



NEXUS GAS TRANSMISSION PROJECT

RESOURCE REPORT 5 ***Socioeconomics***

FERC Docket No. PF15-10-000

Pre-filing Draft
June 2015

NOTICE TO PUBLIC STAKEHOLDER REVIEWERS

This Draft Resource Report for the NEXUS Gas Transmission Project (“Project”) is being filed as part of the Federal Energy Regulatory Commission’s (“FERC’s”) pre-filing process. The pre-filing process allows interested stakeholders, FERC, and regulatory agency staff to engage in early dialogue to identify affected stakeholders, facilitate early issue identification and resolution, provide multiple opportunities for public meetings (e.g., open houses), and support the preparation of high-quality environmental Resource Reports and related documents that describe the Project, assess its potential impacts, identify measures to avoid and mitigate impacts, and analyze alternatives to the Project.

Since the initial filing of Draft Resource Report 1 (Project Description) and 10 (Alternatives) on January 23, 2015, NEXUS hosted eight Open Houses along the proposed pipeline route to inform stakeholders about the proposed Project and to answer questions. FERC staff also hosted six independent Public Scoping Meetings along the proposed route in April and May of 2015, as part of the National Environmental Policy Act (“NEPA”) compliance process. This Draft Resource Report may contain items that are highlighted in grey that will be filed when NEXUS files its NGA 7(c) Certificate Application with the Commission in November 2015.

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RESOURCE REPORT 5—SOCIOECONOMICS	
Filing Requirement	Location in Environmental Report
<input checked="" type="checkbox"/> For major aboveground facilities and major pipeline Projects that require an Environmental Impact Statement ("EIS"), describe existing socioeconomic conditions within the Project area. (§380.12 (g) (1)).	Section 5.2
<input checked="" type="checkbox"/> For major aboveground facilities, quantify impact on employment, housing, local government services, local tax revenues, transportation, and other relevant factors within the Project area. (§380.12 (g) (2-6)).	Section 5.2
<input checked="" type="checkbox"/> Evaluate the impact of any substantial immigration of people on government facilities and services and describe plans to reduce the impact on local infrastructure.	Section 5.3
<input checked="" type="checkbox"/> Describe on-site manpower requirements, including the number of construction personnel who currently reside within the impact area, would commute daily to the site from outside the impact area, or would relocate temporarily within the impact area.	Section 5.3.1 Table 5.3-1 Appendix 5A Appendix 5B
<input checked="" type="checkbox"/> Estimate total worker payroll and material purchases during construction and operation.	Sections 5.3.1 and 5.3.6 Table 5.3-1 Appendix 5A Appendix 5B
<input checked="" type="checkbox"/> Determine whether existing housing within the impact area is sufficient to meet the needs of the additional population.	Section 5.3.3
<input checked="" type="checkbox"/> Describe the number and types of residences and businesses that would be displaced by the project, procedures to be used to acquire these properties, and types and amounts of relocation assistance payments.	Section 5.3.4
<input checked="" type="checkbox"/> Conduct a fiscal impact analysis evaluating local government expenditures in relation to incremental local government revenues that would result from construction of the project. Incremental expenditures include, but are not limited to, school operating costs, road maintenance and repair, public safety, and public utility costs.	Section 5.3.5 Appendix 5A Appendix 5B

ACRONYMS AND ABBREVIATIONS

ACS	American Community Survey
CT	Census Tract
Dawn	Dawn Hub in Ontario, Canada
DTE	DTE Energy Company
DTE Gas	DTE Gas Transportation
EPA	Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
GDP	gross domestic product
HPSA	health professional shortage area
Metro Area	Metropolitan Statistical Area
MP	milepost
M&R	meter and regulating
NEXUS	NEXUS Gas Transmission, LLC
NEXUS Project or Project	NEXUS Gas Transmission Project
O&M	operation and maintenance
Project	NEXUS Gas Transmission Project
ROW	right-of-way
U.S.	United States

5.0 RESOURCE REPORT 5 – SOCIOECONOMICS

5.1 Introduction

NEXUS Gas Transmission, LLC (“NEXUS”) is seeking a Certificate of Public Convenience and Necessity (“Certificate”) from the Federal Energy Regulatory Commission (“FERC”) pursuant to Section 7(c) of the Natural Gas Act authorizing the construction and operation of the NEXUS Gas Transmission Project (“NEXUS Project” or “Project”). NEXUS is owned by affiliates of Spectra Energy Partners, LP and DTE Energy Company (“DTE” or “DTE Energy”). The NEXUS Project will utilize greenfield pipeline construction and capacity of third party pipelines to provide for the seamless transportation of 1.5 billion cubic feet per day of Appalachian Basin shale gas, including Utica and Marcellus shale gas production, directly to consuming markets in northern Ohio and southeastern Michigan, and to the Dawn Hub in Ontario, Canada (“Dawn”). Through interconnections with existing pipelines, shippers on the NEXUS Project will also be able to reach the Chicago Hub in Illinois and other Midwestern markets. The United States (“U.S.”) portion of the NEXUS Project will traverse Pennsylvania, West Virginia, Ohio and Michigan, terminating at the U.S./Canada international boundary between Michigan and Ontario. The Canadian portion of the Project will extend from the U.S./Canada international boundary to Dawn. A more detailed description of the Project is set forth in Draft Resource Report 1.

This Draft Resource Report 5 describes the existing socioeconomic conditions in the Project analysis area and the potential effects on these conditions from Project-related activities. While construction of the Project may temporarily affect the communities located in the analysis area in the short term (e.g., temporary traffic disruption and noise impacts during construction), many of the Project’s long term effects are beneficial, including increased employment and commerce, particularly during construction, and increased tax revenues throughout the period of pipeline operation. Section 5.2 summarizes baseline socioeconomic conditions in the vicinity of the Project, including population, economy and employment, housing, public services, and transportation and traffic, and also identifies potential environmental justice communities. Section 5.3 addresses the socioeconomic effects of the NEXUS Project construction and operation on communities and counties in the analysis area. Also included in Draft Resource Report 5 are the information sources used in the socioeconomic evaluation (Section 5.4). A checklist showing the FERC filing requirements for this Draft Resource Report 5 is included following the Table of Contents.

The socioeconomic data used in this evaluation was obtained from the most recent U.S. Department of Commerce, and Bureau of the Census online databases. Information on community public services and available housing, hotel lodging, and tourism was obtained from publicly available online sources.

Project drawings, maps, alignment sheets, and arials are provided in Appendix 1A of Draft Resource Report 1.

5.2 Socioeconomic Effect Area

The Project’s socioeconomic effect area analyzed in this Draft Resource Report includes fifteen counties in Michigan and Ohio. The socioeconomic effect analysis area includes all counties that contain any proposed Project facilities and all communities within 10 miles of the Project’s pipeline centerline and major aboveground facilities (*see* Table 5.2-1).

This Draft Resource Report 5 includes an analysis of all of the following counties that will include Project facilities (pipelines, compressor stations, and meter stations):

- Ohio: Columbiana, Stark, Summit, Wayne, Medina, Lorain, Erie, Sandusky, Wood, Lucas, Henry, and Fulton Counties; and
- Michigan: Lenawee, Monroe, and Washtenaw Counties.

For the purposes of this analysis, the general economic effect area (analysis area) for the Project extends to communities that lie within a maximum distance of 10 miles from the pipeline centerlines and major aboveground facilities. See Table 5.2-1 for a list of the communities that are crossed or are within 10 miles of the project. Communities were identified based on U.S. Census Bureau data TIGER/Line® files (U.S. Census Bureau, 2015b). The following counties (and municipalities contained therein) are located within 10 miles of the Project, but are not directly affected by the Project: Jefferson; Carroll; Mahoning; Portage; Cuyahoga; Huron; Seneca; Ottawa; and Wayne.

This Draft Resource Report 5 includes an analysis of the following communities:

Ohio:

- Jefferson County: (county not located within the Project area and not directly affected by the Project): Brush Creek;
- Carroll County: (county not located within the Project area and not directly affected by the Project): Augusta, Brown, East, Fox, and Washington;
- Columbiana County: Butler, Center, Elkrum, Franklin, Hanover, Knox, Madison, Perry, Salem, Washington, Wayne, and West;
- Mahoning County: (county not located within the Project area and not directly affected by the Project): Goshen, Sebring, and Smith;
- Stark County: Alliance, Canton (City and Township), Jackson, Lake, Lawrence, Lexington, Louisville, Marlboro, Massillon, Nimishillen, Osnaburg, Paris, Perry, Plain, Tuscarawas, and Washington;
- Portage County: (county not located within the Project area and not directly affected by the Project): Atwater, Brimfield, Deerfield, Mogadore, Randolph, Rootstown, and Suffield;
- Summit County: Akron, Barberton, Bath, Clinton, Copley, Coventry, Fairlawn, Green, Lakemore, Mogadore (Village), New Franklin, Norton, Springfield, and Tallmadge;
- Wayne County: Baughman, Canaan, Chippewa, Congress, Green, Milton, Norton, Rittman, Sugar Creek, and Wayne;
- Medina County: Brunswick, Brunswick Hills, Chatham, Chippewa Lake, Gloria Glens Park, Granger, Guilford, Harrisville, Hinckley, Homer, Lafayette, Litchfield, Liverpool, Lodi, Medina, Medina City, Montville, Rittman, Seville Village, Sharon, Spencer (Village and Township), Wadsworth (City and Township), Westfield, Westfield Center, and York;
- Cuyahoga County: (county not located within the Project area and not directly affected by the Project): North Olmsted, Olmsted, Olmsted Falls, and Strongsville;
- Lorain County: Amherst (City and Township), Brighton, Brownhelm, Camden, Carlisle, Columbia, Eaton, Elyria (City and Township), Grafton (Village and Township), Henrietta, Huntington, LaGrange, Lorain, New Russia, North Ridgeville, Oberlin, Pensfield, Pittsfield, Rochester, and Wellington;
- Erie County: Bellevue, Berlin, Florence, Groton, Huron, Margaretta, Milan, Oxford, Perkins, Sandusky, and Vermilion (City and Township);
- Huron County: (county not located within the Project area and not directly affected by the Project): Bellevue (City), Bronson, Clarksfield, Hartland, Lyme, Norwalk (City and Township); Peru, Ridgefield, Sherman, Townsend, and Wakeman;

- Sandusky County: Ballville, Bellevue, Clyde, Fremont, Green Creek, Green Springs, Jackson, Madison, Rice, Riley, Sandusky, Scott, Townsend, Washington, Woodville, and York;
- Seneca County: (county not located within the Project area and not directly affected by the Project): Adams, Green Springs, Liberty, Pleasant, and Thompson;
- Ottawa County: (county not located within the Project area and not directly affected by the Project): Allen, Bay, Benton, Carroll, Clay, Danbury, Erie, Harris, Portage, Port Clinton, and Salem;
- Wood County: Bowling Green, Center, Freedom, Grand Rapids, Lake, Liberty, Middleton, Milton, Montgomery, Northwood, Perrysburg (City and Township), Plain, Portage, Rossford, Troy, Washington, Webster, and Weston;
- Lucas County: Harding, Maumee, Monclova, Oregon, Providence, Richfield, Spencer, Springfield, Swanton, Sylvania, Toledo, and Waterville;
- Henry County: Damascus, Harrison, Liberty, Richfield, and Washington; and
- Fulton County: Amboy, Chesterfield, Clinton, Dover, Fulton, Pike, Royalton, Swan Creek, and York.

Michigan:

- Lenawee County: Adrian (City and Township), Blissfield, Clinton, Deerfield, Fairfield, Franklin, Macon, Madison, Ogden, Palmyra, Raisin, Ridgeway, Riga, and Tecumseh (City and Township);
- Monroe County: Ash, Dundee, Exeter, Ida, London, Milan (City and Township), Petersburg, Raisinville, Summerfield, and Whiteford;
- Washtenaw County: Ann Arbor (City and Charter Township), Augusta, Bridgewater, Lodi, Milan, Northfield, Pittsfield, Salem, Saline (City and Township), Superior, York, and Ypsilanti (City and Charter Township); and
- Wayne County: (county not located within the Project area and not directly affected by the Project): Belleville, Canton, Garden City, Huron, Livonia, Northville, Plymouth (City and Charter Township), Romulus, Sumpter, Van Buren, Wayne, and Westland.

5.2.1 Population

Socioeconomic conditions for the Project analysis area were characterized with population data from the 2000 and 2010 Census and the 2009-2013 American Community Survey (“ACS”). Tables 5.2-2 and 5.2-3 list the 2000 and 2010 populations, 2013 population estimates, 2010 population density, and 2000-2013 and 2010-2013 changes in population for the Project counties in Ohio and Michigan and the communities within 10 miles of the Project.

Tables 5.2-2 and 5.2-3 include 2013 population estimates for the communities that contain Project facilities and the communities located within an approximately ten-mile distance of Project pipeline facilities and major aboveground facilities. Data for 2000 and 2010 populations, 2010 population density, and 2000-2013 and 2010-2013 changes in population for the communities in the analysis area are also included in Tables 5.2-2 and 5.2-3.

The analysis area contains rural counties, which consist of populations dispersed throughout smaller communities and rural areas rather than a concentration of residents in an urban area, and urban counties, which include an urbanized core with a population greater than or equal to 50,000, as defined by the U.S. Census Bureau (U.S. Census Bureau, 2015a). County populations in 2010 ranged from 28,215 with a population density of 67.8 persons per square mile in rural Henry County, Ohio, to 541,781 with a

population density of 1,312.6 persons per square mile in Summit County, Ohio, which contains the City of Akron, which is the center of a metropolitan statistical area (U.S. Census Bureau, 2010a).

There are nine metropolitan statistical areas located wholly or partially within a ten-mile distance of the Project facilities. The U.S. Census Bureau defines a metropolitan statistical area (“metro area”) as containing a core urban area with a population greater than or equal to 50,000, that includes all or parts of one or more counties, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core (U.S. Census Bureau, 2015a). The metro areas generally provide a large and diverse labor force, and a broad range of community services and infrastructure to serve large populations. The Project metro areas include the following based on U.S. Census Bureau delineation files of principal cities of metropolitan statistical areas (U.S. Census Bureau, 2013a):

- **Akron, OH Metro Area.** This metro area includes the core urban city of Akron as well as Portage and Summit Counties in Ohio. The Mainline Route crosses through Summit County from milepost (MP) 32.7 - 48.1 and at its closest distance, the Mainline Route is approximately four miles southeast of the City of Akron.
- **Canton-Massillon, OH Metro Area.** This metro area includes the core urban cities of Canton and Massillon as well as Carroll and Stark Counties in Ohio. The Mainline Route crosses through Stark County from MP 12.3 - 32.7 and at its closest distance, the Mainline Route is approximately 3.8 miles northeast of Canton. The Mainline Route passes within approximately six miles to the north of Massillon.
- **Cleveland-Elyria, OH Metro Area.** This metro area includes the core urban cities of Cleveland and Elyria as well as Cuyahoga, Geauga, Lake, Lorain, and Medina Counties in Ohio. The Cleveland-Elyria, OH Metro Area is the largest metropolitan area in Ohio (Ohio Development Services Agency, 2015). The Mainline Route crosses through Lorain County from MP 77.2 - 98.2 and through Medina County from MP 54.2 - 77.2. The Mainline Route is located approximately 13.6 miles to the southwest of Cleveland and approximately 4.3 miles to the south of Elyria.
- **Toledo, OH Metro Area.** This metro area includes the core urban city of Toledo as well as Fulton, Lucas, and Wood Counties in Ohio. The Mainline Route crosses through Fulton County from MP 184.9 - 202.8, Lucas County from MP 176.1 - 184.0, Wood County from MP 158.7 - 176.1, and is located approximately 10.3 miles to the west of the city of Toledo, at its closest point.
- **Weirton-Steubenville, WV-OH Metro Area.** This metro area includes the core urban cities of Weirton and Steubenville as well as Jefferson County, Ohio and Brooke and Hancock Counties, West Virginia. No project facilities are located within the metro area counties or core urban cities. The closest Project facility, the Interconnecting Pipeline, is located approximately 25 miles to the northwest of both Steubenville and Weirton. The Interconnecting Pipeline is located approximately 9 miles to the northwest of Jefferson County, Ohio.
- **Youngstown-Warren-Boardman, OH-PA Metro Area.** This metro area includes the core urban cities of Youngstown, Warren, and Boardman as well as Mahoning and Trumbull Counties in Ohio and Mercer County in Pennsylvania. No project facilities are located within the metro area counties or core urban cities. The closest Project facility, the Mainline, is located approximately 25 and 28 miles to the southwest of Youngstown and Warren, respectively. The Mainline is located approximately 3.2 and 19 miles to the southwest of Mahoning and Trumbull Counties, respectively.

- **Ann Arbor, MI Metro Area.** This metro area includes the core urban city of Ann Arbor as well as Washtenaw County, Michigan. The Mainline Route crosses through Washtenaw County from MP 231.1 - 249.0. The Mainline is located approximately 6.2 miles to the southeast of Ann Arbor at its closest point.
- **Detroit-Warren-Dearborn, MI Metro Area.** This metro area includes the core urban cities of Dearborn, Detroit, and Warren, as well as Farmington Hills, Livonia, Novi, Pontiac, Southfield, Taylor, and Troy, and Wayne, Lapeer, Livingston, Macomb, Oakland, and St. Clair Counties, Michigan. No Project facilities are located in any of the core urban cities, associated cities, or associated counties. The terminus of the project, NEXUS/Willow Run metering and regulating (M&R) Station, is located approximately 400 feet to the west of Wayne County.
- **Monroe, MI Metro Area.** This metro area includes the core urban city of Monroe as well as Monroe County, Michigan. The Mainline crosses through Monroe County from MP 224.7 - 231.1. The Mainline is located approximately 17 miles to the northwest of the city of Monroe.

Population growth in analysis area states, counties, communities, and metro areas between 2000 and 2013 and 2010 and 2013 is summarized in Tables 5.2-2 and 5.2-3. The metro areas data shows decreases in all but three of the metro areas population during the period from 2000-2013, from a low of 0.8 percent to a high of 7.9 percent (U.S. Census Bureau, 2013b and 2014a). Three of the nine metro areas experienced population growth from 2000-2013: the Akron, OH Metro area at 1.5 percent; the Ann Arbor, MI Metro Area at 9.7 percent; and the Monroe, MI Metro Area at 3.0 percent.

The combined 2013 total of the population in the metro areas is over 9.2 million (U.S. Census Bureau, 2014a). This total includes population in counties that are in the metro areas, but are not part of the Project analysis area. The total estimated 2013 population of the Ohio and Michigan counties crossed by the proposed Project is approximately 2.99 million (U.S. Census Bureau, 2013c). In general, rural counties in Ohio have lost population since 2000, while Ohio counties which are a part of metro areas have gained population since 2000. All Project counties in Michigan have gained population since 2000. The majority of the population in the analysis area counties resides in the metro areas, which have had the largest growth rates.

Population growth trends between 2000 and 2013 in the analysis area were evaluated to identify potential future population trends and assess the capacity of existing community services to adapt to changing populations. The 2013 estimated ACS population for counties was compared with the U.S. Census Bureau decennial 2000 and 2010 populations to identify population trends in the affected counties. Population trends varied widely throughout the analysis area counties.

In general, counties in Ohio showed similar growth patterns, in that rural counties tended to lose population while counties containing or associated with large urban cores gained population. Medina County in Ohio experienced the largest population gains of all Ohio analysis area counties (14.7 percent) between 2000 and 2013, while Fulton County experienced the smallest population gains of all Ohio analysis areas counties (1.2 percent). Washtenaw County in Michigan experienced the largest population gains of all Michigan analysis area counties (7.9 percent) between 2000 and 2013, while Lenawee County experienced the smallest population gain (0.6 percent). In contrast, the population in the predominantly rural Columbiana County in Ohio declined 4.5 percent between 2000 and 2013. Population declines in Ohio Project counties ranged from 0.2 percent in Summit County to 4.5 percent in Columbiana County between 2000 and 2013. In general, Project area counties which experienced an increase in population between 2000 and 2013 also experienced an increase in population between 2010 and 2013. Project counties which experienced a decline in population between 2000 and 2013, also experienced a decline in population between 2010 and 2013 (U.S. Census Bureau, 2000a and 2013c).

Communities in Ohio had a wide range of population growth patterns between 2000 and 2013, from a decrease of 100 percent in Norton City, Wayne County, Ohio to an increase of 549.9 percent in New Franklin City, Summit County, Ohio. Communities in Michigan also had a wide range of population growth patterns between 2000 and 2013, from a decrease of 19.8 percent in Sumpter Township, Wayne County to an increase of 40.7 percent in Augusta Charter Township and Saline Township in Washtenaw County.

5.2.2 Economy and Employment

Manufacturing is the largest economic growth sector in Ohio based on gross domestic product (GDP). Approximately 54 percent of Ohio's manufacturing output consists of durable goods. Transportation equipment and fabricated metals are the two largest manufacturing industries in Ohio. Ohio's leading export commodities are motor vehicles and machinery. Service-producing sectors produce 80 percent of the state GDP and will account for most job growth between 2010 and 2020 (Ohio Development Services Agency, 2015).

Michigan's GDP increased by 11.4 percent from 2009-2013, mainly due to manufacturing, professional and business services, and wholesale trade. In 2013, manufacturing was by far the largest contributor to Michigan's GDP. While manufacturing accounted for 12.5 percent of the total GDP for the U.S. in 2013, manufacturing accounted for 20.1 percent in Michigan, which highlights the relative importance of this industry in the state. Durable goods manufacturing in Michigan grew 74.0 percent from 2009-2013 (Department of Technology, Management & Budget, Bureau of Labor Market Information & Strategic Initiatives, 2015).

Education, health and social services; manufacturing; and retail trade are the top three industries in both Ohio and Michigan. These three industries are also the top three industries for all of the Project counties, with the exception of two. Other major industries within the Project counties include professional, scientific, management, administrative and waste management services, and arts, entertainment, and recreation, and accommodation and food services. Tables 5.2-4 and 5.2-5 provide the top three industry sectors in the states, counties, and communities potentially affected by the Project, as well as the economic and labor force characteristics in the socioeconomic analysis area discussed below.

The presence of large urban core areas in both states supports a large workforce. Population growth in the urbanized analysis area counties since 2000 has supported residential, commercial, and other development. The core counties of civilian workforce estimates for 2013 in Ohio include: 22,349 workers in Fulton County; 152,340 workers in Lorain, County; 221,879 workers in Lucas County; 92,664 workers in Medina County; 189,391 workers in Stark County; 283,418 workers in Summit County; and 69,392 workers in Wood County. The core counties of civilian workforce estimates for 2013 in Michigan include 75,223 workers in Monroe County and 188,014 workers in Washtenaw County (U.S. Census Bureau, 2013e).

Ohio analysis area counties varied from the Ohio state unemployment rate of 6.4 percent in 2013; county unemployment rates ranged from 4.3 percent in Medina County to 8.8 percent in Lucas County. Unemployment rates in the Ohio analysis area communities ranged from a low of 0.0 percent in a number of townships and cities to a high of 15.2 percent in Deerfield Township, Portage County (U.S. Census Bureau, 2013e).

Michigan analysis area counties were below the Michigan state unemployment rate of 7.8 percent in 2013. Project county unemployment rates ranged from 6.0 percent in Washtenaw County to 7.2 percent in Lenawee County. Unemployment rates in the Michigan analysis area communities ranged from a low of 2.9 percent in Adrian Township, Lenawee County to a high of 10.6 percent in Adrian City, Washtenaw County (U.S. Census Bureau, 2013e).

Per capita income, which is defined as mean income per person, is a measure of earnings that provides a standard of comparison between different areas. The per capita income for communities and counties in the Ohio and Michigan analysis area varied above and below the state per capita income. Ohio analysis area counties per capita income in 2013 ranged from \$21,575 in Columbiana County to \$30,707 in Medina County compared to the Ohio per capita income of \$26,046. Eight of the Project counties in Ohio had per capita incomes below the state's per capita income, while the remaining four had per capita incomes above the state's. In analysis communities in Ohio, per capita income ranged from a low of \$15,410 in Fox Township, Carroll County, to a high of \$51,929 in Bath Township, Summit County. Most of the Ohio analysis communities had per capita incomes below the state's per capita income (U.S. Census Bureau, 2013e).

Michigan analysis area counties per capita income in 2013 ranged from \$22,395 in Lenawee County to \$33,231 in Washtenaw County, compared to the Michigan per capita income of \$25,681 (U.S. Census Bureau, 2013e). Most of the Michigan counties had per capita incomes above the state's per capita income. In analysis communities in Michigan, per capita income ranges from a low of \$16,604 in Adrian City, Lenawee County to a high of \$58,766 in Ann Arbor Charter Township in Washtenaw County. Most of the Michigan analysis communities have per capita incomes above the state's per capita income (U.S. Census Bureau, 2013e).

Percentages of persons living below the poverty line and percentage of households receiving income based on public assistance data are provided in Tables 5.2-6 and 5.2-7. Ohio Project analysis area counties percentages of persons living below the poverty line in 2013 ranged from 7.0 percent in Medina County to 20.0 percent in Lucas County, while the state average was 14.9 percent. Ten of the Ohio Project counties had a smaller percentage of persons living below the poverty line; while two of the counties had a larger percentage of persons living below the poverty line. The percentage of persons living below the poverty line in Ohio analysis communities ranged from 0.0 percent in numerous communities to 25.9 percent in Canton City, Stark County. Percentage of households receiving income based on public assistance and percentage of households receiving supplemental nutrition assistance program benefits show similar trends to the poverty data (U.S. Census Bureau, 2013d and 2013e).

Michigan Project analysis area counties percentages of persons living below the poverty line in 2013 were below the state's average of 15.3 percent; percentages of persons living below the poverty line ranged from 11.7 percent in Monroe County to 13.8 percent in Washtenaw County. The percentage of persons living below the poverty line in Michigan analysis communities ranged from 0.9 percent in Palmyra Township, Lenawee County to 25.8 percent in Adrian City, Lenawee County. Percentage of households receiving income based on public assistance and percentage of households receiving supplemental nutrition assistance program benefits show similar trends to the poverty data (U.S. Census Bureau, 2013d and 2013e).

5.2.3 Tourism

The Project counties in Ohio and Michigan provide mainly outdoor recreation tourist attractions, but also provide arts, music, historical structures and districts, dining, sporting events, and shopping opportunities. The high tourist season in Ohio is generally April to early September and in Michigan is generally year-round.

General county tourism information was gathered from readily available public sources. Publically available metrics to characterize the degree of tourism that occurs in the Project vicinity (e.g., visitor days for a park, number of visitors through a particular destination, *etc.*) are included herein. For detailed information on public lands crossed by the Project, *see* Draft Resource Report 8, Section 8.4.1.

Columbiana County, Ohio (MP 0.0 to 12.3) offers museums including the Butler Institute of American Art, the Lou Holtz/Upper Ohio Valley Hall of Fame, the Museum of Ceramics, and Wellsville River

Museum. The county is also home to a casino racetrack and resort, numerous community playhouses and theatres, restaurants, and shopping opportunities (Columbiana County Area Chamber of Commerce, 2015). In addition, the county provides numerous outdoor recreational opportunities including golf courses, Beaver Creek State Park and Guilford Lake, which provide hiking trails, mountain bike trails, boating, fishing, ice skating, ice fishing, and nature programs (USA Today, 2015).

Stark County, Ohio (MP 12.3 to 32.8) contains the City of Canton which has 40 parks and 10 mini-parks, including but not limited to the Ohio & Erie Canalway, Quail Hollow State Park, Cuyahoga Valley National Park, and other parks which provide outdoor recreational activities including nature and picnic areas, recreational fields, playgrounds, ponds, summer rentals including cottages, boating, fishing, swimming, *etc.* (Canton Regional Chamber of Commerce, 2015). The county also has numerous museums including the Canton Museum of Art, art galleries, golf courses, a water park (Canton Stark County Convention and Visitors' Bureau, 2015), and the Pro Football Hall of Fame.

Summit County, Ohio (MP 32.8 to 48.1) offers the Cuyahoga Valley National Park with 33,000 preserved acres, the Akron Art Museum, theatre, concerts, shows, the Akron Zoo, golf championships, sports teams and stadiums, amusement and theme parks, boating, fishing, hiking, skiing, horseback riding, and more (Greater Akron Chamber, 2014).

Wayne County, Ohio (MP 48.1 to 54.2) offers shopping opportunities, Amish Country, 10 historical societies, and a vineyard (Discover Ohio, 2015).

Medina County, Ohio (MP 54.2 to 77.2) provides numerous outdoor recreational opportunities including golf courses, Brunswick City Parks, Medina City Parks (consists of 12 parks covering 800 acres of developed and undeveloped parkland), Wadsworth City Parks, and the Medina County Park District with recreational fields, playgrounds, picnic areas, nature trails, hiking, and mountain biking (Visit Medina County, 2015).

Lorain County, Ohio (MP 77.2 to 98.2) offers amusement parks, a history museum, watersports, a historic downtown district, recreational boating, canoeing, outdoor concerts, art galleries, golf courses, a lighthouse, and a vineyard (Vermillion Chamber of Commerce, 2015)

Erie County, Ohio (MP 98.2 to 127.1) is home to the Thomas A. Edison Birthplace Museum, a waterpark, the National Museum of the Great Lakes and outdoor recreation opportunities on the shores of Lake Erie and Islands (Erie County Ohio, 2015).

Sandusky County, Ohio (MP 127.9 to 158.6) contains wineries, community theatres, numerous parks and golf courses (Sandusky County Convention and Visitors Bureau, 2015).

Wood County, Ohio (MP 158.6 to 176.1) is home to Fort Meigs, the largest reconstructed, wooden walled fortification in America, the Wood County Historical Center and Museum, a historic district and the National Construction Equipment Museum. Wood County also offers outdoor recreational opportunities including fishing (Wood County Tourism, 2015).

Lucas County, Ohio (MP 176.1 to 183.9) includes Toledo which is host to outdoor recreational opportunities on bays, lakes and rivers. The county is also home to the Toledo Museum of Art and the Toledo Zoo (Toledo Regional Chamber of Commerce, 2015).

Henry County, Ohio (MP 183.9 to 184.8) like the other rural Project counties provides outdoor recreation opportunities such as boating, fishing, swimming along resources such as the Maumee River. Henry County also has shopping and dining opportunities.

Fulton County, Ohio (MP 184.8 to 202.8) is a primarily rural county which provides outdoor recreation opportunities at location such as parks and green space. The Village of Wauseon also hosts parades, festivals and car shows (Wauseon Chamber of Commerce, 2015).

Lenawee County, Michigan (MP 202.8 to 224.7) provides a range of tourism opportunities from outdoor recreation at numerous golf clubs, festivals, outdoor events, wineries, and orchards, to shopping, dining, and cultural activities such as operas, symphonies, and museums (Lenawee County Conference and Visitors Bureau, 2015).

Monroe County, Michigan (MP 224.7 to 231.2) provides numerous outdoor recreational opportunities, festivals, fairs, historic sites, shopping, and dining opportunities. The county provides beach opportunities, lakeside camping, swimming, birding, fishing, boating, sailing, and other water recreation. Sterling State Park, which is comprised of 1,300 acres located along Lake Erie is visited on average by one million visitors annually. Five county parks, numerous municipal parks, and numerous state game areas are also located throughout the county. Monroe County offers 21 public golf courses and one private course, Milan Dragway, and numerous music festivals. Monroe County Historical Museum and the River Raisin National Battlefield, the location of one of the largest engagements of the War of 1812 are located within Monroe County (Monroe County Chamber of Commerce, 2015).

Washtenaw County, Michigan (MP 231.2 to 249.1) has thirteen parks and 27 nature preserves which offer a variety of recreational activities such as playgrounds, walking and exercise trails, mountain biking trails, disc golf. The county also contains numerous golf courses (eWashtenaw, 2015).

5.2.4 Housing

Tables 5.2-8 and 5.2-9 provide existing housing accommodations data for analysis area communities in Ohio and Michigan. The tables summarize total housing units, owner and renter occupied units, total vacancy rate, rental vacancy rate, units available for seasonal recreation, and median rent compiled from the 2009-2013 ACS. Tables 5.2-8 and 5.2-9 also provide number of hotels, motels, and campgrounds for analysis area communities and counties.

Tables 5.2-8 and 5.2-9 show a substantial stock of vacant housing units in the analysis area communities. Rental vacancy rates range from 0 percent in some Ohio communities to 59.5 percent in Wayne Township, Columbiana County. Rental vacancy rates range from 0 percent in some Michigan communities to 24.3 in Ida Township, Monroe County. According to ACS 2013 housing data, there are 102,090 vacant housing units in the Ohio analysis area communities and 26,984 vacant housing units in the Michigan analysis area communities. There are 129,074 vacant housing units in all communities of the socioeconomic analysis area (U.S. Census Bureau, 2013f).

Tables 5.2-8 and 5.2-9 also show a total 10,677 housing units available for seasonal or occasional use. Project area counties in Ohio had 6,484 housing units available for seasonal or occasional use in 2013. In addition, 4,193 housing units are available for season or occasional use in Michigan Project counties (U.S. Census Bureau, 2013f).

In addition to vacant housing, there are approximately 320 hotels/motels and 48 campgrounds/RV parks located in or near communities within an approximate 10 mile distance of the proposed pipeline centerlines and facilities (Hotels.com, 2015; RV Park Reviews, 2015). Most of the Mainline Route and other facilities are located within a 50-mile distance of urban core areas with substantial temporary housing consisting of hotels/motels, RV parks and campgrounds, and housing for seasonal or occasional use.

5.2.5 Public Services

A wide range of public services and facilities are available in the Project analysis area. Services and facilities include hospitals, full-service law enforcement, career and volunteer fire departments, and public schools. Select public service information is provided in Tables 5.2-10 and 5.2-11.

5.2.5.1 Hospitals

Tables 5.2-10 and 5.2-11 show a total of 23 hospitals that serve the analysis area counties with approximately 4,173 available beds (American Hospital Directory, 2015 and USGS, 2015). The number of hospitals identified for each county is limited to those hospitals located in communities within an approximately ten-mile distance from pipelines and aboveground facilities, because these facilities are most likely to provide medical services to the Project workforce. The table shows that the largest facilities, those with the largest number of hospital beds for each facility, are in counties with urbanized areas. Rural counties with relatively low populations may lack medical care facilities and use facilities in neighboring counties.

The U.S. Department of Health and Human Services has identified Primary Care Health Professional Shortage Areas (“HPSA”) or Medically Underserved Areas or Populations (U.S. Department of Health and Human Services, 2015). An HPSA is a geographic area, population group, or health care facility that has been designated by the Federal government as having a shortage of health professionals (primary care, dental, and mental health). A search of the HPSA database identified one specific census tract (CT) containing or within one mile of proposed NEXUS facilities, as well several communities had low income populations that were underserved by primary care within the Project analysis area.

Some of the socioeconomic analysis area communities within Lorain County, Ohio were identified in the HPSA database as having low income populations that are underserved by primary care: Brighton; Huntington; LaGrange; Pensfield; Rochester; and Wellington. CT 34 near southside Toledo in Lucas County was identified as having low income populations that are underserved by primary care in Lucas County, Ohio. No HPSA based on primary care were identified in the following Ohio Project counties or communities: Columbiana; Erie; Fulton; Henry; Medina, Sandusky; Stark; Summit; Wayne; and Wood Counties.

Some of the socioeconomic analysis area communities in Lenawee County, Michigan were identified in the HPSA database as having low income populations that are underserved by primary care: Adrian; Blissfield, Fairfield, Madison, and Palmyra. No HPSA based on primary care were identified in the following Michigan Project counties: Monroe; and Washtenaw.

5.2.5.2 Police and Fire

As shown in Tables 5.2-10 and 5.2-11, there are a total of 64 police departments and sheriff offices that provide 2,072 law enforcement personnel in the communities within 10 miles of Project facilities (PoliceOne, 2014 and USGS, 2015). Police departments generally serve communities in the Project analysis area, while sheriff’s offices serve an entire county. The Ohio and Michigan counties, which contain the largest populations in the Project analysis area, have the largest numbers of police departments and enforcement personnel. In addition to municipal and county law enforcement, all counties are served by their respective state patrol.

As shown in Tables 5.2-10 and 5.2-11, there are a total of 259 fire departments and 5,747 active firefighters that serve the Project analysis area. Most counties provide a mix of volunteer and paid firefighters (FireDepartment.net, 2015, U.S. Fire Administration, 2015, and USGS, 2015).

5.2.5.3 Education

Tables 5.2-10 and 5.2-11 list 731 public schools in Ohio and 182 public schools in Michigan, for a total of 913 public schools in the Project analysis area counties. Data for schools includes all public schools within the Project counties. In general, rural counties in Ohio and Michigan have the lowest number of public schools, while counties with urban centers contain the largest numbers of schools. In Ohio, the predominantly rural Henry County has 14 (the lowest number of public schools), while Summit County, which includes the urban Akron area, has 144 (the highest number of public schools). In Michigan, the

number of public schools ranges from 45 in Lenawee County, to 88 in Washtenaw County, which contains the urban center of Ann Arbor (National Center for Education Statistics, 2015).

5.2.6 Transportation Network Systems

The Project analysis area counties contain interstate routes and other main highways that provide important strategic connections to major urban core areas and other areas in Ohio and Michigan and neighboring states for employment, education, recreation/tourist activities, and other services. In addition, the Project analysis area contains an extensive network of other federal, state, county, and local roadways. Access to the Project analysis area in all counties will be from interstates, state and local highways, and county roadways. Roadways that are crossed by the Project are listed in Table 8.3-11 in Draft Resource Report 8.

Ohio

Transit options that utilize the transportation network and provide access to the analysis area include commuter rail systems and buses. All of the Project counties in Ohio with the exception of three (Wayne, Fulton, and Henry Counties) are serviced by public transit. Columbiana County is serviced by the Columbiana County/Community Action Rural Transit System. Public transit is provided by the Stark Area Regional Transit Authority in Stark County. METRO Regional Transit Authority (Akron) provides public transportation in Summit County. Medina County Transit provides transportation for Medina County. Lorain County Transit provides public transit for Lorain County. Portions of Summit, Medina, and Lorain Counties are also serviced by the Greater Cleveland Regional Transit Authority. Sandusky Transit System/Erie County provides services for Erie County, while Transportation Resources for Independent People of Sandusky County provides public transit for Sandusky County. Bowling Green Transit provides services for Wood County. Toledo Area Regional Transit Authority provides public transit for Lucas County. The transit systems in Stark, Summit, Lorain, Erie, and Lucas Counties are urban transit systems. The transit systems in Columbiana, Medina, Sandusky, and Wood Counties are rural transit systems (Ohio Department of Transportation, 2012).

Michigan

Lenawee Public Transportation Corporation provides public transit for Lenawee County, Michigan. Public transit is also provided by City of Adrian Dial-a-Ride, within the City of Adrian. Lake Erie Transportation Commission, Lake Erie Transit provides service in Monroe County. Washtenaw County has two public transit agencies including Ann Arbor Transportation Authority and the University of Michigan Transportation Services (American Public Transportation Association, 2015). Monroe and Washtenaw Counties also are serviced by passenger rail services (Wolverine and Thruway Motorcoach Connections) which are part of Michigan's Intercity Passenger Rail System (Michigan Department of Transportation, 2015).

5.2.7 Environmental Justice

This section provides demographic data used to determine whether the construction and operation of the Project will have a significant and disproportionate adverse effect on minority and low-income populations, consistent with Executive Order 12898 entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (February 11, 1994). Environmental justice areas are defined by the Environmental Protection Agency ("EPA") as locations that have a "meaningfully greater" percentage of minorities than the general population has, or locations in which minorities comprise more than 50 percent of the affected area's population. Low-income populations are defined as the population with annual incomes that are below the poverty level as defined and compiled by the U.S. Census Bureau. The methods outlined in the EPA's "Final Guidance for Incorporating

Environmental Justice Concerns in EPA’s National Environmental Policy Act Compliance Analyses” (April 1998) were used to prepare the environmental justice analysis.¹

Potential effects analyzed include air quality, noise, traffic, revenue, and business disruption.

The environmental justice affected area for the Project is all census tracts that contain any proposed Project facility and all census tracts within one mile of the planned pipelines. Census tracts were identified from 2014 U.S. Census Bureau Topographically Integrated Geographic Encoding and Referencing files 2014 (U.S. Census Bureau, 2014b). The general population for this analysis is defined as the population for the county that contains the affected census tracts.

The EPA’s Office of Environmental Justice has defined the term “minority” for environmental justice purposes to include Hispanics, Asian-Americans and Pacific Islanders, African-Americans, and American Indians, and Alaskan Natives. The EPA does not define a measurement or threshold for determining whether the population of an affected area has a percentage of minorities that is meaningfully greater than the general population. Several environmental impact studies and environmental justice methodologies were reviewed to identify a threshold. A variety of measurements were identified; however, the most commonly used threshold for determining the “meaningfully greater” percentage was 10 percent. Therefore, for this analysis, all census tracts with a minority population that consisted of more than 50 percent of the census tract population and all census tracts with a minority population that is at least 10 percent higher than the general population of the surrounding county census tracts, were considered to be environmental justice populations. In addition to U.S. Census Bureau decennial demographic data for Census Tracts, publicly available data was searched to identify potential environmental justice populations in areas that may be affected by the Project but are not identified using U.S. Census Bureau data. No such populations were identified, so the analysis relies on U.S. Census Bureau data.

The EPA also does not provide measurements or thresholds to identify a meaningfully greater low-income population relative to a general population. Low-income environmental justice populations identified in other environmental justice analyses were reviewed for appropriate methodologies. These populations include individuals with an income below the federally set poverty level; although some studies defined a low-income population as the number of people with an income that is some percentage above the poverty level (125 percent, or 150 percent). For this analysis, low-income populations are comprised of people with an annual income below the poverty level. A similar process as that outlined for minority environmental justice populations was used to identify low-income environmental justice populations in affected census tracts. The number of people living below the poverty level was identified for each census tract from the ACS, and compared with the poverty level data for the general population in the appropriate county. The ACS provides poverty level estimates for smaller areas such as census tracts as a percentage of the population. For this analysis, low-income environmental justice populations include all census tracts with a low-income population that comprise more than 50 percent of the census tract population and all census tracts with a low-income population that is at least 10 percent higher than the general population of the surrounding county.

The analysis below addresses potential socioeconomic and environmental effects to environmental justice populations in census tracts in Ohio and Michigan where the Project facilities, including aboveground facilities, will be located and census tracts within one mile of Project facilities.

¹ EPA is currently (April 15, 2015 to June 15, 2015) seeking public comments for the draft Environmental Justice 2020 Action Agenda framework. Over the next five years, EPA will be focusing on: deepening environmental justice progress in EPA’s programs to improve the health and environment of overburdened communities; collaborating with partners to expand EPA’s impact in overburdened communities; and demonstrating progress on outcomes that matter to overburdened communities (EPA, 2015).

In addition to EPA requirements and guidelines, state environmental justice requirements of Michigan and Ohio were reviewed to identify methodologies for determining the presence of environmental justice populations, or to identify any environmental justice populations already identified through state agency efforts. The analysis area is within EPA Region 5. The Region 5 environmental justice program was reviewed to identify any populations or communities designated by the EPA as environmental justice populations. No communities affected by the Project are located in the EPA's Environmental Justice Showcase Communities (EPA, 2012). To facilitate public involvement and outreach, NEXUS has a Public and Agency Participation Plan included in Appendix 1C3 of Draft Resource Report 1. NEXUS will continue its efforts to keep landowners, public officials and the appropriate permitting agencies fully informed of developments on the Project.

Tables 5.2-12 and 5.2-13 provide the general racial/ethnic composition and population with incomes below the poverty level for census tracts crossed by the Project as well as census tracts within one mile of Project facilities, as well the general economic status of these areas. ACS 2009-2013 data were used for population, racial/ethnic composition, and percentage of people below the poverty level.

Ohio

Two of the 64 census tracts crossed by or within one mile of the Project facilities in Ohio contain environmental justice populations based on minority and low income populations. One census tract containing environmental justice populations based on low income populations, Census Tract 4082.01, is located in Medina County. This census tract is located approximately 1,800 feet to the east of the pipeline centerline in Lafayette Township, Medina County. One census tract containing environmental justice populations based on minority population, Census Tract 601, is crossed by the Project pipeline in Pittsfield Township in Lorain County (U.S. Census Bureau, 2013c and 2013e).

Michigan

Nine of the 28 census tracts crossed by or within one mile of the Project facilities in Michigan contain environmental justice populations based on minority and low income populations. CTs 4074, 4121, 4123, 4127, 4130, and 4219 are located within one mile of Project facilities. Four CTs, 4119, 4126, and 9840, are crossed by the pipeline centerline in Ypsilanti Township. The NEXUS/Willow Run M&R Station is also located within CT 4119 (U.S. Census Bureau, 2013c and 2013e).

5.2.8 Census Bureau Data on Children

According to the 2013 U.S. Census Bureau, there are 100,737 people age 17 and under living within the census tracts crossed by and within one mile of the Project (U.S. Census Bureau, 2013d). Tables 5.2-14 and 5.2-15 provide the number of children age 17 years and under residing in each census tract within this area by state and county.

5.3 Socioeconomic Effects and Mitigation

The Project is expected to have minimal adverse effect on the environment because the majority of the Project facilities will be within or adjacent to existing rights-of-way ("ROW"), consisting of existing pipeline ROWs, electric transmission ROWs, public roadways, railways, and/or other utility ROWs or within agricultural fields. The current NEXUS pipeline route is co-located with existing utility ROWs for approximately 55 percent of the proposed route; with an additional 38 percent of the route [that is not co-located with existing utilities], crossing agricultural land uses, resulting in a total of 93 percent of the proposed pipeline route sited to avoid conversion of existing land uses. The project construction will be short in duration and localized in a narrow width corridor, and it will cross a variety of land use types and census tracts with a range of socioeconomic characteristics.

NEXUS evaluated route alternatives before selecting its proposed route for the Project (*see* Sections 10.5 and 10.6 of Draft Resource Report 10). NEXUS' siting process for the preferred pipeline route is

ongoing and has minimized, to the extent practicable, effects to residential and high-density urban areas, as well as waterbodies and wetlands, wildlife habitats, cultural and historic areas, and business and commercial areas.

The Project will bring economic benefits to the region via added tax revenues and jobs associated with construction and operation. The Project will not result in any disproportionately high or adverse environmental and human health effects to low-income and minority populations.

5.3.1 Project Construction and Operations

5.3.1.1 Construction

Socioeconomic effects during construction are generally related to the size and composition of the labor force and its potential need for public services, including transportation, food, and temporary housing. Other effects are directly related to the construction and operation activities themselves, including the need to transport materials to and from the Project analysis area, commerce generated by local materials purchased, and tax revenues generated by Project activities.

Most socioeconomic effects will be short-term and localized, due primarily to the duration of the proposed construction period when substantial numbers of workers will be active and the relatively short duration of time that workers will be within each county, as they will move from location to location as the construction progresses in accordance with the construction schedule. Potential effects associated with construction may include minor, short term traffic disruption and congestion and short term noise effects in the general vicinity of the Project.

Revenues from construction employment, local expenditures by the construction companies for construction materials, use of local construction and other project related companies, and non-local construction workers for temporary housing, food, and entertainment will benefit the local economy. Significant increases in the property tax base during Project operations will be beneficial in the long-term.

5.3.1.2 Operation

The addition of full-time workers for operation and maintenance (“O&M”) of the Project facilities will have a negligible effect on public services since these workers will mostly be hired from the local/regional labor pool. Thirty-six workers (direct) will be employed for O&M by the Project: all of these workers will be employed in Ohio (Bowen et al., 2015 and Economic & Policy Resources, 2015). Of these workers, approximately 22 or 60 percent will be local workers. Refer to Table 5.3-1 and the economic impact analysis reports in Appendix 5A for additional details on O&M workers to be employed by the Project.

5.3.2 Population and Employment

Construction will temporarily increase the population in the Project analysis areas to a limited degree. It is estimated that the Project will directly employ approximately 2,316 construction workers: 1,560 in Ohio and 756 in Michigan (Bowen et al., 2015, Economic & Policy Resources, 2015, and The Michigan State University Land Policy Institute and Center for Economic Analysis, 2015). See the economic impact analysis reports in Appendices 5A and 5B for more details. Diverse types of specialized and craft construction workers would likely be utilized across four spreads along the Project corridor. It is estimated that approximately 4,198 people would be employed (indirect or induced) during the construction of Project in Ohio and Michigan. Once construction of the pipelines and the aboveground facilities are completed, the work force numbers will taper off toward the completion of the construction period. Refer to Table 5.3-1 for additional details on worker requirements.

NEXUS anticipates that its contractors will hire a substantial number of specialized construction workers with the requisite experience for the installation of natural gas facilities. These hires will include

surveyors, welders, equipment operators, and general laborers. It is anticipated that some of the construction workers will be local hires. The local supply of construction workers needed for the Project is expected to be derived from workers employed in the construction industry in the affected counties in Ohio and Michigan. Based on contractor responses and industry history averages, NEXUS estimates on average a 60 percent local workforce usage in Ohio and a 75 percent local workforce usage in Michigan (Bowen et al., 2015, Economic & Policy Resources, 2015, and The Michigan State University Land Policy Institute and Center for Economic Analysis, 2015). The analysis area counties contain large urban centers with a substantial construction labor supply that may supplement the specialized construction workers. Construction personnel that may be hired from outside the Project area include supervisory personnel and inspectors. These individuals will temporarily relocate to the Project vicinity, if necessary.

The construction of each segment of the pipeline will vary but typically the majority of the work will be conducted in discrete areas over a period of 4 to 8 weeks. The number of personnel required at each proposed activity location will vary greatly, depending on the activity. If a larger than anticipated percentage of non-local workers is required to meet peak workforce requirements, sufficient workers should be available in the labor pool in the surrounding counties and states.

5.3.3 Housing

Since non-local construction workers are not expected to relocate their families to the Project analysis area, non-local construction workers will be housed in area motels and short-term rentals in communities in the analysis area counties in Ohio and Michigan that are within a reasonable daily commuting distance of the Project. The vacant housing units and hotels/motels in Ohio and Michigan Project counties, along with similar facilities in surrounding counties, should be sufficient to house these workers. The Project is expected to have a minor short-term positive effect on the area's rental industry through increased demand, higher rates of occupancy, and brokerage fees. If a larger than expected percentage of non-local workers is required, the available housing capacity should still sufficiently serve the Project's need since the many of the Project facilities are located in close proximity to highly developed, densely populated areas. In areas with limited temporary housing options, workers would travel to other areas within commuting distance to the worksite for temporary housing. Due to the relatively short construction period and associated use of temporary housing by Project employees, no long-term impacts to housing resources in the Project area are anticipated from the construction workforce. The large number of available hotels and motels, as well as vacant housing units, also indicates that the temporary demand for these facilities is unlikely to displace permanent residents or adversely affect housing prices.

During construction of the Project, the presence of construction workers within the Project area will increase the demand for temporary short-term housing. It is estimated that approximately 40 percent of the construction work force in Ohio and 25 percent of the construction workforce in Michigan will be non-local and will temporarily relocate to the Project area during the construction period. Approximately 624 non-local workers are expected to temporarily relocate to Ohio for the Project and 189 to Michigan. The construction work force will be divided amongst various Project areas during the Project construction and non-local workers will typically remain in a particular area only for the duration of construction activities in that area, then relocate to another area as construction proceeds.

The addition of full-time O&M Project facilities workers will have a negligible effect on temporary housing since these workers will mostly be hired from the local/regional labor pool and are expected to reside locally. Approximately 40 percent of the O&M workforce is expected to be non-local and will require housing when relocating to the Project area. The Project will employ approximately 14 full time employees in O&M roles in Ohio that will be non-local (*i.e.*, will relocate to the Project area). Housing is likely to be provided in the communities containing and in close proximity to Project facilities (*i.e.*, within 10 miles of the Project). There is adequate vacant housing to accommodate the full-time O&M

workers as discussed in Section 5.2.4. The Project area demonstrates sufficient housing to support the operational workforce.

5.3.4 Tourism

The Project will have no measurable impact on tourism. The majority of the Project primarily is collocated with existing utility corridors and crosses through undeveloped and agricultural properties on private land. While the Project crosses some federal, state, county, and municipal lands, construction and O&M of the Project has been designed to limit impact on publicly used lands by routing design and coordination with public land managers, as further detailed in Draft Resource Report 8, Section 8.4.1.1. Design and construction techniques for the pipeline and appurtenant facilities will minimize effects to natural resources and recreational uses of lands in the Project area. Project impact minimization measures used in commercial/ industrial areas will include timing of construction to avoid peak use periods, maintaining access to businesses at all times, and expediting construction through the areas frequented by tourists. NEXUS will coordinate directly with affected commercial/industrial landowners on an individual basis to further reduce potential adverse effects.

Competition for hotels/motels and campsites may occur during the peak tourist season, which is generally April to early September in Ohio and in Michigan is generally year-round, or if other significant construction projects coincide locally. However, a sufficient number of housing units are available in the Project area as discussed in Section 5.2.4. Impacts on tourism as a result of short term use of temporary housing by Project construction workforce are expected to be negligible.

In summary, the NEXUS Project crosses fifteen counties which provide mainly outdoor recreation opportunities in Ohio and Michigan in the vicinity of the Project. The Project will have a no measurable impact on tourism in the Project area and will provide a significant source of revenue to the counties that it crosses (*see* Section 5.3.6).

5.3.5 Displacement of Residences or Businesses

For the residences within 50 feet of the feet of the construction workspace, NEXUS developed individual Residential Construction Plans noting special construction techniques and mitigation measures. In general, construction across areas in proximity to residences will be limited to the shortest timeframe possible to safely install the pipeline. These plans are provided in Draft Resource Report 8, Appendix 8A.

5.3.6 Economy and Tax Revenues

Economic benefits will occur over the life of the Project. Construction activities will benefit local economies from the contribution of the workforce payroll for employees who reside in the analysis area and materials and services purchased at local businesses and vendors. Non-local workers will temporarily relocate to the Project vicinity and a substantial portion of their payroll will be spent at local vendors and businesses. It is estimated that over \$449.6 million will be spent towards direct construction labor: approximately \$400.6 million in Ohio and approximately \$49 million in Michigan (Bowen et al., 2015, Economic & Policy Resources, 2015, and The Michigan State University Land Policy Institute and Center for Economic Analysis, 2015).

NEXUS estimates that additional money will be spent locally on the purchase/rental of equipment and purchase of materials/supplies such as stone, sand, concrete, fencing material, and bulk fuel. These items and others required for construction will be purchased, as available, from vendors within analysis area counties. Approximately 7.5 and 5.0 percent of the total construction cost would be spent on locally purchased consumables in Ohio and Michigan, respectively. Construction of the Project will also result in increased state and local sales tax revenues associated with the purchase of some construction materials

as well as goods and services by the construction workforce. Local communities will benefit from ad valorem taxes, paid annually by NEXUS over the life of the pipeline.

It is estimated that the Project will generate approximately \$2.1 billion in property taxes over its 60-year useful life span. It is estimated that the Project will generate approximately [REDACTED] billion in taxable value: approximately [REDACTED] million in Ohio and approximately [REDACTED] million in Michigan.

5.3.7 Public Services

The counties and municipalities in and near the Project analysis area have numerous medical facilities and emergency response services to temporarily accommodate the construction work force, if needed. As noted earlier, there are nine metropolitan statistical areas located wholly or partially within a ten-mile distance of the construction activities that have sufficient capability and capacity to manage the temporary influx of personnel without affecting the level of service provided to the current population.

Primary effects to public services will include temporary increases in demand for retail, recreation, and related services. Because non-local construction personnel are not expected to relocate their families to the Project analysis area, there should be no increase in demand for family-oriented community services such as schools. The education infrastructure in the vicinity of the Project can easily accommodate any temporary educational needs associated with Project construction.

NEXUS and DTE Energy have developed an Ohio and Michigan Colleges Implementation Plan for Oil and Gas Operation and Maintenance Technician certificate programs. NEXUS and DTE Energy and Stark State College, Lorain County Community College, Owens Community College, and Monroe County Community College, which are colleges located along or near the proposed NEXUS Project route, have identified opportunities for collaboration including skills surveys, curriculum development, and guest lectures. NEXUS and DTE Energy will help assess curriculum and students across the institutions and will collaborate to enhance the current instructional environment in order to provide students with the skills and knowledge set required to enter the workforce, thereby enhancing job creation in the region and empowering communities.

In the event of an accident, NEXUS could require police, fire, and medical services, depending on the type of emergency. NEXUS will require its contractors to have project-specific Health and Safety Plans in place to minimize the potential for on-the-job accidents. The anticipated demand for police, fire, and medical services is not expected to exceed the existing capability of the infrastructure in the analysis area, as these services are expected to be used only in emergencies. These emergency services are located primarily in urban areas within close proximity to Project facilities. NEXUS will continue to work closely with police, fire and medical services in each municipality as necessary. Existing data indicates that some Project analysis area counties are medically underserved; however, most of the workforce would consist of the population that is already included in the population served by existing medical facilities. Non-local construction personnel are expected to be less than half of the overall construction workforce, and the number of workers would likely be too small relative to the population to affect decisions regarding the upgrade of medical capacities. Overall, it is anticipated that adverse effects to public facilities and services from Project related activities would be negligible.

The Project's O&M will have a negligible effect on existing public infrastructure and community services. NEXUS will coordinate with first responders to ensure they are adequately trained in the unlikely event of any emergency (*see* Draft Resource Report 11). Any effects to public services associated with the operation of Project facilities will be adequately off-set by the revenues accruing to state and local governments from Project operation. Once the pipeline is in-service there will be minimal draw on the municipalities' services such as potable water, wastewater treatment, *etc.*

5.3.8 Transportation and Traffic

5.3.8.1 Pipeline and Aboveground Facilities

Tables 8.2-10 through 8.2-12 in Draft Resource Report 8 provide complete lists of public and private roads and railroad crossings for the Project. To the extent feasible, existing public and private roads along the Project will be used as the primary means of accessing the Mainline and Interconnecting Pipeline ROWs. NEXUS will also use existing public and private roads to the extent possible to access the aboveground facilities (*see* Tables 8.2-10 and 8.2-11 in Draft Resource Report 8).

Construction of the Project will result in minor, short-term effects on the transportation system in the Project analysis area. Anticipated traffic load during construction is estimated at 1,150 vehicles for Ohio and 575 vehicles for Michigan. Constructing the Project across public and private roadways, using either conventional open cut or road bore methods, will be based on site conditions and road opening permit requirements (*see* Section 1.7.1.6 of Draft Resource Report 1). Roadway opening permits will be obtained from applicable state and county agencies. Permit conditions will ultimately dictate the day-to-day construction activities at road crossings.

Construction will be scheduled for work within roadways and specific crossings so as to avoid commuter traffic and schedules for school buses and local transit buses to the greatest extent practical. To minimize traffic delays at open-cut road crossings, NEXUS will establish detours before cutting these roads. If no reasonable detours are feasible, at least one traffic lane of the road will be left open, except for brief periods when road closure will be required to lay the pipeline. Appropriate traffic management and signage will be set up and necessary safety measures will be developed in compliance with applicable permits for work in the public roadway. Advance arrangements will be made with local officials to have traffic safety personnel on hand during periods of construction. Provisions will be made for detours or otherwise to permit traffic flow.

NEXUS will incorporate measures to ensure that construction activities do not prevent the passage of fire and emergency vehicles, including the creation of temporary travel lanes during construction or the placement of steel plate spans to allow emergency vehicles to pass during open trenching. Open trenches will either be fenced or covered with steel plates during all non-working hours. Steel plates will be kept on site at each crossing so that a temporary platform can be made across the trench as required to allow for emergency vehicle access. Detour information will be shared as necessary with local officials and emergency responders.

In addition to the traffic effects caused by the open-cut road crossings, the movement of construction equipment and materials and the daily commuting of employees to and from the construction work areas may also slightly increase traffic volumes, affecting the transportation system in the Project analysis area. The total traffic volumes anticipated from workforce commutes as well as the transport of construction equipment is small relative to existing traffic volumes on most roadways used to access Project facilities; however, lightly used local roads may experience substantial, temporary increases in Project-related traffic. Several construction-related trips will be made each day (to and from the job site) on each spread. This level of traffic will remain consistent throughout the construction period and will typically occur during the early morning hours and evening hours. Traffic congestion could occur if each construction worker commuting to work used a personal vehicle to travel to the work site and if most of this travel took place during peak traffic hours. To minimize traffic congestion, NEXUS will encourage construction workers to share rides to the construction ROW. Contractors may also provide buses to move workers from common parking areas to the construction work areas.

Pipeline construction work is typically scheduled to take advantage of daylight hours, usually starting at 7:00 a.m. and completing at 6:00 p.m. (six days a week); therefore, most workers will commute to and from the construction ROW during off-peak hours. Some discrete activities, such as hydrostatic testing,

horizontal directional drilling, tie-ins, and purge and packing the pipeline facilities will occur or continue beyond these timeframes. Because construction will move sequentially along the pipeline routes, traffic flow effects that do arise will be temporary on any given section of roadway.

To maintain safe conditions, NEXUS will require its construction contractors to ensure enforcement of local vehicle weight restrictions and limitations by its vehicles and to remove any soil that is left on the road surface by the crossing of construction equipment. When necessary for equipment to cross roads, mats or other appropriate measures, such as sweeping, will be used to reduce deposition of mud.

In addition NEXUS will coordinate with appropriate county and local officials and will prepare site-specific traffic and access management plans, as required.

NEXUS does not anticipate significant traffic effects along the pipeline route during construction.

5.3.8.2 Pipe Yards and Contractor Ware Yards

A total of seven Project pipe and contractor ware yards will be temporarily used during construction. These areas will be permitted to return to existing land uses after construction. A listing of pipe yards and contractor ware yards is provided in Section 1.6.4 of Draft Resource Report 1.

5.3.9 Property Values

In 2001, Allen, Williford & Seale, Inc. prepared a study for the Interstate Natural Gas Association of America Foundation, Inc. to determine the impact of natural gas pipelines on real estate. Four separate geographically diverse areas were selected for the case study: (1) a suburban area crossed by one natural gas pipeline, (2) a suburban area crossed by multiple natural gas and products pipelines, (3) a rural area crossed by one natural gas pipeline, and (4) a commercial area crossed by multiple natural gas and one products pipeline. The results of the study revealed that there is no significant impact on property sales prices located along natural gas pipelines and that the pipeline size or the product carried did not impact sales price. The study also revealed that there were no significant impacts on demand for properties within the geographically diverse areas and that the presence of a pipeline did not impede development of the surrounding properties. In addition, the existence of a pipeline had no significant impact on development decisions (e.g., lot size) and it did not impact specific property types more or less severely than other property types. The study concluded that its results are very likely transferable to other market situations involving natural gas pipelines in other regions of the country (Allen, Williford & Seale, Inc., 2001).

Other more recent studies also evaluated potential effects of natural gas pipelines on real estate in other regions of the United States and reached similar conclusions as Allen, Williford & Seale, Inc.

For example, in 2008, PGP Valuation Inc. (PGP, 2008) conducted a study for Palomar Gas Transmission, Inc. and ECONorthwest (Fruits, 2008) conducted a study for the Oregon LNG Project both of which evaluated the potential effect on property values of a natural gas pipeline that was constructed in 2003/2004 in northwestern Oregon and along the western edge of the Portland metropolitan area. The PGP study found that: there was no measurable long-term impact on property values resulting from natural gas pipelines for the particular pipeline project studied, interviews with buyers and brokers indicated no measurable impact on value, and there was no trend in the data to suggest an extension of marketing periods for properties with gas pipeline easements. The ECONorthwest study found that the pipeline had no statistically significant or economically significant impact on residential properties and there was no relationship between proximity to the pipeline and sale price.

Diskin, Friedman, Peppas, and Peppas (2011) reached a similar conclusion due to the effects of natural gas transmission pipelines on residential values in Arizona. This study concluded that there was no identifiable systematic relationship between proximity to a pipeline and residential sale price or value. Another study conducted by Hansen et al. (2006) analyzed property sales near a pipeline accident that

occurred in Washington and considered the property's proximity and persistence over time. While this study revealed a decline in property values after the accident it noted that the effect was localized and declined as the distance from the affected pipeline increased. The effect also diminished over time in the years following the incident.

In addition, FERC, the lead federal agency on the construction of pipelines, researched pipelines' effect on property values and reported the results in an Environmental Impact Statement issued in October, 2014 (FERC, 2014). The Environmental Impact Statement found that there was no pipeline-related impact on property value.

Based on this literature review, which is supported by actual sales data, there is no prevailing evidence that proximity to natural gas pipelines has a long term detrimental effect on property values.

5.3.10 Environmental Justice

Any disproportionately high and adverse effect on a minority or low income population (environmental justice populations) from the proposed construction and operation of the Project would mean that the effect is predominantly borne by environmental justice populations, or is appreciably greater in magnitude on the minority or low-income population than the effect on the non-minority or non-low-income population.

Minority and/or low income populations do not represent a disproportionately large portion of the overall population across the Project analysis area that would be affected by Project construction and operation. Environmental justice populations in the analysis area would experience the same potential effects as the general, non-environmental justice populations in the analysis area. There would be no disproportionately high and adverse effects to environmental justice populations from the construction and operation of the Project.

The primary effects associated with the construction of the Project will be the temporary construction noise, fugitive dust, and traffic effects of short duration, none of which are considered significant given the nature of the effects and the measures that will be implemented to minimize such effects. These effects will occur along the entire Project route and in areas with a variety of socioeconomic characteristics. The affected areas will be small as the corridor width is narrow and spread along an array of land use and socioeconomic types. No other potentially adverse effects would occur to environmental justice populations and the general population from the construction and operation of the pipeline. Therefore, the Project will not result in any disproportionately high or adverse environmental and human health effects to low-income and minority populations.

To facilitate public involvement and outreach NEXUS has included a Public and Agency Participation Plan in Appendix 1C3 of Draft Resource Report 1. NEXUS will continue its efforts to keep landowners, public officials and the relevant permitting agencies fully informed of developments on the Project. EPA is currently seeking public comments for the draft Environmental Justice 2020 Action Agenda framework (from April 15, 2015 to June 15, 2015). Over the next five years, EPA will be focusing on: deepening environmental justice progress in EPA's programs to improve the health and environment of overburdened communities; collaborating with partners to expand EPA's impact in overburdened communities; and demonstrating progress on outcomes that matter to overburdened communities (EPA, 2015). NEXUS will continue to monitor EPA's ongoing initiatives.

Ohio

The mainline route in Ohio crosses through one environmental justice population, in Pittsfield Township in Lorain County. The mainline route in Ohio crosses within one mile of one environmental justice population in Lafayette Township in Medina County. None of the proposed aboveground facilities are located in census tracts containing environmental justice populations. The pipeline crossing location of

the one environmental justice population would be located within or adjacent to existing utility ROWs. The mainline route along the existing ROWs would be compatible with the existing utility land uses. Any forest/woodland, cropland or other productive land use acquired from an easement adjacent to or overlapping existing ROWs would be compensated at the same value per acre for landowners that are members of environmental justice populations as the compensation paid to landowners in the general population.

Michigan

The mainline route in Michigan crosses through nine environmental justice populations, all of which are located in Washtenaw County in Ypsilanti Township. The pipeline crossing location of the environmental justice populations would be located within or adjacent to utility and road ROWs. The pipeline location in this area is compatible with the existing utility land uses and developed locations. Any forest/woodland, cropland or other productive land use acquired from an easement adjacent to or overlapping existing ROWs would be compensated at the same value per acre for landowners that are members of environmental justice populations as the compensation paid to landowners in the general population.

The NEXUS/Willow Run M&R Station is also located in the location of an environmental justice population. The construction and operation of this aboveground facility would be in a previously disturbed industrial area. There would be no disproportionate effect to environmental justice populations relative to the general population from temporary construction effects such as the sights and sounds of construction vehicles and activities or increase in traffic because these effects would be experienced by all socioeconomic groups along the Project during construction.

5.3.11 Children in Project Vicinity

The Project will not adversely affect children 17 years of age and younger within the Project vicinity. Estimated air emissions from construction of the Project are expected to be transient in nature, with negligible effect on the regional air quality. Construction emissions will generally be temporary and localized and are not expected to cause or significantly contribute to an exceedance of the National Ambient Air Quality Standards, which are designed to be protective of children and the elderly (*see* Draft Resource Report 9). Project aboveground facilities will be permitted and operated in compliance with all applicable federal and state air quality regulations. The Project will provide a clean source of fuel for use at existing natural gas-fired facilities, and will facilitate conversion of existing coal fired power generation facilities to natural gas. These conversions are supported by state and federal regulatory incentives with the objective of improving air quality in the region (*see* Section 1.2 of Draft Resource Report 1). Construction noise will be temporary, localized and conducted in accordance with the FERC's 55 dBA_{Ldn} noise guideline for construction activities (*see* Draft Resource Report 9). Operation of the Project will comply with the FERC's 55 dBA_{Ldn} noise criteria (*see* Draft Resource Report 9). In addition, NEXUS considers its responsibilities for public safety to be a high priority and has detailed its commitment to reliability and safety in Draft Resource Report 11 of this filing.

5.4 References

- Allen, Williford & Seale, Inc. 2001. Prepared for the Interstate Natural Gas Association of America Foundation, Inc. Natural Gas Pipeline Impact Study.
- American Hospital Directory. 2015. Hospital Statistics by State. Accessed on April 16, 2015 at: https://www.ahd.com/state_statistics.html
- American Public Transportation Association. 2015. Michigan Transit Links. Accessed on April 15, 2015 at: <http://www.apta.com/resources/links/unitedstates/Pages/MichiganTransitLinks.aspx>

- Bowen, N., Romich, E., Civittolo, D., Davis, G., & Penrose, C. 2015. Economic Impact Analysis of the NEXUS Gas Transmission Project. Columbus: The Ohio State University.
- Canton Regional Chamber of Commerce. 2015. Park and Recreation Guide. Accessed on April 15, 2015 at: <http://www.cantonchamber.org/parks-recreation-guide>
- Canton Stark County Convention and Visitors' Bureau. 2015. Play. Accessed on April 15, 2015 at: <http://www.visitcantonstark.com/golf-courses>
- Columbiana County Area Chamber of Commerce. 2015. Attractions and entertainment. Accessed on April 15, 2015 at: <http://www.columbianacountychambers.com/CategoryListing.aspx?category=52>
- Department of Technology, Management & Budget, Bureau of Labor Market Information & Strategic Initiatives. 2015. Michigan Economic and Workforce Indicators and Insights. Accessed on May 6, 2015 at: http://milmi.org/admin/uploadedPublications/2249_Winter_2015_Indicators.pdf
- Discover Ohio. 2015. Wayne County Convention and Visitors Bureau. Access on April 15, 2015 at: <http://consumer.discoverohio.com/searchdetails.aspx?detail=40712>
- Diskin, B.A., J.P. Friedman, S.C. Peppas, and S.R. Peppas. 2011. The Effect of Natural Gas Pipelines on Residential Value. Accessed on April 16, 2015 at: http://www.irwaonline.org/eweb/upload/web_jan_NaturalGas.pdf
- Economic & Policy Resources. 2015. Revised Economic Impact Analysis of the NEXUS Gas Transmission Project.
- [EPA] Environmental Protection Agency. 2012. Environmental Justice Showcase Communities. Accessed April 15, 2015 at: <http://www.epa.gov/compliance/environmentaljustice/grants/ej-showcase.html>
- EPA. 2015. Draft EJ 2020 Action Agenda. Accessed on April 15, 2015 at: <http://fw.Nw.epa.gov/environmentaljustice/ej20201index.html#overview>
- Erie County. 2015. Tourism Resources. Accessed on April 15, 2015 at: <http://www.eriecounty.oh.gov/resources/tourist-resources>.
- eWashtenaw. 2015. Celebrate Springtime with Washtenaw County Parks. Accessed on April 15, 2015: http://IWwww.ewashtenaw.org/governmenVdepartments/parks_recreation/news/2015/springtime-fun-celebrate-the-season-with-washtenaw-county-parks
- [FERC] Federal Energy Regulatory Commission. 2014. Final Environmental Impact Statement – Vol 1. FERC EIS 0249F. Constitution Pipeline and Wright Interconnect Projects. Docket Nos. CP13-499-000; CP13-502-000; PF12-9-00. Pages 4-152 to 4-156.
- FireDepartment.net. 2015. Ohio Fire Departments. Accessed on April 15, 2015 at: <http://www.firedepartment.net/directory/ohio>
- Fruits, E. (ECONorthwest). 2008. Natural Gas Pipelines and Residential Property Values: Evidence from Clackamas and Washington Counties. Accessed on April 16, 2015 at: http://www.academia.edu/195355/Natural_Gas_Pipelines_and_Residential_Property_Values_Evidence_from_Clackamas_and_Washington_Counties
- Greater Akron Chamber. 2014. Communities and Attractions. Accessed on April 15, 2015 at: <http://www.greaterakronchamber.org/about-greater-akron/communities-and-attractions/>
- Hansen, J.L., E.D. Benson, and D.A. Hagen. 2006. *Environmental Hazards and Residential Property Values: Evidence from a Major Pipeline Event*. November 2006. 82 (4):529-541.

- Hotels.com. 2015. Hotels by City and County in Ohio and Michigan. Accessed on April 14 and 15, 2015 at: <http://www.hotels.com/>
- Lenawee County Conference and Visitors Bureau. 2015. Things to Do in Lenawee. Accessed on June 3, 2015 at: <http://visitlenawee.com/things-to-do-in-lenawee/>
- Michigan Department of Transportation. 2015. Passenger Transportation. Accessed on April 15, 2015 at: <http://www.michigan.gov/mdot/0,1607,7-151-11056---,00.html>
- The Michigan State University Land Policy Institute and Center for Economic Analysis. 2015. Prepared for Spectra Energy Partners, LP. Economic Impacts of the NEXUS Gas Transmission Project in Michigan.
- Monroe County Chamber of Commerce. 2015. Monroe County 2015 Community Profile and Business Directly. Accessed on April 15, 2015 at: <http://www.harborhouse.com/digital/monroe.htm>
- National Center for Educational Statistics. 2015. Public School Survey. Accessed on April 13, 2015 at: <http://nces.ed.gov/ccd/schoolsearch/>
- Ohio Department of Transportation. 2012. Status of Public Transit in Ohio. Accessed on April 15, 2015 at: <https://www.dot.state.oh.us/Divisions/Planning/Transit/Documents/Programs/Publication/StatusOfPublicTransitinOhio2012.pdf>
- Ohio Development Services Agency. 2015. Economic Overview Ohio. Accessed April 14, 2015 at: <http://development.ohio.gov/files/research/E1000.pdf>
- PGP Valuation Inc. 2008. Updated Market Analysis – The Impact of Natural Gas Pipelines on Property Values. February 21, 2008. Accessed on April 16, 2015 at: http://pstrust.org/docs/Pipeline_Impact_on_Property_Values.pdf
- PoliceOne. 2015. Police Department Directory. Accessed on April 13 and 16, 2015 at: <http://www.policeone.com/law-enforcement-directory/>
- RV Park Reviews. 2015. RV Parks and Campgrounds by City and County in Ohio and Michigan. Accessed on April 15 and 16, 2015 at: <http://www.rvparkreviews.com/>
- Sandusky County Convention and Visitors Bureau. 2015. Explore. Accessed on April 15, 2015 at: <http://www.sanduskycounty.org/index.php/explore/services/community/item/chamber-of-commerce-of-sandusky-county>
- Toledo Regional Chamber of Commerce. 2015. Visiting. Accessed on March 15, 2015 at: <http://www.toledochamber.com/region/Visiting.aspx>
- U.S. Census Bureau. 2000a. Census 2000 Summary File 1 (SF 1) 100-Percent Data. Population, Housing Units, Area, and Density: 2000 – County – County Subdivision and Place (GCT-PH1). Accessed on April 10, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>
- U.S. Census Bureau. 2000b. Census 2000 Summary File (SF1) 100-Percent Data. Profile of General Demographic Characteristics: 2000 (DP-1). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>
- U.S. Census Bureau. 2010a. Census 2010 Summary File 1. Population, Housing Units, Area, and Density: 2010 – County – County Subdivision and Place (GCT-PH1). Accessed on April 10, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

- U.S. Census Bureau. 2010b. Census 2010 Summary File 1. Population, Housing Units, Area, and Density: 2010 – State – Congressional Districts. Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U. S. Census Bureau. 2010c. Census 2010 Summary File 1. Population, Housing Units, Area, and Density: 2010 – United States – Metropolitan Statistical Areas; and for Puerto Rico. Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U.S. Census Bureau. 2010d. Census 2010 Summary File 1. Population, Housing Units, Area, and Density: 2010 – United States – States; and Puerto Rico (GCT-PH1). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U.S. Census Bureau. 2013a. Delineation Files. Accessed on April 14, 2015 at: <http://www.census.gov/population/metro/data/def.html>
- U.S. Census Bureau. 2013b. Population Change for Metropolitan and Micropolitan Statistical Areas in the United States and Puerto Rico (February 2013 Delineations): 2000 to 2010 (CPH-T-5). Accessed on April 12, 2015 at: <http://www.census.gov/population/www/cen2010/cph-t/cph-t-5.html>
- U.S. Census Bureau. 2013c. 2009-2013 American Community Survey 5-Year Estimates. Demographic and Housing Estimates (DP05). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U.S. Census Bureau. 2013d. 2009-2013 American Community Survey 5-Year Estimates. Poverty Status in the Past 12 Months by Household Type By Age of Householder (B17017). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>
- U.S. Census Bureau. 2013e. 2009-2013 American Community Survey 5-Year Estimates. Selected Economic Characteristics (DP03). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U.S. Census Bureau. 2013f. 2009-2013 American Community Survey 5-Year Estimates. Selected Housing Characteristics (DP04). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U.S. Census Bureau. 2013g. 2009-2013 American Community Survey 5-Year Estimates. Vacancy Status (B25004). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
- U.S. Census Bureau. 2014a. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2013 - United States -- Metropolitan Statistical Area; and for Puerto Rico (GCT-PEPANNRES). Accessed on April 12, 2015 at: <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>
- U.S. Census Bureau. 2014b. TIGER Products. Accessed on April 10, 2015 at: <https://www.census.gov/geo/maps-data/data/tiger.html>
- U.S. Census Bureau. 2015a. Metropolitan and Micropolitan Statistical Areas Main. Accessed April 14, 2015 at: <http://www.census.gov/population/metro/>
- U.S. Census Bureau. 2015b. TIGER/Line® Shapefiles and TIGER/Line® Files. Accessed on April 12, 2015 at: <http://www.census.gov/geo/maps-data/data/tiger-line.html>
- U.S. Department of Health & Human Services. 2015. Find Shortage Areas: HPSA by State & County. Accessed on April 16, 2015 at: <http://hpsafind.hrsa.gov/>

- U.S. Fire Administration. 2015. Search the National Fire Department Census Database. Accessed on April 16, 2015 at: <http://apps.usfa.fema.gov/census/search.cfm>
- [USGS] U.S. Geological Survey. 2015. The National Map Viewer. Accessed on April 13, 2015 at: <http://viewer.nationalmap.gov/viewer/>
- USA Today. 2015. Attractions in Columbiana County, Ohio. Accessed on April 15, 2015 at: <http://traveltips.usatoday.com/attractions-columbiana-county-ohio-55181.html>
- Vermillion Chamber of Commerce. 2015. Recreation. Accessed on April 15, 2015 at: <http://vermilionchamber.net/home/recreation/>
- Visit Medina County. 2015. Recreation. Accessed on April 15, 2015 at: <http://www.visitmedinacounty.com/public/recreation/parks.cfm>
- Wauseon Chamber of Commerce. 2015. The City of Wauseon. Accessed on April 16, 2015 at: <http://www.wauseonchamber.com/wauseon-info>
- Wood County Tourism. 2015. Attractions. Accessed on April 15, 2015 at: <http://www.woodcountytourism.com/main/attractions/>

TABLES

TABLE 5.2-1

Summary of NEXUS Project Facilities Analyzed in Resource Report 5

Facility, Site	Milepost <u>a/</u>	County	Communities within 10 Miles of Project <u>b/</u>
PIPELINES			
Ohio			
Mainline Route	0.0 - 12.3	Columbiana	Butler, Center, Elkrum, Franklin, Hanover, Knox, Madison, Perry, Salem, Washington, Wayne, West
	12.3 - 32.8	Stark	Alliance, Canton (City and Township), Jackson, Lake, Lawrence, Lexington, Louisville, Marlboro, Massillon, Nimishillen, Osnaburg, Paris, Perry, Plain, Tuscarawas, Washington
	32.8 - 48.1	Summit	Akron, Barberton, Bath, Clinton, Copley, Coventry, Fairlawn, Green, Lakemore, Mogadore (Village), New Franklin, Norton, Springfield, Tallmadge
	48.1 - 54.2	Wayne	Baughman, Canaan, Chippewa, Congress, Green, Milton, Norton, Rittman, Sugar Creek, Wayne
	54.2 - 77.2	Medina	Brunswick, Brunswick Hills, Chatham, Chippewa Lake, Gloria Glens Park, Granger, Guilford, Harrisville, Hinckley, Homer, Lafayette, Litchfield, Liverpool, Lodi, Medina, Medina City, Montville, Rittman, Seville Village, Sharon, Spencer (Village and Township), Wadsworth (City and Township), Westfield, Westfield Center, York
	77.2 - 98.2	Lorain	Amherst (City and Township), Brighton, Brownhelm, Camden, Carlisle, Columbia, Eaton, Elyria (City and Township), Grafton (Village and Township), Henrietta, Huntington, LaGrange, Lorain, New Russia, North Ridgeville, Oberlin, Pensfield, Pittsfield, Rochester, Wellington
	98.2 - 127.1	Erie	Bellevue, Berlin, Florence, Groton, Huron, Margaretta, Milan, Oxford, Perkins, Sandusky, Vermilion (City and Township)
	127.1 - 158.6	Sandusky	Ballville, Bellevue, Clyde, Fremont, Green Creek, Green Springs, Jackson, Madison, Rice, Riley, Sandusky, Scott, Townsend, Washington, Woodville, York
	158.6 - 176.1	Wood	Bowling Green, Center, Freedom, Grand Rapids, Lake, Liberty, Middleton, Milton, Montgomery, Northwood, Perrysburg (City and Township), Plain, Portage, Rossford, Troy, Washington, Webster, Weston
	176.1 - 183.9	Lucas	Harding, Maumee, Monclova, Oregon, Providence, Richfield, Spencer, Springfield, Swanton, Sylvania, Toledo, Waterville
	183.9 - 184.8	Henry	Damascus, Harrison, Liberty, Richfield, Washington
	184.8 - 202.8	Fulton	Amboy, Chesterfield, Clinton, Dover, Fulton, Pike, Royalton, Swan Creek, York
Interconnecting Pipeline	0.0	Columbiana	Butler, Center, Elkrum, Franklin, Hanover, Knox, Madison, Paris, Perry, Salem, Washington, Wayne, West
Michigan			
Mainline Route	202.8 - 224.7	Lenawee	Adrian (City and Township), Blissfield, Clinton, Deerfield, Fairfield, Franklin, Macon, Madison, Ogden, Palmyra, Raisin, Ridgeway, Riga, Tecumseh (City and Township)
	224.7 - 231.2	Monroe	Ash, Dundee, Exeter, Ida, London, Milan (City and Township), Petersburg, Raisinville, Summerfield, Whiteford
	231.2 - 249.1	Washtenaw	Ann Arbor (City and Charter Township), Augusta, Bridgewater, Lodi, Milan, Northfield, Pittsfield, Salem, Saline (City and Township), Superior, York, Ypsilanti (City and Charter Township)

TABLE 5.2-1

Summary of NEXUS Project Facilities Analyzed in Resource Report 5

Facility, Site	Milepost <u>a/</u>	County	Communities within 10 Miles of Project <u>b/</u>
ABOVEGROUND FACILITIES			
Ohio			
NEXUS/TGP M&R Station (MR01)	TGP 0.0	Columbiana	Butler, Center, Elkrum, Franklin, Hanover, Knox, Madison, Salem, Washington, Wayne, West
NEXUS/Kensington M&R Station (MR02)	0.0	Columbiana	Butler, Center, Elkrum, Franklin, Hanover, Knox, Madison, Perry, Salem, Washington, Wayne, West
NEXUS/Texas Eastern M&R Station (MR03)	TGP 0.9	Columbiana	Butler, Center, Elkrum, Franklin, Hanover, Knox, Madison, Perry, Salem, Washington, Wayne, West
Hanoverton Compressor Station (CS1)	1.2	Columbiana	Butler, Center, Franklin, Hanover, Knox, Paris, Perry, Salem, Washington, Wayne, West
Wadsworth Compressor Station (CS2)	60.3	Medina	Barberton, Bath, Baughman, Canaan, Chatham, Chippewa, Chippewa Lake, Congress, Copley, Gloria Glens Park, Granger, Green, Guilford, Harrisville, Lafayette, Lodi, Medina, Medina City, Milton, Montville, New Franklin, Norton, Rittman, Seville Village, Sharon, Wadsworth (City and Township), Wayne, Westfield, Westfield Center, York
Clyde Compressor Station (CS3)	129.5	Sandusky	Ballville, Bellevue, Clyde, Fremont, Green Creek, Green Springs, Groton, Margaretta, Oxford, Perkins, Rice, Riley, Sandusky, Townsend, York
Waterville Compressor Station (CS4)	178.1	Lucas	Bowling Green, Center, Damascus, Fulton, Grand Rapids, Harding, Maumee, Middleton, Monclova, Perrysburg, Plain, Providence, Rossfield, Spencer, Springfield, Swanton, Swan Creek Toledo, Washington, Waterville, Webster, Weston
Michigan			
NEXUS/Willow Run M&R Station (MR04)	249.0	Washtenaw	Ann Arbor (City and Charter Township), Augusta, Northfield, Pittsfield, Salem, Superior, York, and Ypsilanti (City and Charter Township);
<p>M&R = metering and regulating; TGP = Tennessee Gas Pipeline</p> <p>a/ Approximate milepost along the pipeline rounded to the nearest tenth mile.</p> <p>b/ Includes communities within 10 miles of the proposed pipeline centerline and major aboveground facilities within the counties containing pipeline facilities. Communities were identified based on U.S. Census Bureau data TIGER/Line® files (U.S. Census Bureau, 2015b). The following counties (and communities contained therein) are located within 10 miles of the Project, but are not directly affected by the Project:</p> <p>OHIO</p> <ul style="list-style-type: none"> Jefferson County: Brush Creek; Carroll County: Augusta, Brown, East, Fox, and Washington; Mahoning County: Goshen, Sebring, and Smith; Portage County: Atwater, Brimfield, Deerfield, Mogadore, Randolph, Rootstown, and Suffield; Cuyahoga County: North Olmsted, Olmsted, Olmsted Falls, and Strongsville; Huron County: Bellevue (City), Bronson, Clarksfield, Hartland, Lyme, Norwalk (City and Township); Peru, Ridgefield, Sherman, Townsend, and Wakeman; Seneca County: Adams, Green Springs, Liberty, Pleasant, and Thompson; Ottawa County: Allen, Bay, Benton, Carroll, Clay, Danbury, Erie, Harris, Portage, Port Clinton, and Salem; and <p>MICHIGAN</p> <ul style="list-style-type: none"> Wayne County: Belleville, Canton, Garden City, Huron, Livonia, Northville, Plymouth (City and Charter Township), Romulus, Sumpter, Van Buren, Wayne, and Westland. 			

TABLE 5.2-2

Existing Population Levels and Trends for the NEXUS Project Area in Ohio

Location	2000 Population <u>a/</u>	2010 Population <u>b/</u>	2013 Population Estimate <u>c/</u>	Population Density (persons/sq. mi.) (2010) <u>d/</u>	Change in Population 2000-2013 (%)	Change in Population 2010-2013 (%)
FEDERAL						
U.S.	281,421,906	308,746,065	311,536,594	87.4	10.7	0.9
STATE						
Ohio	11,353,140	11,536,504	11,549,590	282.3	1.7	0.1
COUNTY						
Columbiana	112,075	107,841	107,078	202.7	-4.5	-0.7
Erie	79,551	77,079	76,634	306.4	-3.7	-0.6
Fulton	42,084	42,698	42,601	105.3	1.2	-0.2
Henry	29,210	28,215	28,164	67.8	-3.6	-0.2
Lorain	284,664	301,356	301,720	613.6	6.0	0.1
Lucas	455,054	441,815	439,511	1,296.2	-3.4	-0.5
Medina	151,095	172,332	173,252	409.0	14.7	0.5
Sandusky	61,792	60,944	60,619	149.2	-1.9	-0.5
Stark	378,098	375,586	375,348	652.9	-0.7	-0.1
Summit	542,899	541,781	541,592	1,312.6	-0.2	0.0
Wayne	111,564	114,520	114,750	206.4	2.9	0.2
Wood	121,065	125,488	127,325	203.3	5.2	1.5
LOCAL						
Adams Township*	1,337	1,320	1,413	36.8	5.7	7.0
Akron City	217,074	199,110	199,038	3,209.8	-8.3	0.0
Allen Township*	3,591	3,780	3,776	149.6	5.2	-0.1
Alliance City	23,195	22,282	22,211	2,518.5	-4.2	-0.3
Amboy Township	1,552	1,846	1,946	71.5	25.4	5.4
Amherst City	11,797	12,021	12,057	1,702.2	2.2	0.3
Amherst Township	7,598	6,844	6,818	444.3	-10.3	-0.4
Atwater Township*	2,762	2,740	2,722	107.5	-1.4	-0.7
Augusta Township*	1,599	1,619	1,796	58.2	12.3	10.9
Ballville Township	6,395	5,985	5,960	178.0	-6.8	-0.4
Barberton City	27,899	26,550	26,461	2,937.5	-5.2	-0.3
Bath Township	9,635	9,702	9,731	434.4	1.0	0.3
Baughman Township	4,699	4,536	4,542	123.7	-3.3	0.1
Bay Township*	1,294	1,458	1,532	90.3	18.4	5.1
Bellevue City, Erie County	0	2	29	7.0	-	1350.0
Bellevue City, Huron County*	3,841	3,673	3,654	1,176.0	-4.9	-0.5
Bellevue City, Sandusky County	4,352	4,527	4,498	1,661.0	3.4	-0.6
Benton Township*	2,621	2,641	2,643	59.6	0.8	0.1
Berlin Township	3,702	3,723	3,688	122.3	-0.4	-0.9

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Bowling Green City	29,636	30,028	31,049	2,391.3	4.8	3.4
Brighton Township	942	915	899	55.6	-4.6	-1.7
Brimfield Township*	7,963	10,376	10,330	506.1	29.7	-0.4
Bronson Township*	1,780	1,973	2,100	75.4	18.0	6.4
Brown Township*	8,300	7,935	7,912	188.9	-4.7	-0.3
Brownhelm Township	7,782	7,618	7,614	377.1	-2.2	-0.1
Brunswick City	33,388	34,255	34,386	2,652.2	3.0	0.4
Brunswick Hills Township	-	9,898	9,941	819.8	-	0.4
Brush Creek Township*	467	438	492	18.5	5.4	12.3
Butler Township	3,444	3,614	3,579	109.9	3.9	-1.0
Camden Township	1,530	1,667	1,610	83.8	5.2	-3.4
Canaan Township	4,736	4,875	4,882	132.4	3.1	0.1
Canton City	80,806	73,007	73,027	2,867.3	-9.6	0.0
Canton Township	13,882	13,102	13,096	584.7	-5.7	0.0
Carlisle Township	7,339	7,500	7,491	315.3	2.1	-0.1
Carroll Township*	1,931	2,135	2,242	63.4	16.1	5.0
Center Township, Columbiana County	6,473	6,313	6,262	178.7	-3.3	-0.8
Center Township, Wood County	1,246	1,206	1,472	48.4	18.1	22.1
Chatham Township	-	2,265	2,160	86.0	-	-4.6
Chesterfield Township	1,050	1,012	937	34.9	-10.8	-7.4
Chippewa Lake Village	823	711	790	2,881.8	-4.0	11.1
Chippewa Township	10,085	10,212	10,189	284.8	1.0	-0.2
Clarksfield Township*	1,518	1,625	1,510	61.5	-0.5	-7.1
Clay Township*	5,118	5,058	5,067	194.3	-1.0	0.2
Clinton Township, Fulton County	9,280	9,554	9,548	230.4	2.9	-0.1
Clinton Village, Summit County	1,337	1,214	1,087	342.1	-18.7	-10.5
Clyde City	-	6,325	6,336	1,254.2	-	0.2
Columbia Township	6,912	7,040	7,047	276.0	2.0	0.1
Congress Township	4,435	4,533	4,535	104.7	2.3	0.0
Copley Township	13,641	17,304	17,288	846.4	26.7	-0.1
Coventry Township	10,900	10,945	10,947	1,330.8	0.4	0.0
Damascus Township	-	-	1,556	-	-	-
Danbury Township*	4,631	5,167	5,138	284.4	10.9	-0.6
Deerfield Township*	3,211	2,822	2,809	120.5	-12.5	-0.5
Dover Township	1,468	1,578	1,379	73.8	-6.1	-12.6
East Township*	859	843	918	36.6	6.9	8.9
Eaton Township	9,675	5,750	5,768	250.9	-40.4	0.3

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Elkrun Township	4,781	4,687	4,658	131.0	-2.6	-0.6
Elyria City	55,953	54,533	54,290	2,650.9	-3.0	-0.4
Elyria Township	3,520	3,266	3,276	583.9	-6.9	0.3
Erie Township*	1,328	1,221	890	99.7	-33.0	-27.1
Fairlawn City	7,307	7,437	7,427	1,661.6	1.6	-0.1
Florence Township	2,500	2,448	2,402	93.6	-3.9	-1.9
Fox Township*	1,075	1,041	833	28.8	-22.5	-20.0
Franklin Township	766	835	1,103	36.3	44.0	32.1
Freedom Township	2,695	2,727	2,754	90.4	2.2	1.0
Fremont City	17,375	16,734	16,633	2,005.1	-4.3	-0.6
Fulton Township	3,261	3,182	3,170	111.0	-2.8	-0.4
Gloria Glens Park Village	538	425	448	3,965.2	-16.7	5.4
Goshen Township*	3,281	3,243	3,206	100.0	-2.3	-1.1
Grafton Township	2,722	2,833	2,830	112.4	4.0	-0.1
Grafton Village	2,302	6,636	6,244	1,408.2	171.2	-5.9
Grand Rapids Township	1,631	1,607	1,579	119.2	-3.2	-1.7
Granger Township	-	4,445	4,482	191.2	-	0.8
Green City	22,817	25,699	25,742	801.7	12.8	0.2
Green Creek Township	9,527	3,646	3,555	120.7	-62.7	-2.5
Green Springs Village, Sandusky County	599	738	857	1,194.1	43.1	16.1
Green Springs Village, Seneca County*	648	630	694	1,069.4	7.1	10.2
Green Township, Wayne County	12,194	11,915	11,933	331.3	-2.1	0.2
Groton Township	1,384	1,427	1,780	55.7	28.6	24.7
Guilford Township	-	3,203	3,226	148.4	-	0.7
Hanover Township	3,749	3,704	3,669	103.4	-2.1	-0.9
Harding Township	724	734	617	78.3	-14.8	-15.9
Harris Township*	3,009	3,018	3,013	106.8	0.1	-0.2
Harrison Township	-	-	1,488	-	-	-
Harrisville Township	-	1,836	1,894	76.4	-	3.2
Hartland Township*	979	1,112	924	42.7	-5.6	-16.9
Henrietta Township	1,873	1,861	1,765	88.0	-5.8	-5.2
Hinckley Township	-	7,646	7,714	286.3	-	0.9
Homer Township	-	1,462	1,841	59.7	-	25.9
Huntington Township	1,282	1,341	1,415	51.8	10.4	5.5
Huron Township	10,530	10,697	10,681	462.8	1.4	-0.1
Jackson Township, Sandusky County	1,609	1,608	1,640	44.6	1.9	2.0

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Jackson Township, Stark County	37,744	40,373	40,389	1,110.6	7.0	0.0
Knox Township	4,828	4,434	4,400	125.5	-8.9	-0.8
Lafayette Township	-	5,580	5,626	243.8	-	0.8
LaGrange Township	5,972	6,164	6,148	239.1	2.9	-0.3
Lake Township, Stark County	25,892	29,961	29,918	862.4	15.5	-0.1
Lake Township, Wood County	10,350	10,972	11,068	317.0	6.9	0.9
Lakemore Village	2,561	3,068	3,050	2,078.5	19.1	-0.6
Lawrence Township	13,382	13,702	13,695	398.4	2.3	-0.1
Lexington Township	5,583	5,444	5,435	243.7	-2.7	-0.2
Liberty Township, Henry County	-	-	2,566	-	-	-
Liberty Township, Seneca County*	2,340	2,035	2,242	56.0	-4.2	10.2
Liberty Township, Wood County	1,862	1,766	1,868	48.1	0.3	5.8
Litchfield Township	-	3,250	3,283	143.6	-	1.0
Liverpool Township	-	5,127	5,176	199.4	-	1.0
Lodi Village	3,061	2,746	2,775	1,222.6	-9.3	1.1
Lorain City	68,652	64,097	64,017	2,707.6	-6.8	-0.1
Louisville City	8,904	9,186	9,161	1,672.5	2.9	-0.3
Lyme Township*	968	853	841	37.5	-13.1	-1.4
Madison Township, Columbiana County	3,406	3,196	3,174	89.7	-6.8	-0.7
Madison Township, Sandusky County	3,721	3,850	3,839	144.9	3.2	-0.3
Margaretta Township	6,289	5,981	5,954	183.4	-5.3	-0.5
Marlboro Township	4,227	4,356	4,356	121.4	3.1	0.0
Massillon City	31,325	32,149	32,130	1,730.4	2.6	-0.1
Maumee City	15,237	14,286	14,212	1,445.1	-6.7	-0.5
Medina City Township	25,139	26,659	26,596	2,451.6	5.8	-0.2
Medina Township	-	8,537	8,629	477.4	-	1.1
Middleton Township	2,598	4,454	4,474	139.1	72.2	0.4
Milan Township	3,686	3,606	3,579	141.3	-2.9	-0.7
Milton Township, Wayne County	9,254	9,376	3,040	260.1	-67.1	-67.6
Milton Township, Wood County	1,159	979	916	27.0	-21.0	-6.4
Mogadore Village, Portage County*	942	1,007	977	1,850.8	3.7	-3.0
Mogadore Village, Summit County	2,951	2,846	2,847	1,836.0	-3.5	0.0
Monclova Township	6,767	12,400	12,271	567.7	81.3	-1.0
Montgomery Township	4,505	4,230	4,271	116.2	-5.2	1.0
Montville Township	-	11,185	11,224	524.6	-	0.3
New Franklin City	2,191	14,227	14,239	568.3	549.9	0.1

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New Russia Township	2,357	2,515	2,509	104.4	6.4	-0.2
Nimishillen Township	9,098	9,652	9,648	306.7	6.0	0.0
North Olmsted City*	34,113	32,718	32,504	2,802.7	-4.7	-0.7
North Ridgeville City	22,338	29,465	30,103	1,257.1	34.8	2.2
Northwood City	5,471	5,265	5,289	617.8	-3.3	0.5
Norton City, Summit County	11,512	12,081	12,048	599.4	4.7	-0.3
Norton City, Wayne County	11	4	0	499.4	-100.0	-100.0
Norwalk City*	16,238	17,012	16,959	1,917.9	4.4	-0.3
Norwalk Township*	3,685	3,591	3,567	204.0	-3.2	-0.7
Oberlin City	8,195	8,286	8,380	1,684.6	2.3	1.1
Olmsted Falls City*	7,962	9,024	8,946	2,189.0	12.4	-0.9
Olmsted Township*	10,575	13,513	13,327	1,393.9	26.0	-1.4
Oregon City	19,355	20,291	20,255	676.9	4.6	-0.2
Osnaburg Township	5,886	5,616	5,607	156.6	-4.7	-0.2
Oxford Township	1,096	1,201	972	46.2	-11.3	-19.1
Paris Township	5,969	5,728	5,717	169.8	-4.2	-0.2
Penfield Township	1,690	1,789	2,011	82.8	19.0	12.4
Perkins Township	12,578	12,202	12,141	473.1	-3.5	-0.5
Perry Township, Columbiana County	17,049	16,850	16,773	1,065.2	-1.6	-0.5
Perry Township, Stark County	29,167	28,353	28,384	1,228.6	-2.7	0.1
Perrysburg City	16,945	20,623	20,982	1,791.1	23.8	1.7
Perrysburg Township	13,613	12,512	12,450	348.1	-8.5	-0.5
Peru Township*	1,043	1,105	1,448	43.1	38.8	31.0
Pike Township	1,738	1,854	2,110	66.1	21.4	13.8
Pittsfield Township	1,549	1,581	1,354	61.1	-12.6	-14.4
Plain Township, Stark County	51,997	52,540	52,509	1,923.7	1.0	-0.1
Plain Township, Woody County	1,706	1,663	1,978	68.4	15.9	18.9
Pleasant Township*	1,685	1,635	1,625	46.0	-3.6	-0.6
Port Clinton City*	6,391	6,056	6,063	2,913.9	-5.1	0.1
Portage Township, Ottawa County*	1,634	1,291	1,379	143.7	-15.6	6.8
Portage Township, Wood County	1,516	1,614	1,615	44.2	6.5	0.1
Providence Township	3,454	3,361	3,348	128.8	-3.1	-0.4
Randolph Township*	5,504	5,298	5,279	182.2	-4.1	-0.4
Rice Township	1,437	1,370	1,542	63.4	7.3	12.6
Richfield Township, Henry County	-	-	776	-	-	-
Richfield Township, Lucas County	1,573	1,598	1,772	71.0	12.7	10.9
Ridgefield Township*	2,390	2,329	2,314	91.4	-3.2	-0.6

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Riley Township	1,302	1,226	1,327	31.9	1.9	8.2
Rittman City, Medina County	-	115	111	113.8	-	-3.5
Rittman City, Wayne County	-	6,376	6,392	1,176.4	-	0.3
Rochester Township	752	799	904	45.3	20.2	13.1
Rootstown Township*	7,212	8,225	8,185	311.3	13.5	-0.5
Rossford City	6,406	6,293	6,389	1,253.9	-0.3	1.5
Royalton Township	1,502	1,515	1,435	61.8	-4.5	-5.3
Salem Township, Columbiana County	5,703	5,484	5,446	176.1	-4.5	-0.7
Salem Township, Columbiana County	5,703	5,484	5,446	176.1	-4.5	-0.7
Salem Township, Ottawa County*	5,517	5,371	5,375	185.2	-2.6	0.1
Sandusky City, Erie County	27,844	25,793	25,606	2,652.1	-8.0	-0.7
Sandusky Township, Sandusky County	4,087	3,619	3,597	165.3	-12.0	-0.6
Scott Township	1,502	1,437	1,287	39.5	-14.3	-10.4
Sebring Village*	4,912	4,420	4,385	1,771.1	-10.7	-0.8
Seville Village Township	2,160	2,296	2,159	907.9	0.0	-6.0
Sharon Township	-	5,111	5,158	198.3	-	0.9
Sherman Township*	501	510	421	19.7	-16.0	-17.5
Smith Township*	4,977	4,510	4,456	141.9	-10.5	-1.2
Spencer Township, Lucas County	1,708	1,882	1,679	155.0	-1.7	-10.8
Spencer Township, Medina County	-	1,942	1,777	80.7	-	-8.5
Spencer Village, Medina County	747	753	670	763.5	-10.3	-11.0
Springfield Township, Lucas County	24,123	26,193	26,086	1,217.4	8.1	-0.4
Springfield Township, Summit County	15,168	14,644	14,615	998.6	-3.6	-0.2
Strongsville City*	43,858	44,750	44,656	1,817.1	1.8	-0.2
Suffield Township*	6,383	6,311	6,301	278.4	-1.3	-0.2
Sugar Creek Township	6,502	6,651	6,663	178.6	2.5	0.2
Swan Creek Township	8,461	8,566	8,558	203.7	1.1	-0.1
Swanton Township	3,354	3,012	2,988	136.7	-10.9	-0.8
Sylvania Township	44,253	48,487	48,331	1,709.3	9.2	-0.3
Tallmadge City	16,180	17,257	17,250	1,275.3	6.6	0.0
Thompson Township*	1,422	1,443	1,160	38.7	-18.4	-19.6
Toledo City	313,619	287,208	285,459	3,559.3	-9.0	-0.6
Townsend Township, Huron County*	1,567	1,623	1,418	63.0	-9.5	-12.6
Townsend Township, Sandusky County	1,670	1,620	1,644	49.9	-1.6	1.5
Troy Township	4,355	3,870	3,913	130.1	-10.1	1.1
Tuscarawas Township	6,093	5,980	5,964	203.1	-2.1	-0.3
Vermilion City	-	4,742	4,723	2,336.5	-	-0.4

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Vermilion Township	9,575	4,945	4,902	248.4	-48.8	-0.9
Wadsworth City	18,437	21,567	21,678	2,030.5	17.6	0.5
Wadsworth Township	-	4,191	4,242	269.3	-	1.2
Wakeman Township*	2,528	2,731	2,705	108.2	7.0	-1.0
Washington Township, Carroll County*	1,061	1,239	1,225	47.7	15.5	-1.1
Washington Township, Columbiana County	2,380	2,264	2,123	102.7	-10.8	-6.2
Washington Township, Henry County	-	-	2,186	-	-	-
Washington Township, Sandusky County	2,396	2,332	2,249	47.9	-6.1	-3.6
Washington Township, Stark County	4,791	4,626	4,633	151.6	-3.3	0.2
Washington Township, Wood County	1,688	1,841	1,836	88.1	8.8	-0.3
Waterville Township	9,469	11,336	11,375	487.8	20.1	0.3
Wayne Township, Columbiana County	785	814	510	32.6	-35.0	-37.3
Wayne Township, Wayne County	4,034	4,159	4,161	154.3	3.1	0.0
Webster Township	1,277	1,283	1,176	44.5	-7.9	-8.3
Wellington Township	5,904	6,222	6,219	281.0	5.3	0.0
West Township	3,351	3,307	3,282	94.7	-2.1	-0.8
Westfield Center Village	-	1,115	1,149	529.0	-	3.0
Westfield Township	-	2,482	2,508	108.1	-	1.0
Weston Township	2,274	2,336	2,215	158.3	-2.6	-5.2
Woodville Township	3,304	3,395	3,369	102.9	2.0	-0.8
York Township, Fulton County	4,203	4,145	4,145	98.4	-1.4	0.0
York Township, Medina County	-	3,438	3,471	169.2	-	1.0
York Township, York County	2,512	2,532	2,286	77.3	-9.0	-9.7
Akron, OH Metro Area	694,960 <u>e/</u>	703,200 <u>e/</u>	705,686 <u>f/</u>	781.2 <u>g/</u>	1.5	0.4
Canton-Massillon, OH Metro Area	406,934 <u>e/</u>	404,422 <u>e/</u>	403,707 <u>f/</u>	417.0 <u>g/</u>	-0.8	-0.2
Cleveland-Elyria, OH Metro Area	2,148,143 <u>e/</u>	2,077,240 <u>e/</u>	2,064,725 <u>f/</u>	1,040.00 <u>g/</u>	-3.9	-0.6
Toledo, OH Metro Area	618,203 <u>e/</u>	610,001 <u>e/</u>	608,145 <u>f/</u>	376.9 <u>g/</u>	-1.6	-0.3
Weirton-Steubenville, WV-OH Metro Area*	132,008 <u>e/</u>	124,454 <u>e/</u>	121,992 <u>f/</u>	- <u>g/</u>	-7.6	-2.0
Youngstown-Warren-Boardman, OH-PA Metro Area*	602,964 <u>e/</u>	565,773 <u>e/</u>	555,506 <u>f/</u>	332.3 <u>g/</u>	-7.9	-1.8

TABLE 5.2-2

Existing Population Levels and Trends for the NEXUS Project Area in Ohio

Location	2000 Population <u>a/</u>	2010 Population <u>b/</u>	2013 Population Estimate <u>c/</u>	Population Density (persons/sq. mi.) (2010) <u>d/</u>	Change in Population 2000-2013 (%)	Change in Population 2010-2013 (%)
<p>Sources:</p> <p><u>a/</u> U.S. Census Bureau 2000a and 2000b.</p> <p><u>b/</u> U.S. Census Bureau 2010a, 2010b, and 2010d.</p> <p><u>c/</u> U.S. Census Bureau 2013c.</p> <p><u>d/</u> U.S. Census Bureau 2010a, 2010b, and 2010d.</p> <p><u>e/</u> U.S. Census Bureau 2013b.</p> <p><u>f/</u> U.S. Census Bureau 2014a.</p> <p><u>g/</u> U.S. Census Bureau 2010c.</p> <p>- Data unavailable.</p> <p>- *Located within 10 miles of the Project, but is not directly affected by the Project.</p>						

TABLE 5.2-3
 Existing Population Levels and Trends for the NEXUS Project Area in Michigan

Location	2000 Population <u>a/</u>	2010 Population <u>b/</u>	2013 Population Estimate <u>c/</u>	Population Density (persons/sq. mi.) (2010) <u>d/</u>	Change in Population 2000-2013 (%)	Change in Population 2010-2013 (%)
FEDERAL						
U.S.	281,421,906	308,746,065	311,536,594	87.4	10.7	0.9
STATE						
Michigan	9,938,444	9,883,706	9,886,095	174.8	-0.5	0.0
COUNTY						
Lenawee	98,890	99,892	99,505	133.3	0.6	-0.4
Monroe	145,945	152,021	151,408	276.7	3.7	-0.4
Washtenaw	322,895	344,791	348,560	488.4	7.9	1.1
LOCAL						
Ann Arbor Charter Township	4,720	4,361	4,405	260.6	-6.7	1.0
Ann Arbor City	114,024	113,934	115,331	4,094.0	1.1	1.2
Ash Township	7,610	7,783	7,774	224.9	2.2	-0.1
Augusta Charter Township	4,813	6,745	6,773	183.8	40.7	0.4
Belleville City*	3,997	3,991	3,941	3,511.8	-1.4	-1.3
Bridgewater Township	1,646	1,674	1,647	46.3	0.1	-1.6
Canton Charter Township*	76,366	90,173	89,488	2,497.2	17.2	-0.8
Dundee Township	6,341	6,759	6,718	140.2	5.9	-0.6
Exeter Township	3,727	3,968	3,947	108.6	5.9	-0.5
Garden City*	30,047	27,692	27,499	4,718.1	-8.5	-0.7
Huron Charter Township*	13,737	15,879	15,764	449.2	14.8	-0.7
Ida Township	4,949	4,964	4,948	135.1	0.0	-0.3
Livonia City*	100,545	96,942	96,233	2,715.8	-4.3	-0.7
Lodi Township	5,710	6,058	6,146	176.8	7.6	1.5
London Township	3,024	3,048	3,035	85.2	0.4	-0.4
Milan City	1,710	2,066	2,022	955.8	18.2	-2.1
Milan City	3,065	3,770	3,797	3,261.0	23.9	0.7
Milan Township	1,670	1,601	1,460	46.8	-12.6	-8.8
Northfield Township	8,252	8,245	8,322	230.5	0.8	0.9
Northville Township*	21,036	28,497	28,469	1,759.9	35.3	-0.1
Petersburg City	1,157	1,146	1,319	2,384.9	14.0	15.1
Pittsfield Charter Township	30,167	34,663	35,304	1,271.6	17.0	1.8
Plymouth Charter Township*	27,798	27,524	27,316	1,727.8	-1.7	-0.8
Plymouth City*	9,022	9,132	9,061	4,130.5	0.4	-0.8
Raisinville Township	4,896	5,816	5,811	120.8	18.7	-0.1
Ridgeway Township	1,580	1,542	1,624	53.8	2.8	5.3
Riga Township	1,439	1,406	1,467	34.4	1.9	4.3
Romulus City*	22,979	23,989	23,770	673.7	3.4	-0.9

TABLE 5.2-3

Existing Population Levels and Trends for the NEXUS Project Area in Michigan

Location	2000 Population <u>a/</u>	2010 Population <u>b/</u>	2013 Population Estimate <u>c/</u>	Population Density (persons/sq. mi.) (2010) <u>d/</u>	Change in Population 2000-2013 (%)	Change in Population 2010-2013 (%)
Salem Township	5,562	5,627	5,700	164.1	2.5	1.3
Saline City	8,034	8,810	8,913	2,068.4	10.9	1.2
Saline Township	1,302	1,896	1,832	54.7	40.7	-3.4
Summerfield Township	3,233	3,308	3,294	78.8	1.9	-0.4
Sumpter Township*	11,856	9,549	9,505	255.6	-19.8	-0.5
Superior Charter Township	10,740	13,058	13,171	370.9	22.6	0.9
Tecumseh City	8,574	8,521	8,451	1,494.4	-1.4	-0.8
Tecumseh Township	1,881	1,972	1,939	156.9	3.1	-1.7
Van Buren Charter Township*	23,559	28,821	28,545	848.4	21.2	-1.0
Wayne City*	19,051	17,593	17,423	2,922.6	-8.5	-1.0
Westland City*	86,602	84,094	83,476	4,117.3	-3.6	-0.7
Whiteford Township	4,420	4,602	4,583	115.9	3.7	-0.4
York Charter Township	7,392	8,708	8,757	251.0	18.5	0.6
Ypsilanti Charter Township	49,182	53,362	53,626	1,782.8	9.0	0.5
Ypsilanti City	22,362	19,435	19,647	4,489.0	-12.1	1.1
Ann Arbor, MI Metro Area	322,895 <u>e/</u>	344,791 <u>e/</u>	354,240 <u>f/</u>	488.4 <u>g/</u>	9.7	2.7
Detroit-Warren-Dearborn, MI Metro Area*	4,452,557 <u>e/</u>	4,296,250 <u>e/</u>	4,294,983 <u>f/</u>	1,104.9 <u>g/</u>	-3.5	0.0
Monroe, MI Metro Area	145,945 <u>e/</u>	152,021 <u>e/</u>	150,376 <u>f/</u>	276.7 <u>g/</u>	3.0	-1.1

Sources:

a/ U.S. Census Bureau 2000a and 2000b.

b/ U.S. Census Bureau 2010a, 2010b, and 2010d.

c/ U.S. Census Bureau 2013c.

d/ U.S. Census Bureau 2010a, 2010b, and 2010d.

e/ U.S. Census Bureau 2013b.

f/ U.S. Census Bureau 2014a.

g/ U.S. Census Bureau 2010c.

- Data unavailable.

- *Located within 10 miles of the Project, but is not directly affected by the Project.

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio ^{a/}

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
FEDERAL				
U.S.	28,155	157,113,886	6.2	E, R, P
STATE				
Ohio	26,046	5,849,339	6.4	E, M, R
COUNTY				
Columbiana	21,575	51,118	6.3	E, M, R
Erie	26,135	38,918	5.5	E, M, A
Fulton	24,771	22,349	6.7	E, M, R
Henry	23,347	14,487	6.2	M, E, R
Lorain	26,030	152,340	6.6	E, M, R
Lucas	23,885	221,879	8.8	E, M, R
Medina	30,707	92,664	4.3	E, M, R
Sandusky	22,799	30,790	5.5	M, E, R
Stark	24,453	189,391	6.6	E, M, R
Summit	27,818	283,418	6.7	E, M, R
Wayne	23,061	57,592	4.4	E, M, R
Wood	26,326	69,392	6.9	E, M, R
LOCAL				
Adams Township*	30,056	935	4.1	M, E, R
Akron City	19,968	100,359	9.8	E, M, R
Allen Township*	27,100	1,866	2.6	E, M, R
Alliance City	17,213	10,564	9.2	E, M, R
Amboy Township	26,326	986	7.0	E, M, R
Amherst City	28,708	6,625	5.8	E, R, M
Amherst Township	27,862	3,631	5.6	E, M, R
Atwater Township*	21,259	1,481	10.2	E, M, R
Augusta Township*	18,657	770	10.1	R, C, M
Ballville Township	30,672	3,232	2.2	E, M, R
Barberton City	20,506	13,509	7.9	E, M, R
Bath Township	51,929	4,829	2.4	E, M, P
Baughman Township	25,672	2,531	5.2	M, E, R
Bay Township*	17,517	700	6.8	A, R, M

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Bellevue City, Erie County	0	29	0.0	E, R, M
Bellevue City, Huron County*	20,289	1,960	7.6	M, E, A
Bellevue City, Sandusky County	23,987	2,273	6.1	M, E, R
Benton Township*	27,378	1,570	3.8	M, E, C
Berlin Township	25,291	1,649	3.9	E, P, C
Bowling Green City	19,266	17,673	9.9	E, A, R
Brighton Township	25,496	420	7.0	E, M, Pu
Brimfield Township*	27,111	5,615	4.5	M, E, R
Bronson Township*	26,958	1,132	8.1	E, P, C
Brown Township*	23,475	3,741	5.0	M, E, R
Brownhelm Township	27,748	3,885	6.9	E, M, A
Brunswick City	28,225	19,718	4.9	E, M, R
Brunswick Hills Township	30,590	5,355	3.9	E, M, F
Brush Creek Township*	41,202	214	1.3	Ag, T, E
Butler Township	20,993	1,845	3.2	E, M, T
Camden Township	25,515	892	3.5	E, M, P
Canaan Township	20,821	2,437	5.9	E, M, R
Canton City	16,669	34,297	9.6	E, M, A
Canton Township	23,248	6,438	7.5	M, E, R
Carlisle Township	28,793	4,154	4.9	E, M, P
Carroll Township*	23,446	1,077	2.7	E, R, T
Center Township, Columbiana County	21,051	2,957	10.3	E, M, R
Center Township, Woody County	27,125	929	6.8	E, A, O
Chatham Township	30,149	1,291	6.0	M, E, A
Chesterfield Township	22,076	525	2.8	E, M, C
Chippewa Lake Village	28,452	456	7.0	M, E, R
Chippewa Township	28,182	5,502	5.5	E, M, R
Clarksfield Township*	23,496	788	3.9	M, C, E
Clay Township*	27,388	2,594	4.2	E, M, R
Clinton Township, Fulton County	22,706	4,844	8.4	E, R, M
Clinton Village, Summit County	23,937	526	4.6	E, M, R
Clyde City	23,764	3,521	5.9	E, M, A
Columbia Township	29,585	3,733	6.4	E, M, R

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Congress Township	23,186	2,550	7.2	M, E, R
Copley Township	38,153	9,210	4.0	E, M, P
Coventry Township	25,034	6,494	7.1	E, M, C
Damascus Township	20,856	782	10.0	M, E, R
Danbury Township*	35,908	2,391	4.2	E, C, R
Deerfield Township*	22,726	1,572	15.2	M, E, A
Dover Township	23,320	670	2.9	M, E, F
East Township*	19,217	357	3.3	M, E, W
Eaton Township	22,492	2,395	4.2	M, E, R
Elkrun Township	17,713	1,078	2.3	E, M, T
Elyria City	21,276	28,421	7.9	E, M, R
Elyria Township	23,741	1,790	8.0	M, R, E
Erie Township*	23,123	464	6.0	E, R, M
Fairlawn City	41,786	4,025	3.0	E, P, F
Florence Township	27,249	1,276	5.8	E, R, M
Fox Township*	15,410	383	9.2	M, E, Ag
Franklin Township	19,557	577	12.0	R, E, T
Freedom Township	25,429	1,268	2.9	E, M, P
Fremont City	18,230	8,090	8.4	M, E, R
Fulton Township	24,597	1,668	7.4	E, R, M
Gloria Glens Park Village	25,839	245	4.8	E, M, T
Goshen Township*	27,229	1,720	6.4	M, E, P
Grafton Township	33,392	1,679	4.8	M, E, R
Grafton Village	16,129	1,826	3.6	M, E, R
Grand Rapids Township	26,030	839	7.4	E, M, A
Granger Township	40,901	2,455	3.1	E, P, R
Green City	31,909	14,021	5.0	E, M, R
Green Creek Township	25,268	1,891	3.7	M, E, R
Green Springs Village, Sandusky County	15,655	287	2.6	M, E, A
Green Springs Village, Seneca County*	15,449	313	10.3	M, R, A
Green Township, Wayne County	21,767	6,240	6.6	E, M, R
Groton Township	25,761	987	3.3	E, R, P

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Guilford Township	29,009	1,497	2.8	M, E, P
Hanover Township	21,594	1,871	6.5	E, M, R
Harding Township	32,681	356	8.4	M, P, R
Harris Township*	22,415	1,358	4.5	E, M, R
Harrison Township	24,396	880	4.3	E, M, R
Harrisville Township	25,500	1,033	2.7	E, R, M
Hartland Township*	28,594	437	0.0	E, M, R
Henrietta Township	29,624	988	5.7	E, M, R
Hinckley Township	37,644	4,368	3.8	E, M, P
Homer Township	17,524	793	2.8	E, M, Ag
Huntington Township	21,665	747	3.1	E, T, M
Huron Township	31,173	5,485	4.6	E, C, R
Jackson Township, Sandusky County	22,390	924	6.5	M, E, A
Jackson Township, Stark County	37,594	22,018	4.0	E, M, R
Knox Township	23,868	2,569	5.9	E, M, R
Lafayette Township	28,021	3,109	4.4	E, M, A
LaGrange Township	25,256	3,393	5.2	M, E, R
Lake Township, Stark County	29,863	14,851	5.0	E, M, R
Lake Township, Wood County	23,723	5,672	5.3	E, M, R
Lakemore Village	21,904	1,688	5.9	E, M, R
Lawrence Township	25,227	7,128	5.4	E, M, R
Lexington Township	20,116	2,455	8.4	M, E, R
Liberty Township, Henry County	22,602	1,279	3.3	M, E, R
Liberty Township, Seneca County*	22,909	1,302	11.0	M, E, R
Liberty Township, Wood County	24,390	949	6.9	E, M, C
Litchfield Township	29,965	1,888	3.8	E, M, C
Liverpool Township	33,652	2,876	4.1	E, R, M
Lodi Village	19,986	1,449	6.4	M, E, R
Lorain City	18,698	29,392	9.5	E, M, R
Louisville City	24,951	4,664	2.9	E, M, R
Lyme Township*	27,879	439	0.0	E, Ag, M
Madison Township, Columbiana County	20,131	1,453	7.0	E, M, A
Madison Township, Sandusky County	19,346	1,784	3.4	E, M, C

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Margaretta Township	27,271	3,267	5.5	E, F, R
Marlboro Township	26,135	2,421	6.2	E, M, R
Massillon City	20,701	15,789	7.9	E, M, R
Maumee City	28,792	7,886	4.5	E, R, M
Medina City Township	26,357	13,252	4.2	E, R, M
Medina Township	39,363	4,405	3.8	E, P, M
Middleton Township	32,630	2,302	6.5	E, M, R
Milan Township	32,851	1,793	4.0	E, M, R
Milton Township, Wayne County	23,144	1,561	2.3	M, E, Ag
Milton Township, Wood County	24,267	537	4.8	E, M, C
Mogadore Village, Portage County*	19,573	561	1.8	R, E, F
Mogadore Village, Summit County	23,613	1,449	6.7	E, M, R
Monclova Township	38,820	6,013	3.7	E, M, P
Montgomery Township	19,620	1,966	8.2	M, E, C
Montville Township	41,563	6,242	4.0	E, M, P
New Franklin City	29,808	7,653	6.9	E, M, C
New Russia Township	21,769	1,090	7.5	E, M, A
Nimishillen Township	26,973	4,991	4.6	E, M, C
North Olmsted City*	30,152	18,101	5.9	E, M, R
North Ridgeville City	30,468	16,421	6.3	E, M, R
Northwood City	24,513	2,776	8.8	E, M, R
Norton City, Summit County	26,648	6,496	4.6	E, M, R
Norton City, Wayne County	0	0	0.0	
Norwalk City*	21,911	8,151	5.8	E, M, A
Norwalk Township*	21,919	1,853	7.3	E, M, R
Oberlin City	21,572	4,248	4.2	E, A, M
Olmsted Falls City*	31,225	4,810	3.7	M, E, R
Olmsted Township*	31,212	7,285	3.9	M, T, E
Oregon City	28,062	10,521	5.5	E, M, R
Osnaburg Township	24,363	2,871	5.6	M, E, C
Oxford Township	25,480	489	9.9	E, T, R
Paris Township	23,378	2,843	6.6	M, E, R
Penfield Township	29,263	1,178	7.8	M, E, F

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Perkins Township	29,076	6,314	3.4	M, R, E
Perry Township, Columbiana County	21,461	8,251	6.6	E, M, R
Perry Township, Stark County	23,190	15,331	6.6	E, M, R
Perrysburg City	36,192	11,535	4.4	E, M, P
Perrysburg Township	32,554	7,212	5.4	E, M, R
Peru Township*	23,654	801	6.3	E, C, M
Pike Township	26,703	1,196	6.9	E, M, P
Pittsfield Township	35,274	776	4.5	E, M, P
Plain Township, Stark County	28,685	27,440	5.7	E, M, R
Plain Township, Woody County	27,827	1,070	7.7	E, P, R
Pleasant Township*	23,458	911	6.6	E, M, P
Port Clinton City*	24,034	3,169	5.7	R, E, M
Portage Township, Ottawa County*	24,041	598	4.6	M, E, A
Portage Township, Wood County	29,094	820	8.7	M, E, R
Providence Township	26,248	1,743	5.5	E, M, A
Randolph Township*	25,934	3,009	9.9	E, M, R
Rice Township	19,798	690	5.8	E, P, R
Richfield Township, Henry County	24,877	413	9.7	R, M, E
Richfield Township, Lucas County	31,443	985	5.0	E, R, M
Ridgefield Township*	22,891	1,289	4.4	E, M, R
Riley Township	27,285	680	4.3	M, C, E
Rittman City, Medina County	28,202	51	0.0	E, C, O
Rittman City, Wayne County	22,788	3,129	4.7	E, M, R
Rochester Township	24,128	510	5.3	E, C, M
Rootstown Township*	24,426	4,339	6.7	M, E, R
Rossford City	26,969	3,508	6.8	E, M, R
Royalton Township	28,642	676	6.3	E, R, M
Salem Township, Columbiana County	22,653	2,811	5.3	M, E, R
Salem Township, Columbiana County	22,653	2,811	5.3	M, E, R
Salem Township, Ottawa County*	26,706	2,914	4.2	E, M, R
Sandusky City, Erie County	20,883	12,602	7.3	M, Ag, R
Sandusky Township, Sandusky County	24,328	1,910	3.6	M, E, R
Scott Township	23,706	636	0.8	E, M, R

TABLE 5.2-4

 Existing Economic Conditions for the NEXUS Project Facilities in Ohio a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Sebring Village*	22,001	2,074	6.0	M, E, Ag
Seville Village Township	29,969	1,178	5.4	E, P, R
Sharon Township	36,497	2,779	4.6	E, M, R
Sherman Township*	26,961	247	4.0	E, M, T
Smith Township*	19,792	2,214	6.1	E, M, R
Spencer Township, Lucas County	34,097	939	6.4	E, C, M
Spencer Township, Medina County	20,587	866	5.3	E, M, C
Spencer Village, Medina County	23,170	361	10.8	M, E, R
Springfield Township, Lucas County	29,404	13,828	7.5	E, M, R
Springfield Township, Summit County	24,363	7,677	7.8	E, M, R
Strongsville City*	37,401	24,383	4.7	E, M, R
Suffield Township*	27,919	3,552	7.1	M, E, A
Sugar Creek Township	24,675	3,336	2.3	M, E, R
Swan Creek Township	27,227	4,626	6.7	E, M, R
Swanton Township	27,095	1,612	6.4	E, M, P
Sylvania Township	37,982	25,012	5.0	E, M, P
Tallmadge City	27,858	8,370	3.8	E, M, R
Thompson Township*	26,114	572	6.3	E, M, Ag
Toledo City	18,760	141,712	10.7	E, M, R
Townsend Township, Huron County*	22,080	788	1.1	E, T, M
Townsend Township, Sandusky County	23,774	872	3.8	M, E, A
Troy Township	26,864	1,997	4.6	E, C, M
Tuscarawas Township	24,386	3,067	5.7	E, M, R
Vermilion City	27,358	2,477	6.2	R, E, M
Vermilion Township	27,197	2,443	5.7	M, E, R
Wadsworth City	26,999	10,715	4.0	E, M, R
Wadsworth Township	38,752	2,387	4.2	E, R, M
Wakeman Township*	25,253	1,568	9.2	E, M, R
Washington Township, Carroll County*	18,803	650	12.6	E, M, R
Washington Township, Columbiana County	19,340	1,042	10.2	P, M, E
Washington Township, Henry County	20,118	1,106	5.9	C, E, M
Washington Township, Sandusky County	22,735	1,083	4.9	E, M, R

TABLE 5.2-4

Existing Economic Conditions for the NEXUS Project Facilities in Ohio ^{a/}

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Washington Township, Stark County	24,256	2,488	3.6	E, M, R
Washington Township, Wood County	38,058	1,059	2.8	E, M, R
Waterville Township	30,474	5,938	4.3	E, M, R
Wayne Township, Columbiana County	25,097	238	0.0	M, T, E
Wayne Township, Wayne County	27,053	2,214	1.7	M, E, R
Webster Township	27,399	609	3.6	E, M, R
Wellington Township	24,385	3,017	6.0	E, M, R
West Township	19,893	1,619	7.4	E, M, R
Westfield Center Village	42,638	549	4.0	E, M, F
Westfield Township	31,787	1,470	6.8	E, M, F
Weston Township	20,369	1,189	8.3	M, E, R
Woodville Township	28,300	1,908	7.8	E, M, A
York Township, Fulton County	22,582	2,189	7.4	E, P, M
York Township, Medina County	33,117	1,803	2.9	M, R, E
York Township, York County	23,209	1,009	3.7	M, E, C

Source:

^{a/} U.S. Census Bureau 2013e.

Industries:

A = Arts, entertainment, and recreation, and accommodation and food services.

Ag = Agriculture, forestry, fishing and hunting, and mining.

C = Construction.

E = Educational, health and social services.

F = Finance and insurance, and real estate and rental and leasing.

M = Manufacturing.

O = Other services, except public administration.

P = Professional, scientific, management, administrative and waste management services.

Pu = Public administration.

R = Retail trade.

T = Transportation and warehousing, and utilities.

*Located within 10 miles of the Project, but is not directly affected by the Project.

TABLE 5.2-5

 Existing Economic Conditions for the NEXUS Project Facilities in Michigan a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
FEDERAL				
U.S.	28,155	157,113,886	6.2	E, R, P
STATE				
Michigan	25,681	4,859,417	7.8	E, M, R
COUNTY				
Lenawee	22,395	48,056	7.2	E, M, R
Monroe	25,939	75,223	7.1	E, M, R
Washtenaw	33,231	188,014	6.0	E, P, M
LOCAL				
Adrian City	16,604	9,715	10.6	E, M, R
Adrian Township	26,024	2,684	2.9	E, M, R
Ann Arbor Charter Township	58,766	2,303	3.3	E, P, M
Ann Arbor City	34,247	62,317	4.7	E, P, A
Ash Township	26,992	3,709	6.5	M, E, A
Augusta Charter Township	25,766	3,496	7.8	E, R, M
Belleville City*	26,919	1,982	7.8	E, M, R
Blissfield Township	24,328	1,935	7.4	E, R, M
Bridgewater Township	30,102	813	6.2	E, M, R
Canton Charter Township*	34,409	48,898	5.7	E, M, P
Clinton Township	21,204	1,610	6.4	E, M, R
Deerfield Township	24,703	833	5.1	E, M, R
Dundee Township	23,963	3,435	8.0	E, M, R
Exeter Township	26,040	2,088	6.3	M, E, O
Fairfield Township	19,978	798	8.2	M, E, C
Franklin Township	26,278	1,645	6.6	E, M, R
Garden City*	23,997	14,894	8.6	M, E, R
Huron Charter Township*	27,177	8,207	8.0	E, M, R
Ida Township	31,820	2,566	5.0	E, M, C
Livonia City*	32,249	50,464	5.5	E, M, P
Lodi Township	46,626	3,157	3.3	E, P, M
London Township	24,208	1,548	6.5	E, M, R
Macon Township	27,194	738	4.7	E, M, R
Madison Charter Township	17,966	3,625	5.5	E, R, O
Milan City	24,155	1,118	7.5	E, M, A
Milan City	30,415	2,230	5.1	E, A, M

TABLE 5.2-5

 Existing Economic Conditions for the NEXUS Project Facilities in Michigan ^{a/}

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
Milan Township	29,526	865	3.7	E, M, P
Northfield Township	30,533	4,648	8.9	E, R, M
Northville Township*	51,883	14,177	3.6	E, M, P
Ogden Township	24,618	490	5.1	M, E, C
Palmyra Township	21,661	1,099	4.8	M, E, R
Petersburg City	24,076	727	7.4	E, M, R
Pittsfield Charter Township	35,516	19,781	5.9	E, M, P
Plymouth Charter Township*	43,889	13,832	4.6	E, M, P
Plymouth City*	38,864	5,220	4.2	E, M, P
Raisin Township	25,591	4,026	9.4	E, M, P
Raisinville Township	25,273	2,764	7.7	E, M, R
Ridgeway Township	24,037	898	6.8	E, R, M
Riga Township	26,481	715	5.1	E, M, R
Romulus City*	20,537	11,658	10.4	E, M, T
Salem Township	34,516	3,175	8.1	E, M, P
Saline City	36,389	4,890	4.1	E, P, M
Saline Township	27,717	942	4.2	E, M, P
Summerfield Township	25,232	1,658	4.8	E, M, C
Sumpter Township*	25,543	4,428	5.5	E, M, R
Superior Charter Township	37,444	6,971	6.9	E, M, P
Tecumseh City	26,746	4,301	5.3	E, M, R
Tecumseh Township	33,550	1,042	6.0	E, M, R
Van Buren Charter Township*	27,997	15,911	8.6	E, M, T
Wayne City*	19,874	8,335	10.5	E, M, R
Westland City*	23,993	43,739	8.5	E, M, A
Whiteford Township	26,155	2,283	7.4	E, M, A
York Charter Township	33,196	3,885	5.5	E, M, P
Ypsilanti Charter Township	24,096	28,993	9.3	E, R, M
Ypsilanti City	21,350	11,416	9.8	E, R, A

Source:

^{a/} U.S. Census Bureau 2013e.

Industries:

A = Arts, entertainment, and recreation, and accommodation and food services.

Ag = Agriculture, forestry, fishing and hunting, and mining.

C = Construction.

E = Educational, health and social services.

TABLE 5.2-5

Existing Economic Conditions for the NEXUS Project Facilities in Michigan a/

Location	Per Capita Income (\$)	Civilian Workforce	Unemployment Rate (%)	Top Three Industries
<p>F = Finance and insurance, and real estate and rental and leasing. M = Manufacturing. O = Other services, except public administration. P = Professional, scientific, management, administrative and waste management services. Pu = Public administration. R = Retail trade. T = Transportation and warehousing, and utilities.</p> <p>*Located within 10 miles of the Project, but is not directly affected by the Project.</p>				

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
FEDERAL				
U.S.	6.2	14.2	12.4	2.8
STATE				
Ohio	6.4	14.9	14.5	3.4
COUNTY				
Columbiana	6.3	15.8	16.4	2.9
Erie	5.5	12.8	14.6	2.3
Fulton	6.7	11.3	9.9	1.7
Henry	6.2	11.6	10.1	3.1
Lorain	6.6	13.5	14.2	3
Lucas	8.8	20.0	19.7	4.4
Medina	4.3	7.0	7.5	2.1
Sandusky	5.5	12.9	12.3	1.9
Stark	6.6	14.1	14.8	5.5
Summit	6.7	14.8	14.0	5.2
Wayne	4.4	11.4	11.7	2.7
Wood	6.9	14.7	8.9	1.8
LOCAL				
Adams Township*	4.1	1.5	10.0	1.8
Akron City	9.8	21.3	24.7	9.5
Allen Township*	2.6	4.0	8.4	2.4
Alliance City	9.2	22.6	26.1	7.8
Amboy Township	7	3.1	10.2	0.6
Amherst City	5.8	7.4	9.3	1.9
Amherst Township	5.6	6.1	10.8	1.9
Atwater Township*	10.2	4.0	11.9	3.4
Augusta Township*	10.1	10.9	8.5	3.6
Ballville Township	2.2	1.2	2.0	0.9
Barberton City	7.9	16.6	19.2	7.4
Bath Township	2.4	3.0	1.4	0.3
Baughman Township	5.2	2.6	7.9	3.4
Bay Township*	6.8	25.5	29.5	4.6
Bellevue City, Erie County	0	0.0	0.0	0
Bellevue City, Huron County*	7.6	6.5	12.9	2.6
Bellevue City, Sandusky County	6.1	7.3	12.7	2.5
Benton Township*	3.8	2.6	1.9	0.7
Berlin Township	3.9	5.1	9.7	5.3

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
Bowling Green City	9.9	17.7	12.5	1
Brighton Township	7	0.0	2.4	0
Brimfield Township*	4.5	8.5	6.5	1.4
Bronson Township*	8.1	3.8	6.1	4.1
Brown Township*	5	12.6	12.5	2.5
Brownhelm Township	6.9	11.0	11.6	1.6
Brunswick City	4.9	5.0	8.7	2.3
Brunswick Hills Township	3.9	1.7	3.8	0.8
Brush Creek Township*	1.3	3.1	2.4	0
Butler Township	3.2	6.6	6.1	0
Camden Township	3.5	5.4	6.5	1.5
Canaan Township	5.9	6.4	15.1	3
Canton City	9.6	25.8	31.4	12
Canton Township	7.5	10.3	11.2	3.6
Carlisle Township	4.9	7.8	6.8	0
Carroll Township*	2.7	8.6	4.2	0.8
Center Township, Columbiana County	10.3	16.3	22.0	2.2
Center Township, Woody County	6.8	0.0	2.4	9.6
Chatham Township	6	1.5	1.1	0.9
Chesterfield Township	2.8	4.5	6.6	2.9
Chippewa Lake Village	7	8.1	12.2	8.8
Chippewa Township	5.5	3.1	7.4	2.8
Clarksfield Township*	3.9	15.5	20.0	10.4
Clay Township*	4.2	6.9	10.8	2.5
Clinton Township, Fulton County	8.4	12.1	12.7	1.4
Clinton Village, Summit County	4.6	7.7	8.6	2.3
Clyde City	5.9	12.6	7.9	2.4
Columbia Township	6.4	5.1	5.5	1.1
Congress Township	7.2	8.2	15.0	4
Copley Township	4	3.7	2.8	2.1
Coventry Township	7.1	7.7	14.4	7.9
Damascus Township	10	13.1	11.8	4.2
Danbury Township*	4.2	3.2	4.0	0.9
Deerfield Township*	15.2	12.9	9.0	0.6
Dover Township	2.9	6.0	8.9	4
East Township*	3.3	0.0	0.0	0
Eaton Township	4.2	4.1	5.4	2.7

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
Elkrun Township	2.3	0.0	4.4	0
Elyria City	7.9	15.1	20.1	3.8
Elyria Township	8	5.4	7.4	2.6
Erie Township*	6	15.9	21.2	2.8
Fairlawn City	3	1.6	1.2	0.5
Florence Township	5.8	1.7	6.5	0.9
Fox Township*	9.2	20.3	20.8	3.1
Franklin Township	12	0.7	1.7	1.7
Freedom Township	2.9	9.8	4.3	1
Fremont City	8.4	20.1	22.6	2.2
Fulton Township	7.4	7.8	6.6	1.5
Gloria Glens Park Village	4.8	3.0	5.6	0
Goshen Township*	6.4	4.0	7.6	1.2
Grafton Township	4.8	0.0	4.2	2
Grafton Village	3.6	2.9	11.1	2
Grand Rapids Township	7.4	18.1	14.0	3.9
Granger Township	3.1	2.5	4.0	1
Green City	5	5.3	7.0	2.5
Green Creek Township	3.7	8.9	11.6	3.3
Green Springs Village, Sandusky County	2.6	8.8	22.3	0
Green Springs Village, Seneca County*	10.3	23.5	25.7	1.7
Green Township, Wayne County	6.6	15.4	15.1	3.7
Groton Township	3.3	6.3	15.0	0
Guilford Township	2.8	7.4	9.8	5.6
Hanover Township	6.5	17.4	15.6	3
Harding Township	8.4	0.0	2.0	2.9
Harris Township*	4.5	2.1	16.3	1.2
Harrison Township	4.3	12.5	8.5	13.2
Harrisville Township	2.7	6.4	6.0	0.8
Hartland Township*	0	3.7	7.1	2.1
Henrietta Township	5.7	4.2	6.3	2.2
Hinckley Township	3.8	0.3	1.7	1.7
Homer Township	2.8	14.4	0.0	0
Huntington Township	3.1	0.0	17.6	3.1
Huron Township	4.6	7.0	9.0	1.6
Jackson Township, Sandusky County	6.5	6.2	4.8	0
Jackson Township, Stark County	4	4.5	4.8	1.8

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
Knox Township	5.9	5.2	8.5	3.3
Lafayette Township	4.4	5.8	5.0	0.5
LaGrange Township	5.2	4.5	4.5	1.9
Lake Township, Stark County	5	3.9	4.8	2
Lake Township, Wood County	5.3	8.8	11.3	2.8
Lakemore Village	5.9	11.4	15.2	7
Lawrence Township	5.4	6.5	7.1	2.1
Lexington Township	8.4	11.1	13.5	7.7
Liberty Township, Henry County	3.3	8.1	5.9	0
Liberty Township, Seneca County*	11	7.3	9.0	0.7
Liberty Township, Wood County	6.9	5.1	14.5	3.3
Litchfield Township	3.8	7.1	5.6	0.4
Liverpool Township	4.1	3.4	1.7	0.4
Lodi Village	6.4	16.4	22.0	6
Lorain City	9.5	25.8	28.6	5.2
Louisville City	2.9	5.7	9.9	2.5
Lyme Township*	0	6.8	0.0	2.1
Madison Township, Columbiana County	7	2.0	15.1	6.1
Madison Township, Sandusky County	3.4	7.1	11.6	2
Margaretta Township	5.5	9.8	7.6	1.6
Marlboro Township	6.2	3.4	1.9	1.6
Massillon City	7.9	13.9	20.1	6.9
Maumee City	4.5	6.1	7.2	2.3
Medina City Township	4.2	10.9	12.7	3.7
Medina Township	3.8	1.8	4.8	3.2
Middleton Township	6.5	2.1	3.4	2.7
Milan Township	4	3.7	9.0	1.1
Milton Township, Wayne County	2.3	7.9	9.2	3.6
Milton Township, Wood County	4.8	9.2	6.5	0.3
Mogadore Village, Portage County*	1.8	14.8	0.0	0
Mogadore Village, Summit County	6.7	8.0	12.7	1.8
Monclova Township	3.7	2.5	1.6	1.3
Montgomery Township	8.2	14.5	15.0	3.9
Montville Township	4	1.5	2.0	0.7
New Franklin City	6.9	4.6	6.0	1.4
New Russia Township	7.5	4.2	3.8	4.2
Nimishillen Township	4.6	3.0	6.2	3.6

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
North Olmsted City*	5.9	4.2	6.2	1.4
North Ridgeville City	6.3	3.7	5.3	1.8
Northwood City	8.8	8.8	12.1	5.8
Norton City, Summit County	4.6	4.6	5.0	1.9
Norton City, Wayne County	0	0.0	0.0	0
Norwalk City*	5.8	11.6	15.9	4.3
Norwalk Township*	7.3	7.1	16.8	2.8
Oberlin City	4.2	10.0	10.4	3.4
Olmsted Falls City*	3.7	2.4	4.5	1.6
Olmsted Township*	3.9	4.3	2.3	2.7
Oregon City	5.5	6.0	10.7	2.6
Osnaburg Township	5.6	6.8	9.7	2.8
Oxford Township	9.9	0.0	4.4	0
Paris Township	6.6	8.6	10.5	1
Penfield Township	7.8	0.0	5.2	0
Perkins Township	3.4	7.0	8.2	3.1
Perry Township, Columbiana County	6.6	15.0	16.5	2.4
Perry Township, Stark County	6.6	7.5	10.0	3.9
Perrysburg City	4.4	2.9	3.0	1.2
Perrysburg Township	5.4	9.3	5.5	0.6
Peru Township*	6.3	11.5	10.8	0
Pike Township	6.9	0.3	0.3	3
Pittsfield Township	4.5	8.1	3.2	3.4
Plain Township, Stark County	5.7	5.9	9.7	4.6
Plain Township, Woody County	7.7	17.5	17.8	8.8
Pleasant Township*	6.6	4.6	8.6	0
Port Clinton City*	5.7	16.1	17.9	3
Portage Township, Ottawa County*	4.6	11.7	11.9	3.5
Portage Township, Wood County	8.7	5.3	6.9	0
Providence Township	5.5	6.4	5.5	1.7
Randolph Township*	9.9	8.8	5.3	0.5
Rice Township	5.8	8.1	2.5	0
Richfield Township, Henry County	9.7	9.8	6.3	3.1
Richfield Township, Lucas County	5	1.1	1.2	0
Ridgefield Township*	4.4	2.3	8.5	0.7
Riley Township	4.3	4.0	3.2	1.8
Rittman City, Medina County	0	0.0	0.0	0

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
Rittman City, Wayne County	4.7	10.3	15.0	1.9
Rochester Township	5.3	2.3	1.6	1.1
Rootstown Township*	6.7	6.7	10.2	3.2
Rossford City	6.8	7.4	8.2	1.8
Royalton Township	6.3	4.3	4.5	0
Salem Township, Columbiana County	5.3	13.0	14.6	2
Salem Township, Columbiana County	5.3	13.0	14.6	2
Salem Township, Ottawa County*	4.2	3.9	10.0	4.3
Sandusky City, Erie County	7.3	17.2	26.2	2.7
Sandusky Township, Sandusky County	3.6	9.2	15.3	2.5
Scott Township	0.8	0.0	10.1	0
Sebring Village*	6	11.7	18.5	5.3
Seville Village Township	5.4	2.4	4.3	3.3
Sharon Township	4.6	5.0	10.5	2.8
Sherman Township*	4	0.0	0.0	0
Smith Township*	6.1	5.4	8.5	3.9
Spencer Township, Lucas County	6.4	7.6	11.9	4.8
Spencer Township, Medina County	5.3	11.2	9.5	0
Spencer Village, Medina County	10.8	4.0	19.0	5.2
Springfield Township, Lucas County	7.5	14.4	14.5	2.8
Springfield Township, Summit County	7.8	6.4	13.9	2.7
Strongsville City*	4.7	3.4	4.7	1.1
Suffield Township*	7.1	14.2	6.5	3.6
Sugar Creek Township	2.3	2.7	5.8	2.7
Swan Creek Township	6.7	8.3	9.2	0.9
Swanton Township	6.4	5.8	9.5	2.2
Sylvania Township	5	4.7	5.3	1.6
Tallmadge City	3.8	8.5	10.0	3.6
Thompson Township*	6.3	4.0	6.5	0
Toledo City	10.7	22.3	25.7	5.5
Townsend Township, Huron County*	1.1	12.5	7.0	0
Townsend Township, Sandusky County	3.8	5.1	6.5	2.1
Troy Township	4.6	6.1	4.6	2.3
Tuscarawas Township	5.7	6.0	6.4	2.5
Vermilion City	6.2	2.1	9.9	0.8
Vermilion Township	5.7	4.4	6.2	2.7
Wadsworth City	4	4.9	9.6	1.8

TABLE 5.2-6

Unemployment and Poverty Rates in the NEXUS Project Area in Ohio

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
Wadsworth Township	4.2	2.3	3.5	0
Wakeman Township*	9.2	8.0	13.5	1.9
Washington Township, Carroll County*	12.6	12.2	12.0	1.8
Washington Township, Columbiana County	10.2	16.8	18.3	4.2
Washington Township, Henry County	5.9	12.9	12.0	5.3
Washington Township, Sandusky County	4.9	7.9	6.9	0
Washington Township, Stark County	3.6	4.1	5.2	2.9
Washington Township, Wood County	2.8	1.7	1.5	0
Waterville Township	4.3	4.4	4.3	1.7
Wayne Township, Columbiana County	0	7.6	13.0	9.8
Wayne Township, Wayne County	1.7	2.1	5.7	0
Webster Township	3.6	0.0	13.5	0
Wellington Township	6	4.0	6.8	3.8
West Township	7.4	18.2	23.0	4.8
Westfield Center Village	4	0.0	3.4	0.6
Westfield Township	6.8	2.5	4.1	0
Weston Township	8.3	12.6	12.9	1.9
Woodville Township	7.8	8.0	8.2	4
York Township, Fulton County	7.4	10.1	13.0	2.5
York Township, Medina County	2.9	2.7	3.0	0.6
York Township, York County	3.7	8.6	5.5	0.6

Sources:

a/ U.S. Census Bureau, 2013e.

b/ U.S. Census Bureau 2013d.

*Located within 10 miles of the Project, but is not directly affected by the Project.

TABLE 5.2-7

Unemployment and Poverty Rates in the NEXUS Project Area in Michigan

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
FEDERAL				
U.S.	6.2	14.2	12.4	2.8
STATE				
Michigan	7.8	15.3	16.7	3.9
COUNTY				
Lenawee	7.2	13.3	14.2	3.6
Monroe	7.1	11.7	11.9	3.1
Washtenaw	6.0	13.8	11.2	2.3
LOCAL				
Adrian City	10.6	25.8	30.8	6.7
Adrian Township	2.9	5.6	5.5	5.5
Ann Arbor Charter Township	3.3	2.3	2.2	0.7
Ann Arbor City	4.7	6.6	7.6	2
Ash Township	6.5	7.9	11.9	2.9
Augusta Charter Township	7.8	6.4	8.5	0.9
Belleville City*	7.8	13.7	12.7	2.8
Blissfield Township	7.4	8.4	11.8	5.9
Bridgewater Township	6.2	3.2	4.6	0.8
Canton Charter Township*	5.7	4.4	5.7	1.5
Clinton Township	6.4	5.7	11.4	2.5
Deerfield Township	5.1	8.4	9.5	2.9
Dundee Township	8	12.6	11.3	4.6
Exeter Township	6.3	6.4	9.8	1.6
Fairfield Township	8.2	10.0	14.9	4
Franklin Township	6.6	2.1	9.2	2.7
Garden City*	8.6	6.8	11.8	1.9
Huron Charter Township*	8	8.6	14.2	3.7
Ida Township	5	2.9	3.8	1.2
Livonia City*	5.5	3.6	5.1	1.5
Lodi Township	3.3	2.2	2.5	0.8
London Township	6.5	6.9	11.2	3.8
Macon Township	4.7	2.3	2.1	0
Madison Charter Township	5.5	3.2	10.9	2
Milan City	7.5	4.0	8.3	3.5
Milan City	5.1	5.2	10.2	1.9
Milan Township	3.7	4.7	3.4	0.5
Northfield Township	8.9	6.0	9.8	1

TABLE 5.2-7

Unemployment and Poverty Rates in the NEXUS Project Area in Michigan

Location	Unemployment Rate (annual average 2013) <u>a/</u>	Persons Living Below the Poverty Line (%) <u>b/</u>	Household Receiving Income Based on Public Assistance (%)	
			SNAP Benefits <u>a/</u>	Cash Public Assistance Income <u>a/</u>
Northville Township*	3.6	1.6	3.2	1.2
Ogden Township	5.1	13.1	8.8	1.6
Palmyra Township	4.8	0.9	7.6	1.2
Petersburg City	7.4	2.4	13.4	1.5
Pittsfield Charter Township	5.9	5.2	9.6	2.4
Plymouth Charter Township*	4.6	2.3	3.9	1.1
Plymouth City*	4.2	2.4	3.8	1.3
Raisin Township	9.4	5.4	6	1.1
Raisinville Township	7.7	6.1	8.3	4.7
Ridgeway Township	6.8	11.6	8	1.4
Riga Township	5.1	3.9	8.7	3.1
Romulus City*	10.4	15.6	23.5	4.2
Salem Township	8.1	1.8	2.8	0.9
Saline City	4.1	2.5	7.3	1
Saline Township	4.2	4.7	9.5	1.1
Summerfield Township	4.8	4.5	8.1	2.6
Sumpter Township*	5.5	11.8	13.8	2.8
Superior Charter Township	6.9	8.8	15.8	3
Tecumseh City	5.3	5.0	10.6	2.2
Tecumseh Township	6	2.8	5.6	1.3
Van Buren Charter Township*	8.6	8.4	15.3	1.5
Wayne City*	10.5	13.0	20.8	4.4
Westland City*	8.5	11.9	18	3.2
Whiteford Township	7.4	3.9	7.8	1
York Charter Township	5.5	1.4	3.3	1.9
Ypsilanti Charter Township	9.3	17.4	23	4.1
Ypsilanti City	9.8	23.8	27.3	5.1

Sources:

a/ U.S. Census Bureau, 2013e.

b/ U.S. Census Bureau 2013d.

*Located within 10 miles of the Project, but is not directly affected by the Project.

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
FEDERAL								
U.S.	132,057,804	75,075,700	40,534,516	9.5	7.3	5,122,778	904	-
STATE								
Ohio	5,124,221	3,074,792	1,482,863	10.0	7.8	55,641	718	-
COUNTY <u>e/</u>								
Columbiana	46,882	30,560	11,535	7.9	5.3	266	589	1/2
Erie	37,767	22,063	9,909	8.3	5.7	2,697	696	44/9
Fulton	17,370	13,041	3,244	7.4	7	56	668	0/0
Henry	11,918	8,738	2,268	5.0	3.1	35	673	0/0
Lorain	127,282	83,523	33,182	7.5	5.6	372	733	13/4
Lucas	202,196	110,797	67,304	11.5	8.7	764	649	36/0
Medina	69,494	52,107	13,392	6.0	4.4	479	821	14/8
Sandusky	26,305	18,110	5,796	12.0	10.4	364	613	9/4
Stark	165,036	104,991	45,012	8.3	6.8	379	666	26/2
Summit	244,910	149,549	70,826	10.7	8.6	548	741	26/0
Wayne	45,781	31,103	11,384	6.0	4.1	264	665	58/0
Wood	53,419	33,171	15,915	7.9	6.6	260	718	21/2
LOCAL								
Adams Township*	560	405	103	0.0	0	0	517	0/0
Akron City	97,235	45,069	38,257	12.3	9.7	66	673	26/0
Allen Township*	1,419	1,152	258	0.0	0	0	885	0/0
Alliance City	10,014	4,594	4,106	9.4	7.2	46	599	3/0
Amboy Township	750	599	98	10.1	10.1	0	689	0/0
Amherst City	4,764	3,883	661	5.3	4.4	0	702	2/1
Amherst Township	2,950	2,452	232	10.8	9.7	0	778	0/0
Atwater Township*	964	783	107	0.0	0	0	671	0/0
Augusta Township*	641	396	180	0.0	0	13	779	0/0
Ballville Township	2,815	2,276	332	8.2	6.5	42	660	0/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Barberton City	12,016	6,850	3,897	10.5	8.3	0	673	0/0
Bath Township	3,849	3,333	243	36.4	34.1	14	1,168	0/1
Baughman Township	1,904	1,297	444	1.1	0	13	653	0/0
Bay Township*	889	378	228	0.0	0	237	388	0/0
Bellevue City, Erie County	15	15	0	0.0	0	0	0	0/0
Bellevue City, Huron County*	1,654	967	429	25.5	22.5	0	596	2/1
Bellevue City, Sandusky County	1,974	1,240	509	7.1	4.7	23	757	0/0
Benton Township*	1,028	907	56	4.2	0	11	781	0/0
Berlin Township	1,753	1,236	305	6.4	1	92	840	2/1
Bowling Green City	12,492	4,501	6,532	9.1	8.3	37	640	5/1
Brighton Township	294	272	22	0.0	0	0	0	0/0
Brimfield Township*	3,905	2,626	1,007	7.6	4.3	0	1,022	0/0
Bronson Township*	819	712	53	0.0	0	32	844	0/0
Brown Township*	3,587	2,398	653	6.8	0	176	519	0/0
Brownhelm Township	3,397	2,396	595	5.4	0	170	779	0
Brunswick City	13,771	9,971	3,266	4.7	3.1	0	797	1/1
Brunswick Hills Township	3,844	3,336	439	1.2	0	0	984	0/0
Brush Creek Township*	173	151	16	0.0	0	6	0	0/0
Butler Township	1,393	1,009	268	3.4	0	73	695	0/0
Camden Township	625	567	50	0.0	0	0	628	0/0
Canaan Township	1,823	1,413	312	6.8	6.8	0	540	0/0
Canton City	35,267	16,080	13,616	10.8	8	79	578	22/1
Canton Township	5,680	4,393	854	6.3	4.3	13	688	0/0
Carlisle Township	3,338	2,599	577	1.9	0	0	693	0/0
Carroll Township*	1,673	771	128	3.5	0	736	670	0/0
Center Township, Columbiana County	2,611	1,587	752	8.9	7.7	23	645	0/0
Center Township, Woody County	479	419	40	0.0	0	0	0	0/0
Chatham Township	907	727	123	3.1	3.1	28	1,284	0/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Chesterfield Township	379	364	15	0.0	0	0	0	0/0
Chippewa Lake Village	480	238	114	3.5	0	67	783	0/0
Chippewa Township	4,451	3,530	678	4.9	4.9	0	737	0/0
Clarksfield Township*	531	461	70	0.0	0	0	697	0/0
Clay Township*	1,995	1,601	292	3.5	3.5	0	640	0/0
Clinton Township, Fulton County	3,772	2,564	989	5.0	4.9	18	634	0/0
Clinton Village, Summit County	543	379	61	14.4	11.6	16	719	0/1
Clyde City	2,812	1,770	783	14.0	10.7	0	603	0/3
Columbia Township	2,646	2,320	218	0.0	0	0	989	0/0
Congress Township	1,889	1,381	415	4.7	2.1	33	671	0/0
Copley Township	7,295	5,075	1,392	16.6	14.4	44	1,041	0/0
Coventry Township	5,238	3,208	1,615	11.3	6.4	18	752	0/0
Damascus Township	652	521	96	2.3	0	0	774	0/0
Danbury Township*	6,569	2,137	436	7.4	3.5	3738	742	0/0
Deerfield Township*	1,600	922	132	7.7	0	425	741	0/1
Dover Township	663	520	78	13.6	10.3	0	559	0/0
East Township*	355	245	45	0.0	0	26	0	0/0
Eaton Township	1,836	1,432	253	4.2	0	0	862	1/0
Elkrun Township	1,035	808	131	0.0	0	0	678	0/0
Elyria City	24,947	13,614	9,043	8.4	6.6	37	697	8/0
Elyria Township	1,440	1,039	363	2.0	0	8	760	0/0
Erie Township*	952	334	129	34.7	17.8	385	544	1/0
Fairlawn City	3,856	2,551	969	7.5	3.8	0	920	0/0
Florence Township	1,011	814	151	0.0	0	0	1,288	0/0
Fox Township*	458	259	59	0.0	0	86	501	0/0
Franklin Township	409	331	78	0.0	0	0	416	0/0
Freedom Township	1,082	901	117	2.1	0	0	740	0/0
Fremont City	7,235	4,062	2,480	15.6	14.9	28	573	8/1

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Fulton Township	1,263	990	153	26.8	26.8	0	824	0/0
Gloria Glens Park Village	236	131	49	2.8	0	23	960	0/0
Goshen Township*	1,295	1,078	163	0.0	0	0	733	0/0
Grafton Township	1,089	827	158	0.0	0	0	980	0/1
Grafton Village	1,315	1,047	263	0.0	0	0	777	0/0
Grand Rapids Township	764	491	144	11.9	6.5	52	588	0/0
Granger Township	1,684	1,465	125	1.4	0	43	925	0/0
Green City	11,219	7,979	2,283	13.0	11.6	49	815	0/0
Green Creek Township	1,472	1,285	121	9.0	9	0	325	0/0
Green Springs Village, Sandusky County	257	165	82	0.0	0	0	593	0/0
Green Springs Village, Seneca County*	256	132	98	0.0	0	0	631	0/0
Green Township, Wayne County	4,867	3,228	1,388	1.7	0.7	31	726	0/0
Groton Township	630	568	44	0.0	0	18	441	0/0
Guilford Township	1,179	951	165	24.0	24	11	617	0/0
Hanover Township	1,686	1,134	410	0.3	0	24	660	0/0
Harding Township	335	189	55	0.0	0	11	913	0/0
Harris Township*	1,323	1,016	218	4.4	3.1	37	621	0/0
Harrison Township	630	459	163	0.0	0	0	696	0/0
Harrisville Township	749	649	69	0.0	0	13	1,334	0/0
Hartland Township*	406	373	8	0.0	0	8	0	0/0
Henrietta Township	708	570	97	6.7	0	0	787	0/0
Hinckley Township	3,063	2,719	103	0.0	0	60	1,091	0/0
Homer Township	542	454	54	0.0	0	18	631	0/1
Huntington Township	439	340	80	5.3	0	0	1,149	0/0
Huron Township	5,271	3,560	905	1.0	0	600	689	6/1
Jackson Township, Sandusky County	634	519	68	0.0	0	11	540	0/0
Jackson Township, Stark County	18,002	11,810	4,986	10.5	9.6	5	713	0/0
Knox Township	2,005	1,507	261	3.7	0	67	755	0/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Lafayette Township	2,330	1,926	281	2.0	0	37	745	0/0
LaGrange Township	2,335	1,815	409	0.4	0	0	867	0/0
Lake Township, Stark County	11,653	8,852	1,917	8.1	7	0	770	0/0
Lake Township, Wood County	4,613	3,465	1,033	3.9	3.9	0	729	0/0
Lakemore Village	1,404	930	333	14.8	12.8	11	811	0/0
Lawrence Township	5,486	4,079	1,124	5.3	4.1	28	711	0/0
Lexington Township	2,108	1,613	347	8.2	8.2	0	692	0/0
Liberty Township, Henry County	1,114	730	295	9.1	8.7	0	615	0/0
Liberty Township, Seneca County*	937	745	144	2.6	0	0	603	0/0
Liberty Township, Wood County	697	481	211	0.0	0	0	881	0/0
Litchfield Township	1,280	1,131	112	0.0	0	0	825	1/0
Liverpool Township	2,053	1,782	136	18.9	16.6	10	621	0/0
Lodi Village	1,448	785	449	4.0	0	37	631	0/0
Lorain City	29,502	14,546	11,118	10.6	7.4	49	631	0/0
Louisville City	4,057	2,496	1,244	5.5	3.3	32	662	0/1
Lyme Township*	372	312	27	0.0	0	0	1,042	0/0
Madison Township, Columbiana County	1,374	1,167	106	0.0	0	0	388	0/0
Madison Township, Sandusky County	1,541	1,021	377	3.9	0	46	585	0/0
Margaretta Township	2,693	1,925	533	0.8	0	167	740	0/0
Marlboro Township	1,666	1,457	61	0.0	0	0	721	0/0
Massillon City	14,918	8,718	4,606	9.3	7.6	15	615	1/0
Maumee City	6,340	4,104	1,880	8.3	6.2	100	774	18/
Medina City Township	10,837	6,504	3,585	7.4	5.6	29	788	0/0
Medina Township	3,588	3,103	310	0.9	0	15	1,030	6/1
Middleton Township	1,680	1,431	116	23.5	21.1	0	880	0/0
Milan Township	1,516	1,053	293	9.6	0	22	911	0/1
Milton Township, Wayne County	1,117	809	244	0.0	0	0	621	0/0
Milton Township, Wood County	428	356	41	10.9	10.9	6	775	0/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Mogadore Village, Portage County*	319	262	57	0.0	0	0	971	0/2
Mogadore Village, Summit County	1,085	845	178	0.0	0	0	736	0/0
Monclova Township	4,487	4,180	195	0.0	0	61	842	0/0
Montgomery Township	1,766	1,181	401	5.4	3.1	4	722	0/0
Montville Township	4,067	3,313	595	6.6	4	9	1,022	0/0
New Franklin City	5,944	4,799	638	14.5	11.3	30	847	0/0
New Russia Township	899	746	93	0.0	0	0	1,291	0/0
Nimishillen Township	4,048	3,432	358	2.4	1.6	9	735	0/0
North Olmsted City*	14,731	10,728	2,934	9.1	7.1	13	791	6/0
North Ridgeville City	12,610	10,426	1,523	2.1	1.7	0	737	2/0
Northwood City	2,356	1,897	291	1.2	0	0	735	2/0
Norton City, Summit County	5,049	4,075	619	4.7	4	0	862	0/0
Norton City, Wayne County	0	0	0	0.0	0	0	0	0/0
Norwalk City*	7,453	4,393	2,300	15.3	14.7	8	591	3/0
Norwalk Township*	1,585	1,060	275	22.6	15.6	0	691	0/0
Oberlin City	2,817	1,559	1,044	3.2	3.2	21	731	0/1
Olmsted Falls City*	3,684	2,823	615	14.6	13.9	6	735	0/0
Olmsted Township*	5,922	3,990	1,542	2.5	2	0	894	0/0
Oregon City	8,903	5,973	2,392	7.1	5.5	21	623	4/0
Osnaburg Township	2,251	1,696	434	8.1	8.1	0	652	0/0
Oxford Township	404	347	42	26.3	26.3	0	0	5/0
Paris Township	2,435	1,755	525	4.5	4.5	21	694	0/0
Penfield Township	736	592	67	0.0	0	0	0	0/0
Perkins Township	5,189	3,702	1,129	3.7	0	15	773	0/0
Perry Township, Columbiana County	7,625	4,731	2,273	6.6	4.6	14	575	0/0
Perry Township, Stark County	12,103	8,911	2,504	5.1	4.8	90	735	0/0
Perrysburg City	9,011	6,020	2,468	8.1	6.7	45	833	0/1
Perrysburg Township	5,753	3,542	1,696	7.4	5.3	56	832	10/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Peru Township*	520	440	80	0.0	0	0	866	0/0
Pike Township	895	739	52	0.0	0	11	0	0/0
Pittsfield Township	592	521	45	0.0	0	0	540	0/0
Plain Township, Stark County	22,739	15,453	6,168	6.2	4.9	24	709	0/0
Plain Township, Woody County	662	519	105	0.0	0	0	578	0/0
Pleasant Township*	663	506	85	3.1	0	0	706	0/0
Port Clinton City*	3,328	1,900	758	9.2	6.2	403	675	13/7
Portage Township, Ottawa County*	1,077	507	33	47.5	44.1	426	1,216	0/0
Portage Township, Wood County	633	474	92	3.3	0	0	859	0/0
Providence Township	1,287	1,045	99	14.0	10	5	1,022	0/0
Randolph Township*	2,122	1,819	247	0.0	0	12	671	0/0
Rice Township	517	517	0	0.0	0	0	0	0/0
Richfield Township, Henry County	362	232	23	0.0	0	31	1,161	0/0
Richfield Township, Lucas County	759	646	88	2.9	0	0	1,232	0/0
Ridgefield Township*	1,004	639	227	15.5	14	45	588	0/0
Riley Township	655	536	18	0.0	0	59	808	0/0
Rittman City, Medina County	38	38	0	0.0	0	0	0	0/0
Rittman City, Wayne County	2,803	1,870	624	8.1	3.7	0	-	0/0
Rochester Township	406	339	31	0.0	0	30	930	0/0
Rootstown Township*	2,995	2,306	587	5.3	5.3	12	869	0/0
Rossford City	2,817	1,809	866	6.5	3.7	30	667	4/0
Royalton Township	587	440	92	22.7	18.6	0	737	0/
Salem Township, Columbiana County	2,223	1,600	490	3.7	1	0	738	1/2
Salem Township, Ottawa County*	2,537	1,834	467	7.4	2.9	8	764	0/0
Sandusky City, Erie County	13,447	5,786	5,369	13.6	9.5	461	616	30/5
Sandusky Township, Sandusky County	1,639	1,235	232	11.8	11.8	52	701	0/0
Scott Township	601	409	134	17.8	17.8	0	710	0/0
Sebring Village*	2,169	1,001	949	13.3	11.4	0	747	0/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Seville Village Township	970	737	170	12.3	11.5	0	793	3/2
Sharon Township	1,830	1,552	241	0.0	0	9	910	0/0
Sherman Township*	149	133	10	0.0	0	0	0	0/0
Smith Township*	2,062	1,488	398	2.0	0	0	562	0/0
Spencer Township, Lucas County	796	475	166	6.7	0	17	755	0/3
Spencer Township, Medina County	696	578	63	0.0	0	22	0	0/3
Spencer Village, Medina County	274	167	85	5.2	5.2	0	713	0/0
Springfield Township, Lucas County	10,900	6,438	3,773	6.7	4.5	17	737	0/0
Springfield Township, Summit County	6,475	4,908	948	7.0	6	0	740	0/0
Strongsville City*	18,135	14,002	3,351	3.7	3.1	33	781	3/0
Suffield Township*	2,689	2,058	407	11.7	11.7	36	804	0/0
Sugar Creek Township	2,464	1,870	443	0.6	0	7	688	0/0
Swan Creek Township	3,524	2,945	460	0.0	0	0	676	0/0
Swanton Township	1,278	1,106	121	0.0	0	0	577	1/0
Sylvania Township	19,827	14,472	4,203	6.6	4.9	176	792	1/0
Tallmadge City	7,262	5,342	1,385	8.4	6.1	26	658	0/0
Thompson Township*	514	415	16	5.9	0	27	825	0/0
Toledo City	138,382	65,213	52,955	13.2	9.7	227	623	12/0
Townsend Township, Huron County*	608	465	78	43.9	43.9	0	1,085	0/0
Townsend Township, Sandusky County	811	456	175	15.2	0	70	596	0/0
Troy Township	1,780	1,233	320	19.0	19	7	755	0/0
Tuscarawas Township	2,428	1,982	316	3.0	0	0	600	0/0
Vermilion City	2,472	1,443	572	2.5	1.6	219	846	0/1
Vermilion Township	2,533	1,537	538	0.0	0	390	832	0/0
Wadsworth City	9,174	5,877	2,502	10.0	6	44	816	3/0
Wadsworth Township	1,506	1,347	136	1.7	0	0	636	0/0
Wakeman Township*	1,133	772	198	22.7	15.7	0	750	0/0
Washington Township, Carroll County*	466	371	64	0.0	0	0	605	0/0

TABLE 5.2-8

Existing Housing Accommodations in the Project Area in Ohio

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Washington Township, Columbiana County	994	649	218	8.8	7.2	21	1,019	0/0
Washington Township, Henry County	859	649	124	0.0	0	0	631	0/0
Washington Township, Sandusky County	969	784	77	1.4	0	11	1,018	0/0
Washington Township, Stark County	1,857	1,575	160	0.0	0	0	690	0/0
Washington Township, Wood County	676	615	39	2.5	2.5	9	669	0/0
Waterville Township	4,249	3,458	667	1.8	0	0	629	0/0
Wayne Township, Columbiana County	283	169	15	59.5	59.5	27	423	0/0
Wayne Township, Wayne County	1,555	1,271	231	0.0	0	25	668	0/0
Webster Township	454	356	65	0.0	0	0	927	0/0
Wellington Township	2,455	1,467	798	8.3	8.3	17	708	0/1
West Township	1,159	855	215	17.3	17.3	0	594	0/0
Westfield Center Village	548	424	82	14.3	11.8	4	1,013	0/0
Westfield Township	912	869	30	0.0	0	0	1,069	0/0
Weston Township	951	637	186	8.6	7.5	0	608	0/0
Woodville Township	1,368	1,037	251	1.1	0	0	603	0/0
York Township, Fulton County	1,609	1,165	316	4.0	4	0	595	0/0
York Township, Medina County	1,412	1,288	77	0.0	0	0	1,588	0/0
York Township, York County	1,005	798	157	15.1	15.1	22	479	0/0

Sources:

a/ U.S. Census Bureau 2013f.

b/ U.S. Census Bureau 2013g.

c/ Hotels.com 2015.

d/ RV Park Reviews 2015.

e/ Total number of hotels, motels and campgrounds by county includes only those facilities within 10 miles of the Project pipeline centerline and major aboveground facilities.

- Data not gathered.

- *Located within 10 miles of the Project, but is not directly affected by the Project.

TABLE 5.2-9

Existing Housing Accommodations in the Project Area in Michigan

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
FEDERAL								
U.S.	132,057,804	75,075,700	40,534,516	9.5	7.3	5,122,778	904	-
STATE								
Michigan	4,529,311	2,757,062	1,066,218	10.2	7.8	278,978	768	-
COUNTY <u>e/</u>								
Lenawee	43,390	29,336	8,388	6.6	5.0	2,506	710	7/2
Monroe	63,089	46,471	12,231	12.3	9.8	370	777	5/2
Washtenaw	147,978	82,851	53,219	6.8	4.9	1,317	910	33/0
LOCAL								
Adrian City	8,952	4,372	3,532	11.0	5.6	97	675	0/1
Adrian Township	2,647	2,158	242	14.6	14.6	45	925	4/0
Ann Arbor Charter Township	1,902	1,205	556	9.0	9.0	20	1,182	0/0
Ann Arbor City	49,838	21,031	24,965	5.8	3.7	366	978	31/0
Ash Township	3,121	2,610	278	17.3	13.7	0	719	0/0
Augusta Charter Township	2,429	2,064	160	2.3	0.0	0	1,318	0/0
Belleville City*	1,910	996	704	12.3	12.3	85	672	5/0
Blissfield Township	1,824	1,276	399	2.7	2.7	31	819	0/0
Bridgewater Township	656	560	44	0.0	0.0	17	1,266	0/0
Canton Charter Township*	32,875	23,935	7,097	8.3	6.7	102	962	9/0
Clinton Township	1,410	1,158	216	0.0	0.0	16	616	2/0
Deerfield Township	635	483	73	18.3	15.1	0	738	0/0
Dundee Township	2,905	1,853	884	2.9	2.9	49	603	4/1
Exeter Township	1,472	1,277	138	6.7	5.2	0	833	0/0
Fairfield Township	697	518	87	0.0	0.0	0	788	0/0
Franklin Township	1,379	1,035	96	2.5	0.0	185	905	0/0
Garden City*	11,124	8,423	2,003	8.5	6.8	24	981	0/0

TABLE 5.2-9

Existing Housing Accommodations in the Project Area in Michigan

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Huron Charter Township*	5,839	5,044	543	2.3	0.0	25	865	0/0
Ida Township	1,921	1,737	100	24.3	22.5	0	940	0/0
Livonia City*	39,061	31,717	5,513	4.7	3.0	99	897	14/0
Lodi Township	2,311	2,160	87	1.1	0.0	0	1,688	0/0
London Township	1,231	1,033	104	0.7	0.0	0	850	0/0
Macon Township	575	471	61	0.0	0.0	21	925	0/0
Madison Charter Township	2,702	2,098	401	1.4	0.0	36	741	0/0
Milan City	923	538	283	19.6	15.8	0	889	0/0
Milan City	1,629	1,167	367	6.1	6.1	0	801	0/1
Milan Township	636	534	49	21.2	16.9	0	746	0/0
Northfield Township	3,625	2,757	539	24.2	21.3	25	844	0/0
Northville Township*	11,281	8,144	2,714	8.3	8.1	30	1,034	0/0
Ogden Township	403	333	42	0.0	0.0	0	671	0/0
Palmyra Township	861	654	113	8.1	8.1	18	838	0/0
Petersburg City	530	382	141	4.7	4.7	0	685	0/0
Pittsfield Charter Township	14,763	7,800	5,953	6.1	4.1	18	868	0/0
Plymouth Charter Township*	11,112	8,722	1,800	10.1	9.7	55	778	0/0
Plymouth City*	4,504	2,491	1,679	5.4	2.9	51	795	4/0
Raisin Township	2,661	2,417	163	0.0	0.0	0	859	0/0
Raisinville Township	2,097	1,866	166	3.4	0.0	0	1,082	0/0
Ridgeway Township	660	496	130	4.4	4.4	9	675	0/0
Riga Township	569	431	84	10.8	9.7	3	875	0/0
Romulus City*	9,889	6,007	2,988	10.2	8.2	37	726	26/0
Salem Township	2,200	2,006	84	0.8	0.0	0	956	0/0
Saline City	4,166	2,874	1,074	6.8	6.8	0	800	0/0
Saline Township	751	567	94	10.4	7.2	3	1,160	0/0

TABLE 5.2-9

Existing Housing Accommodations in the Project Area in Michigan

Location	Total Housing Units <u>a/</u>	Owner Occupied <u>a/</u>	Renter Occupied <u>a/</u>	Total Vacancy Rate <u>a/</u>	Rental Vacancy Rate <u>a/</u>	Units for Seasonal Recreation <u>b/</u>	Median Rent (\$) <u>a/</u>	Number of Hotels & Motels/ Campgrounds <u>c/, d/</u>
Summerfield Township	1,239	1,081	98	2.1	0.0	0	1,021	0/0
Sumpter Township*	3,956	3,258	338	1.5	0.0	36	922	0/0
Superior Charter Township	5,479	4,029	913	13.5	10.2	0	923	0/0
Tecumseh City	3,946	2,686	996	2.3	0.0	55	637	1/1
Tecumseh Township	765	729	33	0.0	0.0	0	1,229	0/0
Van Buren Charter Township*	12,631	7,632	3,838	12.3	9.3	10	823	0/0
Wayne City*	7,799	4,214	2,607	16.6	11.8	0	629	0/0
Westland City*	37,826	20,695	13,537	12.0	9.7	66	770	0/0
Whiteford Township	1,813	1,448	280	0.7	0.0	0	916	0/0
York Charter Township	2,390	2,125	183	0.0	0.0	0	1,167	0/0
Ypsilanti Charter Township	23,917	12,411	9,481	7.4	4.6	4	801	0/0
Ypsilanti City	8,989	2,625	5,059	12.8	9.8	28	707	2/0

Sources:

a/ U.S. Census Bureau 2013f.

b/ U.S. Census Bureau 2013g.

c/ Hotels.com 2015.

d/ RV Park Reviews 2015.

e/ Total number of hotels, motels and campgrounds by county includes only those facilities within 10 miles of the Project pipeline centerline and major aboveground facilities.

- Data not gathered.

- *Located within 10 miles of the Project, but is not directly affected by the Project.

TABLE 5.2-10

Public Service Infrastructure in the NEXUS Project Area in Ohio

Location (County)	Number of Fire Stations <u>a/</u>	Distance to Nearest Fire Station (miles)	Number of Active Firefighters <u>a/</u>	Number of Public Schools <u>b/</u>	Numbers of Student/ Teachers <u>b/</u>	Number of Hospitals & Medical Facilities/ Hospital Beds <u>c/</u>	Distance to Nearest Hospital or Medical Facility (miles)	Number of Police & Sheriffs Offices/ Number of Enforcement Personnel <u>d/</u>	Distance to Nearest Police or Sheriffs Office (miles)
Columbiana	6	0.4	160	39	15,968/985	0/0	-	2/36	8.2
Erie	16	0.3	329	26	12,054/728	2/221	4.9	4/92	0.4
Fulton	11	0.8	132	21	7,651/462	0/0	-	1/10	2.2
Henry	1	5.5	19	14	4,104/334	0/0	-	0/0	8.1
Lorain	21	0.3	431	94	44,552/2,524	3/304	1.3	8/229	1.0
Lucas	34	0.6	933	136	75,558/3,918	1/202	5.6	5/116	1.5
Medina	23	0.6	535	43	27,404/1,463	3/232	1.9	5/72	1.7
Sandusky	11	1.2	289	23	9,706/571	3/308	1.5	5/81	1.5
Stark	49	0.1	934	108	57,831/3,200	5/1,196	2.8	8/309	2.8
Summit	28	0.5	726	144	74,878/4,439	5/1,608	1.3	7/637	1.5
Wayne	8	0.3	181	43	15,554/997	0/0	-	2/37	1.7
Wood	18	0.9	495	40	18,053/1,118	1/102	3.4	9/124	0.9

Sources:

a/ FireDepartment.net 2015, U.S. Fire Administration 2015, and USGS 2015.

b/ National Center for Education Statistics 2015.

c/ American Hospital Directory 2015 and USGS 2015.

d/ PoliceOne 2015 and USGS 2015.

- No facilities with 10 miles of the Project pipeline centerline and aboveground facilities.

TABLE 5.2-11

Public Service Infrastructure in the NEXUS Project Area in Michigan

Location (County)	Number of Fire Stations <u>a/</u>	Distance to Nearest Fire Station (miles)	Number of Active Firefighters <u>a/</u>	Number of Public Schools <u>b/</u>	Numbers of Student/ Teachers <u>b/</u>	Number of Hospitals & Medical Facilities/ Hospital Beds <u>c/</u>	Distance to Nearest Hospital or Medical Facility (miles)	Number of Police & Sheriffs Offices/ Number of Enforcement Personnel <u>d/</u>	Distance to Nearest Police or Sheriffs Office (miles)
Lenawee	10	1.8	211	45	15,801/913	2/123	7.0	3/52	2.2
Monroe	4	1.3	78	49	23,256/1,189	0/0	-	1/9	1.2
Washtenaw	19	0.8	294	88	43,359/2,313	7/1,534	1.9	4/268	2.8

Sources:

a/ FireDepartment.net 2015, U.S. Fire Administration 2015, and USGS 2015.

b/ National Center for Education Statistics 2015.

c/ American Hospital Directory 2015 and USGS 2015.

d/ PoliceOne 2015 and USGS 2015.

- No facilities with 10 miles of the Project pipeline centerline and aboveground facilities.

TABLE 5.2-12

Racial/Ethnic and Poverty Characteristics for Census Tracts by County Within One Mile of the NEXUS Pipeline and Major Aboveground Facilities in Ohio

Location	Total Population <u>a/</u>	White (%) <u>a/</u> , <u>b/</u>	African American (%) <u>a/</u>	Native American & Alaskan Native (%) <u>a/</u>	Asian (%) <u>a/</u>	Native Hawaiian & Pacific Islander (%) <u>a/</u>	Other Race (%) <u>a/</u>	Two or More Races (%) <u>a/</u>	Hispanic or Latino Origin – Any Race (%) <u>a/</u>	Total Minority Population (%) <u>a/</u>	Percent Below Poverty Level (%) <u>c/</u>
Carroll County*	28,689	97.1	0.6	0.0	0.2	0.0	0.2	1.3	0.9	2.9	13.6
CT 7201	3,544	98.3	0.0	0.0	0.0	0.0	1.1	0.6	1.1	1.7	6.4
Columbiana County	107,078	94.7	2.3	0.0	0.4	0.0	0.5	1.4	1.3	5.3	15.8
CT 9509	3,921	97.2	1.1	0.0	0.6	0.0	0.0	0.9	0.2	2.8	6.1
CT 9510 <u>d/</u>	5,633	95.7	1.6	0.0	1.1	0.0	0.3	0.3	1.1	4.3	16.0
CT 9512 <u>d/</u>	4,926	96.3	0.0	1.2	0.0	0.0	0.1	1.9	0.5	3.7	12.2
Erie County	76,634	84.8	8.1	0.4	0.5	0.1	0.6	3.0	3.5	15.2	12.8
CT 403	6,090	95.1	0.4	0.4	0.5	0.1	1.0	2.3	1.4	4.9	12.6
CT 417	6,470	93.0	0.0	0.1	0.3	0.0	0.4	1.7	5.4	7.0	8.1
CT 418	6,360	95.3	0.6	0.2	0.5	0.0	0.0	2.2	1.3	4.7	5.8
Fulton County	42,601	90.0	0.5	0.1	0.4	0.0	2.2	1.5	8.0	10.0	11.3
CT 401	3,095	94.0	0.5	0.0	0.1	0.0	2.7	2.0	3.2	6.0	9.5
CT 402	4,596	95.5	0.8	0.2	0.0	0.0	0.3	0.2	3.4	4.5	6.7
CT 403	4,891	96.6	0.0	0.0	0.6	0.0	0.1	1.6	1.2	3.4	10.1
Henry County	28,164	91.3	0.3	0.1	0.5	0.0	2.0	1.5	6.8	8.7	11.6
CT 1	4,892	93.6	0.9	0.2	0.1	0.3	0.3	0.7	4.3	6.4	10.9
Huron County*	59,390	91.3	0.9	0.3	0.3	0.0	0.0	1.9	2.1	8.7	12.2
CT 9154	4,818	97.7	0.0	0.7	0.0	0.0	0.1	0.9	0.8	2.3	10.4
Lorain County	301,720	80.0	8.3	0.3	1.0	0.0	1.7	3.3	8.6	20	13.5
CT 571	3,790	91.0	0.7	0.0	0.1	0.0	0.1	0.8	7.3	9.0	7.0
CT 601	3,720	63.9	24.4	0.0	0.6	0.0	0.5	9.2	5.3	36.1	12.4
CT 602	5,489	75.5	10.8	0.1	4.2	0.1	0.2	7.7	2.4	24.5	18.6
CT 771	3,450	95.8	0.9	0.0	0.3	0.0	0.0	0.0	3.0	4.2	7.3
CT 921	2,438	94.4	0.3	0.0	0.7	0.0	0.0	0.8	4.3	5.6	5.5

TABLE 5.2-12

Racial/Ethnic and Poverty Characteristics for Census Tracts by County Within One Mile of the NEXUS Pipeline and Major Aboveground Facilities in Ohio

Location	Total Population <u>a/</u>	White (%) <u>a/</u> , <u>b/</u>	African American (%) <u>a/</u>	Native American & Alaskan Native (%) <u>a/</u>	Asian (%) <u>a/</u>	Native Hawaiian & Pacific Islander (%) <u>a/</u>	Other Race (%) <u>a/</u>	Two or More Races (%) <u>a/</u>	Hispanic or Latino Origin – Any Race (%) <u>a/</u>	Total Minority Population (%) <u>a/</u>	Percent Below Poverty Level (%) <u>c/</u>
CT 931	2,958	97.1	0.1	1.2	0.0	0.0	0.4	0.5	1.1	2.9	8.7
CT 941	8,159	96.6	0.3	0.0	0.2	0.0	0.0	1.2	1.7	3.4	4.2
CT 951	8,822	80.6	15.0	0.4	0.6	0.0	0.8	1.7	1.9	19.4	2.2
Lucas County	439,511	70.7	19.0	0.3	1.6	0.0	1.8	3.4	6.3	29.3	20.0
CT 89.01	5,133	94.4	1.1	1.0	1.0	0.0	0.0	0.9	3.0	5.6	6.3
CT 89.02 <u>d/</u>	6,242	92.3	0.6	0.0	4.2	0.0	0.2	0.5	2.6	7.7	4.9
CT 93	1,772	99.3	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.7	4.9
CT 96	3,348	94.1	0.6	0.4	2.6	0.0	0.1	0.3	2.9	5.9	7.3
Medina County	172,252	94.5	1.4	0.2	1.0	0.0	0.5	1.2	1.7	5.5	7.0
CT 4020	5,176	94.5	0.0	0.3	0.0	0.0	0.3	0.3	4.8	5.5	4.9
CT 4030.01	3,283	96.9	0.0	0.8	0.0	0.0	1.9	0.4	0.0	3.1	8.5
CT 4030.02	3,135	95.9	0.7	0.0	0.2	0.0	0.0	1.4	1.9	4.1	3.0
CT 4070	6,380	94.6	0.3	0.0	2.3	0.0	0.7	1.6	1.1	5.4	2.5
CT 4081	7,209	86.7	9.2	0.9	0.0	0.0	0.0	1.4	2.1	13.3	12.2
CT 4082.01	4,220	89.5	4.3	0.0	0.3	0.0	4.2	0.2	2.4	10.5	18.0
CT 4090.02	4,591	93.7	1.4	0.0	0.9	0.0	1.4	2.1	1.7	6.3	7.4
CT 4120	4,243	98.9	0.1	0.0	0.1	0.0	0.0	0.4	0.5	1.1	2.8
CT 4130 <u>d/</u>	5,496	97.5	0.2	0.0	0.2	0.0	1.1	0.6	0.4	2.5	5.0
CT 4172	7,306	95.1	0.0	1.1	0.3	0.0	0.0	2.0	1.9	4.9	4.3
CT 4173	4,699	94.5	0.4	0.0	0.9	0.0	1.1	3.1	0.9	5.5	13.0
Sandusky County	60,619	86.0	3.0	0.1	0.3	0.1	2.1	2.7	9.1	14.0	12.9
CT 9608	3,534	96.7	0.2	0.0	0.5	0.0	0.7	0.7	1.9	3.3	7.4
CT 9609	3,434	94.6	0.4	0.0	0.0	0.0	0.6	1.3	4.1	5.4	10.4
CT 9610	4,081	90.0	0.2	0.9	1.6	0.8	0.2	2.0	5.9	10.0	9.5

TABLE 5.2-12

Racial/Ethnic and Poverty Characteristics for Census Tracts by County Within One Mile of the NEXUS Pipeline and Major Aboveground Facilities in Ohio

Location	Total Population <u>a/</u>	White (%) <u>a/</u> , <u>b/</u>	African American (%) <u>a/</u>	Native American & Alaskan Native (%) <u>a/</u>	Asian (%) <u>a/</u>	Native Hawaiian & Pacific Islander (%) <u>a/</u>	Other Race (%) <u>a/</u>	Two or More Races (%) <u>a/</u>	Hispanic or Latino Origin – Any Race (%) <u>a/</u>	Total Minority Population (%) <u>a/</u>	Percent Below Poverty Level (%) <u>c/</u>
CT 9621 <u>d/</u>	4,897	97.2	0.3	0.0	0.1	0.0	0.2	1.5	0.9	2.8	8.9
Stark County	375,348	87.5	7.3	0.2	0.8	0.0	0.3	2.7	1.7	12.5	14.1
CT 7108	5,377	93.9	3.8	0.0	0.3	0.0	0.0	0.7	1.4	6.1	18.0
CT 7109	4,356	94.9	2.4	0.0	0.0	0.0	0.0	2.7	0.1	5.1	3.6
CT 7110	7,229	96.2	0.7	0.0	0.0	0.0	0.0	3.0	0.1	3.8	5.7
CT 7111.12	5,414	98.3	0.0	0.0	1.1	0.0	0.5	0.0	0.2	1.7	1.7
CT 7111.21	6,552	92.1	1.1	0.0	1.3	0.0	0.0	2.8	2.6	7.9	2.3
CT 7111.22	5,802	92.1	0.6	0.0	5.4	0.0	0.4	0.0	1.9	7.9	10.8
CT 7112.11	6,695	97.5	0.5	0.0	0.0	0.0	0.3	1.7	0.2	2.5	8.7
CT 7113.11	8,046	91.0	1.1	0.0	3.4	0.0	0.1	2.9	2.4	9.0	3.7
CT 7121.02	7,406	87.8	2.4	0.0	0.2	0.0	1.1	6.5	2.1	12.2	11.8
CT 7127	5,502	99.0	0.0	0.0	0.2	0.0	0.0	0.1	0.6	1.0	6.3
CT 7128	4,780	96.7	0.5	0.0	0.4	0.0	0.0	1.5	0.9	3.3	8.8
Summit County	541,592	79.3	14.3	0.2	2.3	0.0	0.3	2.4	1.7	20.7	14.8
CT 5314.01	7,176	97.3	0.3	0.0	0.1	0.0	0.0	1.8	0.5	2.7	5.3
CT 5315	8,186	92.1	0.9	0.0	3.8	0.0	0.0	2.0	1.3	7.9	5.5
CT 5316.02	3,032	98.1	0.0	0.5	1.4	0.0	0.0	0.0	0.0	1.9	1.1
CT 5317.01	3,552	96.1	1.4	0.0	0.4	0.0	0.0	0.5	1.5	3.9	6.5
CT 5317.02	4,421	99.1	0.0	0.2	0.0	0.0	0.0	0.0	0.7	0.9	8.8
CT 5320.01	3,697	95.1	2.7	0.0	0.0	0.0	0.3	0.3	1.9	4.9	8.6
CT 5329.99	5,977	89.3	4.9	0.0	2.1	0.0	0.0	3.3	0.5	10.7	9.4
Wayne County	114,750	94.6	1.6	0.2	0.8	0.0	0.3	1.3	1.6	5.4	11.4
CT 29.01	3,588	97.2	0.3	0.0	0.4	0.0	0.0	1.2	1.5	2.8	8.2
CT 29.02	5,099	95.7	1.9	0.0	0.0	0.0	0.0	0.8	2.5	4.3	4.6

TABLE 5.2-12

Racial/Ethnic and Poverty Characteristics for Census Tracts by County Within One Mile of the NEXUS Pipeline and Major Aboveground Facilities in Ohio

Location	Total Population <u>a/</u>	White (%) <u>a/</u> , <u>b/</u>	African American (%) <u>a/</u>	Native American & Alaskan Native (%) <u>a/</u>	Asian (%) <u>a/</u>	Native Hawaiian & Pacific Islander (%) <u>a/</u>	Other Race (%) <u>a/</u>	Two or More Races (%) <u>a/</u>	Hispanic or Latino Origin – Any Race (%) <u>a/</u>	Total Minority Population (%) <u>a/</u>	Percent Below Poverty Level (%) <u>c/</u>
CT 34	3,228	94.1	0.8	0.0	1.1	0.0	0.0	3.9	0.0	5.9	17.7
Wood County	127,325	89.6	2.5	0.1	1.7	0.0	1.4	2.1	4.8	10.4	14.7
CT 207	6,611	92.1	1.0	0.0	2.7	0.0	2.4	0.0	2.6	7.9	18.0
CT 210	3,913	96.2	0.1	0.0	0.3	0.0	1.9	0.7	3.4	3.8	6.0
CT 211	3,930	89.6	0.3	0.2	1.0	0.0	1.1	4.0	6.3	10.4	8.7
CT 212	5,649	91.8	1.4	0.0	1.6	0.0	0.5	2.3	2.9	8.2	4.5

Sources:

a/ U.S. Census Bureau 2013c.

b/ White Alone, Not Hispanic or Latino

c/ U.S. Census Bureau 2013e.

d/ Census tract contains an aboveground facility.

Bold values indicate percentage exceeds thresholds defined in text, and is an environmental justice population.

*Includes census tracts within one mile of the proposed pipeline facilities and major aboveground facilities, but Carroll and Huron Counties do not contain any Project facilities.

TABLE 5.2-13

Racial/Ethnic and Poverty Characteristics for Census Tracts by County Within One Mile of the NEXUS Pipeline and Major Aboveground Facilities in Michigan

Location	Total Population <u>a/</u>	White (%) <u>a/</u> , <u>b/</u>	African American (%) <u>a/</u>	Native American & Alaskan Native (%) <u>a/</u>	Asian (%) <u>a/</u>	Native Hawaiian & Pacific Islander (%) <u>a/</u>	Other Race (%) <u>a/</u>	Two or More Races (%) <u>a/</u>	Hispanic or Latino Origin – Any Race (%) <u>a/</u>	Total Minority Population (%) <u>a/</u>	Percent Below Poverty Level (%) <u>c/</u>
Lenawee County	99,505	87.4	2.5	0.7	0.4	0.0	1.4	2.2	7.6	12.6	13.3
CT 601	3,581	93.4	1.6	0.3	0.8	0.0	0.1	2.1	2.3	6.6	8.4
CT 612	1,776	91.2	0.0	0.0	0.1	0.0	0.6	3.2	6.4	8.8	9.1
CT 620	2,872	89.6	0.5	0.6	0.0	0.0	1.1	4.2	6.9	10.4	10.5
CT 621	4,385	93.7	0.0	0.0	0.0	0.0	1.3	2.3	5.0	6.3	9.0
CT 622	2,603	93.4	0.0	0.0	0.8	0.0	4.6	0.0	2.7	6.6	15.0
Monroe County	151,408	92.3	2.3	0.4	0.6	0.0	0.6	1.5	3.2	7.7	11.7
CT 8307	3,482	94.7	1.1	0.0	0.0	0.0	0.0	0.9	3.9	5.3	7.3
CT 8308	6,718	96.9	0.0	0.1	0.6	0.0	0.2	1.8	0.8	3.1	16.5
Washtenaw County	348,560	71.8	12.2	0.3	8.0	0.0	0.9	4.1	4.2	28.2	13.8
CT 4074	5,376	37.8	40.2	0.8	2.6	0.0	3.2	11.1	7.4	62.2	21.7
CT 4119 <u>d/</u>	3,938	59.0	30.8	1.4	0.9	0.0	0.3	5.0	3.4	41.0	25.8
CT 4120	3,991	69.0	17.6	0.5	0.2	0.0	0.3	9.2	4.3	31.0	19.2
CT 4121	3,456	53.7	31.6	1.9	0.5	0.0	0.0	6.3	6.9	46.3	22.0
CT 4123	2,928	22.4	68.3	0.6	0.5	0.0	0.0	7.4	0.8	77.6	17.6
CT 4126	2,710	55.8	31.7	0.6	2.3	0.0	0.5	5.2	4.5	44.2	17.9
CT 4127	4,972	56.5	29.1	2.0	4.4	0.0	0.0	5.8	4.6	43.5	21.0
CT 4130	3,685	46.6	47.7	0.0	1.6	0.0	0.4	0.9	3.1	53.4	15.1
CT 4132	4,151	72.5	17.5	0.0	0.0	0.0	0.6	7.0	6.1	27.5	14.0
CT 4134.02	5,244	66.3	23.0	0.2	3.8	0.0	1.5	4.7	2.8	33.7	2.4
CT 4200	3,469	85.2	5.1	0.4	0.0	0.0	0.3	7.2	2.0	14.8	7.3
CT 4202	3,304	88.4	5.7	0.0	0.2	0.0	1.6	3.8	0.2	11.6	5.9
CT 4211	3,797	89.2	0.0	0.0	1.9	0.0	0.0	4.6	4.3	10.8	5.1
CT 4219	1,350	35.2	43.0	2.0	0.0	0.0	7.3	5.9	17.2	64.8	0.0
CT 4222	7,250	91.8	0.7	0.0	1.1	0.0	0.9	2.6	3.5	8.2	2.3

TABLE 5.2-13

Racial/Ethnic and Poverty Characteristics for Census Tracts by County Within One Mile of the NEXUS Pipeline and Major Aboveground Facilities in Michigan

Location	Total Population <u>a/</u>	White (%) <u>a/</u> , <u>b/</u>	African American (%) <u>a/</u>	Native American & Alaskan Native (%) <u>a/</u>	Asian (%) <u>a/</u>	Native Hawaiian & Pacific Islander (%) <u>a/</u>	Other Race (%) <u>a/</u>	Two or More Races (%) <u>a/</u>	Hispanic or Latino Origin – Any Race (%) <u>a/</u>	Total Minority Population (%) <u>a/</u>	Percent Below Poverty Level (%) <u>c/</u>
CT 9840	58	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8
Wayne County*	1,804,507	49.7	40.0	0.4	2.7	0.0	1.7	2.3	5.3	50.3	21.9
CT 5645.04	6,099	67.1	12.1	0.0	15.2	0.0	0.3	2.4	3.3	32.9	6.0
CT 5881	2,457	86.7	6.5	0.0	0.0	0.0	1.0	5.5	2.7	13.3	19.0
CT 5882	3,080	47.6	44.8	0.3	0.7	0.0	1.3	2.6	3.4	52.4	20.2
CT 5883	5,325	79.3	15.5	0.0	1.5	0.0	0.0	2.8	1.2	20.7	5.5
CT 5894	5,613	84.1	8.7	0.0	0.0	0.0	0.0	1.5	5.7	15.9	13.1

Sources:

a/ U.S. Census Bureau 2013c.

b/ White Alone, Not Hispanic or Latino

c/ U.S. Census Bureau 2013e.

d/ Census tract contains an aboveground facility.

Bold values indicate percentage exceeds thresholds defined in text, and is an environmental justice population.

*Includes census tracts within one mile of the proposed pipeline centerline and major aboveground facilities, but Wayne County does not contain any Project facilities.

TABLE 5.2-14 Children in the NEXUS Project Area in Ohio	
Location/Census Tract	Number of Children Age 0 to 17*
Carroll County**	
CT 7201	887
Columbiana County	
CT 9509	783
CT 9510	1,439
CT 9512	1,204
Erie County	
CT 403	1,304
CT 417	1,283
CT 418	1,515
Fulton County	
CT 401	842
CT 402	1,073
CT 403	1,065
Henry County	
CT 1	1,405
Huron County**	
CT 9154	1,099
Lorain County	
CT 571	1,033
CT 601	603
CT 602	492
CT 771	579
CT 921	518
CT 931	596
CT 941	1,970
CT 951	1,537
Lucas County	
CT 89.01	1,476
CT 89.02	1,704
CT 93	371
CT 96	808
Medina County	
CT 4020	987
CT 4030.01	651
CT 4030.02	788
CT 4070	1,980
CT 4081	1,791
CT 4082.01	1,205

TABLE 5.2-14	
Children in the NEXUS Project Area in Ohio	
Location/Census Tract	Number of Children Age 0 to 17*
CT 4090.02	891
CT 4120	866
CT 4130	1,205
CT 4172	2,287
CT 4173	1,387
Sandusky County	
CT 9608	710
CT 9609	630
CT 9610	926
CT 9621	1,087
Stark County	
CT 7108	997
CT 7109	940
CT 7110	1,634
CT 7111.12	1,786
CT 7111.21	1,852
CT 7111.22	1,358
CT 7112.11	1,576
CT 7113.11	1,895
CT 7121.02	1,748
CT 7127	1,228
CT 7128	1,103
Summit County	
CT 5314.01	1,615
CT 5315	1,633
CT 5316.02	641
CT 5317.01	778
CT 5317.02	964
CT 5320.01	812
CT 5329.99	1,281
Wayne County	
CT 29.01	797
CT 29.02	911
CT 34	882
Wood County	
CT 207	1,212
CT 210	888
CT 211	1,125
CT 212	1,697

TABLE 5.2-14 Children in the NEXUS Project Area in Ohio	
Location/Census Tract	Number of Children Age 0 to 17*
<hr/> <p>Sources: a/ U.S. Census Bureau 2013d.</p> <p>Notes: * Age 17 was included in the sampling due to Census data being unavailable for person's age 0-17 with age 17 exclusive. **Includes census tracts within one mile of the proposed pipeline centerline and major aboveground facilities, but Wayne County does not contain any Project facilities.</p>	

TABLE 5.2-15	
Children in the NEXUS Project Area in Michigan	
Location/Census Tract	Number of Children Age 0 to 17*
Lenawee County	
CT 601	786
CT 612	401
CT 620	1,026
CT 621	683
CT 622	124
Monroe County	
CT 8307	764
CT 8308	1,581
Washtenaw County	
CT 4074	1,600
CT 4119	792
CT 4120	1,039
CT 4121	853
CT 4123	906
CT 4126	298
CT 4127	1,408
CT 4130	1,024
CT 4132	1,110
CT 4134.02	1,759
CT 4200	862
CT 4202	791
CT 4211	984
CT 4219	11
CT 4222	2011
CT 9840	37
Wayne County**	
CT 5645.04	1,744
CT 5881	510
CT 5882	570
CT 5883	1,308
CT 5894	1,425
Sources: a/ U.S. Census Bureau 2013d. Notes: * Age 17 was included in the sampling due to Census data being unavailable for person's age 0-17 with age 17 exclusive. **Includes census tracts within one mile of the proposed pipeline centerline and major aboveground facilities, but Wayne County does not contain any Project facilities.	

TABLE 5.3-1

Estimated Construction and Operational Workforce for the NEXUS Project ^{a/}

State	Peak Construction Direct Workforce	Construction Labor Income	Operational Direct Workforce	Operational Annual Labor Income	Indirect & Induced Employment	Indirect & Induced Employment Income
Ohio	1,560	\$400,600,000	36	\$3,800,000	3,765	\$164,400,000
Michigan	756	\$49,001,149	0	---	433	\$22,367,653
Total	2,316	\$449,601,149	36	\$3,800,000	4,198	\$186,767,653

^{a/} Bowen et al., 2015, Economic & Policy Resources, 2015, and The Michigan State University Land Policy Institute and Center for Economic Analysis, 2015.

APPENDIX 5A

Revised Economic Impact Analysis of the NEXUS Gas Transmission Project and Economic Impact Analysis of the NEXUS Gas Transmission Project

Revised Economic Impact Analysis of the NEXUS Gas Transmission Project

May 15, 2015

PREPARED BY:



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ECONOMIC, POLICY, AND FINANCIAL ANALYSTS

Executive Summary

DTE Energy (“DTE”) is a Detroit, Michigan-based diversified energy company with natural gas and electric operations in all segments of the industry. Spectra Energy Corporation (“Spectra Energy”), a Houston, Texas-based Fortune 500 company, is one of North America’s premier natural gas infrastructure companies, serving three links in the natural gas supply chain—gathering and processing, transmission and storage and distribution.

Together, DTE Energy and Spectra Energy are proposing to construct an interstate pipeline in Ohio and Michigan of approximately 245 miles in length, costing \$2.02 billion. Named the NEXUS Gas Transmission Project (“NEXUS Project”), its pre-construction activities have already begun. Construction activities would begin in early 2017 and operations would commence in late 2017. This report focuses on the economic impact of the NEXUS project in Ohio from pre-construction activities through the first full year of operations (2015-2018).

A previous economic assessment was produced by Ohio State University Extension faculty.¹ Significant changes in the NEXUS Project parameters have necessitated a reexamination of the anticipated economic impacts within the project region. These project changes include: (1) increases in the number of transmission miles and number of compression stations; (2) lower diameter transmission pipe (now 36” pipe); (3) lower total project costs from \$2.25 billion to revised \$2.02 billion; and (4) increase in operations staffing in Ohio (Table 1). Other project parameters, namely the construction timeline and construction personnel engaged in building the NEXUS project, have not been altered.

The portion of pipeline in Ohio spans just over 200 miles across eleven counties from the southeast to the northwest. According to DTE and Spectra Energy, investment in the Ohio portion of the NEXUS project is estimated at \$1.69 billion, about 84 percent of the project total.

The revised analysis employs the same methodology and impact modeling program as the prior Ohio State study (study attached hereto as Appendix A). As standard to most economic impact analyses, the assessment of the NEXUS pipeline project is broken out into phases, namely construction and operations.

¹ Bowen, Nancy, Eric Romich, David Civittolo, Gregory Davis, and Chris Penrose. *Economic Impact Analysis of the Spectra Energy NEXUS Pipeline Project*. Community and Energy Series Technical Report 15-01. Columbus: Ohio State University Extension Community Development. [called “Ohio State” study]

Table 1. NEXUS Project Changes

NEXUS Project Changes	Total	Ohio	Michigan
Mainline & Lateral Pipeline Mileage			
Original (Miles)	242.7	196.8	45.9
Revised (Miles)	<u>246.8</u>	<u>200.7</u>	<u>46.1</u>
Difference (Revised minus Original)	4.1	3.9	0.2
Compressor Stations and Metering Stations			
Original (Number of Stations)	7	6	1
Revised (Number of Stations)	<u>8</u>	<u>7</u>	<u>1</u>
Difference (Revised minus Original)	1	1	0
Overall Project Costs			
Original (\$2015, Millions)	\$2,253.50	\$1,865.16	\$388.34
Revised (\$2015, Millions)	<u>\$2,019.11</u>	<u>\$1,688.88</u>	<u>\$330.23</u>
Difference (Revised minus Original)	-\$234.39	-\$176.28	-\$58.11
Operations Manpower			
Original (Personnel)	28	28	NA
Revised (Personnel)	<u>36</u>	<u>36</u>	NA
Difference (Revised minus Original)	8	8	NA
<i>Notes: On March 20, 2015, NEXUS submitted an updated Stakeholder List and Project Update to the Federal Energy Regulatory Commission (Docket No. PF15-10-000) regarding its plans for the greenfield portion of the project. The update confirmed the current plan to utilize four greenfield gas turbine compressor stations; confirmed the locations of the compressor stations; number of metering stations remain the same; no changes in Michigan. No change in operations manpower is expected in Michigan.</i>			
Source: Spectra Energy		Prepared by Economic & Policy Resources, Inc.	

To construct a pipeline of this magnitude in Ohio, DTE and Spectra Energy have estimated that 1,630 construction workers will be required at an estimated \$668 million in payroll. To operate the pipeline in Ohio, DTE and Spectra Energy have estimated that 36 workers will be required with an estimated annual payroll of \$3.1 million. This direct initial change in both construction and operations is estimated to result in the impacts described in this revised report (Table 2). These presented economic benefits are expected to be confined to the eleven-county pipeline region in Ohio. Thus, no attempt has been made to estimate the economic benefits of the NEXUS project in other parts of Ohio, beyond the geography of this eleven-county region.

Table 2. Summary of Estimated Economic Benefits of the NEXUS Pipeline Project

Activity	Jobs	Labor Income (\$ Millions)	Value Added (\$ Millions)
Pipeline Construction (one-time)	3,954	\$435.3	\$537.0
CS and MS Construction (one-time)	1,371	\$129.7	\$160.1
Pipeline Operations (annual)	59	\$3.8	\$5.0
Total	5,384	\$568.8	\$702.1
<i>Prepared by Economic & Policy Resources, Inc.</i>			

Table 2 presents the total regional estimated direct², indirect³, and induced⁴ impacts of pipeline construction, compressor (CS) and metering station (MS) construction, and pipeline operations as a result of this direct project investment of \$1.69 billion. Table 3 summarizes these total (i.e., direct + indirect + induced) estimated impacts by county.

Table 3. Summary of Estimated Economic Benefits (Construction and Operations) by County

Location	Jobs	Labor Income (\$ Millions)	Value Added (\$ Millions)
Columbiana	830	\$82.0	\$101.2
Erie	571	\$62.9	\$77.6
Fulton	323	\$35.6	\$43.9
Lorain	408	\$44.9	\$55.4
Lucas	448	\$44.4	\$54.8
Medina	737	\$76.4	\$94.3
Sandusky	907	\$95.0	\$117.3
Stark	400	\$44.0	\$54.3
Summit	301	\$33.2	\$40.9
Wayne	118	\$13.0	\$16.1
Wood	341	\$37.5	\$46.3
Total	5,384	\$568.9	\$702.1
<i>Prepared by Economic & Policy Resources, Inc.</i>			

In sum, the total economic benefits associated with the construction and operations of the NEXUS pipeline project within the eleven-county region in Ohio are:

- Short-term pipeline construction impact, including pre-construction during 2015-2017, is estimated to have an impact of 3,954 new jobs with \$435.3 million in labor income⁵ and \$537.0 million in value added⁶.
- Construction of compressor and metering stations in four counties (Columbiana, Lucas, Medina, and Sandusky) during 2017 is estimated to have a short-term impact of 1,371 new jobs with \$129.7 million in labor income and \$160.1 million in value added.

² Direct impact refers to the initial economic changes resulting from the activity or policy that takes place associated with the industry immediately affected, here pipeline construction and pipeline transportation for operations.

³ Indirect impact refers to those secondary economic changes associated with the purchases of materials and supplies and services for production for the project.

⁴ Induced impacts are economic changes associated with the spending of disposable income of new workers with the project and linked businesses on household goods and services.

⁵ Labor income is composed of wages and salaries for workers and proprietors' income.

⁶ Value added is an economic concept that refers to payments to factors of production such as labor. It includes workers' wages & salaries as well as proprietor's income; other property income; and business taxes on production.

- On-going pipeline operations—beginning in 2018--will support an annual total of 59 new jobs (36 direct, 2 indirect, and 21 induced) with an annual payroll of \$3.8 million and \$5.0 million in value added.

Background

DTE Energy and Spectra Energy's proposed NEXUS Gas Transmission Project involves a \$2.02 billion interstate transmission pipeline covering approximately 247 miles in Ohio and Michigan. Its construction will provide the transmission capacity to deliver 1.5 billion cubic feet per day (Bcf/d) of shale gas resources generated in Eastern Ohio to U.S. Midwest markets including Ohio, Michigan and Chicago as well as the Ontario (Canada) provincial market. The pipeline is expected to serve local distribution companies, power generators, and industrial users in these markets.

Regional Characteristics

Revised project data provided by DTE Energy and Spectra Energy indicates over 200 miles of pipeline will be installed in Ohio from Columbiana County in the northeast, passing through the northern portion of the state to Fulton County in the northwest before entering southeast Michigan. The eleven-county Ohio region where the pipeline traverses is comprised of a set of contiguous urbanized counties which are parts of small and large metropolitan areas.

Table 4. Ohio Regional Characteristics

County	Population	Labor Force	Employed Workers	Total Personal Income (\$000)	Per Capita Personal Income (\$)	Unemployment Rate
Columbiana	105,893	51,093	46,956	\$3,519,560	\$33,237	8.1%
Stark	375,432	187,194	37,641	\$3,201,413	\$39,046	7.5%
Summit	541,824	280,327	20,180	\$1,597,402	\$44,024	7.2%
Wayne	115,071	57,481	142,792	\$11,730,979	\$33,952	6.3%
Medina	174,915	95,141	191,905	\$16,846,330	\$44,547	6.5%
Lorain	302,827	155,408	88,965	\$7,791,954	\$38,738	8.1%
Erie	76,048	40,709	29,834	\$2,160,617	\$42,097	7.5%
Sandusky	60,098	32,184	173,142	\$14,659,277	\$35,952	7.3%
Wood	129,264	67,009	260,282	\$23,853,334	\$38,936	7.2%
Lucas	436,393	209,668	53,847	\$3,906,839	\$38,604	8.5%
Fulton	42,488	21,993	62,185	\$5,033,022	\$37,597	8.2%
Region, Total	2,360,253	1,198,207	1,107,729	\$94,300,727	\$39,954	7.6%
Ohio State, Total	11,570,808	5,765,704	5,340,860	\$474,973,111	\$41,049	7.4%

Source: StatsAmerica

Prepared by Economic & Policy Resources, Inc.

Within these eleven counties, the affected population (as of 2013) is 2,360,253 people; about 20 percent of the total state population. According to the US Census Bureau, the land area for this eleven-county region is 5,011 square miles. Per capita income (2013) was \$39,954 for the region, compared with \$41,049 in Ohio; ranging from the lowest of \$33,237 in Columbiana County to the highest of \$44,547 in Medina County. With the infusion of a higher average wage (approximately \$275/day or about \$71,500 annually) as a result of the pipeline construction project, overall wage rates will be positively impacted.

Approximately 1.2 million people are in the regional labor force, with a region-wide 2013 annual unemployment rate of 7.6 percent; slightly higher than the 7.4 percent for the State of Ohio. Six counties in the region (Columbiana, Stark, Lorain, Erie, Lucas and Fulton) had a higher annual unemployment rate; and five counties (Summit, Wayne, Medina, Sandusky and Wood) had a lower annual employment rate than the State of Ohio.

Methodology

This study attempts to estimate economic impacts using IMPLAN (IMpnact analysis for PLANning) data and software, developed by the Minnesota IMPLAN Group, Inc. The IMPLAN database contains federal, state and local economic statistics and data by county and zip code. IMPLAN can be used to estimate the effect of a given change or event (e.g. NEXUS pipeline project) on a local or regional economy (e.g. 11-county project region).

Using IMPLAN enables us to estimate the extent to which construction and operation of the NEXUS pipeline project in the eleven-county region of Ohio contributes to other employment, income and value added. The IMPLAN modeling provides estimates for three types of economic effects—direct, indirect, and induced—using the 2013 IMPLAN data⁷ for the region.

IMPLAN uses multiplier models built on social accounting matrices (SAM) that capture dollar amounts of all business transactions in a regional economy (including revenues and unemployment benefits). These multipliers measure impacts base on industry inputs and the region's unique economic structure and trade relationships. The analysis is based on the premise that industry sectors within an economy are linked; a change in one sector will affect changes in other sectors. IMPLAN is a tool that analyzes the impacts of economic changes, and requires at least one change factor (e.g., employment change, labor income change, or investment change) to generate resulting economic estimates.

The methodology employed by IMPLAN to model construction involves inputs of direct spending for construction preparation (e.g., engineering and surveying services, land purchase services) in addition to direct spending for pipeline construction; which result in indirect and induced impacts within the regional economy. This same methodology was used for the operations phase of the project.

Inputs for construction preparation, pipeline construction and operations were modeled separately in IMPLAN using an analysis-by-parts (ABP) approach. The ABP approach is used to more accurately estimate large construction-related activities that cross numerous industry subsectors (such as steel, concrete, construction services, subcontractors). Detailed project cost and employment data including estimated wages for construction and operations employees necessary as inputs for IMPLAN modeling were provided by DTE and Spectra Energy.

⁷ 2013 is the most current year of data available from IMPLAN.

Based on data provided by DTE and Spectra Energy and assumptions and methods used in the prior Ohio State study, it was determined that the percentage of local purchases for materials and equipment used to build the pipeline will be around 7.5 percent; thus, this percentage was used in the analysis. Data provided by DTE and Spectra Energy indicate that 1,630 construction workers will be required at an estimated cost of \$668 million in payroll. Assumptions (made in prior Ohio State study) and maintained in this revised study include: (1) construction period is composed of pre-construction activities occurring in 2015 and 2016 and pipeline construction during nine-months of 2017; (2) 1,560 direct construction workers (i.e., 70 workers associated with two project divisions are located outside of the region); and (3) 60 percent of the contractor and construction labor will be from local craft sources; in other words, only 60 percent of the total payroll cost of \$668 million is deemed local and hence direct project payroll. When modeling construction preparation services (including land acquisition, legal, environmental and design) SAM multipliers were used to capture regional spending.

Again, for this analysis, the local region is defined as the eleven-county area where the proposed pipeline and associated compressor and metering stations are to be placed. Economic benefits may affect other surrounding counties (e.g., purchases of needed materials and equipment as well as requisite manpower needs), but the focus of this analysis is only the region and its counties affected.

Economic Impact—Construction Phase

The construction phase of the NEXUS pipeline project will result in a short-term benefit to the regional economy. According to DTE and Spectra Energy, pre-construction activities are expected to take place beginning in 2015, with pipeline construction and compressor and metering stations construction commencing in February 2017. The latter construction timeline runs 9 months with completion slated for November 2017.

It is estimated that the NEXUS pipeline project construction phase will generate a total of 5,325 jobs with \$565.0 million in labor income and \$697.1 million in value added.

Table 5 shows the direct, indirect and induced benefits of all construction activities related to building the pipeline and compressor and metering stations—using the economic metrics of employment, labor income, and value added.

Table 5. Direct, Indirect and Induced Effects of Construction Activities (2015-2017)

Impact Type	Employment	Labor Income (\$ Millions)	Value Added (\$ Millions)
Direct Impact	1,560	\$400.6	\$421.9
Indirect Impact	738	\$43.5	\$53.0
Induced Impact	3,027	\$120.9	\$222.2
Total Effect	5,325	\$565.0	\$697.1
<i>Source: IMPLAN</i>		<i>Prepared by Economic & Policy Resources, Inc.</i>	

A significant component of the construction phase of the project is devoted to building the four compressor stations and 3 metering stations within the region. Associated with the estimated investment of \$387.8 million are 506 direct construction jobs. Four of the total seven compressor and metering stations are slated to be built in one of the terminal counties—Columbiana (Table 6).

Table 6. Compressor and Metering Station Investment by County

County	Investment (\$ Millions)	Construction Jobs	Compressor Station	Metering Station
Columbiana	\$153.82	202	1	3
Lucas	\$78.00	102	1	0
Medina	\$78.00	101	1	0
Sandusky	\$78.00	101	1	0
Total	\$387.82	506	4	3
<i>Source: Spectra Energy</i>		<i>Prepared by Economic & Policy Resources, Inc.</i>		

Estimated totals for the direct, indirect and induced economic benefit of the compressor station (CS) and metering station (MS) construction are shown in Table 7 for

Columbiana, Lucas, Medina, and Sandusky counties, with Columbiana County anticipating the greatest economic impact. This is due to the location of three metering stations and a larger investment in the compressor station. The total estimated short-term construction benefit, including pipeline and CS and MS construction are combined for these four counties and shown below in Table 7.

Total 7. Total Estimated Construction Economic Impact for Columbiana, Lucas, Medina, and Sandusky Counties (2015-2017)

County	Jobs			Labor Income (\$ Millions)			Value Added (\$ Millions)		
	Pipeline	CS & MS	Total	Pipeline	CS & MS	Total	Pipeline	CS & MS	Total
Columbiana	262	547	809	\$28.8	\$51.8	\$80.6	\$35.6	\$63.9	\$99.5
Lucas	158	276	434	\$17.3	\$26.2	\$43.5	\$21.4	\$32.3	\$53.7
Medina	451	274	725	\$49.7	\$25.9	\$75.6	\$61.3	\$32.0	\$93.3
Sandusky	621	274	895	\$68.3	\$25.9	\$94.2	\$84.3	\$32.0	\$116.3
Total	1,492	1,371	2,863	\$164.1	\$129.8	\$293.9	\$202.6	\$160.2	\$362.8

Source: Spectra Energy Prepared by Economic & Policy Resources, Inc.

Pipeline construction impact (not including CS and MS) has been separated to demonstrate the potential economic benefit at the county level. Table 8 shows estimated county level impacts based on pipeline mileage as a percentage of total mileage, assuming that the cost of pipeline construction and operations is equal along the 200.7 mile section.

Table 8. Estimated Pipeline Construction (Direct + Indirect + Induced) Impacts by County, Based on Mileage (2015-2017)

Location	Pipeline Mileage	Jobs	Labor Income (\$ Millions)	Value Added (\$ Millions)
Columbiana	13.3	262	\$28.8	\$35.6
Erie	29.0	571	\$62.9	\$77.6
Fulton	16.4	323	\$35.6	\$43.9
Lorain	20.7	408	\$44.9	\$55.4
Lucas	8.0	158	\$17.3	\$21.4
Medina	22.9	451	\$49.7	\$61.3
Sandusky	31.5	621	\$68.3	\$84.3
Stark	20.3	400	\$44.0	\$54.3
Summit	15.3	301	\$33.2	\$40.9
Wayne	6.0	118	\$13.0	\$16.1
Wood	17.3	341	\$37.5	\$46.3
Total	200.7	3,954	\$435.2	\$537.1

Sources: Spectra Energy, IMPLAN & OSU Prepared by Economic & Policy Resources, Inc.

The estimated employment impact includes direct jobs created during the nine-month construction phase of the project as well as indirect jobs resulting from purchases of goods and services by the project and the additional ripple effect from induced jobs that result from employees and contractors spending dollars locally for needed household goods and services such as food and lodging.

As a result of the initial direct investment associated with the NEXUS pipeline project, employment in a wide range of industry sectors will also be supported. The largest share of employment is expected in those sectors most directly related to the project, specifically construction and construction services sectors, which together support an estimated 1,630 temporary positions.

Table 9 shows the ten sectors most impacted as a result of the initial direct NEXUS project-related investment. Following construction of other new nonresidential structures are hospitals, restaurants, real estate, and wholesale and retail sectors. These sectors will most likely benefit from the influx of construction workers during the nine-month construction period.

Table 9. Top Ten Sectors Impacted by Construction Employment

Sector	Jobs
Construction of other new nonresidential structures	537
Hospitals	184
Limited-service restaurants	179
Full-service restaurants	173
Real estate	130
Wholesale trade	102
Retail - General merchandise stores	101
Retail - Food and beverage stores	96
Nursing and community care facilities	96
Offices of physicians	92
Total	1,690
<i>Source: IMPLAN</i>	
<i>Prepared by Economic & Policy Resources, Inc.</i>	

When considering the value added spending that will occur as a result of the pipeline construction activity, Table 10 indicates that owner-occupied dwellings (i.e. housing rented by owners to workers) and real estate are among the top sectors impacted. The table lists the top ten affected sectors in terms of value added contribution for this phase of the project.

Table 10 Top Ten Sectors by Value Added Contribution

Sector	Jobs	Value-Added Contribution (\$ Millions)
Construction of other new nonresidential structures	537	\$36.4
Owner-occupied dwellings	0	\$34.8
Real estate	130	\$20.2
Wholesale trade	102	\$14.2
Hospitals	184	\$13.0
Monetary authorities and depository credit intermediation	30	\$10.4
Offices of physicians	92	\$8.7
Insurance carriers	36	\$5.1
Limited-service restaurants	179	\$5.0
Retail - General merchandise stores	101	\$4.2
Total	1,391	\$152.0
Source: IMPLAN		Prepared by Economic & Policy Resources, Inc.

Economic Impact—Operations Phase

Once the NEXUS pipeline becomes operational in late 2017, there will be additional economic benefits from operations. Unlike the temporary construction impact, the benefits associated with operations are ongoing and annual. During the first full year (2018), the economic benefit expected from the ongoing operations⁸ of the pipeline is estimated to generate 59 jobs (36 direct, 2 indirect, and 21 induced jobs) with a total payroll of \$3.8 million and total value added of \$4.9 million.

Since operations are conducted largely at compressor stations proposed in four counties (Columbiana, Lucas, Medina, and Sandusky), estimated impacts are shown for only these four counties (Table 11).

Table 11. Estimated Annual Direct, Indirect and Induced Economic Impacts from Pipeline Operations by County

County	Jobs	Labor Income (\$000)	Value Added (\$000)	Annual Estimated Property Tax (\$000)
Columbiana	21	\$1,313.6	\$1,699.6	\$97.3
Lucas	14	\$883.5	\$1,145.4	\$65.6
Medina	12	\$825.8	\$1,053.5	\$60.3
Sandusky	12	\$825.8	\$1,053.5	\$60.3
Total	59	\$3,848.7	\$4,952.0	\$283.5
<i>Source: Spectra Energy</i>		<i>Prepared by Economic & Policy Resources, Inc.</i>		

As for top ten sectors impacted by pipeline operations, Table 12 provides a summary of the estimated annual contributions of jobs, labor income and value added for the combined four counties.

Table 12. Top Ten Sectors Impacted by Employment, Labor Income and Value Added from Annual Operations

Sector	Jobs	Labor Income	Value Added
Pipeline transportation	36	\$2,894,527	\$3,233,743
Hospitals	1	\$81,231	\$92,331
Limited-service restaurants	1	\$22,204	\$35,051
Full-service restaurants	1	\$23,167	\$26,031
Real estate	1	\$21,913	\$147,381
Employment services	1	\$23,648	\$29,223
Retail - General merchandise stores	1	\$17,583	\$28,696
Nursing and community care facilities	1	\$22,849	\$23,593
Retail - Food and beverage stores	1	\$18,596	\$27,160
Offices of physicians	1	\$70,868	\$61,721
Total	45	\$3,196,586	\$3,704,930
<i>Source: Spectra Energy</i>		<i>Prepared by Economic & Policy Resources, Inc.</i>	

⁸ Operations include on-going maintenance on the pipeline and stations, technical services, and capital equipment.

Appendix A

Economic Impact Analysis of the NEXUS Gas Transmission Project

Community and Energy Series Technical Report 15-01



THE OHIO STATE UNIVERSITY

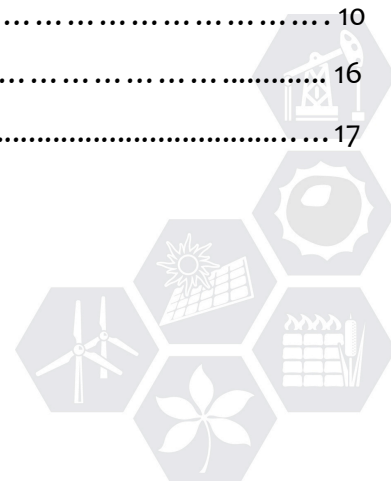
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This economic impact analysis was conducted by a team of Ohio State University faculty from the Department of Extension in the College of Food Agricultural and Environmental Sciences. Spectra Energy helped fund the cost of data, software, and modeling necessary to carry out the project; the primary objective of which was to better understand the economic impact of the NEXUS Gas Transmission project in eleven Ohio counties.

The project team approaches each research opportunity with the desire to identify and fill critical knowledge gaps through applied research that will ultimately enhance educational programs to strengthen lives and communities. The project was approached from a neutral or non-biased position to ensure evidence-based findings were generated in accordance with common input/output methodologies.

Executive Summary

NEXUS Gas Transmission, LLC (NEXUS), is proposing to construct an interstate pipeline in Ohio and Michigan of approximately 250 miles in length and at an estimated cost of \$2.3 billion. The NEXUS project, its pre-construction activities have already begun. Construction activities would begin in 2017 and operations would commence in late 2017. This report focuses on the economic impact of the NEXUS project in Ohio from pre-construction through the first year of operation (2015-2018).

The portion of pipeline in Ohio spans just over 200 miles across eleven counties. According to NEXUS data, investment in the Ohio portion of the project is estimated at 83% of the total project, or \$1.9 billion.

The estimated economic impact of the NEXUS project has been broken out into two phases: construction and operations. To construct a pipeline in Ohio of this magnitude, NEXUS has estimated that 1,680 construction workers will be required at an estimated cost of \$683 million in payroll. To operate the pipeline in Ohio, NEXUS has estimated that 28 workers will be required with an estimated annual payroll of \$2.3 million. This direct initial change in both construction and operations is estimated to result in the impacts described in this report (see summary Table 1).

Table 1 summarizes the total estimated direct¹, indirect² and induced³ impacts of pipeline construction, compressor (CS) and metering (MS) station construction, and pipeline operations as a result of this direct project investment of \$1.9 billion.

¹ **Direct Impact:** The initial changes that are a result of the activity or policy that takes place only in the industry immediately affected.

² **Indirect Impact:** The impact of local industries buying goods and services from other local industries (inter-industry transactions).

³ **Induced Impact:** The effects of changes in household income. The response by an economy to an initial change (direct effect) that occurs through re-spending of income received.

Table 1. Summary of Estimated Economic Impacts of the NEXUS Pipeline Project

Activity	Jobs	Labor Income (Millions)	Value Added (Millions)
Pipeline Construction (one-time)	3,925	\$374.4	\$450.5
CS and MS Construction (one-time)	865	\$78.2	\$88.8
Pipeline Operations (annual)	44	\$2.7	\$3.7
Total	4,834	\$455.3	\$543.0

*Table summarizes the estimated total direct, indirect and induced economic impacts

Below is a narrative summary of the total direct, indirect and induced economic impacts of jobs, labor income and value added, in addition to estimated tax revenue contributions for the NEXUS project in an eleven-county region of Ohio.

- One-time pipeline construction impact in the eleven county region, including pre-construction during 2015-2017, is estimated to have an impact of **3,925 jobs**, **\$450.5 million** in value added, and **\$374.4 million** in labor income (direct, indirect and induced) during the construction phase of the project.
- The construction of compressor and metering stations in three counties (Columbiana, Lucas and Medina) during 2017 is estimated to have a one-time cumulative impact of **865 jobs**, **\$88.8 million** in value added, and **\$78.2 million** in labor income.
- It is estimated that pipeline operations will support a total of **44 jobs** (28 direct, 5 indirect, and 11 induced), generate **\$2.7 million** in associated labor income, and result in **\$3.1 million** of additional economic activity annually as a result of ongoing operations beginning in 2018 and going forward.



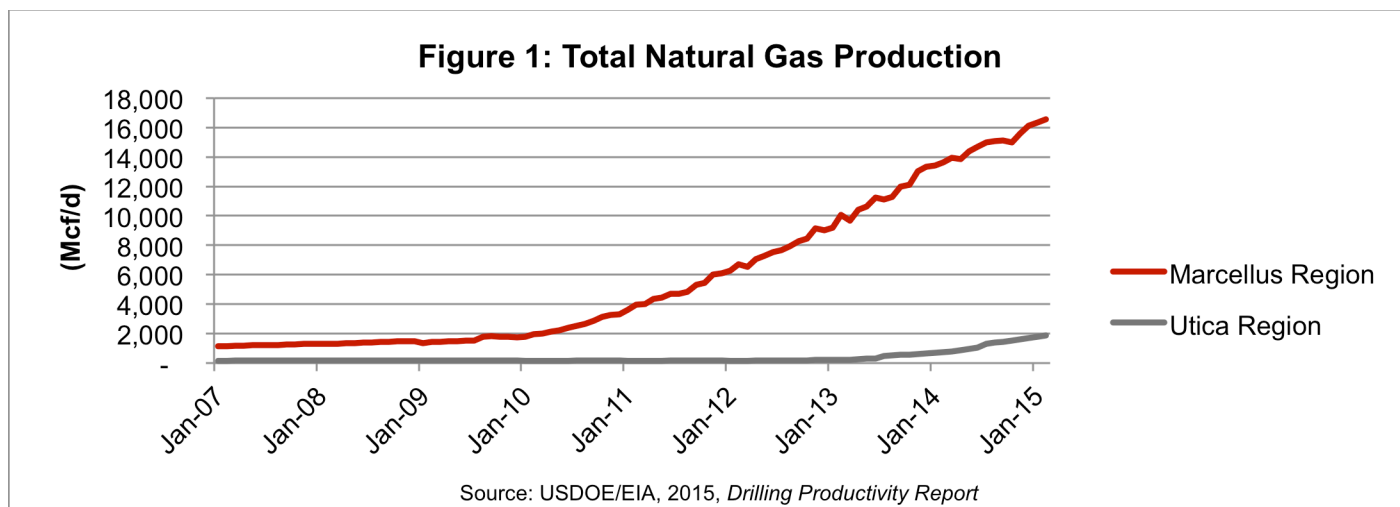


Background

The production and distribution of natural gas is critical to the United States, as it represents more than 27% of the nation's total primary energy consumption. In 2013, the total U.S. natural gas gross withdrawals reached a new high at 82 billion cubic feet per day (Bcf/d), with shale gas wells becoming the largest source of total natural gas production (USDOE/EIA, 2014). To help meet market demand, over 300,000 miles of interstate and intrastate transmission pipelines move these energy products throughout the U.S. every day (U.S. Department of Transportation, 2012). Each day, close to 70 million customers in the United States depend upon this national distribution network to deliver natural gas to their home or place of business (USDOE/EIA, 2008).

As illustrated in Figure 1, the combined total natural gas production in the Utica and Marcellus shale regions has increased by more than 1302% from 1,298 million cubic feet per day (Mcf/d) in January of 2007 to more than 18,200 Mcf/d in January of 2015. The recent increase in production has made the Marcellus region the largest natural gas producing region in the nation. Driven by growth in shale energy production from the Marcellus and Utica shale, new investment in midstream development projects including pipelines, midstream processing and fractionation plants in Ohio exceed \$7 billion (JobsOhio, 2014). As an energy infrastructure company, Spectra Energy is engaged in the development of infrastructure to serve the needs and opportunities associated with shale gas plays – including the major shale gas projects covering the Utica Shale and Marcellus Shale plays.

The proposed NEXUS project involves an approximately \$2.3 billion interstate pipeline covering approximately 250 miles in Ohio and Michigan. Its construction will provide the transmission capacity to deliver up to 1.5 billion cubic feet per day (Bcf/d), up to 2 Bcf/d of Appalachian natural gas to markets including Ohio, Michigan, Chicago and Ontario, Canada. The pipeline will serve local distribution companies, power generators and industrial users in these markets.



Regional Characteristics

Current project data provided by NEXUS indicates over 200 miles of pipeline will be installed in Ohio from Columbiana County to Fulton County. The eleven-county area (Table 2) in question is comprised of small, medium, and large cities, villages and unincorporated townships.

Table 2: 11 County Characteristics

County	Population	Labor Force	Per Capita Personal income	Unemployment Rate
Columbiana	36,760	16,214	\$33,699	8.1
Stark	375,432	187,194	\$39,046	7.5
Summit	541,824	280,327	\$44,024	7.2
Wayne	115,071	57,481	\$33,952	6.3
Medina	174,914	95,141	\$44,547	6.5
Lorain	302,827	155,408	\$38,738	8.1
Erie	76,048	40,709	\$42,097	7.5
Sandusky	60,098	32,184	\$35,952	7.3
Wood	129,264	67,009	\$38,936	7.2
Lucas	436,393	209,668	\$38,604	8.5
Fulton	42,488	21,993	\$37,597	8.2
Total	2,291,119	1,163,328		Ohio 7.4

Source: StatsAmerica <http://www.statsamerica.org>, 2013

Within the eleven counties, the affected population as of 2013 is 2,291,119. According to the IMPLAN regional profile, the land area of this eleven-county region is 5,019 square miles. Roughly 1.16 million individuals comprise the labor force in the eleven-county area with a per capita personal income that ranged from the lowest in Columbiana County at \$33,699 to the highest per capita income of \$44,547 in Medina County. With the infusion of a higher average wage (approximately \$275 per day, or about \$71,500 annually) as a result of the pipeline construction project, overall wage rates will be positively impacted.

For the year 2013, the unemployment rate in the State of Ohio was 7.4% (Bureau of Labor Statistics). Six of the counties (Columbiana, Stark, Lorain, Erie, Lucas, and Fulton) had a higher annual unemployment rate than the State of Ohio while five counties (Summit, Wayne, Medina, Sandusky, and Wood) had a lower annual unemployment rate (Ohio Labor Market Information).

Methodology

This study attempts to estimate economic impact using IMPLAN (IMPact analysis for PLANning) data and software, developed by the Minnesota IMPLAN Group, Inc. The IMPLAN database contains county, state, zip code, and federal economic statistics by region. IMPLAN can be used to estimate the effect of a given change or event (e.g. NEXUS project) on a regional or local economy (e.g. 11-county project region).

Using IMPLAN, we can estimate the extent to which construction and operation of the NEXUS Project in Ohio contributes to other employment, income and value added. The IMPLAN modeling provides estimates three types of effects, direct, indirect and induced using 2013 IMPLAN data (the most recent available).

IMPLAN uses Multiplier Models built on Social Accounting Matrices (SAM) that capture dollar amounts of all business transactions in a regional economy (such as revenues and unemployment benefits). The multipliers measure impact based on industry inputs and based on the region's unique structure and trade situation. The analysis is based on the premise that sectors are linked; a change in one sector will create change in others. It is a tool that analyzes the impacts of economic changes, and requires at least one change factor (e.g. employment change, labor income change, or investment change) to generate resulting estimates.

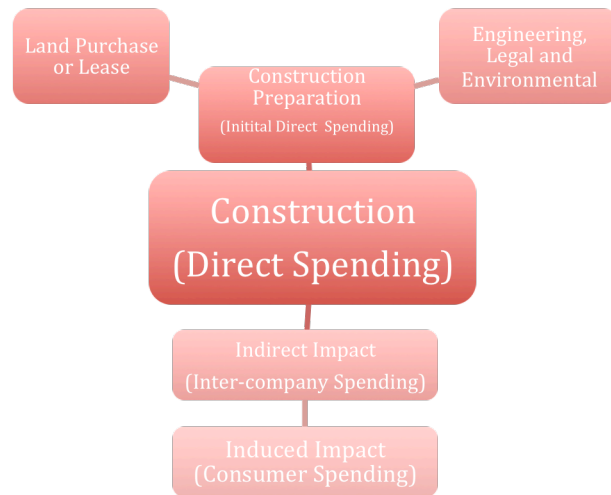
Figure 2 is an illustration of the methodology used to model the pipeline construction in IMPLAN. Inputs include direct spending for construction



preparation (engineering, land purchase services, etc.) in addition to direct spending for construction, resulting in indirect (inter-company) and induced (consumer spending) impacts. This same methodology was used for the operations phase of the project.

Inputs for construction, construction preparation and operations were modeled separately in IMPLAN using an analysis-by-parts (ABP) approach. The ABP approach is used to more accurately estimate large construction-related activities that cross numerous industry subsectors (steel, concrete, construction services, etc.). Detailed project cost and employment data including estimated wages for construction and operations employees necessary for IMPLAN modeling were provided by NEXUS.

Figure 2. NEXUS Project Economic Impact Methodology Diagram



Based on data provided by NEXUS, it was determined that the percentage of local purchases for materials and equipment used to build the pipeline will reach approximately 7.5%, and this percentage was used in the analysis. The analysis also assumes that 60% of contractor and construction labor will be from local craft sources (data provided by Spectra). When modeling construction preparation services (including land acquisition, legal, environmental and design) SAM multipliers were used to capture regional spending.

For this analysis, the local region is defined as the eleven-county area where the proposed pipeline is to be placed. Economic impacts may affect other surrounding counties, but the focus of this analysis is only the region and counties affected.

Input-output analysis (including IMPLAN) is not precise (Swenson 2013). The IMPLAN model includes estimated data for jobs, labor incomes, value added and output based on the inter-relationships of industry on primarily a national basis, then adjusted for trade flows or supply and demand on the regional and local levels. The purpose of this analysis is to use IMPLAN as a tool to provide an estimate of the economic impact of this project, as closely as can be accomplished, using jobs and investment inputs provided by NEXUS.



Economic Impact – Construction Phase

This project's pipeline construction phase is expected to result in a one-time impact to the regional economy. It is estimated that the pipeline construction phase (including pre-construction, compressor and metering stations construction to occur in the years 2015-2017 could generate \$539.3 million in value added impact and support 4,790 jobs in the eleven-county the region.

Additional impacts are expected as a result of the estimated investment of \$268.9 million (including 450 construction jobs, 60% of which are expected to be local) in counties where compressor stations (CS) or metering stations (MS) are planned. The investment, jobs, and location of the stations are listed in Table 3.

Table 3. Compressor and Metering Station Investment by County

County	Investment (000)	Construction Jobs	CS	MS
Columbiana	\$134,019	225	1	3
Lucas	\$67,430	112.5	1	
Medina	\$67,430	112.5	1	
Total	\$268,879	450	3	3

Source: NEXUS

Tables 4 and 5 show the estimated direct, indirect and induced effects for the pipeline and construction and compressor and metering station construction, including the estimated employment, labor income and value added, as separate components of the total construction phase during the construction phase.

Table 4. Direct, Indirect, and Induced Effects of Pipeline Construction (2015-2017)*

Impact Type	Employment	Labor Income (Millions)	Total Value Added (Millions)
Direct Effect	984	244.8	244.8
Indirect Effect	1,077	57.5	75.0
Induced Effect	1,865	72.1	130.7
Total Effect	3,925	374.4	450.5

Source: IMPLAN

Estimated totals for the direct, indirect and induced economic impact of the CS and MS construction are shown in Table 4 for Columbiana, Lucas and Medina counties, with Columbiana anticipating the greatest impact. This is due to the additional location of three metering stations and a larger investment in the compressor station. The total estimated one-time construction impact, including pipeline and CS and MS construction, are then combined for these three counties and shown in Table 6.

Table 5. Estimated Direct, Indirect and Induced Economic Impact of CS and MS Construction by County (2017)

County	Jobs			Labor Income (Millions)			Value Added (Millions)		
	Direct	Indirect and Induced	Total	Direct	Indirect and Induced	Total	Direct	Indirect and Induced	Total
Columbiana	270	156	426	\$33.5	\$5.2	\$38.7	\$33.6	\$10.2	\$43.8
Lucas	135	89	224	\$16.6	\$3.7	\$20.3	\$16.6	\$6.4	\$23.0
Medina	135	80	215	\$16.6	\$2.6	\$19.2	\$16.7	\$5.3	\$22.0
Total	540	325	865	\$66.7	\$11.5	\$78.2	\$66.9	\$21.9	\$88.8

Source: IMPLAN

Table 6. Total Estimated One-Time Construction Economic Impact by County (2015-2017)

County	Jobs			Labor Income (Millions)			Value Added (Millions)		
	Pipeline	CS & MS	Total	Pipeline	CS & MS	Total	Pipeline	CS & MS	Total
Columbiana	238	426	664	\$22.7	\$38.7	\$61.4	\$27.3	\$43.8	\$71.1
Lucas	158	135	293	\$15.0	\$20.3	\$35.3	\$18.1	\$23.0	\$41.1
Medina	447	215	662	\$42.7	\$19.2	\$61.9	\$51.4	\$22.0	\$73.4
Total	843	776	1,619	\$80.4	\$78.2	\$158.6	\$78.7	\$88.8	\$185.6

Source: IMPLAN

Pipeline construction impact (other than CS and MS) has also been broken out to demonstrate potential economic impact at the county level. Table 7 shows estimated county level impact based on pipeline mileage as a percentage of total mileage, assuming that the cost of pipeline construction and operations is equal along the 200.37-mile stretch.

Table 7. Estimated Pipeline Construction (Direct, Indirect and Induced) Impact by County Based on Mileage (2015-2017)

Location	Pipeline Mileage	Jobs	Labor Income	Value Added
Columbiana	12.16	238	\$22.7	\$27.3
Erie	29.12	570	\$54.4	\$65.5
Fulton	16.55	324	\$30.9	\$37.2
Lorain	20.83	408	\$38.9	\$46.8
Lucas	8.05	158	\$15.0	\$18.1
Medina	22.84	447	\$42.7	\$51.4
Sandusky	31.55	618	\$59.0	\$70.9
Stark	20.47	401	\$38.2	\$46.0
Summit	15.30	300	\$28.6	\$34.4
Wayne	6.12	120	\$11.4	\$13.8
Wood	17.36	340	\$32.4	\$39.0
Total	200.37	3,925	\$374.4	\$450.5

Source: NEXUS, IMPLAN and OSU

Note: Numbers may not equal totals due to rounding

The estimated employment impact includes direct jobs created during the construction phase of the project (nine months) in addition to the indirect jobs impacted as a result of purchases of goods and services made related to the project and the additional ripple effect of the induced jobs impacted when employees and contractors spend dollars locally for food, lodging and other expenses.

The estimated value added impact reflects the direct, indirect, and induced effects of the rounds of spending that occur as a result of the initial investment. The impacts are estimated by the IMPLAN multipliers as a component of the overall construction portion of the project.

As a result of the initial direct investment associated with the NEXUS Project, employment in a wide range of industries will also be supported. The largest share of employment is expected in the sectors most directly related to the project, specifically construction and the construction services sectors, which together will support an estimated 1,680 temporary positions.



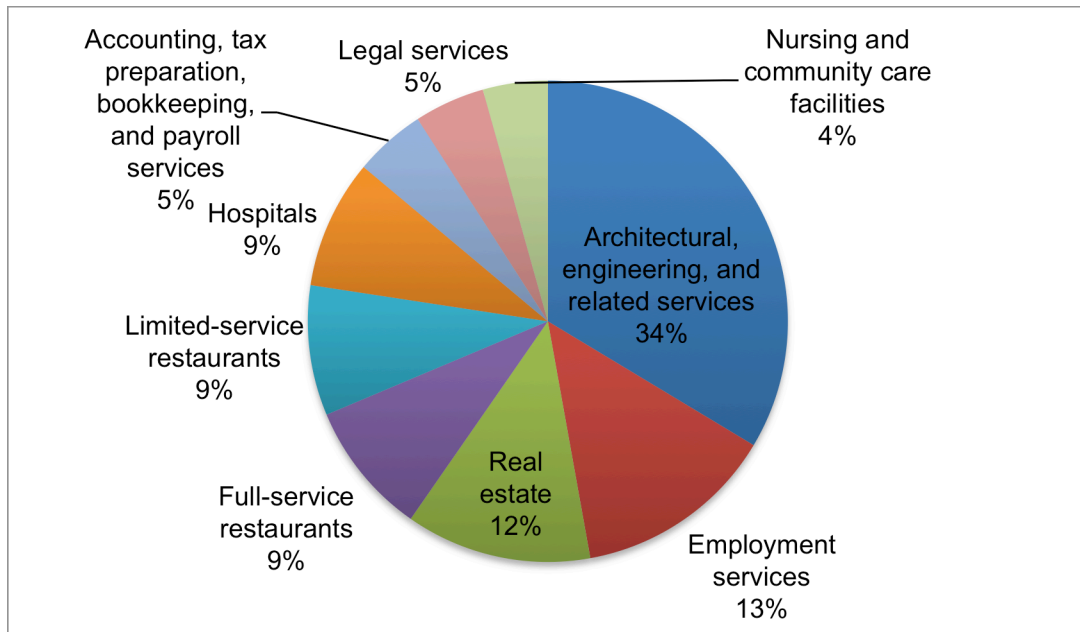
Table 8. Top Ten Sectors Impacted by Construction Employment

Employment Sector	Jobs
Private households	995
Architectural, engineering, and related services	479
Employment services	193
Real estate	178
Full-service restaurants	128
Limited-service restaurants	125
Hospitals	124
Accounting, tax preparation, bookkeeping, and payroll services	69
Legal services	68
Nursing and community care facilities	62
Total	2,422

Source: IMPLAN

Table 8 shows the ten sectors most impacted indirectly as a result of the initial direct NEXUS project-related investment. Following households at 995 jobs, the architectural and engineering sector ranks number one at 479 jobs supported. Closely following are the employment services, real estate, restaurant and hospital sectors. These sectors will most likely benefit from the influx of construction workers during the almost yearlong construction phase of the project.

Figure 3. Top Sectors by Percentage Employment



Source: IMPLAN

In Figure 3, these same industry sectors, other than households, are represented as a percentage of jobs supported. One-third of the estimated job impact supported by the construction investment is in the architectural and engineering sector. Restaurants, including limited and full-service restaurants, share almost equally in the number and percentage of jobs supported, with 258 jobs and 18% of the share of employment. As expected, employment services, most likely due to the spike in hiring activity, accounts for an estimated 13% of jobs supported as a result of the initial construction impact.

Table 9. Top Ten Sectors by Value Added Contribution

Sector	Jobs	Contribution
Private households	995.5	244,966,915
Real estate	178.4	27,706,349
Architectural, engineering, and related services	479.3	27,432,219
Owner-occupied dwellings	0.0	22,732,224
Hospitals	123.7	7,810,050
Employment services	193.4	7,747,397
Legal services	67.8	6,173,383
Offices of physicians	60.1	5,659,639
Wholesale trade	38.0	5,308,838
Monetary authorities and depository credit	26.0	4,385,142
Total	2,162	\$359,922,148

Source: IMPLAN

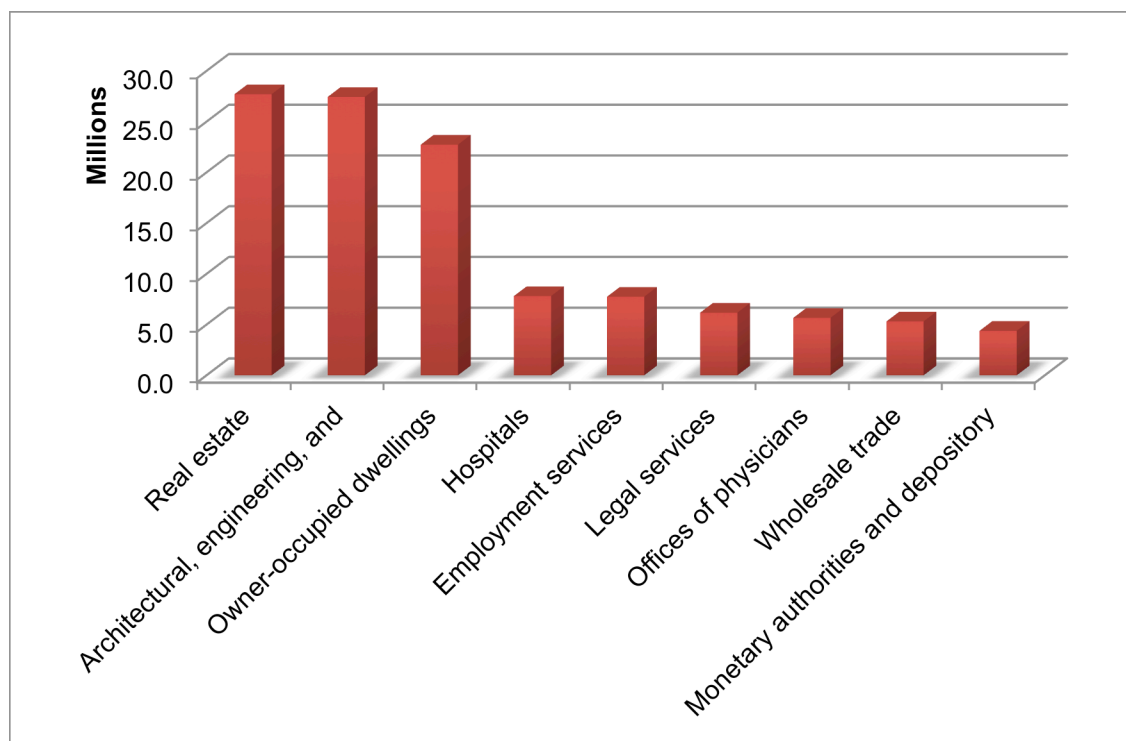
When considering the value-added spending that will occur as a result of the pipeline construction activity, Table 9 indicates that owner-occupied dwellings (i.e. housing rented by owners to workers) and real estate sectors are the top two sectors impacted. This is primarily the result of the housing required by workers during construction phase of the project. The table lists the top ten affected sectors during this phase of the project.

Note that although the spending contribution of owner-occupied dwellings is ranked number one, 0 jobs are supported as a result. The impact in this case is related to increasing income opportunities for owners of rental housing in the region.



Figure 4 provides a comparative perspective of the top sectors indirectly impacted as a result of the direct construction spending. The real estate and architectural, engineering, and related services both exceed an estimated \$27 million in value added to the regional GDP. Following closely behind is the owner-occupied dwellings sector, which could benefit from an increased demand for housing. Other sectors that will benefit from the initial construction investment in terms of increased employment and spending include: hospitals, employment and legal services, physicians, wholesale trade and banking.

Figure 4. Value Added Spending Contribution by Sector



Source: IMPLAN



Economic Impact – Operations Phase

Additional economic impact (albeit of a much lower order of magnitude than construction impact) will be realized when the pipeline becomes operational in 2018. Unlike construction impact, however, operational impact is an ongoing, annual effect. The economic impact expected from the ongoing operation of the pipeline, beginning in 2018 and going forward, is estimated to be \$3.7 million annually. It is estimated that pipeline operations could support a total of 44 jobs (28 direct, 5 indirect, and 11 induced jobs).

Table 10. Estimated Direct, Indirect and Induced Economic Impact Pipeline Operations by County

Location	Jobs	Labor Income (Thousands)	Value Added (Thousands)
Columbiana	18	\$1,173.7	\$1,614.1
Lucas	14	\$886.7	\$1,214.4
Medina	12	\$614.3	\$914.1
Total	44	\$2,674.7	\$3,742.6

Source: IMPLAN

Since operations are conducted at the compressor stations proposed in three counties (Columbiana, Medina and Lucas), estimated impacts are shown for these three counties only (see Table 10). As for top ten sectors impacted by the pipeline operations, Table 11 provides a summary of the estimated annual contribution of jobs, labor income and value added for the combined three counties.

Table 11. Top Ten Sectors Impacted by Employment, Labor Income and VA

Sector	Jobs	Labor Income	Value Added (VA)
Pipeline transportation	28.0	\$2,248,926	\$2,782,238
Employment services	1.1	\$35,607	\$44,001
Maintenance and repair construction of nonresidential structures	1.0	\$67,155	\$68,407
Hospitals	1.0	\$64,077	\$65,329
Limited-service restaurants	1.0	\$17,505	\$27,633
Full-service restaurants	1.0	\$18,587	\$20,884
Real estate	0.8	\$18,734	\$125,995
Retail - General merchandise stores	0.6	\$14,409	\$23,517
Retail - Food and beverage stores	0.5	\$14,430	\$21,075
Nursing and community care facilities	0.5	\$17,498	\$18,068
Total	35.6	\$2,516,927	\$3,197,148

Source: IMPLAN

References

Bureau of Labor Statistics, Regional and State Unemployment - 2013 Annual Averages. Retrieved from: <http://www.bls.gov/news.release/pdf/srgune.pdf>

JobsOhio. (2014). *2013/2014 annual report/strategic plan*. Columbus, OH: JobsOhio.

Ohio Labor Market Information, Ranking Report Ohio Unemployment Rates by County Annual Average 2013. Retrieved from: <http://ohiolmi.com/laus/CLFE/AnnualAverages/2013Ranking.pdf>

Swenson, D. (2013). *Using IMPLAN to Evaluate Public Universities Regional Economic Impacts*. Ames, IO: Department of Economics, Iowa State University. *Supplementary handout for the Workshop on University Economic Impact: Input-Output Analysis and Other Ways to Tell Your Story*, (May 3, 2013). Washington, DC.

United States Department of Energy, Energy Information Administration (EIA). (2008). *Distribution of Natural Gas: The Final Step in the Transmission Process*. Office of Oil and Gas.

United States Department of Energy, Energy Information Administration (USDOE/EIA). (2015, January 12). *Drilling Productivity Report*. Retrieved January 21, 2015, from U.S. Energy Information Administration, Petroleum and Other Liquids: <http://www.eia.gov/petroleum/drilling/>

United States Department of Energy, Energy Information Administration (USDOE/EIA). (2014, November 25). *Shale gas provides largest share of U.S. natural gas production in 2013*. Retrieved January 21, 2015, from U.S. Energy Information Administration, Today In Energy: <http://www.eia.gov/todayinenergy/detail.cfm?id=18951>

United States Department of Transportation. (2012, July). *Natural Gas Transmission, Gas Distribution, and Hazardous Liquid Pipeline Annual Mileage*. Retrieved January 2015, from Pipeline and Hazardous Materials Safety Administration: www.phmsa.dot.gov



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APPENDIX 5B

Economic Impacts of the NEXUS Gas Transmission Project in Michigan

Economic Impacts of the NEXUS Gas Transmission Project in Michigan

April 8, 2015

Submitted to: Spectra Energy Partners, LP

Prepared by: The Michigan State University
Land Policy Institute and
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East Lansing, Michigan

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Executive Summary

DTE Energy Company and Spectra Energy Partners, LP (hereafter, “SEP”), the lead developers of the NEXUS Gas Transmission System, have proposed to engage in the installation of a natural gas interstate pipeline and related infrastructure from eastern Ohio to Canada, including a portion in Southeast Michigan. The expenditures on this project will contribute to local and state economies in terms of sales, jobs, labor income and Gross Regional Product (GRP). This report estimates the economic impact of the Michigan portion of this project.

During 2013-2014, a study of the estimated economic impacts of two activities of the NEXUS project (the Vector Pipeline Loop and the DTE Gas Facilities Expansion) was conducted. This document reports findings from a new study to estimate the direct, indirect and induced economic impacts of related expenditures for an additional activity involving the portion of the NEXUS project that consists of new construction: the New Pipeline activity. This analysis produced estimated impacts for the Southeast Michigan area (including Lenawee, Monroe and Washtenaw Counties) and for the entire state of Michigan.

Study findings are as follows:

- The estimated expenditure on the NEXUS New Pipeline, or “greenfield,” activity in Michigan is \$355,366,406, with a local capture of \$126,184,622.
- The contribution of this spending to the Southeast Michigan economy is estimated to create 1,189 jobs, including 756 direct jobs, and 433 indirect jobs, for the duration of the project, where direct jobs include those employed directly by NEXUS and those employed by vendors.
- The region is expected to see a total economic output of \$183 million, with approximately \$71 million in labor income and \$94 million in regional GRP.
- A separate, state-level analysis shows that an estimated 1,533 jobs, including 805 direct jobs and 728 secondary jobs, for the duration of the project. The state-level analysis includes Southeast Michigan impacts, as well as any impacts outside the region.
- The state is expected to see \$254 million in economic output, \$97 million in labor income and \$135 million in GRP result for the state of Michigan.

Having an understanding of the economic activity that this project brings to the region is important for the project partners, regional and state stakeholder groups and relevant citizens.

Introduction

There is a growing demand for clean-burning natural gas in the upper Midwest United States and eastern Canadian regions, as well as a decline in supply from western Canada, which traditionally served these markets. To meet this demand for natural gas, Spectra Energy Partners, LP, and DTE Energy have proposed to install pipeline and related infrastructure to carry Appalachian shale gas through the U.S. states of Ohio and Michigan, into Ontario, Canada. This proposed project is known as the NEXUS Gas Transmission system. NEXUS will serve local distribution companies, power generators and industrial users in these areas. The map below, Figure 1, illustrates the general pathway of this pipeline project.

Figure 1. Map of NEXUS Gas Transmission Pipeline & Compression Stations



NEXUS will consist of a newly-constructed, “greenfield” pipeline that will extend approximately 250 miles from receipt points in eastern Ohio to interconnects with the existing pipeline grid in southeastern Michigan. It will have the capacity to transport up to two billion cubic feet of natural gas per day. The new line will generally follow existing utility corridors and also utilize both existing and expansion capacity on the DTE Gas transportation system and the Vector Pipeline System, where feasible, including

interconnects with Michigan Consolidated Gas Company, Consumers Energy and additional delivery points in Michigan.

The project has an estimated in-service date of November 2017, contingent upon final market demand and receipt of the necessary regulatory approvals.

NEXUS contracted with the Michigan State University Land Policy Institute to conduct an economic impact assessment for the Michigan portion of the New Pipeline activity. This assessment delivers an estimate of the direct, indirect and induced local economic activity, jobs and value-added impacts instigated by the NEXUS Gas Transmission project for Southeast Michigan, and the state as a whole.

Background

The New Pipeline activity consists of approximately 46 miles of mainline pipe through Lenawee (22 miles), Monroe (6 miles) and Washtenaw (18 miles) counties, located in Southwest Michigan. The plan includes one meter station located in Willow Run in Washtenaw County. Pipe and other materials will be purchased from a domestic or foreign supplier through a bidding process. Most potential suppliers for materials and equipment are located outside of the state, but much of the service providers will be contracted locally. Construction laborers will either be hired from the region or will temporarily move to the area for the duration of the project. Approximately 80% of third party contractors will be hired locally.

Spending estimates for the New Pipeline activity were provided by SEP; these figures were utilized in the economic impact analysis described below.

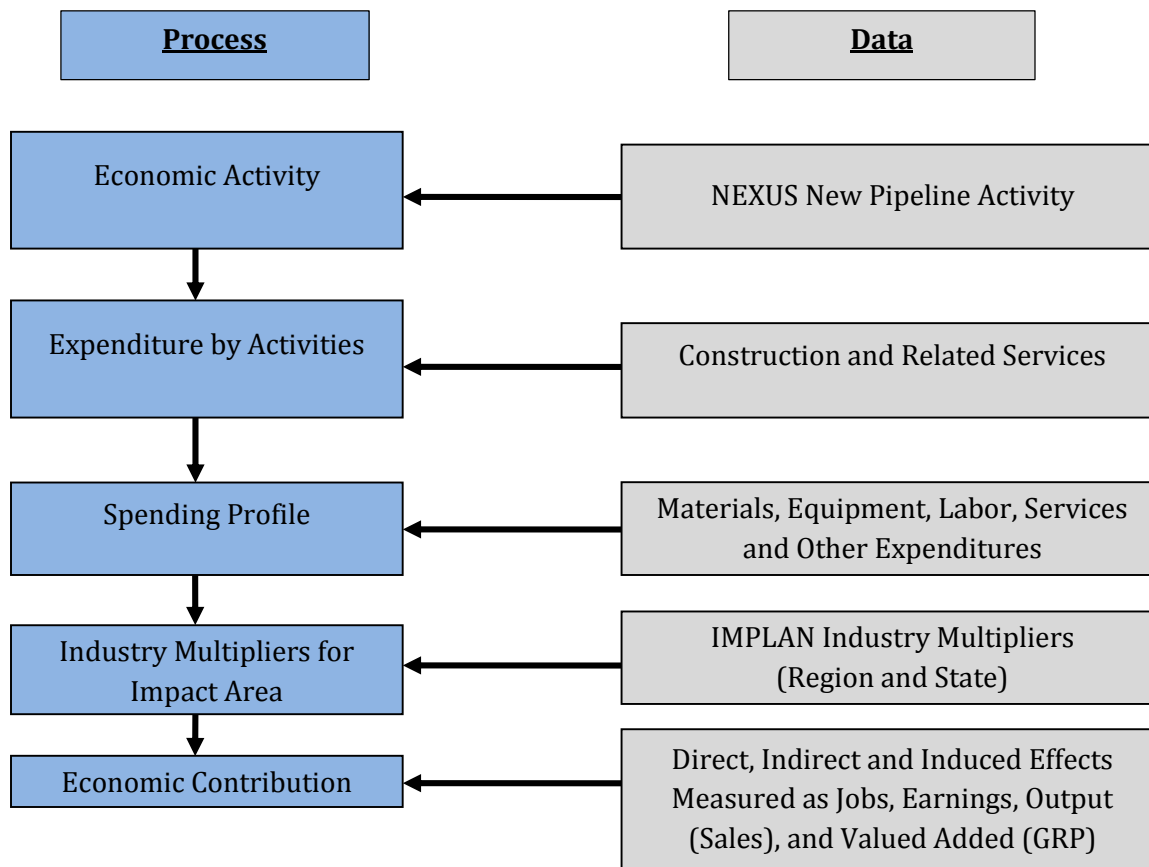
Methods

In order to estimate the full economic impact of the proposed NEXUS Gas Transmission projects' expenditures, the study team utilized IMPLAN® (IMpact analysis for PLANning), which is a complete economic assessment package including data and software, devised and delivered by MIG, Inc. (formerly Minnesota IMPLAN Group, Inc.). IMPLAN's system provides data with economic resolution from the national level down to the zip code level and is used by many government agencies, colleges and universities, non-profit organizations, corporations, business development entities and community planning organizations to help quickly and efficiently model economic impacts. IMPLAN uses data profiles from government statistical reporting agencies to represent the specified local economy, ideal for examining impacts of targeted investments in the local community, county, or state.

Using multipliers provided by IMPLAN for the Southeast Michigan Region, as well as the spending data provided by SEP, the analysis produced the economic output estimates for

NEXUS New Pipeline activity. The process is shown in Figure 2 and described in more detail below.

Figure 2. Flow Diagram of Economic Impacts Generated by NEXUS Project



The analysis defines the New Pipeline installation (Economic Activity) as “Construction and Related Services” and breaks down the overall cost into categories (Expenditure by Activities). These expenditures are categorized as Materials, Equipment, Labor and Services (Spending Profile). This analysis uses a series of industry multipliers, derived from IMPLAN, to characterize the contribution of the New Pipeline Activity on the NEXUS system to the Southeast Michigan Region’s economy. Multipliers utilized in this study include jobs, employment earnings, output (sales), and value added (Gross Regional Product (GRP)). The multipliers correspond to the distribution of project expenditures across key spending categories and are specific to the affected counties in this region (Industry Multipliers for Impact Area). Spending data and multipliers are plugged into the input-output model to produce the economic impacts (Economic Contribution).

Economic impacts are identified for three categories of impacts: direct, indirect, and induced. The direct effect is defined as the expenditures associated with the activities. In the impact area in which an economic activity is located, direct effects represent that proportion of the expenditure in each industry that flows to material and service providers in the region. For employment and earnings measures, the direct effect represents the jobs associated with the activity. The extent to which an effect is captured within the impact area is represented by geographic capture rates. This parameter is based on trade flow data for each industry sector. For retail and wholesale trade sales, primarily associated with the purchase of manufactured products, materials, or structures, a margin is applied to the direct effect, allocating it among the manufacturing, retail trade, wholesale trade, and transportation sectors.

The indirect effects include the backward-linked suppliers for any goods and services used by the direct activities. The induced effect to the region occurs from household expenditures associated with workers' earnings from both direct and indirect businesses.

The next section explains how this process is applied to NEXUS New Pipeline activity.

Economic Activities and Spending Profiles

This study identifies and defines the economic activities associated with each project, describes the related spending profile, and provides a rationale for each spending profile. These profiles are based on the client's input and an evaluation of how activities associated with the business align with the industries in the IMPLAN model.

The spending structures for the New Pipeline activity are shown in Table 1 below.

Table 1. Spending Profile for New Pipeline Activity (State Level)

Expenditure	Local Capture	Regional Purchase Coefficient	Expenditure	Local Expenditure
Raw Materials (includes freight and taxes)	5%	1.0000	\$53,795,584	\$2,432,400
Construction Labor (including pipeline, compression, and change orders)	95%	1.0000	\$104,576,589	\$99,347,760
Shipping Costs (includes freight only)	5%	0.8689	\$5,146,424	\$223,583
3rd Party Services (Contractor Labor)	80%	1.0000	\$18,241,531	\$14,592,877
Company Labor & Overhead	5%	-	\$20,423,196	-

Loads	0%	-	\$17,030,551	-
Contingency	0%	-	\$55,601,404	-
AFUDC	0%	-	\$26,521,962	-
Engineering Design	10%	0.9930	\$9,557,018	\$949,008
ROW	3%	0.9995	\$26,530,274	\$795,487
Environmental Permitting	100%	0.9892	\$2,586,408	\$2,558,380
Intercompany Services	15%	0.9915	\$6,727,206	\$1,000,485
General Project Expenses	75%	1.0000	\$5,550,406	\$4,162,766
Sales Tax	5%	-	\$2,955,978	-
Per-Diems	100%	1.0000	\$121,875	\$121,875
Total			\$355,366,406	\$126,184,622

Spending categories and amounts were provided to the research team by SEP. SEP indicated that most of the raw materials and equipment for this project would be purchased from manufacturers in other states, so spending profiles were adjusted accordingly. Operational expenditures are primarily local in nature (e.g., lawn care, utilities, waste disposal, computer services, office supplies, rentals and leasing, etc.). Most third party consultants are likely to be contracted out of state, per SEP. A majority of construction labor will be hired from within the region; the employees who will come from out of state to work on this project will temporarily relocate to the area and are therefore considered local labor for the purposes of this analysis. Per-diem expenditures are treated somewhat differently from direct expenditures on labor and inputs as they constitute direct payments to households. Secondary effects of per-diem expenditures are spent from household budgets assuming households with annual income ranging from \$35,000-\$50,000.

Geographical Capture Rates

The spending profile also identifies the geographical capture rate of the expenditure components, which is the portion of the associated spending on industries (sales) captured by companies located within the impact area. In many cases, IMPLAN's trade flows Regional Purchase Coefficients (RPCs) are utilized as a proxy to estimate where the money flows for each of the receiving industry sectors. Since specific manufacturers, suppliers and consultants have not been named in this early stage of the project, it is not yet known what portion of the expenditures will be located within the region, within the state, or outside of the state. Therefore, when not known, regional purchase coefficients from IMPLAN were utilized to estimate what portion of the expenditures is likely to take place within the region and state.

Impact Areas

This study evaluates impacts on two levels of geography: 1) Regional Impact Area and 2) State Impact Area: Michigan. The “Region” is comprised of Lenawee, Monroe and Washtenaw Counties.

The three-county region, comprised of Lenawee, Monroe and Washtenaw Counties, is located in the extreme Southeast corner of Michigan and borders the Detroit Metropolitan Statistical Area. This region has seen relatively robust employment growth compared to the neighboring metropolitan area, with annualized employment growth of 7.3% compared to 6.7% for Michigan state-wide. These counties also exhibit relatively lower rates of unemployment and poverty. Collectively the three-county region has an unemployment rate of 6.1% compared to a Michigan state-wide average of 7.9% over the first six months of 2014 and according to the latest Census estimates, poverty rates in the three-county region totals 13.8% versus 16.3% for the state.

Using the above parameters for spending categories, geographic capture rates, impact area and industry-specific multipliers, the IMPLAN 3.0 software yielded the estimated economic impacts of NEXUS system projects, which are presented in the next section.

Results of Economic Impact Analysis

Results from the regional and state economic impact assessment follow for the New Pipeline activity.

Total expenditures for the Michigan portion of the New Pipeline activity are budgeted to be about \$355 million dollars. The economic activity associated with these expenditures will be spread across three counties in Southeast Michigan including Lenawee, Monroe and Washtenaw Counties. This expenditure comprises Michigan's portion of a larger multi-state installation, and not all direct expenditures are expected to give rise to Michigan sales. Some purchases for this installation will be made to businesses and labor that operate outside of the area, but within the state, while other expenditures are expected to be made to vendors outside of the state. Hence, in assessing the economic impacts of this project, only those expenditures that give rise to transactions within the county and the state of Michigan give rise to local and state area economic activity. Therefore, only the expected local shares of planned expenditures are included in this economic impact analysis.

SEP provided breakouts of planned expenditures by expenditure category and estimated shares of those expenditures that will go likely go to Michigan suppliers and labor. Furthermore, some expenditures giving rise to state level impacts may not actually accrue in the three-county region if the expenditures go to vendors in Michigan but not within the region. Regional purchase coefficients for each of the three-county regions were used to delineate the share of state expenditures not within the three counties of this study. In total, about \$126 million of the planned expenditures is expected to give rise to direct economic activity in the three-county region.

State Economic Impacts

Direct in-state expenditures by sector are used to estimate total economic activity expected from this New Pipeline activity. The findings are summarized in Table 2. To this extent, \$126,184,622 in direct in-state expenditures is expected to give rise to an additional \$127,774,756 in transactions across the state through secondary effects. Combining direct and secondary effects, state output is expected to receive a \$253,959,378 increase during the installation period. In addition, it is anticipated that jobs created by direct expenditures of NEXUS New Pipeline and employment arising from third-party recipients of direct expenditures will generate 805 jobs in the state plus 728 secondary jobs through the multiplier effect. In total, employment activity is expected to rise by 1,533 jobs during the duration of this project.

Labor income is expected to increase as well, with direct changes in wages of some \$52,235,503 and secondary wages of \$44,634,172. To be sure, it is likely that the total number of new jobs may be below these estimates as businesses will likely recognize that

increased purchases constitute a temporary increase in sales and refrain from adding new workers, but rather increase the total hours of existing workers. Unfortunately, it is difficult to assess this outcome. Finally, the state should expect a boost in gross regional product of about \$59,936,142 through direct expenditures and an additional \$75,113,063 through secondary transactions.

Table 2. State Economic Impacts of the New Pipeline Activity

		Output (\$)	Jobs	Labor Income (\$)	GRP (\$)
Direct Impacts	Raw Material & Construction Labor	101,780,160	639	41,389,004	47,053,986
	Other Expenditures	24,282,587	166	10,846,499	12,882,156
	Per-Diems	121,875	0	0	0
Total Secondary Impacts		127,774,756	728	44,634,172	75,113,063
Total Impacts		253,959,378	1,533	96,869,675	135,049,205

Lenawee County Economic Impacts

About 47% of the installation activity is expected to take place in Lenawee County. As such, about 47% of the direct expenditures are expected to take place here, adjusted for regional availability. Regional purchase coefficients are used to reduce local share of purchases not readily available in Lenawee County. As for the state, most expenditure will be for raw materials and construction labor. Accordingly, the project is expected to generate about \$56,255,043 in direct expenditures in Lenawee County and an additional \$26,193,968 in secondary transactions, giving rise to a total of 569 direct and secondary jobs during the installation periods with total labor income of \$22,098,344.

Table 3. Lenawee County Economic Impacts of the New Pipeline Activity

		Output (\$)	Jobs	Labor Income (\$)	GRP (\$)
Direct Impacts	Raw Material & Construction Labor	47,147,669	296	19,169,860	21,796,417
	Other Expenditures	7,939,831	51	3,229,778	3,883,711
	Per-Diems	14,452	0	0	0
Total Secondary Impacts		23,251,435	222	5,742,282	11,253,707
Total Impacts		78,353,387	569	28,141,920	36,933,835

Monroe County Economic Impacts

Of the three counties making up this impact region, Monroe County has the lowest share of expenditures, at about 14%. Adjustments to expenditures based on local availability are made in determining direct expenditures and associated direct impacts. Monroe County is expected to realize an increase in total output (transactions) of about \$25,407,804 including direct expenditures of \$16,732,245. This coincides with increased employment of 147 with total labor income of \$10,590,854 through the duration of installation.

Table 4. Monroe County Economic Impacts of the New Pipeline Activity

		Output (\$)	Jobs	Labor Income (\$)	GRP (\$)
Direct Impacts	Raw Material & Construction Labor	13,673,878	86	5,558,912	6,321,331
	Other Expenditures	2,720,118	16	1,150,317	1,371,387
	Per-Diems	4,185	0	0	0
Total Secondary Impacts		9,009,623	45	3,881,625	6,043,296
Total Impacts		25,407,804	147	10,590,854	13,736,014

Washtenaw County Economic Impacts

About 39% of the installation activity is expected to take place in Washtenaw County. Direct expenditures are adjusted based on local availability. Direct expenditures in Washtenaw County are expected to be \$48,956,901, giving rise to total increase in output of \$79,093,702. This increase in output will give rise to 473 jobs in the county with total wage incomes of about \$32,636,028.

Table 5. Washtenaw County Economic Impacts of the New Pipeline Activity

		Output (\$)	Jobs	Labor Income (\$)	GRP (\$)
Direct Impacts	Raw Material & Construction Labor	38,651,186	243	15,713,517	17,868,220
	Other Expenditures	9,330,757	64	4,178,765	4,954,704
	Per-Diems	30,469	0	0	0
Total Secondary Impacts		31,081,290	166	12,743,746	20,273,463
Total Impacts		79,093,702	473	32,636,028	43,096,387

Combined Three-County Economic Impacts

The combined, three-county economic impact estimates are simply the sum of the individual county impacts. The direct effects for the three-county region are smaller than for the state, reflecting limited availability of some inputs. In addition, the multipliers that give rise to secondary impact estimates tend to be smaller for the combined three county region, reflecting greater economic leakages across transactions. An economic leakage is when a purchase is made from a supplier outside the region. For this region, many of those secondary transactions will take place outside the region but within the state. In total, the three-county region is expecting to experience a gain of \$182,854,893 million in total economic transactions that give rise to 1,189 jobs with total labor income of \$71,368,802. Similar to the state, actual job creation may be less than this, as employers will likely recognize this to be a temporary increase in economic activity, and rather than add on new workers to their payroll, will likely increase the hours of existing workers. It should also be noted that the total economic impacts in terms of transactions (output), jobs, labor income and GRP is lower for the three-county region than for the state, reflecting lower availability of inputs in the three-county region relative to the state.

Table 6. Combined Three-County Economic Impacts of the New Pipeline Activity

		Output (\$)	Jobs	Labor Income (\$)	GRP (\$)
Direct Impacts	Raw Material & Construction Labor	99,472,733	625	40,442,289	45,985,968
	Other Expenditures	19,990,706	131	8,558,860	10,209,802
	Per-Diems	49,106	0	0	0
Total Secondary Impacts		63,342,348	433	22,367,653	37,570,466
Total Impacts		182,854,893	1,189	71,368,802	93,766,236

Conclusion

The NEXUS Gas Transmission System, with the proposed New Pipeline Activity and a projected time table beginning in 2017, is estimated to instigate the following total direct, indirect and induced economic impacts in Michigan's Southeast Region, including Lenawee, Monroe and Washtenaw Counties:

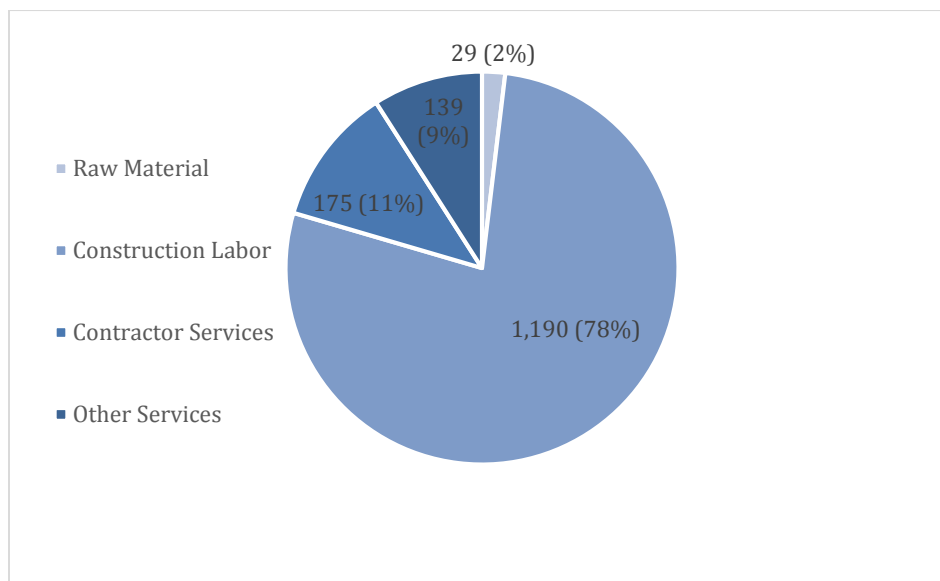
- About 1,189 jobs in construction and related services industries, for the duration of the project;
- Economic output of \$183 million;
- Approximately \$71 million in labor income; and
- A contribution of \$94 million to regional GRP.

State-level analysis produced the following estimated economic impacts, which include the Southeast Michigan impacts, plus any impacts outside the region:

- About 1,533 jobs in construction and related services industries, for the duration of the project;
- Economic output of approximately \$254 million;
- Approximately \$97 million in labor income; and
- A contribution of about \$135 million to state GRP.

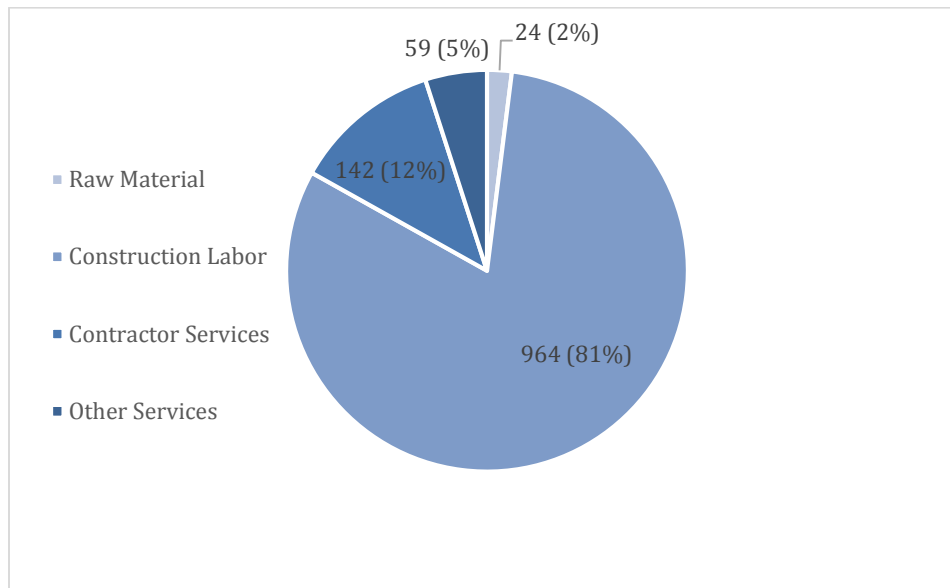
Total job impacts for the region and state, by labor type, are reported in Figures 3 & 4 below.

Figure 3. Regional Job Impacts of the New Pipeline Activity



Values in parentheses are percent of total jobs

Figure 4. State Job Impacts of the New Pipeline Activity



Values in parentheses are percent of total jobs

Information about the economic activity that this project brings to the region, provided through this report, is important to discussions for planning and execution of the NEXUS Gas Transmission System between the project partners, regional and state stakeholder groups, and relevant citizens.

The findings of this report are reliant upon the accuracy of the estimated or known information about the parameters of the proposed New Pipeline Activity. Like any economic impact assessment, the assumptions that were adopted for this study are the best possible assumptions based upon available information. Both standard approaches to estimating direct expenditure impacts and for estimating secondary impacts were applied in this analysis, and every effort was undertaken to assure accurate representation of this project as laid out by NEXUS. The appropriateness of estimated impacts can be refined as further details about the proposed activities become available.