

Economic Impact Analysis of the Mound Road Corridor

Submitted By:

Economic Modeling Specialists
International (Emsi)

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Project Approach

The purpose of this project is to provide an economic impact analysis assessing the impact of Mound Road businesses and their employees on the local and state economies. To accomplish this, the assignment will consist of generating the economic impact of these businesses on overall local jobs, earnings, and sales and how that correlates to the state's overall economic base.

Modeling

The Bonner Advisory Group will provide the geographical area to be studied. Emsi will respond with the number of businesses and jobs in that area that are to be assessed for this impact study. Upon verification and agreement on the businesses and jobs, Emsi will produce a custom economic impact model to show for the local area (as defined by Bonner Advisory Group) and the state, the

- Direct, indirect, and induced spending jobs associated with Mound Road businesses
- Estimated wages and salaries
- Estimated tax revenues
- Sales revenue and associated impact to state's revenue base

The findings from this study will provide a better understanding of the economic importance the Mound Road corridor has on the region and statewide economies.

Value Adds that Emsi brings to the Project

The economic model that will be produced for this project will utilize Emsi's proprietary multiregional social accounting matrix (MR-SAM). Emsi's MR-SAM represents the flow of all economic transactions in an economic area. This modeling system is the new industry standard for regional economic impact analysis, and improves on the older "comparative static" type model in the same general class as RIMS II (Bureau of Economic Analysis) and IMPLAN (Implan Group).

When combined with regional economic data, this model will estimate the direct effects and ripple effects of the Mound Road Corridor businesses upon the regional and state economies in terms of increased sales, jobs, earnings, and value-added (or gross regional product). The ripple effects calculated by the model will take into account both supply-chain impacts (direct and indirect effects) and increases in household income (induced effects).

Project Deliverables

The results of this analysis will be presented in a brief summary report accompanied by detailed excel tables. The report will include a short description of the methodology used and a brief

summary of the findings that effectively communicates the economic impact of the Mound Road Corridor businesses.

Proposed Project Team Qualifications and Availability

- Multi-discipline expertise –economics, industry expert, public policy, operations and processes, technology, transportation systems, corporate finance
- Advises private industry and government agencies on location, business development, infrastructure, attraction targets and policy
- Experience in managing domestic and international research and analysis projects
- The team has a strong established network of contacts and is able to consult with experts in many fields

With an expert consulting staff of economists, data analysts, writers, editors, and graphics designers, Emsi is well-equipped to produce, distribute, and implement the work products described herein.

Emsi's staff will be located at our headquarters office in Moscow, Idaho, and satellite office in Coeur d'Alene, Idaho during this project. Bios for key personnel for this project are as follows:

Ms. Debbie Maranger Menk – Director of Consulting Services



Ms. Menk is the Director of Consulting Services for economic and workforce development at Emsi. She will serve as the principal investigator for this engagement, ensuring all team members fulfill their obligations on time. In addition to managing the consulting services team, she also manages custom consulting engagements along with a host of standardized analysis products. Ms. Menk's background is in the areas of economic modeling and public policy analysis. She has expertise in financial analysis, econometric modeling, and forecasting. Prior to joining Emsi, her experience included performing analyses of the economic impacts of the automotive industry or sectors of the industry on various regions and populations in North America, including GM and Chrysler bankruptcy studies used by members of Congress during the 2009 recession. Ms. Menk has an M.B.A. with an emphasis in finance from the Thunderbird School of Global Management. She has completed several graduate-level engineering courses at the Milwaukee School of Engineering. She received her B.A. degree from Valparaiso University.

Alivia Metts – Economist and Data Analyst



Alivia Metts is an economist with over a decade of experience in helping communities thrive. Her insightful economic and demographic analyses guide decision makers in economic and commercial development as well as transportation and environmental planning. Ms. Metts has worked in both the public and private sectors. Most recently she served in the Idaho Department of Labor as the Regional Economist for the state’s five most northern counties. There she focused on the special needs of communities and performed economic analysis across all industries for businesses, governments, and economic development agencies. She built a reputation as a trusted source for data on the Inland Northwest. Ms. Metts was previously employed by the national consulting firm, HDR, Inc., where she worked out of their Washington, Chicago and Alaska offices. Her projects ran the gamut from master planning urban centers to land use forecasting and transportation modeling.

Mr. Justin Theriot, Lead Data Scientist, Mathematician



Mr. Theriot is a leading data scientist and mathematician. He specializes in developing new approaches to data modeling and economic forecasting. Mr. Theriot has been employed at Emsi as a lead data scientist and economist for two years. In this capacity, he has developed new data products from big data for both client and Emsi internal use. Some of these have been entirely new approaches to understanding workforce demographics, including building a dataset that shows occupations of people by place of residence at the zip code level. He is proficient in several programming languages and multiple platforms. Mr. Theriot is a published author and has been a featured speaker at national data science conferences. Mr. Theriot is active in the academic communities in Northern Idaho and Northern Washington, promoting data science and mathematics in schools from K-12 to graduate levels. He is co-founder of the not-for-profit Blue Space Labs, an organization designed to educate high school students in data science through understanding economic theory. Mr. Theriot is a veteran of the U.S. Air Force where he was an air traffic control watch supervisor.

Company Information and Qualifications

Emsi’s Background

Economic Modeling Specialists International or “Emsi” was founded in 2001 by Drs. Kjell Christophersen and Hank Robison as a company designed to study the economic contribution of higher education and workforce development. Over the past 15 years, Emsi has evolved into a professional services firm, specializing in advanced economic impact modeling, economic research, and web-based labor market data analysis tools. With a team of close to 125 professionals, Emsi proudly provides the most current, complete, and granular economic and labor market data available to more than 500 organizations in the US, Canada, and the UK. Emsi is

continuously involved with workforce development boards, economic development organizations, educational institutions, other non-profit organizations, and private sector firms to help them tackle complex economic problems and to help them understand the impacts of new opportunities. Emsi is based in Moscow, Idaho and has an office in London, England. In August 2012 Emsi was purchased by CareerBuilder, LLC.

Emsi's Mission

Emsi believes that economic development drives economic prosperity. When stakeholders fully understand the potential economic impacts and outcomes of proposed development efforts, better, more efficient decisions are made. This level of understanding is largely dependent on our ability to process data that illuminate many of the facets of a regional economy. Emsi provides these data to our customers and further partners with our clients to develop implementable strategies and tasks to enable our clients to carry out their missions.

Emsi's unique qualifications in providing custom economic modeling services

We are confident that our economic modeling capabilities provide targeted economic impact answers for hundreds of projects each year. No other firm can match the level of experience, knowledge, and customer service that Emsi provides. To date, Emsi has conducted nearly 1,400 comprehensive, regional economic impact studies. Emsi also has more experience conducting complex, multi-facility impact studies than any other firm. Through these, we have developed the expertise necessary to deliver final products and client experiences that are robust enough to withstand the many challenges inherent to economic impact studies.

We are committed to delivering unique, objective, and truly defensible studies. To help achieve this, Emsi developed a modeling process which allows us to avoid many of the inaccurate or invalid methodologies and assumptions that are common in other such studies (e.g. non-regionalized multipliers, aggregation errors, etc.). The methodology used for this economic impact study will be clearly explained in the final report and provide a full understanding of all factors and assumptions utilized.

Staff Publications (partial list)

Emsi staff have authored/co-authored numerous economic impact studies. A partial listing of published studies include:

Economic Contribution of General Motors' Orion Assembly, Pontiac Metal Stamping, and Spring Hill Assembly Manufacturing Plants Kristin Dziczek, Debbie Maranger Menk and Yen Chen, Center for Automotive Research, Ann Arbor, MI, February 2014.;

The Effect on the U.S. Economy of the Successful Restructuring of General Motors. Sean P. McAlinden and Debbie Maranger Menk, Center for Automotive Research, Ann Arbor, MI, December 2013.;

Contribution of Urban-Based Suppliers to the Local Economy. Kim Hill, Debbie Maranger Menk and Joshua Cregger, Center for Automotive Research, Ann Arbor, MI, October 2012.;

Assessment of Tax Revenue Generated by the Automotive Sector. Kim Hill, Debbie Maranger Menk and Joshua Cregger, Center for Automotive Research, Ann Arbor, MI, April 2012.;

Analysis of the Economic Contribution of Constructing the New International Trade Crossing: A New Bridge Linking Detroit and Windsor. Kim Hill, Richard Wallace, Debbie Maranger Menk and Joshua Cregger, Center for Automotive Research, Ann Arbor, MI, April 2012.;

Economic Impact of Hyundai in the United States. Kim Hill, Debbie Maranger Menk and Joshua Cregger, Center for Automotive Research, Ann Arbor, MI, November 2011.;

Contribution of Toyota Motor North America to the Economies of Sixteen States and the United States in 2010. Kim Hill and Debbie Maranger Menk, Center for Automotive Research, Ann Arbor, MI, March 2011.;

CAR Research Memorandum: The Impact on the U.S. Economy of the Successful Automaker Bankruptcies. Sean McAlinden, Kristin Dzikczek, Debbie Maranger Menk, and Joshua Cregger, Center for Automotive Research, November 2010.;

Contribution of the Automotive Industry to the Economies of All Fifty States and the United States. Kim Hill, Adam Cooper and Debbie Maranger Menk. Center for Automotive Research. Prepared for The Alliance of Automobile Manufacturers, The Association of International Automobile Manufacturers, The Motor & Equipment Manufacturers Association, The National Automobile Dealers Association and The American International Automobile Dealers Association. April 2010.;

The Economic and Environmental Impacts of a Corporate Fleet Vehicle Purchase Program. Kim Hill and Debbie Maranger Menk, Center for Automotive Research. Prepared for AT&T, October 2009.;

CAR Research Memorandum: The Impact on the U.S. Economy of Successful versus Unsuccessful Automakers Bankruptcies. Sean P. McAlinden, Adam Cooper and Debbie Maranger Menk, Center for Automotive Research, Ann Arbor, MI, May 2009.;

Contribution of Honda to the Economies of Seven States and the United States. Sean P. McAlinden, Kim Hill, David Cole and Debbie Maranger Menk, Center for Automotive Research. Prepared for American Honda Motor Co., Inc., January 2009.;

CAR Research Memorandum: The Impact on the U.S. Economy of a Major Contraction of the Detroit Three Automakers. Sean P. McAlinden, Kristen Dzikczek and Debbie Maranger Menk, Center for Automotive Research, Ann Arbor, MI, November 2008.;

Contribution of a Vehicle Infrastructure System to the Economy of Michigan: Economic and Industrial Impacts Update and Benefit-Cost Analysis -- Kim Hill and Debbie Maranger Menk, Center for Automotive Research. Prepared for Michigan Department of Transportation, June 2008.;

Country of Origin: Is this Vehicle Domestic or Import? The U.S. Domestic Content Measurement Programs, 2008 -- Sean McAlinden and Debbie Maranger Menk, Center for Automotive Research. Unpublished, April 2008.;

Contribution of the Motor Vehicle Supplier Sector to the Economies of the United States and Its 50 States -- Kim Hill and Debbie Maranger Menk, Center for Automotive Research. Prepared for the Motor and Equipment Manufacturers Association, January 2007.;

Methodology

The economic area (hereafter referred to as the area) for this report is defined as Mound Road between 8 Mile Road (southern border) and Highway 59 (northern border), plus Van Dyke with the same northern and southern borders. Van Dyke and Mound Road run parallel to each other and are neighboring roads.

To understand the economic impacts of business activity along Mound Road or Van Dyke, we first used multiple techniques to determine the types of businesses in this area. We used Macomb County's investment analysis tool to create a list of businesses with recent investment in the area. This mapping and data tool also provided information on type of business and number of employees.

<http://gis.macombgov.org/portal1/apps/webappviewer/index.html?id=d3d02882e3fe4c2ba5fd183f161ad6ab>

Next, we supplemented the above list by mapping all businesses in the area. The mapping tool is from the Emsi Developer dataset, and maps businesses by business name, industry, sales, and employment range. As a check, we used the Bureau of Labor (BLS) Quarterly Census (QCEW) to determine employment by industry for the county. From this effort, we developed a list of industries and the number of employees for the area. This list is the scenario that we modeled using Emsi's economic impact model (MR-SAM), as described below.

We created two scenarios to model. The first scenario used all employment in the area. The second scenario used the same geography, but excluded all Detroit 3 employment. (Note – the results for this scenario are presented in the accompanying excel workbook).

To determine the economic impact of businesses located in the area, we used an economic impact model that is proprietary to Emsi. This is a multiregional social accounting matrix (MR-SAM), which is an economic impact model that is comparable to other 'off-the-shelf' economic impact models for the U.S. economy. Emsi's MR-SAM represents the flow of all economic transactions in an economic area.

Emsi's model is used to understand economic scenarios covering 1,000 industries (at the 6 digit NAICS level) 16 demographic cohorts, and 750 occupations. Emsi's model follows the industry standard for regional economic impact analyses, and is in the same general class as IMPLAN (Implan Group) but uses the more sophisticated Stevens technique (which is also used by REMI) to calculate regional coefficients. The model estimates the direct effects and ripple effects of an economic activity on the defined economic area in terms of increased sales, jobs, earnings, and value-added (or gross regional product). The ripple effects calculated by the model take into account both supply-chain impacts (direct and indirect effects) and increases in household

income (induced or spin-off effects). The model as used in this study reflects the long-term, permanent effects of ongoing economic activities.

Results for the comprehensive scenario, which includes D3 employment, present the economic impacts of area businesses on both Macomb County and for the state of Michigan. Unless otherwise specified, the state of Michigan results *include* Macomb County results.

Results

Comprehensive Scenario, including all Detroit 3 employment

Geography	Input Jobs	Downstream Jobs	Total Jobs	Jobs Multiplier	Change in Earning (Wages and Salaries)	Changes in Taxes on Production and Import
Macomb County	20,200	17,220	37,420	1.86	\$2,838,551,069	\$190,743,825
Rest of Michigan	0	98,064	98,064	NA	\$5,551,208,558	\$834,337,974
All Michigan	20,200	115,284	135,484	6.72	\$8,389,759,627	\$1,025,081,799

The above results show that there are a total of 20,200 people employed along Van Dyke or Mound Road. These jobs support another 17,720 jobs in Macomb County. Combined, \$2.8 billion is paid to these 37,400 employees, and total taxes on production are nearly \$191 million.

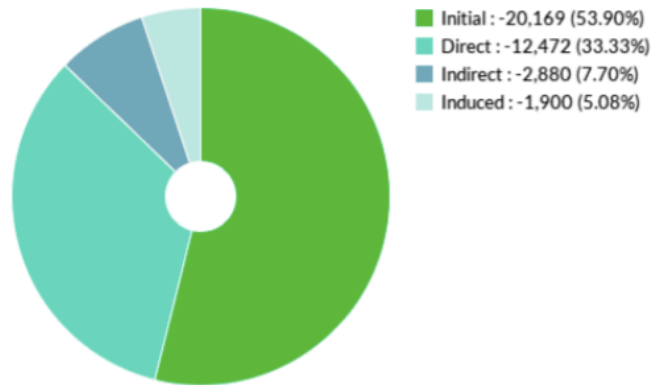
Additionally, the 20,200 jobs along Mound Road support another 98,100 jobs in the Michigan economy outside of Macomb County. These are supplier jobs to those businesses along Mound or Van Dyke or expenditure-induced jobs from employee spending. Expenditure-induced jobs are defined as employment that is created or supported when the direct employees or supplier company employees spend their paychecks. Including the 20,200 direct jobs on Mound or Van Dyke, there are a total of 135,500 jobs in Michigan (because of the area’s business activity), for a total jobs multiplier of 6.72. This means that for every job on Mound or Van Dyke, there are another 5.72 jobs in Michigan.

As can be seen in the chart below, the 37,400 jobs are:

- 20,200 initial jobs along Mound or Van Dyke
- 12,500 Tier 1 supply jobs (direct)
- 2,900 Tier 2 and lower supply jobs (indirect)
- 1,900 expenditure-induced jobs (induced)

Aggregate Effect on Jobs

-20,169 Initial 1.00 Multiplier	-12,472 Direct 0.62 Multiplier	-2,880 Indirect 0.14 Multiplier	-1,900 Induced 0.09 Multiplier
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The types of industries that employ these 135,500 jobs are shown in the following table. As noted earlier, the Michigan jobs *include* the Macomb County jobs (therefore the columns cannot be added together).

Industry	Macomb County Jobs	All Michigan (incl Macomb Co) Jobs
Manufacturing	25,855	41,614
Health Care and Social Assistance	387	11,458
Retail Trade	1,159	11,388
Accommodation and Food Services	580	8,549
Wholesale Trade	1,925	8,149
Professional, Scientific, and Technical Services	493	8,109
Administrative and Support and Waste Management	671	7,355
Other Services (except Public Administration)	417	6,386
Management of Companies and Enterprises	3,394	5,233
Real Estate and Rental and Leasing	422	4,760
Finance and Insurance	166	4,416
Transportation and Warehousing	850	4,304
Construction	369	4,292
Government	385	2,981
Educational Services	49	2,240
Arts, Entertainment, and Recreation	153	2,116
Information	131	1,470
Utilities	8	363
Crop and Animal Production	4	207
Mining, Quarrying, and Oil and Gas Extraction	3	94
TOTAL	37,420	135,484

The following table shows the occupations that comprise these 135,500 jobs. As noted earlier, the Michigan jobs *include* the Macomb County jobs (therefore the columns cannot be added together).

Occupation	Macomb County Jobs	All Michigan (incl Macomb Co) Jobs
Production Occupations	16,443	26,589
Office and Administrative Support Occupations	3,693	16,156
Sales and Related Occupations	2,386	15,921
Management Occupations	2,695	9,053
Transportation and Material Moving Occupations	2,451	8,708
Food Preparation and Serving Related Occupations	647	8,287
Business and Financial Operations Occupations	1,942	7,248
Installation, Maintenance, and Repair Occupations	1,701	5,441
Architecture and Engineering Occupations	2,050	5,193
Personal Care and Service Occupations	189	4,762
Healthcare Practitioners and Technical Occupations	256	4,590
Building and Grounds Cleaning and Maintenance Occupations	447	4,134
Construction and Extraction Occupations	688	4,040
Arts, Design, Entertainment, Sports, and Media Occupations	380	3,534
Computer and Mathematical Occupations	776	3,050
Healthcare Support Occupations	109	2,732
Education, Training, and Library Occupations	187	2,440
Community and Social Service Occupations	79	1,163
Protective Service Occupations	160	974
Legal Occupations	101	827
Life, Physical, and Social Science Occupations	34	504
Farming, Fishing, and Forestry Occupations	7	138
TOTAL	37,421	135,484