Analysis of the Economic Contribution of Constructing the New International Trade Crossing: A New Bridge Linking Detroit and Windsor

by

June 2012

The statements, findings, and conclusions herein are those of the authors and do not necessarily reflect the views of the project sponsors.

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Center for Automotive Research
3005 Boardwalk
Ann Arbor, MI 48108
www.cargroup.org

Report Prepared by:

Kim Hill
Director, Sustainability & Economic Development Strategies,
Director, Automotive Communities Partnership

Richard Wallace
Director, Transportation Systems Analysis

Debbie Maranger Menk
Senior Project Manager

Joshua Cregger
Industry Analyst

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Kim Hill Director, Director, Sustainability & Economic Development Strategies
Richard Wallace, Director, Transportation Systems Analysis
Debbie Maranger Menk, Senior Project Manager
Joshua Cregger, Industry Analyst

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Center for Automotive Research
3005 Boardwalk, Suite 200
Ann Arbor, MI 48108
734.662.1287
www.cargroup.org

EXECUTIVE SUMMARY

Canada and the State of Michigan have proposed the construction of a new bridge connecting Detroit, Michigan, with Windsor, Ontario. The proposed new bridge has been met with both support and opposition on the Michigan side of the border. Therefore, the Center for Automotive Research (CAR) was asked by multiple stakeholders to assess the employment benefits to Michigan of constructing and operating the proposed new bridge across the Detroit River. In this study, CAR used an economic model to generate estimates of employment and economic contributions that will accrue to the region as a result of adding a second bridge—currently referred to as the New International Trade Crossing (NITC). This report documents the findings from CAR's analysis.

CAR's research and analysis finds that building the NITC will add significantly to the employment base in the State of Michigan and to the Michigan economy more generally. This will occur through four mechanisms:

- Bridge construction
  - In Michigan, approximately 6,000 jobs created each of the first two years of construction and 5,100 jobs for each of the final two years of construction
  - Michigan gross state product increases by $1.5 billion[1] per year for four years
  - Michigan personal income increases by $1.5 billion per year for four years
  - Michigan state revenues increase by $150 million per year for four years
- Statewide construction projects from match funding
  - $2.2 billion in federal matching funds made possible by the $550 million in funds provided to Michigan by Canada
  - Average 6,600 jobs created or retained per year for four years
  - Michigan personal income increases by $1.8 billion per year for four years
  - Michigan state revenues increase by $180 million per year for four years
- Bridge operations
  - Nearly 1,400 permanent jobs created for operation of the new bridge
  - Total contribution to Michigan gross state product of $130 million per year
  - Michigan personal income increases by $135 million per year
  - Michigan state revenues increase by $14 million per year
- New private investment
  - 6,800 permanent jobs created
  - Total contribution to Michigan gross state product of $630 million per year
  - Michigan personal income increases by $613 million per year
  - Michigan state revenues increase by $62 million per year

[1] Unless otherwise noted, all dollar values are U.S. current dollars

INTRODUCTION

For several years, the governments of Michigan and Canada have been in discussions to construct a new bridge connecting Detroit, Michigan and Windsor, Ontario. Based on the results of several studies, including an Environmental Impact Statement (EIS), these governments identified a preferred corridor for the proposed bridge. The bridge project, formerly known as the Detroit River International Crossing (DRIC), is now officially named the New International Trade Crossing (NITC). (See Appendix A for basic information related to the NITC and the Michigan-Ontario border.)

The Canadian government is fully committed to constructing the bridge. In Michigan, however, the proposed new bridge has proven to be more controversial. While business interests are aligned solidly behind the new bridge, as is Governor Snyder, the state legislature is divided.

To inform the ongoing debate, the Center for Automotive Research (CAR) was asked to investigate the economic impacts of building the new bridge and related highway improvements in Michigan. CAR researchers used a standard economic model to generate new estimates of effects on employment and economic impacts that construction of a new crossing will have on the region. This report presents the results of CAR's research and analysis and documents the projected employment impacts of constructing the NITC.

For clarification of acronyms used in this report, see Appendix B.

METHODS

In completing its analysis of employment and other economic impacts of the NITC, CAR employed two primary methods: an extensive review of available literature and development of a regional economic impact model. Both of these approaches contributed to CAR's findings.

CAR's analysis started with an extensive search and review of literature from multiple sources regarding the costs and societal benefits of constructing the NITC bridge. The findings from this literature search provided the data inputs used to estimate the economic and employment contributions associated with NITC construction and operations.

A specially constructed regional economic impact model by Regional Economic Models, Inc. (REMI) of Amherst, Massachusetts was used for this analysis. Using this model, CAR researchers generated estimates of the economic and employment contributions associated with the new bridge construction and operations using investment dollars, as outlined in the Final Environmental Impact Statement and other studies, as the data input. This model was then adjusted to reflect the general characteristics of regional

industries dependent on cross-border trade and traffic. The REMI model, which is well documented and has been peer-reviewed, was designed for the type of analyses employed in this current study and has been used by CAR and other organizations for more than two decades.

This model allows for simulating the interaction among the regional economies of Ohio, Indiana, Michigan and the rest of the nation, providing for an accounting of interregional trade and migration. Therefore, the model can simulate economic impacts that may occur in any one region, resulting from changing activities in any or all of the regions.

The general methodology in the analyses is to run baseline simulations for each region's economy, then expected investment for construction activities and run another set of simulations. The difference between the simulations represents the impact of the investment.

ESTIMATED EMPLOYMENT IMPACTS OF NITC

The new bridge will support jobs through four means of economic impact:

- Bridge construction
- Statewide construction projects from federal matching funds
- Bridge operations
- New private investment

Employment-related advantages that can be gained by building the bridge include the creation of construction jobs during the building of the bridge as well as creating or retaining construction jobs for other highway infrastructure projects supported by federal matching funds made available as a result of the investment in the crossing, jobs created by the operation of the bridge itself, and jobs created by new investment from private industry locating in the region as a result of the opportunities presented by the new crossing (see Appendix C for detailed data tables with estimated employment gains and forecast methodology).

Employment from Bridge Construction

Construction of the bridge will create many well-paying construction jobs, and these jobs will, in turn, support other jobs in the local economy as employed workers spend their paychecks. Approximately 6,000 jobs will be created in Michigan during the first two years, and an average of 5,100 jobs will be supported in the Michigan economy during the final two years of construction. This estimate assumes that the cost of the bridge, including highway modifications and plaza construction on the U.S. side, is $1.75 billion and that the spending on construction for the bridge is slightly skewed towards higher spending in the early years and tapers off in the latter two years (see Appendix C for cost detail). Half of these jobs will be construction jobs, and the other

half will be jobs in many supporting industries. Furthermore, construction of the bridge will contribute nearly $1.5 billion to Michigan's gross state product (GSP) and a total of $2.5 billion to the U.S. GDP over the four-year construction period.

Employment from Federal Matching Funds

Canada has offered to pay up to $550 million for Michigan's share of the cost of building the NITC Bridge. This money would be repaid from Michigan's portion of the NITC Bridge toll revenue until Canada recoups it costs. After that, toll revenue would be split by Michigan and Canada. Michigan Governor Snyder received an agreement from the U.S. government that this $550 million can be used by the state as matching funds to receive federal transportation dollars. Generally, federal funds are provided at a 4:1 ratio (federal to state dollars) and MDOT has stated that "every $1 of the $550 million Canadian investment leverages $4 in federal highway funding."[2] The $550 million NITC expenditure thus represents $2.2 billion U.S. federal funding for Michigan roads, bridges, and other transportation projects.[3,4]

While the Michigan matching funds of $550 million will be spent directly for building the NITC Bridge, the $2.2 billion federal matching funds may be spent on any Michigan roadway projects. These federal funds represent an opportunity for Michigan to rebuild its roadway infrastructure. During the recent recession, as state revenues dropped sharply, the state was eligible for more federal highway dollars than it was able to match (and therefore obtain). As a result, some necessary road maintenance and new construction projects have been delayed.

The Michigan Department of Transportation states in its 2011-2015 Five-Year Transportation Program that the "Canadian expenditure and programmatic agreement with FHWA will allow MDOT to move forward with federal aid projects that otherwise would have been cancelled or delayed under the current program. It does not increase the overall federal highway dollars available to Michigan, although the federal matching funds will support critical projects that are part of the MDOT Five-Year Transportation Program."[5]

The investment of $2.2 billion on roadway maintenance and construction over the same four years of bridge construction can support an average of 6,600 jobs per year throughout the state. These jobs will provide Michigan workers with an average of $450 million in wages each of these four years and yield an average of slightly more than $45 million in annual personal income taxes (federal, state, and local) paid from these wages.

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[2] MDOT. (2011). "2011-2015 Five-Year Transportation Program." Michigan Department of Transportation. April 28, 2011. <http://www.michigan.gov/documents/mdot/MDOT_5_Year_Program_216970_7.pdf>.
[3] Ibid.
[4] Snyder Administration. (2011). "New International Trade Crossing Proposal." Office of the Governor Rick Snyder. September, 2011. <http://www.michigan.gov/documents/snyder/NITC_Overview_362601_7.pdf>.
[5] MDOT. (2011). "2011-2015 Five-Year Transportation Program."

Quite possibly, Michigan might obtain some portion of the $2.2 billion in federal funds even without the $550 million spending for the NITC; however, there are indications that the $2.2 billion is in addition to the federal matching funds that Michigan will obtain from other highway spending. Governor Snyder negotiated a specific agreement with the federal government to use the Canadian spending on the bridge as Michigan matching funds.

The Detroit International Bridge Company (DIBC), owner of the Ambassador Bridge, has proposed an alternative span to the NITC Bridge that would be privately owned. Anderson Economic Group has examined both the NITC and DIBC proposals and the factors influencing the viability of each in a recently published white paper.[6] Earlier this year, approximately $50 million in toll revenue credits relating to work on the Ambassador Bridge were approved as matching funds for Michigan to use in obtaining federal transportation dollars.[7] The credits allow the state to leverage $200 million in federal transportation funds.

In the MDOT Highway Program plan for 2010-2014, MDOT identifies two investment strategies, one that assumes MDOT is able to match all available federal revenues, and another that assumes insufficient state revenues to match available federal revenues. The estimates in the plan imply that Michigan will be only able to use 64 percent of available federal funds, with $2.37 billion in potential federal funding left unused for the 5-year time period covered by the plan.[8,9]

Employment from Bridge Operations

It is estimated that the bridge will require 775 employees for bridge and plaza operations.[10] Each of these jobs will support an average of another three quarters of a job in the economy, for nearly 1,400 permanent jobs total in the economy. These jobs will contribute more than $130 million per year to the state's GSP.[11]

Employment from New Private Investment

In addition to the jobs at NITC, the bridge will attract new jobs and investment into the immediate local community because of new activity that is enabled by the bridge. An estimated 3,350 new direct jobs may be created because of the change in accessibility associated with NITC.[12] Each of these 3,350 jobs supports more than one other indirect

[6] Spencer, Colby W.; Caroline M. Sallee, and Alex L. Rosaen. (2011). "Building a New Bridge in Detroit: A Study Evaluating the Options." Anderson Economic Group. September 20, 2011. <http://www.andersoneconomicgroup.com/Portals/0/upload/AEG%20Bridge%20Comparison%20Whitepaper%20PUBLIC.pdf>.
[7] Upchurch, Alan. (2011). "Federal Highway Administration Accepts Use of Ambassador Bridge Toll Credits to Match Federal Highway Dollars." Marx Layne & Co. May 26, 2011. <http://www.pr.com/press-release/326800>.
[8] MDOT. (2010). "Economic Benefits of the Michigan Department of Transportation's FY 2010-2014 Highway Program." Michigan Department of transportation. March 2010. <http://www.michigan.gov/documents/mdot/MDOT_economicbenefitreport_202828_7.pdf>.
[9] We do not net for loss of jobs at the Detroit International Bridge company with the addition of the NITC.
[10] MDOT. (2008). "Detroit River International Crossing Study Final Environmental Impact Statement." Michigan Department of Transportation. December 2008. <http://www.partnershipborderstudy.com/reports_us.asp>.
[11] We do not net for potential disinvestment at the Ambassador Bridge site with the addition of the NITC.
[12] MDOT. (2008). "Final Environmental Impact Statement."

job in the economy (for a total of more than 6,800 jobs), and in total, contribute more than $630 million per year to the state's GSP.

CONCLUSIONS

The New International Trade Crossing will provide greater accessibility between Michigan and Canada. This greater accessibility could lead to new private investment as well as job creation and retention. Further opportunities will be generated from both the construction and connected activity in highway improvements in Michigan. Initially, the construction of the bridge itself will serve as an economic stimulus by generating employment opportunities within the state of Michigan. Once construction is completed and border-crossing operations have commenced, jobs will be created to operate and maintain the bridge.

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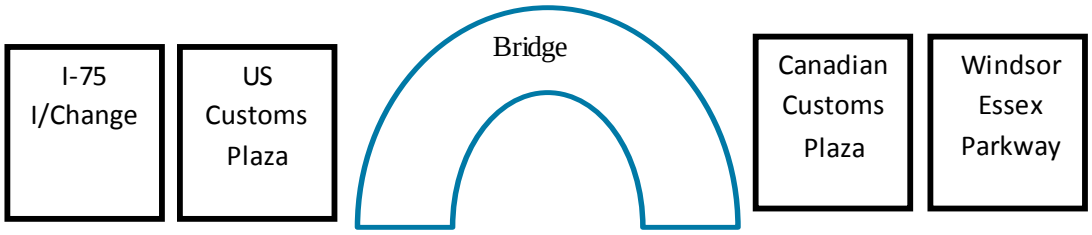
APPENDIX A: NEW INTERNATIONAL TRADE CROSSING FACTS

Basic Facts about the NITC

- Expected cost of the bridge itself is estimated to be slightly less than $1 billion. Total project implementation costs include the cost of highway work on both sides, which is not officially part of the partnership's scope of work. Michigan's share of the total project cost is expected to be very little to nothing at all. [13]
- NITC will be a six-lane bridge.[14]
- Annual toll revenues are expected to be $70 million in the first year of operation.[15]

Figure A1: Estimated Cost and Funding Sources for NITC

Project Component Costs and Funding Sources



Net Cost* ($Millions)	**385.9**	**413.6**	**949.1**	**387.6**	**1,400**
Michigan/ FHWA*	0	0	0	0	0
GSA	0	263.6	0	0	0
Canada	385.9	150.0	0	387.6	1,400**
P3 Partner	0	0	949.1	0	0

Source: Figure 8.1 Project Cost Breakdown by Element – "Report to the Legislature of the State of Michigan Responding to Public Act 116 of 2009, Section 384" – May 1, 2010 (page 21)

* Since FHWA is assumed not to contribute to the DRIC project, the FHWA management contingency has been excluded for a) US Plaza (~$7 million) and b) I-75 interchange (~$34.2 million). If FHWA funding became available for these project elements, then these management contingencies would be added back in, but would be covered by the FHWA funding.

**Canada and Ontario to fund 50/50 and cost updated to final cost. Project reached financial close in December 2010

[13] Transportation Canada and MDOT. (2010). "Backgrounder: Detroit River International Crossing Financial Arrangements under a Public-Private Partnership (P3)." Transportation Canada and Michigan Department of Transportation. May 27, 2010. <http://www.partnershipborderstudy.com/pdf/2010-05-28TCBackgrounderforMILegreDRICFinancialArrangementsUnderaP3.pdf >.
[14] Spencer et al. (2011). "Building a New Bridge."
[15] Wilbur Smith Associates. (2010). "Preliminary Results of the Comprehensive Traffic and Toll Revenue Study for the Detroit River International Crossing Project Forecast Refresh and Update." Wilber Smith Associates in association with IBI Group; Resource Systems Group, Inc.; and The Centre for Spatial Economics. May 2010. <http://www.partnershipborderstudy.com/pdf/6-16-10/DRIC Comprehensive TR Study Draft Final Report May 2010 on.pdf>.

Ambassador Bridge Crossings[16]

- In 2010, 7.2 million vehicles crossed the Ambassador Bridge.
- Cars: 4.5 million. Car crossings are expected to increase by 57% by 2035
- Trucks: 2.7 million. Truck crossings are expected to increase by 128% by 2035

Michigan Exports[17,18]

- Michigan exports $44 billion of products per year.
- 25% of Michigan manufacturing jobs depend on exports.
- 6% of all Michigan jobs depend on exports.
- The largest foreign trading partner of Michigan is Canada.

Table A1: International Land Freight Gateways - Value of Shipments

Port	Total Trade (Billions USD)	Exports (Billions USD)	Imports (Billions USD)	Percent of all U.S. Trade
Port of Detroit, MI	120.2	66.5	53.7	3.7%
Port of Laredo, TX	115.8	53.9	61.8	3.6%
Port of Huron, MI	81.2	35.2	46.0	2.5%
Port of Buffalo-Niagara Falls, NY	80.8	40.3	40.5	2.5%
Port of El Paso, TX	48.2	20.2	28.0	1.5%
Port of Otay Mesa Station, CA	31.8	10.6	21.2	1.0%
Port of Champlain-Rouses Pt., NY	23.6	9.4	14.2	0.7%
Chicago, IL	22.7	0.0	22.7	0.7%
Port of Hidalgo, TX	22.1	9.9	12.3	0.7%
Port of Pembina, ND	19.9	11.2	8.6	0.6%
Port of Nogales, AZ	19.1	6.9	12.2	0.6%
Port of General Edward Lawrence Logan International, MA	18.4	11.0	7.4	0.6%
Portal, ND	16.5	9.6	6.9	0.5%
Port of Sweetgrass, MT	15.8	7.9	8.0	0.5%
Total U.S. Merchandise Trade	**3248.8**	**1220.4**	**2028.5**	**100.0%**

Source: Census. (2011).[19]

Michigan-Ontario Vehicle Trips by Residents[20]

- There are 1.3 million Michigan resident trips to Canada.
- There are 1.4 million Ontario resident trips to Michigan.

[16] PBOA. (2011). "Ontario Border Crossings with Michigan & New York." Public Border Operators Association. 2011. <http://publicborderoperators.org/newsite/images/PBOA_Traffic_2011.xls.php>.
[17] SEMCOG. (2009). "Economic Impact of the Border: Detroit/Windsor." Southeast Michigan Council of Governments. Fall 2009. <http://www.semcog.org/uploadedFiles/Programs_and_Projects/Transportation/Borders/Economic%20Impact%20of%20the%20Border_web.pdf>.
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[20] SEMCOG. (2009). "Economic Impact of the Border."

Historical Comparisons

Ambassador Bridge, built in 1927[21]

- 2.5 years and $300 million (current dollars) to build
- Span 7,500 feet
- 7.2 million vehicles/year
- $60 million annual toll revenue

Mackinac Bridge, built in 1954[22]

- 3 years and $800 million (current dollars) to build
- Span 8,600 feet
- 4.3 million vehicles/year

[21] Ambassador Bridge. (2011). "The Story Behind the Bridge." Ambassador Bridge Website. Accessed March 14, 2011. <http://www.ambassadorbridge.com/!Downloads/History.pdf>.
[22] MDOT. (2011). "Mackinac Bridge Frequently Asked Questions." Michigan Department of Transportation. Accessed March 14, 2011. <http://www.mackinacbridge.org/faq-17/History/>.

APPENDIX B: LIST OF ACRONYMS

CAR – Center for Automotive Research

DIBC – Detroit International Bridge Company

DRIC – Detroit River International Crossing

EIS – Environmental Impact Statement

FHWA – Federal Highway Administration

GSA – U.S. General Services Administration

GSP – Gross State Product

MDOT – Michigan Department of Transportation

NITC – New International Trade Crossing

APPENDIX C: EMPLOYMENT

The Center for Automotive Research generated the estimates in this appendix using an economic impact simulation program. Assumptions that were used in the simulation were drawn from various studies and public documents that have been previously published.

In the first five years, the contribution to GSP would be nearly $4 billion. The $4 billion contribution to GSP includes four years of both bridge construction and other projects financed by matching federal highway funding followed by one year of plaza operations and operation of businesses locating in Michigan as a result of the new crossing. Ongoing after the first five years, annual contribution to GSP would be more than $780 million. The ongoing contribution includes just toll operations and operation of businesses locating in Michigan as a result of the new crossing.

Employment Benefits from Bridge Construction

Press releases and public statements regarding the NITC project quote general figures of 10,000 to 13,000 construction jobs in Michigan that support another 20,000 to 30,000 jobs in the state's economy for a total of 30,000 to 40,000 jobs. An important note to these job numbers is that the employment figures are for total person-year jobs and are not total jobs created each year. They are also not strictly Michigan-based jobs, but include all U.S. employment created, some of which will be in surrounding states. These numbers are based on well-accepted data from the Federal Highway Administration (FHWA) which states that for every $1 billion of government spending on highway construction, 9,536 direct construction jobs will be created and another 18,286 jobs will be supported in the (regional) economy.[23]

CAR uses a widely recognized dynamic, inter-industry regional economic model to estimate employment and personal income from proposed projects such as construction of this bridge. Personal income is defined as all costs associated with employment, included wages, benefits and employer-paid contributions. The jobs created each year, as shown in Table C1, are not additive from year to year. The final column, Total Person-Year Jobs is provided to show the comparison to the oft-cited FHWA job figures, which are always Person-Year Jobs.

[23] Levine, Linda. (2008). "Job Loss and Infrastructure Job Creation During the Recession." Congressional Research Service. December 23, 2008. <http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1578&context=key_workplace&sei-redir=1#search=%22federal+highway+job+creation+bridge+construction%22>.

Table C1: Estimate of Jobs Created by Construction of NITC

MICHIGAN AND U.S.	2013	2014	2015	2016	TOTAL Person-Year Jobs
Michigan Direct Construction Jobs	3,571	3,452	3,122	2,952	13,097
Michigan Indirect Employment	2,540	2,436	2,166	1,995	9,137
Total Michigan Employment	**6,111**	**5,888**	**5,288**	**4,947**	**22,234**
U.S. Direct Employment Outside Michigan	770	761	667	599	2,797
U.S. Indirect Employment Outside Michigan	2,963	2,367	1,701	1,251	8,282
Total U.S. Employment Outside Michigan	**3,733**	**3,128**	**2,368**	**1,850**	**11,079**
TOTAL ANNUAL EMPLOYMENT, ENTIRE U.S.	**9,844**	**9,016**	**7,656**	**6,797**	**33,313**
					TOTAL $
Contribution to Michigan GSP Millions US $	$ 389.1	$ 385.3	$ 355.0	$ 339.0	$ 1,468.4
Contribution to US GDP Millions US $	$ 738.6	$ 681.3	$ 582.0	$ 516.0	$ 2,517.9
Personal Income-Michigan US $	$ 373.0	$ 393.0	$ 381.0	$ 379.0	$ 1,526.0
Personal Income Taxes-Michigan US $	$ 37.0	$ 39.0	$ 38.0	$ 38.0	$ 152.0
Personal Income-National US $	$ 647.0	$ 660.0	$ 623.0	$ 598.0	$ 2,528.0
Personal Income Taxes-National US $	$ 70.0	$ 71.0	$ 66.0	$ 63.0	$ 270.0

An estimate of the contribution to the state's GSP is very nearly the same as the value of the investment in the bridge. Because the direct data input is the dollar investment, it is nearly identical to the value of production resulting from the investment.

Employment Benefits from Matching Federal Funds

Table C2 contains estimates of employment, income, and state and local income tax revenues resulting from the spending of the additional matching federal funds Michigan would be eligible to receive as a result of constructing the NITC.

Table C2: Estimate of Jobs Created Using Matching Federal Highway Funds

MICHIGAN	2013	2014	2015	2016	TOTAL Person-Year Jobs
Direct Construction Jobs	4,134	3,997	3,812	3,608	15,551
Indirect	1,130	1,075	1,000	916	4,121
Spinoff	1,812	1,745	1,648	1,527	6,732
Total Employment	7,076	6,817	6,460	6,051	26,404
					TOTAL $
Contribution to Michigan GSP Millions US $	$ 448.0	$ 440.0	$ 422.0	$ 420.0	$1,730.0
Contribution to US GDP Millions US $	$ 852.0	$ 779.0	$ 700.0	$ 694.0	$3,025.0
Personal Income-Michigan, Millions US $	$ 432.0	$ 455.0	$ 464.0	$ 463.0	$1,814.0
Personal Income Taxes-Michigan, Millions US $	$ 43.0	$ 45.0	$ 47.0	$ 47.0	$ 182.0

For each of the direct jobs in Michigan roadway construction or maintenance, other jobs are supported in the economy: first because people require supplies, materials and services to do their work. Secondly, direct employees spend their paychecks, creating other jobs in the economy (expenditure-induced or spinoff employment resulting from spending by employed people). In the indirect and spinoff employment categories, there are approximately 2,500 to 3,000 jobs per year spread across numerous manufacturing and non-manufacturing industries. There are a substantial number of jobs estimated to be supported in other sectors as shown in Table C3.

Table C3: Estimate of Types of Jobs Supported by Matching Federal Highway Funds

Michigan Indirect and Spinoff Employment	2013	2014	2015	2016	TOTAL Person-Year Jobs
Professional, Technical, Finance, Real Estate, Insurance, Information Services, etc.	849	803	737	663	3,052
State, Local and Federal Government	481	472	451	420	1,824
Retail Trade	479	467	448	424	1,818
Arts, Recreation, Accommodation, Food Services	453	447	432	412	1,744
Health and Education	415	403	389	370	1,577
Manufacturing	138	112	87	63	400
Wholesale Trade, Warehousing	127	116	104	91	438
TOTAL INDIRECT AND SPINOFF EMPLOYMENT	2,942	2,820	2,648	2,443	10,853

Consistent with claims made by MDOT and the Michigan Governor's Office,[24,25] the above analysis of potential employment resulting from receiving federal funds assumes

[24] MDOT. (2011). "2011-2015 Five-Year Transportation Program."
[25] Snyder Administration. (2011). "New International Trade Crossing."

that Michigan will receive $2.2 billion of federal funds that it would not otherwise receive because the state is unable to provide its share of required matching funds (for every $4 of federal money received for infrastructure projects, the state must provide $1 of state money).[26]

Employment Benefits from Bridge and Plaza Operations

Table C4 contains estimates of employment, income, state and local income tax revenues, and contribution to Michigan's GSP resulting from the operation of the bridge and plaza once the construction on the NITC project has been completed.

Table C4: Estimate of Jobs Supported by Plaza and Bridge Operations in a Typical Year

MICHIGAN	Employment
Direct Jobs, Southeast Michigan	775
Indirect and Spinoff Employment	589
Total Employment	1,364
Personal Income, Millions US $	135
Personal Income Taxes, Millions US $	14
Contribution to Michigan GSP, Millions US$	134

The indirect and spinoff jobs supported by the direct jobs at NITC are widely dispersed throughout all of the various occupations and industries in Southeast Michigan, as shown in Table C5.

Table C5: Estimate of Employment in Industries Supported by NITC Operations in a Typical Year

Michigan Indirect and Spinoff Employment	Employment
Professional, Technical, Finance, Real Estate, Insurance, Information Services, etc.	189
State, Local and Federal Government	97
Retail Trade	85
Arts, Recreation, Accommodation, Food Services	72
Health and Education	104
Manufacturing, Construction, Utilities, etc.	19
Wholesale Trade, Warehousing	23
TOTAL INDIRECT AND SPINOFF EMPLOYMENT	589

[26] MDOT. (2011). "2011-2015 Five-Year Transportation Program."

Employment Benefits from Attracting Additional Investment

Table C6 contains estimates of employment, income, state and local income tax revenues, and contribution to GSP resulting from new investments that will occur as a result of the NITC project area becoming more economically competitive and attracting new industry investments.

Table C6: Estimate of New Jobs in Michigan Due to NITC in a Typical Year

MICHIGAN	Employment
Direct Jobs, Southeast Michigan	3,350
Indirect and Spinoff Employment	3,467
Total Employment	6,817
Personal Income, Millions US $	613
Personal Income Taxes, Millions US $	62
Contribution to Michigan GSP, Millions US$	634

These jobs are widely dispersed throughout all of the various occupations and industries in Southeast Michigan, as shown in Table C7.

Table C7: Types of Employment in Industries Supported by the New Jobs Coming to Michigan Due to NITC in a Typical Year

Michigan Indirect and Spinoff Employment	Employment
Professional, Technical, Finance, Real Estate, Insurance, Information Services, etc.	1,221
State, Local and Federal Government	402
Retail Trade	501
Arts, Recreation, Accommodation, Food Services	453
Health and Education	589
Manufacturing, Construction, Utilities, etc.	134
Wholesale Trade, Warehousing	167
TOTAL INDIRECT AND SPINOFF EMPLOYMENT	3,467

Permanent Employment Benefits from the NITC Project

The combined, permanent employment impact from NITC is the 3,350 new jobs in Southeast Michigan plus the 775 direct jobs at the bridge, for a total of 4,125 direct jobs. Each of these jobs supports nearly one additional job in the economy, for a total employment impact in Southeast Michigan of nearly 8,200 jobs and a contribution of more than $760 million annually to the state's GSP. Table C8 contains a breakdown of this permanent employment as well as permanent annual income, state and local income tax revenues, and contribution to GSP resulting from the NITC project.

Table C8: Estimate of Permanent Employment Contribution of NITC to Michigan in a Typical Year

MICHIGAN	**Employment**
Direct Jobs, Southeast Michigan	4,125
Indirect and Spinoff Employment	4,056
Total Employment	8,181
Personal Income, Millions US $	748
Personal Income Taxes, Millions US $	76
Contribution to Michigan GSP, Millions US$	768