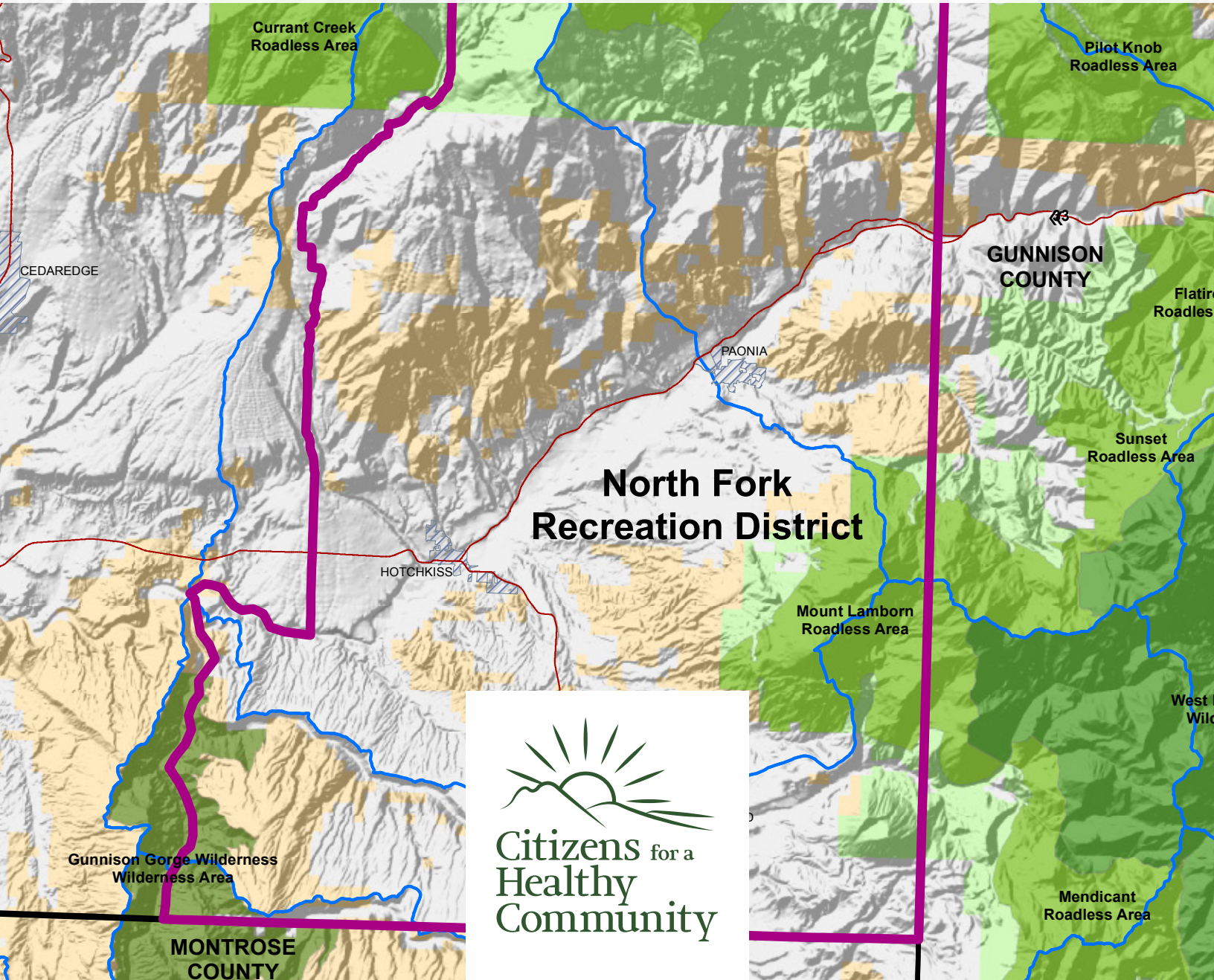
Economic Impact of Natural Gas Development on Delta County

PROPOSED PROJECT: THE NORTH FORK MANCOS MASTER DEVELOPMENT PLAN

JANUARY 2018
Revised, 2nd Edition



Citizens for a Healthy Community

Economic Impact of Natural Gas Development on Delta County

PROPOSED PROJECT: THE NORTH FORK MANCOS MASTER DEVELOPMENT PLAN

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Citizens for a Healthy Community

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Citizens for a Healthy Community (CHC) is a grassroots nonprofit 501(c)3 organization dedicated to protecting the air, water and foodsheds within the Delta County region of Southwest Colorado from the impacts of oil and gas development. CHC is the county's watchdog for oil and gas development, conducts research and advocacy, and works with partner organizations to fight for the health and safety of citizens and implementation of safeguards to protect public health and the environment.

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I. Introduction

The majority of oil and gas leases and proposed oil and gas development in Delta County, Colorado are in the North Fork Valley and its headwaters and watersheds. The Delta County Board of County Commissioners is in favor of oil and gas development, citing job creation and tax revenues as economic benefits. However, North Fork Valley residents, who would be directly impacted by such industrial activities, are resoundingly opposed to oil and gas development and believe that such activities would not only result in degradation of public health and the environment, but are also incompatible with the local economy.

While the County would like to make up for jobs and revenue lost with the recent closing of nearby coal mines, North Fork Valley residents want to protect a growing local economy that has been transitioning away from extractive industries towards sustainable agriculture, tourism, recreation, art and music, and renewable energy. The North Fork Valley has worked hard to develop its brand over the last twenty years as evidenced by its Colorado Creative District designation, award-winning wines, fruits and vegetables, and regional, state, and national recognition as a recreation and agritourism destination. The North Fork Valley is a magnet for the eco-concious, young families and retirees who value quality of life, and continuously attracts talent and skills from around the world.

Paonia has been especially successful in this effort, as the only town in Delta County that has shown growth.[1] In addition, the North Fork Valley real estate market has outperformed the overall County since 2011 in terms of average residential home sale price.[2] The North Fork Valley is a unique and beautiful place. It is the location of the highest concentration of organic farms in Colorado, and is home to numerous outdoor recreation opportunities. In addition, the Upper North Fork is the headwaters region for watersheds critical for irrigation for downstream farms and homes.

...Delta County has not undertaken a cost-benefit analysis of proposed oil and gas development, nor has it compared or projected the effects of oil and gas development on the leading sources of potentially-impacted County revenue.

To address these competing visions for the future of the North Fork Valley and Delta County, Citizens for a Healthy Community (CHC) researched the ways that the County government collects revenue from specific oil and gas development projects, the ways that the North Fork Valley already contributes to the County's revenue streams, and the potential impact that oil and gas development could have on those existing revenue streams. When discussing the economic implications of oil and gas development, the oil and gas industry often makes a point of discussing the benefits in terms of statewide or

1. Delta County Demographic and Economic Profile, Colorado Department of Local Affairs 2014, p. 1
2. Average Sale Price for Residential Properties Delta County Sales (as reported to the MLS) Delta County vs. North Fork Area 2005-2016, prepared by Bob Lario and the Remax Office in Paonia, based on data provided by the Delta County Board of Realtors, 2016. (Hereinafter: *Average Sale Price for Residential Properties*)

even nationwide totals. For instance, you might read an article in the paper talking about the millions of dollars a year the Delta County School District receives from mineral royalties and severance taxes. These statewide and nationwide sums are often quite large, and can be used to distract from and shut down any potential discussion of individual oil and gas projects. By approaching our analysis from a project-specific point of view, looking at the actual county-level impact of a single oil and gas project, we hope to encourage, rather than inhibit, an informed discussion of the actual economic impact of oil and gas development projects as they are proposed.

To CHC's knowledge, Delta County has not undertaken a cost-benefit analysis of proposed oil and gas development, nor has it compared or projected the effects of oil and gas development on the leading sources of potentially-impacted County revenue. This report therefore fills a critical gap in public knowledge and community decision-making ability.

This report compares the revenue generated by a specific oil and gas project (in this case, the North Fork Mancos Master Development Plan) to the revenue generated by property taxes on residential and agricultural properties in the North Fork Valley, sales taxes on outdoor recreation, and sales taxes generated by agritourism.

In Colorado, local and county governments generate revenue from oil and gas development and operations in three ways: property taxes, severance taxes, and federal mineral royalties.

Our research indicates that the NFMMDP would result in a net economic loss to the county, based on the potential damage it could cause to property values and reduced agritourism and recreation visitation as a result of its approval. While the industry and many counties and local governments see oil and gas development as an economic development opportunity, this report does not address employment-related impacts in detail. For the NFMMDP the number of temporary workers residing in Delta or Gunnison County during the construction phase is estimated to be approximately 46, and the number of permanent workers residing in Delta or Gunnison County for ongoing operations is estimated to be 4.[3] Quantifying the economic benefit of these jobs to County revenues is outside the scope of this report. Part I discusses how local governments in general collect revenue from oil and gas projects, and specifically how Delta County will collect revenue from the NFMMDP. Part II discusses leading revenue sources in Delta County, and how they could be potentially impacted by oil and gas development. Part III examines local and county government costs associated with oil and gas development. Part IV concludes with the estimated net revenue impact to the County.

3. Proposed Action NFMMDP for Oil and Gas Exploration and Development Gunnison and Delta Counties, Colorado, prepared by Gunnison Energy, LLC, January 2017, p. 31-32. (Hereinafter: *NFMMDP*)

II. Project Specific Oil and Gas Revenue

NFMMDP DETAILS

The project analyzed in this report is the North Fork Mancos Master Development Plan (NFMMDP). The NFMMDP is proposed by Gunnison Energy, LLC (GELLC), and calls for drilling 35 new gas wells roughly 12-miles north of Paonia, at the intersection of three critical watersheds. The project requires four new wellpads and the expansion of an existing wellpad in the Iron Point Federal Unit.[4]

During the 35-year lifespan of the project, GELLC plans to extract 700 billion cubic feet of natural gas.[5] According to maps provided in the NFMMDP proposal, three of those wells will be located in Delta County, and based on GIS analysis, approximately 80% of the minerals in the NFMMDP project area within Delta County are federally owned.[6]

the North Fork Mancos Master Development Plan...calls for drilling 35 new gas wells roughly 12-miles north of Paonia, at the intersection of three critical watersheds.

GELLC estimates that 57% of the workforce will reside in Delta or Gunnison County, and 43% of the workforce will come from outside those two counties. The number of temporary workers residing in Delta or Gunnison County during the construction phase is estimated to be approximately 46, and the number of permanent workers residing in Delta or Gunnison County for ongoing operations is estimated to be 4.[7]

The current version of the NFMMDP appears to be the first phase of a larger, 104-well project within the same project area. This report is based on the project proposal for 35 wells submitted for public scoping comments in January 2017.

4. *NFMMDP* at p. 1
5. *NFMMDP* at p. 1
6. *NFMMDP* at p. 2
7. *NFMMDP* at p. 31, 32

LOCAL AND COUNTY GOVERNMENT OIL AND GAS REVENUE

In Colorado, local and county governments generate revenue from oil and gas development and operations in three ways: property taxes, severance taxes, and federal mineral royalties. As stated earlier in the Introduction, employment-related impacts on County revenues are outside the scope of this report. Property tax represents the lion's share of this revenue, and is broken down into three distinct categories: tax on production, tax on associated equipment, and tax on pipelines. Property tax is assessed and collected by the county government while severance taxes are collected by the state, and federal mineral royalties are collected by the federal government. While the county keeps all the property taxes generated by a project within its boundaries, only a small percentage of the severance taxes and federal mineral royalties generated by projects within a county's boundaries are redistributed to the County government. The issue is further complicated by a legislative interplay between severance and property taxes, where operators are allowed to deduct 87.5% of their prior year's property tax burden from their severance tax payments.[8]

PROPERTY TAXES

Oil and gas operations generate property taxes for counties in three ways: on production, associated equipment, and pipelines. Property tax on production is based on the value of production originating in the county. The NFMMDP spans two counties, Gunnison and Delta. According to the proposal documents submitted by GELLC, three of the thirty-five proposed NFMMDP wells will be located in Delta County[9], although all are located in the North Fork watershed.

Oil and gas operations generate property taxes for counties in three ways: on production, associated equipment, and pipelines.

Production-Based Taxes

GELLC proposes to extract 700 billion cubic feet of natural gas over the lifespan of this project. While in reality production will vary from well to well, and estimated production per well is unavailable to the public, this report allocates an equal amount of production to each well. That equates to 60 billion cubic feet of natural gas for Delta County. Hydraulically-fractured gas wells like those proposed by GELLC typically have heavily front-loaded production curves,[10] but for the purposes of this analysis we assumed flat production rates across the lifespan of the project.

To estimate the value of production originating in Delta County, we used the following formula:

$$\frac{\textit{production volume} \times \textit{commodity price} \times \textit{assessment ratio} \times \textit{mill levy}}{\textit{project lifespan}} = \textit{annual tax revenue}$$

8. *How Colorado Returns Unconventional Oil Revenue to Local Governments,* Headwaters Economics, January 2014, p. 5 (Hereinafter: *Colorado Unconventional Oil Revenue*)
9. *NFMMDP* at p. 1
10. *Unconventional Oil and Natural Gas Production Tax Rates: How Does Oklahoma Compare to Peers?*, Headwaters Economics, August 2013

The estimated production volume for the NFMMDP in Delta County is 60 billion cubic feet. The five-year average commodity price for natural gas from September 2012 – September 2017 is $3.27/mBTU, and the one-year average is $3.02/mBTU.[11] The assessment ratio for oil and gas production is 87.5%.[12] According to the Delta County Assessor, the mill levy for the tax district where the NFMMDP is proposed is 4.8934%.[13] The proposed lifespan of the project is 30 years.[14] The estimated annual tax revenue generated by production from the NFMMDP is **$285,625** when calculated using the 5-year average natural gas commodity price, and **$263,788** when using the 1-year average price.

Associated Equipment Taxes

To estimate the property taxes generated by associated equipment, we turn to the Assessor's Reference Library Manual Volume 5, Chapter 6, which describes the basic equipment required to operate wells of certain types in specific oil and gas basins. The Basic Equipment Lists (BELs) represent the minimum possible value for any well operating in those basins.[15] According to the BEL, a standard high-pressure horizontal gas well in the Piceance Basin is valued at $261,343.[16] The assessment value of the equipment for the three NFMMDP wells in Delta County together is therefore $784,029. Oil and gas equipment is classified as personal property, so we use the personal property assessment ratio of 29%.[17] Applying the same formula above (Value * assessment ratio * mill levy = tax revenue), **the associated equipment generates $11,126 in annual tax revenue.**

Pipeline Taxes

Estimating the potential revenue generated by any pipelines the NFMMDP might contribute to is a complex process. It requires understanding three determinations: 1) which existing pipeline the gas produced by the project will be transported by, or whether new pipelines will be built, 2) if an existing pipeline will be used, the current throughput of that pipeline without the project, and 3) how much throughput the NFMMDP would generate.

11. *Henry Hub Natural Gas Spot Price*, US Energy Information Administration [available at: https://www.eia.gov/dnav/ng/hist/rngwhhdm.htm] accessed October 31, 2017.
12. *Oil and Gas Industry Economic and Fiscal Contributions in Colorado by County, 2014,* Business Research Division, Leeds School of Business, December 2015 p. 13 (Hereinafter: *Economic and Fiscal Contributions*)
13. *Summary of Assessments & Levies Delta County 2016*, Debbie Griffith, Delta County Assessor (Available at: /http://deltacounty.com/DocumentCenter/View/10083) (Hereinafter: *Summary of Assessments and Levies*)
14. *NFMMDP* at p. 1
15. While the actual value of equipment on any operating well might be up to twice that of the BEL value, the Delta County Assessor stated that it is impossible to predict what the actual value of any one future well might be and recommended that any projection be based on the BEL value alone.
16. *Assessor's Reference Library Manual, Volume 5, Chapter 6*, Department of Local Affairs, Division of Property Taxation, p. 6.176 (*Hereinafter* Assessor's Manual). The BEL used for this calculation includes the wellhead, the production unit, 600 feet of flowlines, measuring equipment, and 1,400 BBL tank.
17. *Assessor's Manual* at p. 3.32

According to GELLC's proposal, the Bull Mountain Pipeline will transport the natural gas produced by the NFMMDP to market.[18] In addition to the Bull Mountain Pipeline, roughly two miles of existing gathering lines located in Delta County will also be used. Although the NFMMDP proposal requires the construction of .84 miles of new gathering lines, analysis of the maps provided indicated that none of that new construction would be in Delta County.[19] The Bull Mountain Pipeline was built to a capacity of 375 million cubic feet per day (mmcfd).[20] The actual current throughput of a pipeline is confidential. However, according to the County Assessor, in 2016 the Bull Mountain Pipeline was operating at approximately 40% of its capacity without any contribution from the NFMMDP. The NFMMDP would contribute up to 63.75 mmcfd. Very little information about the existing gathering lines is publically available. The NFMMDP proposal states that the new gathering lines will be 12 inches in diameter.[21] We will have to assume that the existing lines are similar.

According to the Assessor's Manual referenced above, taxes on pipelines are calculated as:

$$\textit{actual value} \times \textit{assessment ratio} \times \textit{mill levy} = \textit{tax revenue}$$

and the actual value of pipelines is calculated based on this formula:

$$\textit{cost new of pipeline} \times \textit{percent good} - \textit{functional obsolescence value} = \textit{actual value}$$[22]

While the county keeps all the property taxes generated by a project within its boundaries, only a small percentage of the severance taxes and federal mineral royalties...are redistributed to the County government.

18. *NFMMDP* at p. 26
19. *NFMMDP* at p. 4
20. *Final Environmental Impact Statement, Bull Mountain Natural Gas Pipeline,* US Department of the Interior, Bureau of Land Management, July 2007, p. 114
21. *NFMMDP* at p. 9
22. *Assessor's Manual* at p. 7.15

...only 15% of the total severance tax collected [and] 9.8% of federal mineral royalties is directly redistributed to the county of origin. Based on the information from [The Department of Local Affairs], $3,437 - $3,722 of the total severance tax generated by the NFMMDP will be directly distributed to Delta County [and] $60,357 - $65,374 in federal mineral royalties could be redistributed directly back to Delta County.

Actual pipeline construction costs are not publicly available, but based on average pipeline construction costs, it is estimated that cost new of the section of the Bull Mountain Pipeline in Delta County will be roughly $8,000,000.[23] Using the same formula, the cost new of the existing gathering lines is roughly $4,800,000. The Bull Mountain Pipeline was built in 2008, giving it an effective age of eight years at the time of this writing. According to the table in the Assessor's manual, that gives it a percent good of 80%.[24] Drilling on the existing wells began in 2010 on the pad in Delta County where the new NFMMDP wells will be added, so we assume that the gathering lines were constructed at the same time, giving them an effective age of seven years and a percent good of 63%. The functional obsolescence value is calculated in a complicated formula based on actual throughput and capacity.[25] Using that formula, the estimated actual value of the segment of the Bull Mountain Pipeline in Delta County is $5,419,933, and the estimated actual value of the existing gathering lines is $3,024,000. The estimated tax revenue generated by that section of the Bull Mountain Pipeline with the NFMMDP's production and the current estimated throughput is $76,913. The share of that revenue that comes from the NFMMDP's estimated throughput alone is $29,260. The estimated tax revenue generated by the existing gathering lines is $42,913. **The total estimated tax revenue from pipelines associated with the NFMMDP is $72,173.** This total likely overestimates the value of the existing gathering lines, but is the best estimate based on available information.

In total, property taxes generated by production (based on the value of natural gas) from the NFMMDP, the associated equipment, and the pipelines to transport the produced gas would equal **$347,087 - $368,924**.

23. Based on an estimated construction cost of $200,000 per mile in length * inches in diameter. *2012 Pipeline Construction Report,* Underground Construction, Vol 67 No. 1, January 2012. (Available at: https://ucononline.com/2012/01/16/2012-pipeline-construction-report/)
24. *Assessor's Manual* at p. 7.57
25. *Assessor's Manual* at p. 7.26

SEVERANCE TAX

Severance tax is collected on all non-federal minerals, including oil and gas, but its calculation is complicated by Colorado's property tax credit, which allows operators to deduct 87.5% of their prior year's property tax burden from their severance tax bill.[26] Severance tax is assessed on a sliding scale from 2-5% based on gross income from the well. Each well in the NFMMDP should be producing in great enough quantity to be taxed at the maximum 5% rate.[27]

According the Headwaters Economics, the 10-year average effective severance tax rate for wells in Colorado once the property tax credit is taken into account is 1.86% of the gross production value.[28] Applying that effective tax rate to the gross production value of the non-federally owned NFMMDP minerals in Delta County, using the same set of commodity prices for natural gas as above, **results in a total amount of severance tax generated by NFMMDP minerals in Delta County of $22,918 - $24,815**. Only a small portion of that total will actually be directly redistributed to Delta County. According to the Department of Local Affairs (DOLA), only 15% of the total severance tax collected is directly redistributed to the county where production originated.[29] The remainder of the severance tax generated by a project is distributed through a variety of competitive grant and loan programs, some of which will likely flow back to the county of origin, though not necessarily through the County's budget. Based on the information from DOLA, **$3,437 - $3,722** of the total severance tax generated by the NFMMDP will be directly distributed to Delta County.

FEDERAL MINERAL ROYALTIES

The final revenue source for county governments is distributions from Federal Mineral Royalties. The current federal onshore royalty rate for oil and gas in the United States is 12.5% of gross production value.[30] As discussed above, 80% of the NFMMDP minerals in Delta County are federal. Applying the 12.5% royalty rate to the gross value of the federal share of the NFMMDP's minerals in Delta County using the same commodity prices above generates $616,080 - $667,080 in federal mineral royalties.

According to DOLA, 9.8% of federal mineral royalties are directly redistributed to the county of origin, with the rest going to a vast array of federal and state agencies.[31] Based on DOLA's distribution charts, **$60,357 - $65,374** in federal mineral royalties could be redistributed directly back to Delta County.

TOTAL NFMMDP REVENUE

Total Revenue Generated By NFMMDP from property tax, severance tax, and federal mineral royalties for Delta County is estimated at **$410,899 - $437,020** per year.

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26. *Colorado Online Tax Handbook, Severance Tax* (available at: https://leg.colorado.gov/agencies/legislative-council-staff/severance-tax#11)
27. *Colorado Online Tax Handbook, Severance Tax*
28. *Colorado Unconventional Oil Revenue* at p. 5
29. *Fiscal Year 2017-2018, Severance Tax Distribution Flowchart*, Colorado Department of Local Affairs (available at: https://www.colorado.gov/pacific/sites/default/files/Sev%20Chart_0.jpg)
30. *Outcomes of Higher Federal Coal and Natural Gas Royalty Rates,* Headwaters Economics, 2015, p. 3 (available at: https://headwaterseconomics.org/wp-content/uploads/report-outcomes-higher-coal-naturalgas-royalties.pdf)
31. *Fiscal Year 2017-2018, Federal Mineral Royalty Distribution Flowchart*, Colorado Department of Local Affairs (available at: https://www.colorado.gov/pacific/sites/default/files/FML%20Chart.jpg)

III. Impact on Other Sources of Revenue for Delta County

The majority of Delta County's General Fund revenues come from property taxes and sales tax. Any benefit from oil and gas development must be viewed in the context of other existing revenue sources and what attracts visitors and new property owners to the North Fork Valley. We looked at sales tax generated from outdoor recreation and agritourism,[32] and residential and agricultural property taxes.

OUTDOOR RECREATION

According to the Outdoor Industry Association, the outdoor recreation industry generates $885 billion dollars in direct economic impacts across the United States.[33] In Colorado, it generates $28 billion in consumer spending, is responsible for 229,000 direct jobs, and generates $2 billion in state and local taxes.[34] This data was gathered across a vast swath of outdoor recreation activities demonstrating that between 2012 and 2017, consumer spending on outdoor recreation increased by 202%.

As a part of the Statewide Comprehensive Outdoor Recreation Plan (SCORP), the Outdoor Industry Association (OIA) and Colorado Parks and Wildlife (CPW) have engaged in some county-level analysis of certain sectors of the outdoor recreation economy's impact. Based on their 2013 report, across the Southwest Region of Colorado (which includes Delta County), outdoor recreation directly generates $1.7 billion in economic output, $520 million in wages, $144 million in state and local taxes, and 18,420 jobs, and when direct and secondary impacts are considered, it generates $2.173 billion in output, $714 million in wages, $182 million in state and local taxes, and 24,568 jobs.[35] Based on the Outdoor Industry Association's updated 2017 data, we recognize that the SCORP report likely underestimates the county-level data, but it is the most recent data we have.

...Hunting, Fishing and Wildlife Viewing generate over $36 million in economic impact to Delta County...and an estimated $720,000 per year in sales taxes for Delta County.

The SCORP report looked more closely at the impact from Fishing, Hunting, and Wildlife Watching. Across the Southwest Region of Colorado (which includes Delta County), outdoor recreation directly generates $1.7 billion in economic output, hunting $82 million, and wildlife watching $213 million. Fishing also generated $9 million in state and local taxes, hunting $6 million, and wildlife watching $16 million.[36]

32. Businesses are not required to report a breakdown of sales tax revenue. Sales tax revenue breakdown may be obtained from independent research organizations through the use of voluntary surveys.
33. *The Outdoor Recreation Economy: Colorado,* Outdoor Industry Association, 2017
34. *The Outdoor Recreation Economy: Colorado,* Outdoor Industry Association, 2017, p. 1
35. *The Economic Contributions of Outdoor Recreation in Colorado: A Regional and County-Level Analysis*, Southwick Associates, November 2013, p. 5 (Hereinafter: *SCORP Report*)
36. *SCORP Report* at p. 6

Figure 1: Share of Delta County sales tax revenue generated from three outdoor recreation activities. Source: Delta County Assessor, Southwick Associates and Citizens for a Healthy Community.

The SCORP Report found that in Delta County specifically, hunting generated $7.3 million in direct economic output, and $641,000 in state and local taxes.[37] The state and local tax determination includes sales taxes assessed at the state and local level. The state sales tax rate is 2.9%, and the Delta County rate is 2%.[38] Therefore we estimate that Delta County collected $146,000 in sales taxes from hunting-related activities. While hunting is the only category analyzed on the county level, we projected estimates of the economic impact of fishing and wildlife watching based on the percentage of the Southwest region's hunting-related revenue that was generated in Delta County. Hunting accounted for roughly 8.9% of the Southwest region's entire impact. Assuming that fishing and wildlife watching account for similar shares of revenue as hunting, fishing likely generated $9.79 million in output and $195,000 in Delta County sales tax. Wildlife watching likely generated nearly $19 million in output and $379,000 in Delta County sales tax. Hunting, Fishing and Wildlife Viewing generate over $36 million in economic impact to Delta County. See Table 2 for regional and Delta County economic impact and sales tax revenue, and Figure 1 for Delta County's share of sales tax generated from hunting, fishing, and wildlife viewing. These three outdoor recreation activities generate an estimated **$720,000 per year in sales taxes for Delta County**.[39]

TABLE 2.
HUNTING, FISHING AND WILDLIFE ECONOMIC IMPACT.

ACTIVITY	SOUTHWEST DIRECT IMPACT	DELTA COUNTY DIRECT IMPACT	STATE SALES TAX	DELTA COUNTY SALES TAX	OTHER TAXES
HUNTING	$82,000,000	$7,303,000	$212,000	$146,000	$283,000
FISHING	$110,000,000	$9,790,000	$284,000	$195,000	$379,000
WILDLIFE VIEWING	$213,000,000	$18,957,000	$550,000	$379,000	$734,000
TOTAL	$405,000,000	$36,050,000	$1,046,000	**$720,000**	$1,396,000

Source: *The Economic Contributions of Outdoor Recreation in Colorado: A Regional and County-Level Analysis,* Southwick Associates, November 2013, and Citizens for a Healthy Community.

The SCORP Report includes income tax, municipal sales tax, property taxes, and other special district taxes,[40] but does not break them down sufficiently to provide a county-by-county analysis of these other taxes. However, it is likely that some of these other taxes benefit Delta County, and they are included in Table 2 to give a more complete picture of the economic impact these activities have on local finances.

37. *SCORP Report* at p. 9
38. *Colorado Sales/Use Tax Rates*, Colorado Department of Revenue, Taxpayer Service Division, December 2016, p.7 [available at: https://www.colorado.gov/pacific/sites/default/files/DR1002.pdf]
39. This estimate is based on SCORP data from 2012, however 2017 data from the outdoor industry association suggests that SCORP-based data severely underestimates outdoor recreation's true economic impact. As stated on page 12, as of January 12, 2017, SCORP has not published a new report incorporating the Outdoor Industry Association's 2017 data.
40. *SCORP Report* at p. 14

Recreation revenue is directly impacted by nearby oil and gas development. In 2016, the National Park system set a record with 331 million visits. This is a 7.7% increase on 2015's previous record of 300.7 million visits.[41] However, according to a study by the Center for Western Priorities, visitation to five national parks with oil and gas development in neighboring counties decreased dramatically. The greatest decline was at Chaco Culture National Historic Park in New Mexico's San Juan Basin, which experienced a 43% decline in visitation over twenty-two years as the surrounding area saw 3,500 wells drilled nearby.[42] Of the parks surveyed, Theodore Roosevelt National Park in North Dakota's Baaken formation, experienced the least impact with a decline of 7%.[43] Across all five parks in the study, nearby oil and gas development resulted in an average 26% decline in visitation. For the purpose of this study, we applied this average rate to the sales taxes generated by recreation in Delta County to illustrate the potential impact from surrounding oil and gas development on Delta County's revenue. The impact to Delta County would be an approximate decrease in annual sales tax revenue of **$187,460**.

Delta County's 1,250 farms, both conventional and organic, generated $55.6 million in agriculture-related sales...land and buildings used for agriculture in Delta County have an estimated market value of $832.9 million.

AGRICULTURE AND AGRITOURISM

Delta County and the North Fork Valley are a center for agritourism, organic farming, ranching, vineyards, and orchards. The exact value these economic activities contribute to Delta County via sales taxes is difficult to assess.

The 2012 US Census of Agriculture (hereinafter Agricultural Census) shows that Delta County's 1,250 farms, both conventional and organic, generated $55.6 million in agriculture-related sales.[44] In 2016, 9 vineyards in the North Fork Valley generated approximately $10 million in direct and indirect sales.[45] According to data from the Valley Organic Growers Association and the 2012 Agricultural Census, the 70 organic farms in the North Fork Valley generate $3.1 million dollars in sales.[46] There were 125 acres of grapes, 721 acres of peaches, 111 acres of pears, 12 acres of plums, and a total of 1,873 acres of non-citrus fruit.[47] In total, land and buildings used for agriculture in Delta County have an estimated market value of $832.9 million.[48]

41. *2016 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation*, Natural Resource Report, Catherine Thomas & Lynne Koontz, April 2017 [*Available at:* https://www.nps.gov/subjects/socialscience/vse.htm] p. 1
42. *REPORT: On 100 Year Anniversary, Oil & Gas Development Threatens "America's Best Idea,"* Chris Seager, Western Values Project, August 2016, [available at: http://westernvaluesproject.org/report-on-100-year-anniversary-oil-gas-development-threatens-americas-best-idea/] (Hereinafter: *Seager REPORT)*
43. *Seager REPORT* at p. 4
44. *2012 Census of Agriculture, Colorado – County Data*, USDA, National Agricultural Statistics Service, 2012, *Table 2, Market Value of Agricultural Products Sold Including Direct Sales*, p 245-262 Colorado
45. Slow Food Western Slope
46. *2012 Census of Agriculture, Colorado – County Data*, USDA, National Agricultural Statistics Service, 2012, *Table 42 Organic Agriculture*, p. 482 Colorado
47. *2012 Census of Agriculture, Colorado – County Data*, USDA, National Agricultural Statistics Service, 2012, *Table 31, Fruit and Nuts*, p. 447-451 Colorado
48. *2012 Census of Agriculture, Colorado – County Data*, USDA, National Agricultural Statistics Service, 2012, *Table 8. Farms, Land in Farms, Value of Land and Buildings, and Land Use: 2012 And 2007*, p 300 Colorado

While commodity agriculture sales such as produce, meat, and poultry sales do not directly contribute to Delta County sales tax revenue,[49] value-added products such as wine, cider, jams, prepared and ready-to-eat food are subject to sales taxes.[50] While these value-added products sold on site at farms and farmers' markets contribute significantly to County sales tax revenues, there is insufficient information available to estimate this impact. According to the most recent studies conducted in Colorado in 2007, agritourism and recreation services generated a little over $2 million in revenue on farms in Delta County.[51] Research on how this spending translates to revenue for the county is currently ongoing, and this report will be updated as new information becomes available.

The orchards, vineyards and wineries in the North Fork Valley are widely visited. In 2016, one leading orchard in Hotchkiss saw approximately 21,000 visitors from outside the North Fork Valley, and one leading winery and orchard in Paonia had an estimated 15,000 visitors. According to the studies done by the Colorado Tourism Office, each visitor to Colorado generates $15.25 in local and state tax revenue.[52] Using visitor data from orchards and wineries, we estimate roughly 15,000 annual unique agritourism visitors to the North Fork Valley. We therefore calculate that agritourism in the North Fork Valley generates an estimated $228,750 annually in state and local taxes. Delta County's share, based on sales tax rate of 2.9% at the state level and 2% at the county level, is **approximately $93,400.** This number is expected to grow as the North Fork Valley continues to attract agritourists and grow its agritourism economy. Applying the same average decrease in national park visitation of 26% due to nearby oil and gas development to agritourism, we estimate a potential loss of **$24,275 of agritourism-related sales tax revenue**.

[With] an average 26% decline in visitation... [t]he impact to Delta County would be an approximate decrease in [recreation-related] annual sales tax revenue of $187,460... [and] estimate[d] potential loss of $24,275 of agritourism-related sales tax revenue.

49. *Colorado Sales and Use Tax, General Information and Reference Guide*, State of Colorado Department of Revenue, November 2016, p. 9 [*Available at:* https://www.colorado.gov/pacific/sites/default/files/DR0099.pdf] (Hereinafter *Colorado Sales and Use Tax*)
50. *Colorado Sales and Use Tax* at p. 9.
51. Analysis of: *The 2006 Economic Contribution of Agritourism to Colorado: Estimates From a Survey of Colorado Tourists*, Dept of Agricultual and Resource Economics, Dawn Thilmany, et. al, November 2007, *Agritourism in Colorado: A Closer Look At Regional Trends*, Dept of Agricultural and Resource Economics, Dawn Thilmany et. Al, July 2007, *Agritourism: A Potential Economic Driver in the Rural West*, Dept of Agricultural and Resource Economics, Joshua Wilson, et. Al, February 2006.
52. Analysis based on data provided in: *Colorado Tourism Office Reports All-Time Records for Visitation and Visitor Spending*, Colorado Tourism Office, July 2014, [*Available at:* http://www.colorado.com/news/colorado-tourism-office-reports-all-time-records-visitation-and-visitor-spending]

PROPERTY TAXES

Property tax makes up a significant portion of Delta County's revenues In 2016, Delta County collected a total of $13,668,831 in property taxes, with the largest portion going to the General Fund and the School Districts.[53] In Fiscal Year 2017, property taxes account for $3,942,727[54] of the General Fund's $10 million revenues, and $8,664,135 in School District revenue.[55] Studies have shown that property values decrease when oil and gas development, in particular fracking projects, are undertaken nearby.[56] Specifically, the perceived risk of groundwater contamination from nearby wells has been shown to cause a 26.6% decrease in property values, with proximity to fracking operations in general causing a net 16% decrease in property values.[57] The available data in these studies focuses on residential and agricultural property values. As such, this report does not address the impact of oil and gas development on vacant land or commercial property taxes.

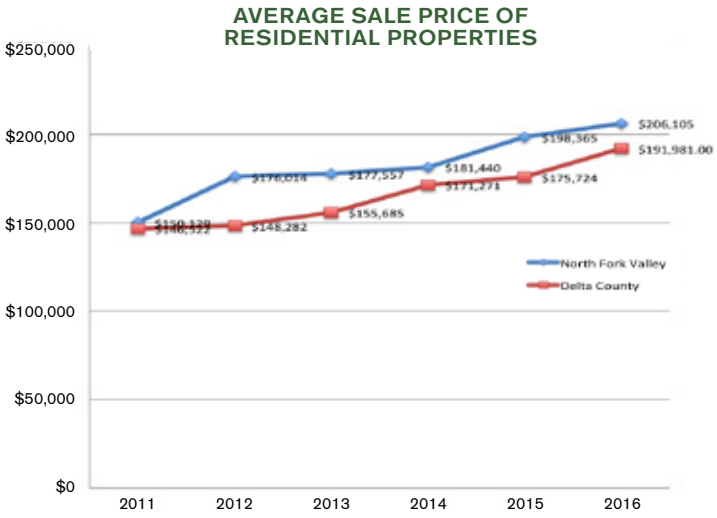

Figure 2: Average Sale Price of Residential Properties. Source: Remax Mountain West.

A report based on data from the Delta County Board of Realtors showed that while the average sale price of residential property in all of Delta County has steadily increased over the last five years, the average sale price of residential properties in the North Fork is consistently higher.[58] See Figure 2 for average sale price of residential property in the North Fork Valley as compared to overall Delta County. According to 2016 data produced by the Delta County Assessor, residential property in the North Fork Valley, defined as the North Fork Pool, Park & Rec District, has a market value of $560,864,000, and a taxable value of $44,645,000.[59] See Figure 3 for a map of the North Fork Pool, Park & Rec District.

Applying the 2016 mill levy of 43.803 to account for County and School District taxes results in an estimated **$1,955,330** in property taxes from residential property. Agricultural property in the same area has a market value of $23,112,000, and a taxable value of $6,702,000.[60] Applying the same estimated average mill levy results in an estimated **$294,300** in property taxes from agricultural property. In total, the North Fork Valley's property taxes for residential and agricultural properties account for **$2,249,646**, or 16% of Delta County's property tax income.[61]

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53 *Summary of Assessments & Levies*

54 *Delta County 2017 Final Budget Public Copy* (Adopted December 8, 2016) [Available at: http://www.deltacounty.com/documentcenter/view/9745]

55 *Summary of Assessments and Levies*

56. *Analysis: U.S. Drilling Boom Leaves Some Homeonwers in a Big Hole*, Michael Conlin, *Reuters,* December 2012. *See also: Drilling vs. The American Dream: Fracking Impacts on Property Rights and Home Values*, Resource-Media, March 2014

57. *Shale Gas Development and the Costs of Groundwater Contamination Risk*, Lucija Muehlenbach, et al., March 2013, p. 29

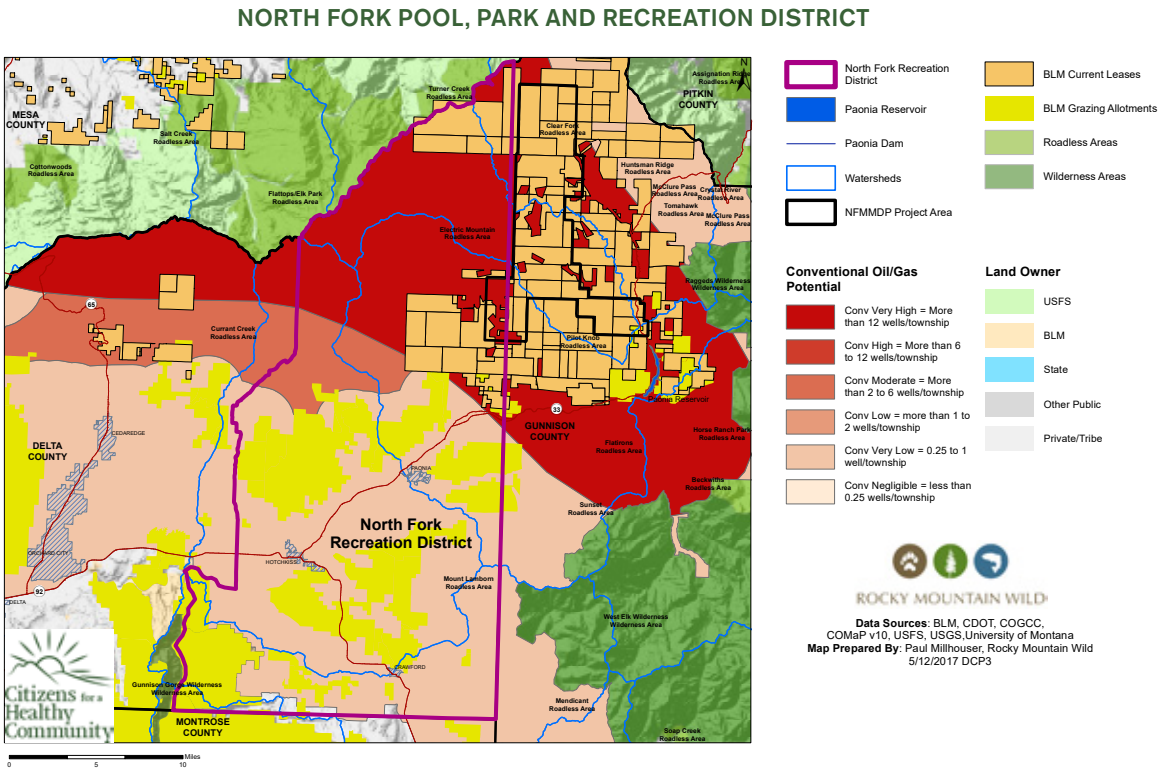
58. *Average Sale Price for Residential Properties*

59. Delta County Assessor's Office, *2016 Selected Authority Abstract*, North Fork Pool, Park & Rec Report, March 14, 2017. (Hereinafter: *2016 Selected Authority Abstract*)

60 *2016 Selected Authority Abstract*

61 Delta County includes vacant land in the residential and agricultural property assessed value and tax revenue collected referenced in *North Fork: Comparison of Assessed Value & Property Tax Revenue*, dated May 2017. CHC's analysis does NOT include vacant lands, because to our knowledge no research studies exist on the impact of oil and gas development on vacant land.

Figure 3: Map of North Fork Pool, Park, and Recreation District. Shows the Tax District used by the County Assessor to prepare the tax report used in this analysis. This map also illustrates that the Upper North Fork Valley represents high natural gas development potential as compared to the rest of Delta County. Source: Delta County GIS Office. Map Prepared by: Paul Millhouser, Rocky Mountain Wild for Citizens for a Healthy Community.

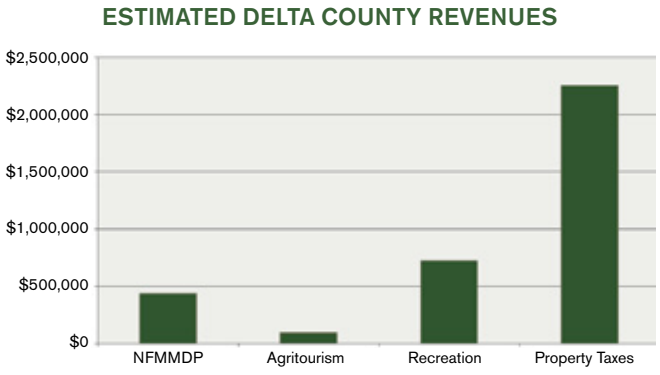


In addition, many owners of agricultural properties who have begun to expand their agritourism businesses to include production facilities and lodging have seen portions of their property reclassified, resulting in much larger property tax bills. These reclassified improvements are dependent on the agritourism industry, and will likely be negatively impacted by nearby oil and gas development. However, with the information available to date it is impossible to calculate this effect.

Residential and agricultural properties are the most likely to be adversely affected by the proposed development. Together, they account for $2,249,646 in property taxes for Delta County. Given the location of the NFMMDP in a fragile headwaters region, it seems likely that the 26.6% reduction in property values that arises from fear of water contamination discussed above will occur in the North Fork Valley. That fear of water contamination in the North Fork Valley could result in an **estimated loss of $598,275** in property taxes for Delta County per year.

Figure 4: Comparison of estimated Delta County revenues from NFMMDP and other potentially impacted County income sources. *NFMMDP revenues are estimated at $410,899 - $437,020. The upper limit is used in the chart. Source: Citizens for a Healthy Community, Outdoor Recreation Industry, Delta County Assessor.

Taken all together, outdoor recreation, agriculture and agritourism, and property taxes contribute an estimated $3.1 million in annual sales and property tax for Delta County. See Figure 4 for comparison of these revenue sources. They are responsible for literally billions of dollars in economic output, and supply jobs for thousands of Colorado's citizens. Projects like the NFMMDP can put these revenues at risk.



IV. Local Government Costs Associated with Oil and Gas Development

According to the Duke University Energy Initiative study, the largest cost to local governments from oil and gas development comes from infrastructure-related impacts.[62] Other significant costs arise with increases in service demands and emergency response training.[63] The greatest increase in road-related costs tends to arise in areas experiencing heavy development for the first time.[64] This is particularly relevant for Delta County and the North Fork Valley, as this area has largely escaped large-scale oil and gas development to this point.

The Duke University Energy Initiative studies find that rural counties with little pre-existing development tend to experience the most negative net effects from oil and gas development as rapid increases in road use and service demands outstrip any increased revenue from the developments.[65] As an example, Rio Blanco County in Colorado has seen road repair and reconstruction costs skyrocket due to oil-and gas-related traffic, while revenues have stagnated.[66]

Delta County is likely to see a net-negative impact from oil and gas development for similar reasons. The geology in the area surrounding the proposed NFMMDP is uniquely unstable, and GELLC claims that each well will require 1,702 vehicle round-trips.[67] According to the Colorado Department of Transportation, Highway 133 near the project area currently sees roughly 1,200 vehicles per day.[68] Impact from these round trips will be felt on county roads such as County Road 265 as well. The NFMMDP proposes 35 new wells, each with 1,702 vehicle trips, for a total of nearly 60,000 round trips just for the drilling of the wells. While Delta County will feel the impact from each and every one of these round trips, it will only see revenue from three of the wells.

Infrastructure is not the only source of local costs. Emergency Response teams also tend to see increases in costs related to an increase in incidents, and new training requirements to deal with hazardous chemicals present in many oil-and-gas-related incidents.[69] In Garfield County, CO, annual spending on public safety increased nearly $14 million between 2003-2012.[70] Rio Blanco County was forced to nearly double their police department's budget between 2006-2010, to meet increased demands resulting from oil and gas development.[71] There are other costs that are typically externalized by oil and gas operators, that the community and the County generally absorb, including environmental, public health, air pollution, spills, and accidents. These are all beyond the scope of this report, but need to be analyzed.

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62. *Shale Public Finance: Local Government Revenues and Costs Associated with Oil and Gas Development*, Duke University Energy Initiative, Daniel Raimi & Richard G. Newell, May 2014, p. 2 (Hereinafter: *Shale Public Finance*).
63. *Shale Public Finance* at p. 2
64. Local Fiscal Effects of Oil and Gas Development in Eight States, Duke University Energy Initiative, Daniel Raimi & Richard G. Newell, May 2016 p. 4
65. *Shale Public Finance* at p. 54
66. S*hale Public Finance* at p. 54
67. *NFMMDP* at p. 32
68. Colorado Department of Transportation, Online Transportation Information System, available at: http://dtdapps.coloradodot.info/otis/trafficdata#ui/2/1/0/station/104553/criteria/104553/
69. *Shale Public Finance* at p. 5-6.
70. *Shale Public Finance* at p. 53.
71. *Shale Public Finance* at p. 53.

V. Conclusion

The three proposed wells in Delta County from the NFMMDP project are estimated to generate between $410,899-$437,020 per year in oil and gas property and severance tax revenue to Delta County over the 30-year life of the wells. However, this same project has the potential to result in a loss of $24,275 in agritourism sales tax revenue, $187,460 in outdoor recreation sales tax revenue, and a loss of $598,275 in property tax revenues for a net annual loss of $810,000 to the County or $24.3 million over the 30-year life of the proposed project. See Table 3 for the breakdown of revenue impact and Figure 5 for the graphical representation of the net revenue impact to the County. Finally, the County will be responsible for potentially large increases in road repair costs due to increased traffic on fragile county roads, as well as increased public safety expenses.

Figure 5:
Net Estimated Impact of Oil and Gas Development On Delta County Revenue Source: Citizens for a Healthy Community.

NET IMPACT OF OIL AND GAS DEVELOPMENT ON DELTA COUNTY TAX ANNUAL REVENUES

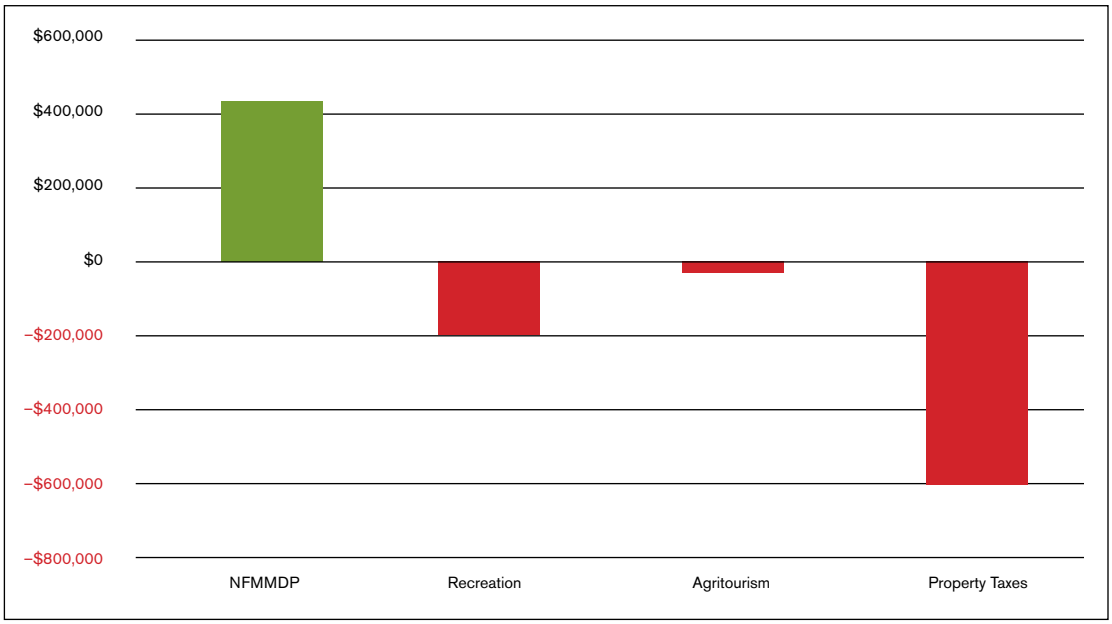

TABLE 3.
NET ESTIMATED REVENUE IMPACT DUE TO NFMMDP

Revenue from NFMMDP	$410,899 - $437,020
Change in Agritourism Revenue	–$24,275
Change in Recreation Revenue	–$187,460
Change in Property Tax Revenue	–$598,275
NET REVENUE IMPACT:	**–$372,990 - –$399,111**

Source: Citizens for a Healthy Community

The North Fork Valley is an economic engine for Delta County. Our research suggests that the County Commissioners should rethink the true, long-term value of oil and gas development, and in particular the NFMMDP, on the future of Delta County, before making any decisions to support such projects. This study is a first step in better understanding the costs and benefits associated with oil and gas development proposals. We recommend that further research be undertaken by the County and other stakeholders that extends to employment and economic development, commercial property taxes, and other aspects of outdoor recreation such as hiking, biking, cross-country skiing, snowmobiling, and more to improve the cost/benefit analysis of oil and gas proposals in the North Fork Valley.

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