



Project Summary Report: 8197-002

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**Impact of Canadian Economic Development on Northern Montana Highways - Phase II
 Ports of Wildhorse and Morgan Highway Corridors**

http://www.mdt.mt.gov/research/projects/mcs/canada_impact_nhwy.shtml

Introduction

This research study is Phase 2 of a broader study initiated in 2009 on the Impacts of Increased Canadian Economic Development (ICED) on Northern Montana Highways. The findings of Phase 1 are available at http://www.mdt.mt.gov/other/research/external/docs/research_proj/canada_impact_nhwy/final_report.pdf

The primary objective was to determine whether highway infrastructure in Montana was capable of supporting additional traffic resulting from 16-hour, 7-days-a-week ports at Wild Horse and Morgan. Secondary objectives included the production of traffic forecasts along the S-232 corridor (between US 2 at Havre and Wild Horse) and along the US 191 corridor (between US 2 at Malta and Morgan), while considering the effects of:

- Canadian economic development, in particular

from energy investments in Alberta and Saskatchewan;

- The potential harmonization of Truck Size and Weight (TS&W) regulations;
- Reorganization of the Canadian Wheat Board; and
- Planned infrastructure improvements in the region.

While Phase 2 focused on the highway corridors connecting the ports of Wild Horse and Morgan, trends in cross-border commodity flows and commercial traffic were

assessed at all ports between Sweetgrass and Raymond (Figure 1).

What We Did

The scope of work for this study included three main tasks:

- Development of 20-year forecasts of cross-border commodity flows and commercial traffic under alternative policy, operational, and economic growth assumptions;
- Documentation of existing conditions along the S-232



Figure 1: Overview of Research Study Area

- and US 191 corridors; and
- Assessment of highway infrastructure needs along these corridors, in light of future expected traffic levels and mix of vehicle types (e.g. share of trucks in total traffic).

The general approach used in completing these tasks involved desktop research, interviews with industry representatives and subject matter experts, statistical analysis of border-crossing data and traffic counts, and the use of a spreadsheet-based economic and traffic forecasting tool developed during the 2010 ICED Study (Figure 2). The forecasting tool was updated to reflect changes in historical data, forecasting assumptions, and parameter values. It was also expanded to simulate additional policy and operational scenarios.

As in Phase 1, risk analysis techniques were used to account for uncertainty in forecasting assumptions and model parameters, and to express results as ranges of probable outcomes (or probability

distributions). These ranges were characterized by a most likely forecast, as well as a low and a high forecasts representing the bounds of an 80-percent confidence interval – the interval within which there is an 80 percent probability of finding the true but unknown future traffic levels.

What We Found

The analysis of recent macro-economic and trade data led to the following results:

- The region, overall, was better able to weather the effects of the Great Recession than other states and provinces.
- Growth in Gross Domestic Product (GDP) in Alberta and Saskatchewan was particularly strong in recent years. Growth in Montana was more subdued, but the state generally fared better than the rest of the U.S., in particular in terms of income growth and employment.
- While the economies of Alberta and Saskatchewan have

experienced rapid structural shifts in the past decade, the structure of Montana’s economy has remained relatively stable.

- U.S. imports from Canada through Montana ports have decreased in value and volume since their pre-recession peak of 2008. Growth resumed after 2009, but total import value was about 30 percent lower in 2012 than four years earlier, and about 14 percent lower in tonnage.
- After a sharp decline in 2009, U.S. exports to Canada increased steadily in 2010 and 2011, and exceeded their pre-recession peak by over \$2.0 billion in 2012.

Interviews with regional stakeholders, desktop research and analysis, and use of the traffic forecasting tool produced the following results:

- Along with employment and income growth, development of the regional economy is expected to generate additional commodity flows and commercial traffic across the Montana – Canada border (in particular through increased U.S. exports of machinery and equipment to help support energy development in Alberta).
- Truck traffic at all ports within the research study area is expected to grow at an average annual rate of 1.4 percent between 2012 and 2032, to reach 1,310 vehicles daily at the end of the period (most likely forecast). Daily truck traffic could grow at a higher rate of 3.7 percent per year with a

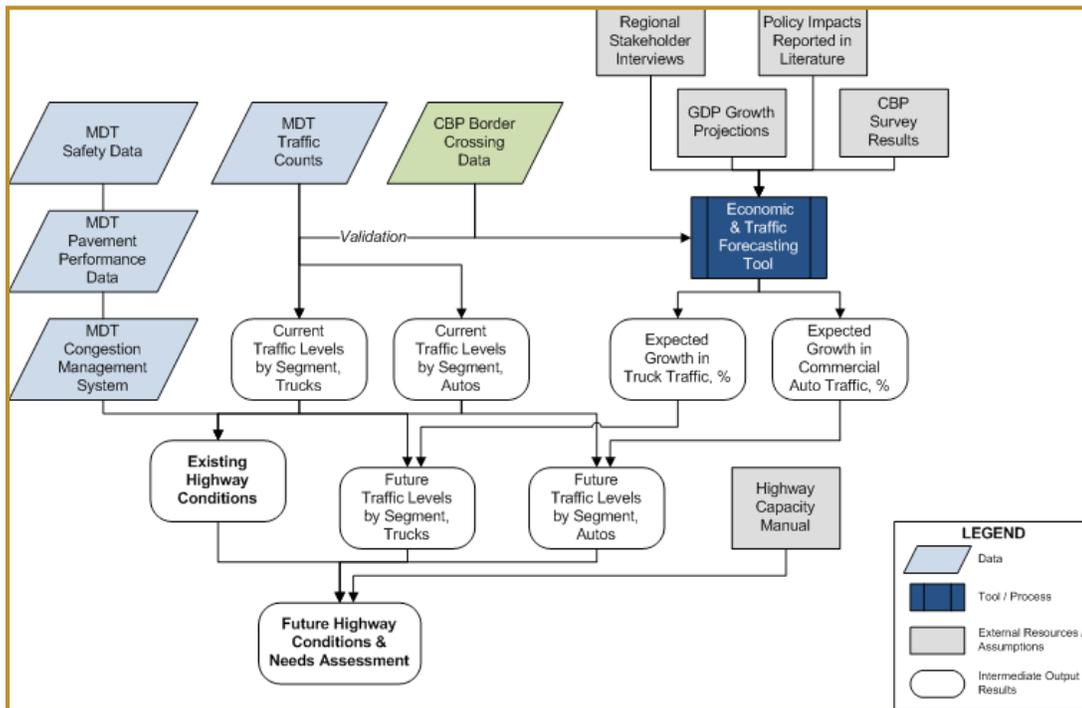


Figure 2: Overview of Research Study Approach

10 percent probability, to reach 2,060 vehicles a day in 2032 (90th percentile forecast).

- Commercial auto traffic at all ports within the study area is expected to grow at an average annual rate of 1.9 percent (most likely forecast), and within an 80 percent prediction interval bounded by 870 and 2,030 vehicles a day in 2032.
- The harmonization of truck size and weight regulations may affect traffic volumes. Harmonization to Canadian standards could reduce the total number of trucks on Montana's highways by 3 to 20 percent.
- Extension of service hours to 16-hours, 7-days-a-week, at the ports of Wild Horse and Morgan is expected to generate moderate changes in traffic at these ports: increases of 10 to 60 percent are expected for trucks, of 5 to 30 percent for cars.
- The highway infrastructure investments planned within the study area are limited in scope and would not have a measurable impact on future traffic volumes.

Key findings from the assessment of existing conditions include:

- S-232, between Havre and Wild Horse, is a Rural Major Collector with two lanes (one lane in each direction), an average pavement width of 25.4 feet, and limited or no shoulders. Pavement conditions are generally good, and the facility currently operates at Level of Service (LOS) A, with average vehicle speeds at – or close to – posted speed limits. Safety performance has been stable in recent years, between 2003 and 2012.
- US 191, between Malta and Morgan, is a Rural Principal

Arterial with two lanes, an average pavement width of 28.8 feet, and two- to three-foot shoulders. Pavement conditions are generally good, and the facility operates at LOS A. Safety performance has also been stable over time.

- For both corridors, available crash data do not suggest any deterioration in safety performance over time. The majority of accidents on US 191, occurred in the southern half of the corridor, where traffic volumes are generally higher.

The assessment of highway infrastructure needs indicates that:

- Expected changes in traffic along both corridors of interest should not degrade the weighted traffic operations below free-flow conditions (LOS A), provided existing pavement and geometric conditions are maintained.
- Individual locations within the corridors may experience higher degradation in operations than the overall weighted average operations.
- Traffic operations along the highway segments immediately adjacent to the ports of Wild Horse and Morgan are expected to remain above free-flow conditions through 2032.
- Only under the most aggressive growth scenario would traffic conditions south of Wild Horse deteriorate below LOS A in the busiest hour in 2028.
- Overall, in most likelihood, existing highway infrastructure in both corridors will be adequate to handle the expected increase in total traffic – and the potential increase in truck traffic – in the short and medium terms.

What the Researchers Recommend

This study found that highway infrastructure in the S-232 and US 191 corridors is capable of supporting the additional traffic that would result in the short and medium terms from: extending service hours at the ports of Wild Horse and Morgan; Canadian economic development; restructuring of the Canadian wheat industry; and harmonization of TS&W regulations. The following specific events could affect the conclusions and findings of this study, in some cases considerably. They include: unexpected changes in Customs and Border Protection (CBP) operations and procedures (e.g. port closure); large variations in the price of oil and other commodities; changes in environmental regulations; changes in international trade policies; large variations in the US Dollar to Canadian Dollar exchange rate; as well as unforeseen changes in business operations (including logistics reorganization) on both sides of the border. The cumulative impact of these potential events is reflected, in part, in the ranges of probable outcomes presented in the report. These ranges, however, are only as good as the individual probability distributions developed by the Project Team to populate the forecasting tool used in the study. In other words, the use of quantitative risk analysis does not eliminate the risk of errors, in particular for traffic levels and infrastructure needs occurring in later years. Therefore, periodic updates to the regional traffic forecasts are recommended, as well as continued tracking and monitoring of highway infrastructure needs in the corridors of interest.

For More Details . . .

The research is documented in Report FHWA/MT-14-005/8197-002, http://www.mdt.mt.gov/research/projects/mcs/canada_impact_nhwy.shtml

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This report examines current and future expected conditions along the S-232 corridor between US 2 and the Port of Wild Horse, and along the US 191 corridor between US 2 and the Port of Morgan. Because traffic forecasts for each port are given in confidence intervals, they provide a useful gauge for comparison with future traffic counts. MDT will systematically track port-related traffic with reference to these projections. Second, although (federal) port service enhancements are not without merit, this research suggests that enhanced port services would not require substantial Montana highway improvements in the near or middle term. Both highway corridors of interest are operating at high levels of service and are projected to continue to do so under current plans with or without extension of port service hours.

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