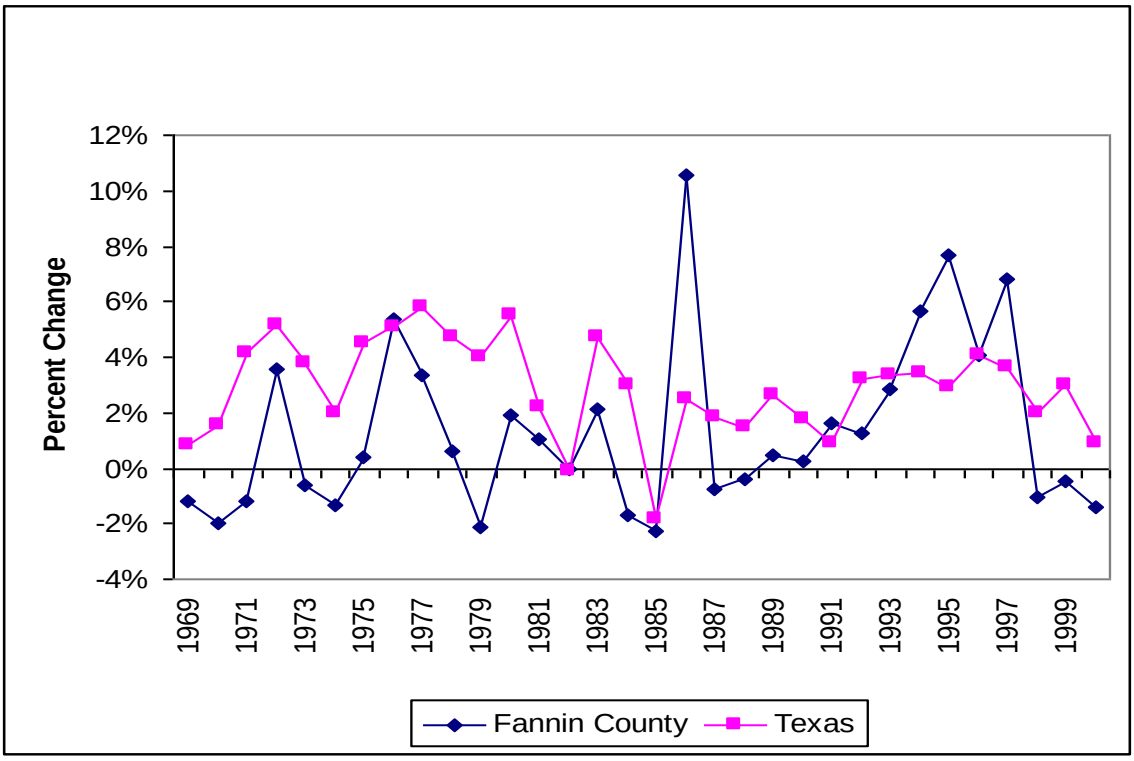
The proposed reservoir offers several economic development opportunities for Fannin County. In addition to the substantial economic activity that would be generated

[1] Data are based on 1999 IMPLAN modeling output.

by construction projects related to the reservoir over a multi-year period, the new lake would attract recreational users whose spending, in turn, would spur investment in new hospitality venues. By supporting new residents and hosting new recreation-based industries, the proposed reservoir offers an excellent diversification opportunity for Fannin County.

**Figure 1**

**Year-to-Year Percentage Change**
**Total Employment State of Texas and Fannin County**
**1969-2001**




Source: US Department of Commerce.

***Section 3: Economic impacts of dam and related infrastructure construction.***

In this section we examine the economic impacts of the construction of the proposed Lower Bois d'Arc Reservoir dam and related infrastructure. These estimates

are based on the latest cost projections for the facilities expressed in current year (2004) dollars.

Economic impact assessments for the dam and reservoir construction projects are examined in two models. The first looks at the impacts that will likely remain in Fannin County. However, based on the size of the development projects, businesses and residents of nearby counties will also benefit from the economic activity associated with the construction of the dam. For purposes of this analysis, we have included an estimate of the total impacts that will likely occur in a wider economic area defined by Fannin, Delta, Lamar, and Hunt counties.

Constructing the dam for the Lower Bois d'Arc Reservoir and intake pump station is expected to cost between $181 million and $200 million and take four to five years to complete. Based on the relative presence, or absence, of industries providing materials and supporting services to dam construction projects, some of the economic activity will "leak" out of the local area. Even so, the construction of the dam and intake pump station will generate between $226 and $250 million in economic activity in Fannin County over the construction period. This activity will support somewhere between 1,940 and 2,140 person years[2] of employment paying $56 million to $62 million in earnings. (See Table 1.)

Looking at the expanded economic region defined by Fannin, Lamar, Delta, and Hunt counties, the impacts are slightly larger reflecting these additional counties' abilities to attract a portion of the jobs and business activity related to the dam and intake pump station construction. The expanded region should see an overall increase in economic

[2] One person employed in one full-time-equivalent job for one year. In this case, we expect an average of about 400 jobs per year for the 5-year construction period.

activity totaling between $231 million and $256 million accompanied by an increase in area earnings of $60 million to 66.7 million and a gain of between 2,069 and 2,287 person years of employment.

Property owners for the land that will be consumed by the lake and the additional acreage that may be set aside for flood easements and environmental mitigation purposes will be compensated. These payments to land owners represent a transfer of income to the local economy.

In examining the impacts of the construction and development of pipeline, storage, and treatment facilities accompanying the impoundment of the new reservoir, we use an economic region defined by Fannin and Collin counties. (At the time of this analysis, a final determination of the precise location or route of the facilities has not been made). Capital expenditures to build water transfer and treatment facilities are expected to range from $233 million to $257 million and take three to four years to complete. These expenditures will boost the Fannin-Collin counties area economic activity by $320 million to $353.7 million, boost local earnings during the construction period by $94 million to $104 million, and create 2,000 to 2,200 person-years of employment (see Table 1).

# Table 1

**Temporary Local Economic Impacts of Dam, Pipeline, and Related Infrastructure Construction**

| Description | Impact |
|---|---|
| **Dam Construction**<br>Impacted counties: Fannin.<br>Construction period: 4-5 years. | |
| Construction costs | $ 181,070,000 to $ 200,130,000 |
| Total economic activity | $ 225,859,000 to $ 249,634,000 |
| Total salaries and wages | $ 56,286,000 to $ 62,211,000 |
| Total person-years of employment | 1,937 to 2,141 |
| **Dam Construction**<br>Impacted counties: Fannin, Hunt, Lamar, Delta.<br>**Construction period: 4-5 years.** | |
| Total economic activity | $ 231,393,000 to $ 255,750,000 |
| Total salaries and wages | $ 60,339,000 to $ 66,690,000 |
| Total person-years of employment | 2,069 to 2,287 |
| **Pipeline, Storage, and Treatment Facilities Construction**<br>Impacted counties: Fannin, Collin.<br>Construction period: 3-4 years. | |
| Construction costs | $ 233,035,000 to $ 257,670,000 |
| Total economic activity | $ 319,982,000 to $ 353,664,000 |
| Total salaries and wages | $ 94,334,000 to $ 104,264,000 |
| Total person-years of employment | 2,009 to 2,220 |

Sources: North Texas Municipal Water District, authors' estimates.

***Section 4: On-going economic impacts of dam and pipeline operations***

Once the dam and pipeline are built, on-going operations and maintenance of these infrastructures will continue to provide a modest number of jobs and a minor boost to local economic activity. Recurring maintenance and operating expenditures for the dam and related infrastructures are expected to increase local economic activity by $3.7 million each year in Fannin and Collin counties combined. This activity will support 20 full-time-equivalent (FTE) direct and indirect jobs paying about $770,000 in annual wages and salaries (see Table 2).

## Table 2

**Recurring Annual Local Economic Impacts of Dam, Pipeline and Related Infrastructure Operations (Fannin and Collin Counties)**

| Description | Impact |
|---|---|
| Total economic activity | $ 3,726,000 |
| Total salaries and wages | $ 773,000 |
| Total full-time-equivalent employment | 20 |
| Indirect state and local business taxes | $ 141,000 |

Source: Authors' estimates

***Section 5: Developmental impacts of the proposed reservoir***

In addition to the one-time and recurring impacts described above, the impoundment of a 22,702 acre reservoir in Fannin County would have substantial spillover benefits on the local economy. In this section we consider the impacts that will follow new recreational spending based at the reservoir and the economic and fiscal consequences for the region from attracting new permanent and weekend residents.

*5.1 Impacts of recreational users*

The "field of dreams" scenario often works for lakes. If you build a publicly accessible water recreation resource, visitors use it. The north Texas region currently has many excellent reservoirs supporting water-based recreational activities. However, some of these reservoirs are so overcrowded that water accidents occur with increasing frequency. As the DFW population continues to grow over the next 30 years, demand for water recreation sites will increase, and Fannin county is ideally situated to capture more than a fair share of this recreational activity.

Unfortunately, few studies offer specific guidance on estimating the magnitude of the economic impacts that will attend increased recreational visitors to Fannin County

when the proposed reservoir is fully developed. However, in the mid-1990s, Texas A&M, working for the Texas Parks and Wildlife Department and the Sabine River Authority, surveyed anglers at Lake Fork to assess their levels of local spending. Over two-thirds of the survey respondents were non-local residents, with about one-third hailing from outside of Texas. Non-local angler-visitors to Lake Fork spent an estimated $14.5 million in Wood, Rains, and Hopkins counties during their fishing trips for food, lodging, and supplies. This level of spending encourages business development and supports jobs. While some of this employment will be seasonal, north Texas weather patterns permit water-based recreation on a year-round basis.

Other lake-based recreation activities will draw additional out-of-area visitors to the region. We are not suggesting that the proposed reservoir will rise to Lake Fork's national reputation as a fishing lake, but when combined with non-angler spending, we estimate that non-local recreation visitors will add $15 million to $20 million in new spending for dining, food, retail goods, and lodging to the Fannin County economy. This spending will generate between $15.2 million and $20.2 million in economic activity, support 300 to 400 new jobs, and increase local earnings by $5.6 to $7.4 million (see Table 3). Undoubtedly, bringing new recreational visitors to the area will present opportunities for businesses located in adjacent counties, especially Lamar County. However, given existing amenities and attractions in the City of Bonham, we expect that most of the recreational spending will stay in Fannin County.

## Table 3

**Recurring Annual Local Economic Impacts of Recreational Out-of-Area Visitor Spending**

| Description | Impact |
|---|---|
| Total annual spending: recreational visitors | $ 15,000,000 to $ 20,000,000 |
| Total economic activity | $ 18,871,000 to $ 25,160,000 |
| Total salaries and wages | $ 5,577,000 to $ 7,437,000 |
| Total full-time-equivalent employment | 295 to 393 |

Source: Authors' estimates

*5.2 Impacts of new permanent and weekend residents*

One trend clearly evident in north and northeast Texas is that counties with substantial reservoirs have enjoyed greater population growth than counties without these important amenities. Many recreational lake visitors eventually decide to move close to their favorite reservoirs. Carefully managed residential development can prove to be a tremendous economic boon for lake county economies.

Fannin County is well-positioned to take full advantage of opportunities to attract new permanent and weekend residents to the reservoir. The proposed dam, which will be on the north side of the reservoir, will be only 50 miles from McKinney and 80 miles from downtown Dallas. Already, as indicated earlier, spillover growth from the Dallas-Fort Worth Metroplex is reaching the Bonham area. Within reasonable reach of big-city amenities, yet removed from most urban disamenities, we expect the proposed reservoir to attract at least 1,100 full-time resident households over and above anticipated growth for the area over the next 30 years. Though this may not seem like a huge number of new households, at least by urban development standards, these new households will bring $57 million in new income to the area.

In addition, at least 2,100 new dwellings will be constructed in the area surrounding the reservoir as weekend/vacation homes and investment properties. Our estimate of these weekender residences is likely understated. However, we caution that while relative proximity to the Metroplex will encourage permanent residents, that proximity will lower demand for weekend/vacation housing. Nonetheless, we estimate that weekend and vacation resident will bring an equivalent of $9 million in household income that will be used for local purchases.

Modeling the combined incomes of permanent residents and the proportional income of weekend residents using regionally based estimates of spending, we find the Fannin County economy will realize a net increase of between $72 million and $79.5 million each year once full development is reached. This activity will support 517 to 572 permanent jobs paying $11.9 million to $13.1 million in salaries and wages (see Table 4).

It is likely that businesses located in Hunt, Lamar, and Delta counties, as well as Fannin county, will offer goods and services to the new permanent and weekend residents. Including the economic activity that is likely to go to these other counties, spending by households drawn to the new reservoir will increase economic output in the broader region by $76.8 million to $84.9 million, boost local income by $16 million to $17.7 million, and support between 701 to 775 permanent jobs.

We strongly emphasize that the pace and quality of development will depend on many market-related factors. **One of the most critical factors will be the extent to which counties, cities, and towns adopt well-reasoned development plans to promote quality growth while also ensuring that infrastructure development and publicly-provided services keep pace with new demand.** Examples of infrastructures would

include such things as electric services, roads, water services, and public safety and other municipal services.

## Table 4

**Recurring Annual Local Economic Impacts of New Resident Spending**

| Description | Impact |
|---|---|
| Fannin County Impacts | |
| Total annual spending | $ 63,175,000 to $ 69,300,000 |
| Total economic activity | $ 71,939,000 to $ 79,512,000 |
| Total salaries and wages | $ 11,881,000 to $ 13,132,000 |
| Total full-time-equivalent employment | 517 to 572 |
| Fannin, Hunt, Delta, and Lamar County Impacts | |
| Total economic activity | $ 76,775,000 to $ 84,857,000 |
| Total salaries and wages | $ 15,998,000 to $ 17,682,000 |
| Total full-time-equivalent employment | 701 to 775 |

Source: Authors' estimates

*5.3 Impacts of new housing construction*

In our projections we have assumed that the new permanent and weekend resident households will be single-family units. This is consistent with most of the development trends experienced in other lake counties. Even if residential real estate demand shifts to the inclusion of multi-family properties, the costs of development, and hence the economic and fiscal impacts, will be within the range of possibilities projected below. We estimate the average cost of land and improvements for permanent-resident dwellings will be about $127,000. Based on the findings of nationwide housing studies, vacation and weekend homes will likely be valued somewhat less than those of permanent residents. We assume an average market value of $115,000 per weekend dwelling. About 25 percent of the housing values will represent land; therefore, based on our earlier estimates of the number of households that will eventually occupy the areas around the proposed reservoir, we expect almost $288 million in new residential construction

activity to occur primarily in Fannin county over a 30 year period. These construction activities will boost the local economy by about $13.5 million per year, on average,[3] support an average of 133 long-term FTE jobs, and boost local income by $3.2 million (see Table 5).

## Table 5

**Local Economic Impacts of Housing Construction**
(30-year development)

| Description | Impact | |
|---|---|---|
| | Total | Average Annual |
| Construction spending | $ 287,805,000 | $ 9,594,000 |
| Total economic activity | $ 403,487,000 | $ 13,450,000 |
| Total salaries and wages | $ 95,264,000 | $ 3,175,000 |
| Total full-time-equivalent employment | 3,997 | 133 |

Source: Authors' estimates

*5.4 Business development and recruitment*

One of the key attractions for new residents, including business people making location choices for plant sites, distribution centers, and other industrial land uses, is the presence of recreational amenities and quality-of-life features. These characteristics have become critical in the site selection process. Given Fannin County's existing locational advantages, the presence of the new reservoir providing a reliable source of water for industrial uses will enhance the county's ability to attract and retain businesses. To estimate the magnitude of the economic activity that could be gained through expanded business activities, we utilized projected water demand estimates from the Texas Water Development Board (TWDB)[4] and the previously described IMPLAN model.

[3] Housing construction will not be evenly distributed across the period of development.
[4] Though the TWBD estimates do not specifically include the proposed reservoir, they provide a reasonable basis for conservatively estimating future economic activity.

Based on its latest published estimates, the TWDB expects manufacturing industry water use to rise in Fannin County by 8 acre feet per year between 2020 and 2030. Water used for steam electricity generation is expected to increase by 436 acre feet per year. Livestock and irrigation uses are not expected to increase over this period, which is reasonable given the impact of the lake's impoundment on these land uses. Mining industry activities are also not expected to increase.[5] Municipal uses are expected to rise by 1,326 acre feet per year. While much of this increase in municipal usage will be accounted for by the increase in households described earlier, some of the increase will be due to increased commercial and other non-manufacturing business activities not previously described in this analysis.

Using 2000 usage data for Fannin County and adjusted commodity production estimates from IMPLAN,[6] we estimated the current economic value of production per acre foot of water used by use-category. Multiplying these values by projected increase in water usage suggests that manufacturing, commercial,[7] and electricity generating activities will increase by $112.6 million annually in Fannin County. While there are many factors that drive economic development, without the water resources made available by the proposed reservoir, it is unlikely that Fannin County will see this increase in economic activity.

Increasing Fannin County's direct economic activity would also create spin-off indirect and induced economic impacts as described earlier in this report. However, two adjustments are required to improve the accuracy of estimating these indirect and induced

[5] Projected water usage for livestock and irrigation purposes are substantially lower than current usage estimates.
[6] Adjusted for the loss of the local meat packing operation.
[7] We assumed that no more than 20 percent of municipal water usage is for commercial business activities.

impacts. First, we will not include the induced (household spending) impacts to avoid double counting the impacts of permanent resident spending described above that would be employed through this new business activity. Secondly, current economic models of Fannin County do not adequately represent how the economy will operate 25 years from now. We therefore used impact multipliers for Rockwall County, which currently has a population about equal to TWBD's projected population for Fannin County in 2020. [Local officials in Fannin County suggest that the TWBD population projections are substantially underestimated. We concur with these officials; however, using the TWBD data enhances the conservative nature of our estimates.] Increasing Fannin County's industrial and commercial output by $112.6 million will result in $138.7 million in economic activity, boost area labor income by $46 million, and support over 1,600 jobs (see Table 6).

## Table 6

**Economic Impacts of New Industrial and Commercial Activities**
(10-year increase after reservoir development)

| Description | Annual Impact |
|---|---|
| New Direct Activity | $ 112,610,000 |
| Total economic activity | $ 138,710,000 |
| Total salaries and wages | $ 45,961,000 |
| Total full-time-equivalent employment | 1,607 |

Source: Authors' estimates

***Section 6: Local fiscal impacts***

In this section, we estimate some of the new tax revenues that will be enjoyed by counties and school districts. We will also consider the impacts on local property taxes from the loss of taxable land in the lake impoundment and mitigation areas.

Taxable value of permanent and weekend resident housing at full development is estimated at $326.2 million[8]. Of course, some diminution of taxable values will occur as a result of land inundation and environmental mitigation. Most of the land to be inundated is agricultural. Fannin County assess taxable values for agricultural land according to the nature of the land, the use of the land, and irrigation status. These valuations range from $65 per acre for native grasslands that are not irrigated to $323 per acre for irrigated land or land in horticultural uses. We have assumed that of the 52,700 acres that will be either inundated or in the mitigation area, 50 percent is irrigated crop land valued at $323 per acre for tax purposes, 30 percent is valued at $157 per acre, and that 20 percent is improved land at $88 per acre. Therefore, the inundation of land and mitigation areas for the reservoir will remove $11.9 million in taxable value from the local tax rolls. Therefore, the net increase in taxable value will be $314.3 million, an increase of 22 percent over Fannin County 2003 total taxable property values. This increase in valuation will generate about $1.9 million per year to the county and almost $5 million per year to area school districts under current law. Importantly, much of this gain in school district revenues will not be accompanied by a proportionate increase in students since a large percentage of the estimated valuations are for weekend or vacation residences. Area municipalities and townships could also benefit from increased property tax revenues depending on the degree to which their taxing jurisdictions are expanded to include land adjacent to the proposed reservoir (see Table 7).

Taxable retail sales in Fannin County will increase as new residents and visitors come to the area. Taking a very conservative approach, we estimate that local sales tax

[8] The average value of homestead, senior citizen, disabled, veteran and other exemptions is estimated at 15 percent of total valuation.

revenues could increase by $290,000 or more per year. Hotel revenues for room rentals are expected to be at least $3.5 million per annum. Based on a local bed-tax rate of 5 percent, these expenditures will boost local tax receipts by an additional $175,000 annually. Our estimates do not consider the additional taxable property value that will be created as stores, bait shops, hotels/resorts, restaurants, and other businesses locate around the lake.

## Table 7

**Recurring Annual Fiscal Impacts of New Housing Developments and Resident and Recreational Out-of-Area Visitor Spending**

| Description | Impact |
|---|---|
| Total taxable value of housing (permanent and weekend residents) | $ 326,200,000 |
| Reduction in property value due to inundation and mitigation | ($ 11,921,000) |
| Net gain in taxable property values | $ 314,279,000 |
| Estimated new county property tax revenues | $ 1,886,000 |
| Estimated new school district property tax revenues | $ 4,902,000 |
| Total potential* municipal sales taxes (0.01 rate) | $ 290,000 |
| Hotel occupancy tax revenues* | $ 175,000 |

* Value will be impacted by land annexation and business location decisions. Source: Authors' estimates

### *Section 7: Conclusions*

The proposed Lower Bois d'Arc Reservoir will provide tremendous short-term economic gains to Fannin County that will certainly spill over to residents and businesses in surrounding counties as the dam and related infrastructures are constructed over a multi-year period. Construction of the dam will add over $225 million to local economic activity and provide more than 1,900 person-years of employment. The dam will also create new opportunities for local businesses by adding $3 million in annual local economic activity and supporting about 20 permanent jobs.

Once impounded, the lake will attract substantial new private investment by hospitality firms anxious to provide services, meals, and specialty retail goods to the lake's recreational users. Out-of-area recreational users are projected to spend $15 million to $20 million per year in the local economy. In addition, as seen with other Texas lakes, residents will be attracted to the region to take advantage of the new recreational amenities, bringing substantial new local spending to the area at full development. These new personal outlays will increase local economic activity by over $75 million per year and support more than 500 permanent jobs. The reservoir will provide water resources that will support additional business development in Fannin County. Using conservative TWBD usage estimates, $138.7 million in new economic activity would be supported in the county adding an additional 1,600 jobs to area payrolls. Any comparable industrial investment offering this magnitude of economic benefit would probably require exceptional incentive packages from state, county, and municipal governments. Construction of housing units for permanent and weekend residents will likely be spread over a 30-year period providing long-term job and business opportunities in the construction trades.

An expanded tax base will be another payoff from the ancillary development that will attend construction of the reservoir, allowing local governments to provide a broader range of public services while maintaining competitive tax rates. In sum, the economic opportunities supported by the proposed reservoir will promote sustainable development while diversifying the local job base.

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