

# The Perryman Group Priority Midland by the Numbers

An assessment of the economic impact of the anticipated increases in regional energy activity and its implications in the Midland area **August 2019** 

## OVERVIEW AND PURPOSE OF THE STUDY

A combination of factors is causing sweeping change in the petroleum sector. The US has now emerged as the world's leading producer of oil and gas, with about two-thirds

of the incremental output occurring in the Permian Basin. Much of the activity is and will continue to be centered in the Midland area, with profound implications for the future.

Priority Midland is a major initiative designed to be a catalyst for facilitating community involvement in proactive efforts to accommodate anticipated growth while maintaining and enhancing the quality of place. The purpose of The Perryman Group's analysis is to provide detailed information and projections of economic, demographic, and fiscal variables to be used in formulating strategic plans for dealing with the challenges Midland and the surrounding region are likely



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to face in the future. The emerging changes in the petroleum sector provide a wealth of opportunities, but present challenges as well. Focused efforts to address these issues and prepare for the coming expansion can position the area to emerge stronger and more

prosperous in the future.

## IMPACT OF THE PETROLEUM SECTOR

Population growth in Midland has recently been much faster than

the state or nation, primarily due to increased petroleum activity. Permian Basin production levels increased from less than one million barrels per day (bpd) in April 2011 to 4.1 million in June 2019. Production levels are projected to continue to expand over the next several years.

The Perryman Group quantified the importance of the petroleum sector to business activity in Midland and the surrounding region, including the ripple (or multiplier) effects through the economy. When multiplier effects are considered, the total current impact of the petroleum sector on the Midland MSA was found to include an estimated \$49.9 billion in annual gross product and over 98,900 jobs. For the Permian Basin Region, the industry generates an estimated \$63.7 billion in gross product each year and nearly 175,400 jobs. These economic benefits span the economy and involve additional activity in every major industry group.

The impact of the industry is likely to expand over time. The Perryman Group estimated the effects of the petroleum sector on the Midland and Permian Basin economies as of 2025 and 2030 under baseline, low, and high oil price scenarios. As of 2030, for example, the impact of the petroleum sector on the Midland MSA could reach an estimated \$91.8 billion in gross product and over 189,600 jobs under a high oil price scenario.

#### ECONOMIC AND POPULATION FORECAST

Expectations related to the petroleum industry were integral to the forecasts for the economy and population of the area. The Perryman Group's forecast calls for



notable expansion, with future performance determined to some extent by the level of oil prices. Under baseline assumptions, The Perryman Group projects a gain of 32,100 jobs in the Midland MSA between 2019 and 2025, with a total of 74,500 added between 2019 and 2030. Under low oil price assumptions, employment could be expected to grow by 22,300 by 2025 and 63,600 by 2030, while high oil prices would generate likely expansion in employment of 46,600 by 2025 and 87,500 by 2030.

Output (real gross product) is expected to expand at a 3.26% annual rate of growth between 2019 and 2025 under baseline oil price assumptions, resulting in an increase in real gross product from an estimated \$54.5 billion to \$66.0 billion. By 2030, real gross product is projected to reach \$85.5 billion. The Midland MSA population is anticipated to grow from an estimated 187,800 in 2019 to reach 236,500 in 2025 under baseline oil price assumptions, representing a net increase of 48,700. By 2030, population is projected to total 280,800, an increase of 93,000 over 2019 levels.

Note that The Perryman Group's forecasts are "aspirational" in nature, meaning

**Projected Economic Impact of the Petroleum Sector on Business Activity in the Permian Basin** Results by varying oil price assumptions

		Baseline	L	ow Oil Prices.		<b>High Oil Prices</b>
Region	2025	2030	2025	2030	2025	2030
Midland MSA						
Total Expenditures	\$246.5 b	\$325.6 b	\$225.0 b	\$300.2 b	\$278.7 b	\$355.7 b
Gross Product	\$61.3 b	\$84.0 b	\$55.9 b	\$77.5 b	\$69.3 b	\$91.8 b
Personal Income	\$30.5 b	\$42.8 b	\$27.8 b	\$39.5 b	\$34.5 b	\$46.8 b
Jobs	129,292	173,545	117,990	160,014	146,138	189,607
Permian Basin						
Total Expenditures	\$328.0 b	\$451.5 b	\$299.4 b	\$416.3 b	\$370.8 b	\$493.3 b
Gross Product	\$82.5 b	\$116.5 b	\$75.2 b	\$107.4 b	\$93.2 b	\$127.3 b
Personal Income	\$41.6 b	\$60.2 b	\$38.0 b	\$55.5 b	\$47.0 b	\$65.8 b
Jobs	227,841	302,894	207,924	279,278	257,527	330,928

Notes: Monetary amounts given in billions of 2019 US dollars per year.

Source: US Multi-Regional Impact Assessment System, The Perryman Group

that they are based on scenarios in which appropriate action is taken to address current and emerging issues such as infrastructure constraints and a need for additional housing and workers of various types.

#### **FISCAL FORECAST**

Property values in Midland and Midland County have been increasing in recent years. A

much larger portion of taxes is paid by oil and gas property owners in Midland compared to Texas as a whole. For the Midland area

Under baseline assumptions, The Perryman Group projects a gain of 32,100 jobs in the Midland MSA between 2019 and 2025, with a total of 74,500 added between 2019 and 2030.

in 2018, single-family residential was about 33.6% of the total market value while oil, gas, and other minerals comprised almost 23.7%.

Economic activity generates tax receipts through channels such as increased property values (and, therefore, higher property tax receipts) and additional retail sales. Using the forecasts for economic activity described above, The Perryman Group estimated incremental tax receipts over current levels to local entities due to additional economic activity under baseline oil price assumptions and found that annual total taxes to local entities could be expected to be \$133.9 million higher in 2025 (measured in 2019 dollars),

and an estimated \$345.2 million higher in 2030. In nominal-dollar terms, annual taxes to local entities would be

an estimated \$153.9 million higher in 2025 and \$443.5 million higher by 2030 due to additional economic activity.

Over the 2019-25 period, tax revenue to entities in the Midland area could be expected to be \$523.7 million higher on an



#### Projected Key Economic Indicator Growth in the Midland MSA

Results under baseline oil price assumptions

Industry	2019 Level	2025 Level	2030 Level	2019-25 Growth	2019-30 Growth
Real Gross Product	\$54.5 b	\$66.0 b	\$85.5 b	+3.26%	+4.19%
Real Personal Income	\$21.3 b	\$25.9 b	\$34.2 b	+3.27%	+4.39%
Real Retail Sales	\$4.3 b	\$5.2 b	\$6.9 b	+3.15%	+4.27%
Population	187,765	236,491	280,778	+3.92%	+3.73%
Employment	115,152	147,216	189,667	+4.18%	+4.64%

Notes: Monetary amounts given in billions of 2019 US dollars. Growth is compound annual rates.

Source: US Multi-Regional Econometric Model, The Perryman Group

inflation-adjusted (2019 dollar) basis, with the increment growing to more than \$1.0 billion by 2030. In nominal-dollar terms, incremental tax revenue to entities in the Midland area would be an estimated \$602.1 million higher

over the 2019-25 period and more than \$1.3 billion higher through 2030.

Cities, counties, school districts. and other taxing

While Midland tends to fall near the top of the range in per capita income and other measures of affluence, the city, county, and school district are near the bottom in debt per resident or student as well as aggregate debt for similarly sized areas.

and ultimately increase costs and reduce long-range economic potential.

#### **EMPLOYMENT BY OCCUPATION PROJECTIONS**

In planning

authorities may issue bonds for purposes such as the construction or improvement of public buildings, streets, bridges, waterworks or sewers, and the construction or purchase of buildings for public schools or institutions of learning. While Midland tends to fall near the top of the range in per capita income and other measures of affluence, the city, county, and school district are near the bottom in debt per resident or student as well as aggregate debt for similarly sized areas. Entities with significantly higher levels of debt than

**Projected Incremental Tax Revenue in the Midland Area** 

for future workforce and training/higher education needs, it is useful to examine growth in the number of jobs by occupation. The Perryman Group translated detailed estimates and forecasts of employment by industry into the number of new jobs by occupation. In addition to jobs associated with economic growth, there will be a need for new workers to replace individuals who relocate, retire, or leave their occupations for other reasons.

Midland nonetheless maintain excellent bond

ratings. Prudent spending and commitment

of taxpayer resources is always desirable, but

underfunding can exacerbate future problems

The total demand for workers in Midland (due to both growth in the number of jobs

#### Results by varying oil price assumptions Baseline Low Oil Prices **High Oil Prices** 2019-30 2019-25 2019-25 2019-30 2019-25 2019-30 **Taxing Entity Property Tax** Midland County \$32.6 m \$66.1 m \$19.2 m \$53.7 m \$52.6 m \$80.6 m City of Midland \$44.3 m \$89.8 m \$26.1 m \$73.0 m \$71.4 m \$109.5 m \$583.2 m Midland ISD \$235.8 m \$478.3 m \$138.8 m \$388.8 m \$380.4 m \$52.6 m Greenwood ISD \$21.3 m \$43.2 m \$12.5 m \$35.1 m \$34.3 m Midland College \$25.5 m \$51.8 m \$15.0 m \$42.1 m \$41.2 m \$63.2 m Hospital District \$29.9 m \$60.6 m \$17.6 m \$49.2 m \$48.2 m \$73.9 m Utility District \$0.5 m \$0.3 m \$0.9 m \$0.9 m \$1.3 m \$1.1 m \$389.8 m \$790.9 m \$229.6 m \$642.8 m \$629.0 m \$964.3 m Total Sales Tax Midland County \$67.0 m \$118.9 m \$44.3 m \$97.2 m \$101.4 m \$144.4 m City of Midland \$59.0 m \$104.7 m \$39.1 m \$85.6 m \$89.3 m \$127.2 m Total \$126.1 m \$223.7 m \$83.4 m \$182.9 m \$190.7 m \$271.6 m Hotel/Motel Tax City of Midland \$7.8 m \$14.1 m \$5.1 m \$11.5 m \$11.9 m \$17.2 m **All Entities** \$523.7 m \$1.028.7 m \$318.0 m \$837.2 m \$831.6 m \$1,253.1 m

Notes: Monetary amounts given in millions of 2019 US dollars.

Source: US Multi-Regional Impact Assessment System, US Multi-Regional Econometric Model, The Perryman Group

and replacement of individuals leaving the occupation) between 2019 and 2025 is estimated to be 40,100, with 91,200 needed by 2030. Demand for additional workers will be concentrated in the Construction and Extraction and Food Preparation and Serving Related major occupation groups.

#### HOUSING

Rapid growth in the Midland area has caused strain in several areas of infrastructure and real estate. Over the past few years, growth in the petroleum sector has contributed to rapid expansion in population and, therefore, housing demand. However,

the housing supply has been unable to keep up with growing needs and this pattern has led to rising prices as

well as nontraditional solutions such as "man camps" and hotels. The housing shortage is even more problematic for workers outside oil and gas occupations, as they often do not enjoy the high salaries needed to keep up with rising prices, with a primary example being public school teachers.

The price distribution of all home sales has been shifting higher in recent years, and gross rents have been increasing. Median gross rent in the Midland area is significantly higher than the median for Texas and the United States. Moreover, rents in the area have recently been increasing much faster than most areas across the state.

The nature of the local economy is such that it has a much greater concentration of highly paid oil and gas workers than other areas. While the percentage of the population facing affordability challenges may be lower, the magnitude and severity of those issues for those employed in other sectors of the economy are much more pronounced.

The Perryman Group estimates that the rate of population and economic expansion will lead to the need for an estimated 16,207 additional single-family residences and 9,938 multi-family residences in the Midland area by 2030. In order to meet this level of demand, approximately 1,473 new single-family residences and 903 new multi-family housing units would be required per year through 2030 (under the baseline scenario). Recent growth rates have been insufficient to meet

this demand.

Midland's ability to provide for the increased housing demand will be

most significant being housing.increased housing<br/>demand will beas such as "mandependent on the availability of construction<br/>workers in the area. Under the baseline oil<br/>price scenario, the incremental demand for<br/>building and specialty workers is expected to<br/>to keep up withto keep up withtop 6,000 over the 2019-2030 time period.<br/>Attracting workers to provide for the increased<br/>housing demand could be a challengehome sales hasconsidering the competition existing with the

#### **INFRASTRUCTURE**

oil and gas industry for workers.

Rapid population growth in the Midland

area has caused strain in several areas of

infrastructure and real estate, with the

Intense growth in the population and economy has put a strain on the infrastructure of the area, particularly with respect to water/sewage and transportation. The City of Midland has slowly been building up its water infrastructure over the past decade and has plans to support an additional 4.95 million gallons of water use daily over the next 10 years. Taking into account the higher economic activity in the area and the potential for proactive efforts to address constraints, however, reserve levels could be very limited with high oil prices and drought conditions.

Recent growth has also led to substantially more drivers on the road. The expansion of the oil and gas industry has put a major strain on roadways and traffic, especially with intensified commercial traffic. Although improvements are planned or underway, roadways are likely to become increasingly congested.

Growth in Midland's economy will lead to

the need for additional industrial, warehouse, retail, and office space. The additional real estate requirements estimated by The Perryman Group

indicate that further improvements to roadways and water/wastewater infrastructure may be needed.

Given the high demand for available land in the Midland area, it is important that land is reserved for right of way corridors for future infrastructure development (such as roads, sewer lines, water lines, and drainage) and other community needs (such as parks and schools). Failure to do so will further escalate the cost of future infrastructure development as well as potentially limit expansion.

#### **EDUCATION**

Public school enrollment has been increasing recently, a trend which is projected to continue. Many schools are already exceeding capacity, and future growth will likely further strain public school resources (both facilities and personnel). Higher education institutions have also seen increases in the numbers of students and are a crucial part of ensuring future workforce preparedness in Midland and the Permian Basin Region.

Teacher salaries in Midland are slightly higher than the statewide average, while Greenwood ISD salaries are somewhat lower. However, these salaries may not be sufficient to compensate for higher costs of living in the Midland area. Compared to other areas, Midland currently has lower levels of

Given the high demand for available land in the Midland area, it is important that land is reserved for right of way corridors for future infrastructure developments (such as roads, sewer lines, water lines, and drainage) and other community needs (such as parks and schools). employment across most educational sectors per 100,000 population, thus suggesting significant shortages. The Perryman Group's

detailed forecast of demand for additional workers indicates significant incremental needs within the education system over the next few years. When growth and replacement needs are considered, an estimated 990 additional workers in education occupations will be needed by 2025 and 2,360 by 2030 under baseline oil price assumptions, with even more being required if prices are higher.

The Midland area will also have the need for thousands of workers with associate, bachelor's, master's or other degrees. The Perryman Group's analysis of the numbers of workers needed by occupation compared to the volume of graduates from area higher education institutions indicates significant gaps. Not all of these gaps represent good candidates for expansion of programs due to a number of factors, and workers are mobile and may move to the area after receiving training elsewhere (as individuals trained by area institutions may seek employment elsewhere). Nonetheless, alignment of training and education in the area with high-demand occupations can improve overall workforce preparedness.

The three instructional program groups with the highest average annual gap

between demand for occupations and awards for certificate and associate degree programs across the

Permian Basin are Business, Management, Marketing, and Related Support Services; Transportation and Materials Moving; and Mechanics and Repairers. The largest educational gaps across the Permian Basin for occupations requiring a bachelor's degree will also be in Business, Management, Marketing, and Related Support Services as well as Engineering and Health Services and Sciences. Clearly, many of the needed workers will move to the area after receiving training elsewhere, but if student demand is sufficient, expansion of business programs is worthy of consideration.

#### HEALTH AND WELLNESS

The health and well-being of a community is driven by factors such as access to health care, the number of uninsured individuals, poverty and food insecurity, and the supply of health care professionals. Shortages among physicians and other health care workers is a widespread issue, and in a rapidly growing community such as Midland, it can be particularly challenging.

The Perryman Group's analysis indicates that Midland is currently underserved in several health care fields compared to statewide averages. Efforts are underway to address these issues, and this analysis supports the need for such action.

The Perryman Group's detailed forecast of demand for additional workers indicates

The Perryman Group's detailed forecast of demand for additional workers indicates significant incremental needs within the education system over the next few years. strong growth in demand for health care occupations. An estimated 65 Physicians and

Physician Assistants will be needed by 2025 and 186 by 2030 under baseline oil price assumptions when growth and replacement needs are considered. Under high oil price assumptions, demand will be higher.

#### **QUALITY OF PLACE**

The idea of quality of place encompasses the aspects of a location that cause people to want to live there, beyond employment opportunities. Amenities such as parks, entertainment options, and low crime rates enhance quality of place. Quality of place can also be negatively affected by issues which can arise during periods of rapid growth such as insufficient infrastructure causing excessive traffic congestion, a lack of desirable housing, or worker shortages leading to long waits and other inconveniences.

Quality of place is important not only to improve the lives of current residents, but also to attract needed workers to meet future needs. Over 25% of new jobs in Midland through 2030 are likely to require at least some form of postsecondary award or degree, and The Perryman Group projects that the area will need 14,820 workers with a bachelor's degree through 2030. Meeting this

need will necessarily involve attracting new workers from other areas of the state and nation, and quality of place will be an important factor.

In addition, The Perryman Group's estimates of the need for additional workers in protective service occupations due to economic and population growth indicates that significant new hiring will be required to meet growth and replacement needs. More than 100 additional police and sheriff's patrol officers will likely be needed by 2025 under baseline oil price assumptions (and assuming proactive initiatives) across the MSA.

As a center for regional business activity, the Midland economy currently employs more food service workers per 100,000 residents than many areas. Over the next few years, thousands more food preparation workers will be required. The level of difficulty in finding these workers is likely to increase from what is already a challenging situation.

#### IMPORTANCE OF PROACTIVE EFFORTS

Priority Midland involves taking action to address current and future issues which are constraining the health of the economy and negatively affecting quality of life. Without action to confront the challenges associated with rapid growth, an erosion of quality of life for many area residents is likely as

> infrastructure, education, health care, housing and other systems become increasingly strained.

Economic performance is also likely to be affected.

The Perryman Group sought to quantify the importance of these actions from an economic perspective. These projections are "aspirational" in the sense that they assume that effective initiatives are implemented which result in the area overcoming current shortages and constraints by 2030.

If actions to relieve current issues in the Midland economy had been addressed five years ago, significant progress would likely have been made by this point. The resulting benefits to the Midland MSA economy would have included an estimated \$22.4 billion in gross product (10.9% higher) and 40,300 more jobs (7.9% higher). The entire Permian Basin would have added an extra \$37.4 billion in output (12.4% higher) and 80,000 additional jobs (6.8% higher). Note that this period included a substantial slowdown in the oil and gas sector.

The Perryman Group estimates that if growing issues such as infrastructure

#### Estimated Losses in the Midland Area if No Action is Taken

Results by region under varying oil price assumptions Baseline Low Oil Prices **High Oil Prices** Midland MSA Permian Basin Indicator **Permian Basin Permian Basin Real Gross Product** -\$22.7 b -\$41.2 b -\$13.2 b -\$22.5 b -\$35.6 b -\$66.6 b Job-vears -180.500 -445.400 -124.900 -308.000 -256.200 -632.000

Notes: Monetary amounts given in billions of 2019 US dollars. A job-year is the equivalent of one person working for one year. Source: US Multi-Regional Impact Assessment System, The Perryman Group

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Shortages among physicians and other

## health care workers is a widespread issue, and in a rapidly growing community such as Midland, it can be particularly challenging.

constraints and workforce shortages are not addressed, economic growth in Midland could be significantly reduced in the future, resulting in losses including \$22.7 billion in

output (gross product) and 180,500 job-years under the baseline scenario. Losses across community to assist in developing appropriate initiatives.

If the Midland area embraces the current situation and maximizes its potential, it

#### Quality of place is important not only to improve the lives of current residents, but also to attract needed workers to meet future needs.

can ultimately become a center for energy, water, and environmental

the Permian Basin could total \$41.2 billion in output and 445,400 job-years under the baseline scenario.

#### CONCLUSION

A unique combination of events has created an enormous opportunity for the Midland area. Business and community leaders in Midland and the surrounding area have been actively pursuing a variety of initiatives to deal with the issues rapid economic and population growth involves, from physician recruiting to the passage of road bonds. This analysis can help support these and other necessary actions, providing additional information related to the likely future needs of the technology and a major force in global development. The efforts of Priority Midland can play a major role in the future of the community and the quality of life of its residents for generations to come. Enhanced educational performance, health care delivery, infrastructure availability, housing options, and amenities will enrich and invigorate the area with its own brand of energy and open up new avenues for progress. A failure to act will sacrifice the potential bounty and leave conditions deteriorating despite the explosion in oil and gas production. Priority Midland is well named and well timed. Its mission is essential and its success is imperative.

## Tax Supported Debt Outstanding

#### Results for Texas counties of similar size

	Tax Supported E	Debt Outstanding			
County	Total	Per Capita	Population	Per Capita Income	
Ellis	\$37.0 m	\$206	179,436	\$29,922	
Midland	\$15.5 m	\$90	172,578	\$36,572	
Johnson	\$27.0 m	\$158	171,361	\$26,688	
Guadalupe	\$13.7 m	\$83	163,694	\$28,584	
Ector	\$29.2 m	\$180	162,124	\$24,264	
Comal	\$146.7 m	\$989	148,373	\$36,833	
Parker	\$121.4 m	\$878	138,371	\$34,311	
Taylor	\$48.2 m	\$350	137,640	\$27,386	
Randall	\$46.2 m	\$339	136,271	\$32,592	
Grayson	\$36.5 m	\$272	133,991	\$27,795	

Notes: Tax supported debt outstanding and population values are from 2018, per capita income is from 2017. Total debt is given in millions of 2018 dollars, while per capita values are given in dollars.

Source: Texas Bond Review Board, US Census Bureau Population Division, American Fact Finder, and US Census Bureau, 2017 American Community Survey 1-Year Estimates.

As an initial phase of this analysis, The Perryman Group conducted extensive research into current economic and demographic conditions in Midland and the Permian Basin. Data sources utilized include a broad range of publicly available series such as those maintained by local, state, and federal government agencies and entities. In addition, the firm's extensive historical databases were used during the modeling process.

The Perryman Group's proprietary models and systems were extensively used in this analysis. These models were developed by the firm approximately 40 years ago and have been extensively maintained and updated since that time. They have been thoroughly tested for reliability, and the primary systems have been peer reviewed on multiple occasions. They have also been used in studies for hundreds of clients involving thousands of applications.

For a detailed discussion of methods, assumptions, and models used, see the full report and accompanying appendices available for download at www.perrymangroup.com. **Total expenditures** (or total spending) measures the dollars changing hands as a result of the economic stimulus.

**Gross product** (or output) is the production of goods and services that will come about in each area as a result of the activity. This is parallel to the gross domestic product numbers commonly reported by various media outlets and is a subset of total expenditures.

**Personal income** refers to the dollars that end up in the hands of people in the area; the vast majority of this aggregate derives from the earnings of employees, but payments such as interest and rents are also included.

Job gains are expressed as jobyears of employment for a temporary or multi-year stimulus (such as construction or a cumulative impact) or jobs for effects that would be ongoing permanent jobs.

Unless otherwise indicated, monetary values were quantified on a constant (2019) basis to eliminate the effects of inflation.



#### The Perryman Group is a focused team of analysts who know how to address complex economic information tasks and present our findings effectively.

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Dr. Ray Perryman is President and CEO of The Perryman Group, an economic research and analysis firm based in Waco, Texas. His firm has served the needs of more than 2,500 clients, including two-thirds of the Global 25, over half of the Fortune 100, the 12 largest technology firms in the world, 10 US Cabinet Departments, the 9 largest firms in the US, the 6 largest energy companies operating in the US, and the 5 largest US banking institutions.

Dr. Perryman was named Outstanding Young Person of the World for Business and Economic Innovation in 1987, was designated Texan of the Year by the Texas Legislative Conference in 2012, received the Baylor University Distinguished Service Medal in 2013, was inducted into the

Texas Leadership Hall of Fame in 2014, and received the

Cesar E. Chavez Conscience Builders Award in 2016 for his humanitarian efforts. He dedicates a significant portion of his time to pro bono work aimed at helping to solve pressing social

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