

# **Socioeconomic Technical Memorandum**

**North Sheridan Interchange**

**Sheridan County**

**February 2012**

**Wyoming Department of Transportation**

**and**

**Federal Highway Administration**

**Prepared by:**

**HDR Engineering, Inc.**



# North Sheridan Interchange Environmental Assessment

## Socioeconomic Technical Memorandum

### Section 1: Project Background

#### ***Project Overview***

The Wyoming Department of Transportation (WYDOT), in coordination with the Federal Highway Administration (FHWA), is studying improvements to the North Main Street/Interstate 90 (I-90) Interchange, also known as the North Sheridan Interchange. The project is located along I-90 in the city of Sheridan in Sheridan County, Wyoming. Sheridan is located in the north-central part of the state at the foot of the Big Horn Mountains, about 30 miles south of the Wyoming-Montana border. Billings, Montana, is northwest of Sheridan and is the largest city within 200 hundred miles. Other large communities in the vicinity of Sheridan are Buffalo, Wyoming (40 miles to the southeast); Hardin, Montana (85 miles to the north); and Gillette, Wyoming (100 miles to the east). Sheridan is located along the route commonly used to reach Little Bighorn National Monument, Yellowstone National Park, and Mount Rushmore. Because of its proximity to the mountains and its distance from the closest communities, Sheridan is a significant stop along I-90 for tourists and truck drivers, thus the North Sheridan Interchange is important for pass-through traffic, as well as local traffic.

The proposed project includes reconstructing and potentially relocating the North Sheridan Interchange, improvements to I-90, and improvements to North Main Street. This is the first interchange serving Sheridan for eastbound vehicles on I-90. The project is needed to improve traffic operations and safety at the interchange and along the corresponding segments of I-90 and North Main Street. The existing interchange has sharp curves, steep ramps, and limited space for traffic to merge with I-90 traffic, all of which result in safety and operational issues on the interchange, along I-90, and along North Main Street. The selected location of the North Sheridan Interchange must be consistent with the FHWA access requirements for another interchange between the proposed North Sheridan Interchange and the port-of-entry interchange.

The project is being proposed to provide safe, direct regional access from I-90 to the north Sheridan area in support of local land use plans, to improve deteriorating segments of I-90 and North Main Street, and to comply with the FHWA's interstate access policy.

#### ***Project History***

WYDOT considered improvements to this interchange along with improvements to the port-of-entry in the late 1990s. The port-of-entry project advanced through construction, but the interchange improvements were postponed. Prior to being postponed, multiple conceptual alternatives were developed and presented to the public. Three alternatives were recommended for further consideration, including upgrading the existing interchange, a new interchange at Wyoming 338/Decker Road (referred to hereafter as Decker Road), and a new interchange north of Decker Road. WYDOT is

now moving forward with the interchange improvement project and is reviewing alternatives for further consideration through an Environmental Assessment (EA) being prepared in compliance with the National Environmental Policy Act (NEPA).

### ***Study Area***

Three distinct study areas were defined to correspond with the three types of improvements associated with the North Sheridan Interchange project.

The study area for improving or relocating the existing interchange extends from the center of the existing interchange to a point along I-90 approximately 1.5 miles west. The width of this area is one half mile on each side of I-90. This study area includes an area for the potential realignment of Decker Road, which is under consideration. The study area for improvements to the mainline of I-90 extends to approximately 1.5 miles east of the existing interchange and to approximately 2.00 miles west, within existing I-90 right of way. The study area for improvements along North Main Street includes the existing interchange south to Fort Road within existing WYDOT right-of-way. The limits were selected to represent the areas that could be directly or indirectly affected by potential improvements.

The City of Sheridan has identified the north Sheridan area as a primary growth area, and a large tract of land west of Decker Road was annexed into the city. The city has developed plans for a high-tech business park, and a subdivision plat for Phase I of the Wrench Ranch development has been approved. These developments are likely to generate different future traffic patterns as they are built out. Additionally, the West Corridor is a planned north-south transportation facility that will traverse the western part of Sheridan. The West Corridor was proposed in a citywide traffic study conducted by the city in 2001. It is intended to provide new roadway capacity independent of the proposed North Sheridan Interchange improvements. Funding for the West Corridor has not yet been identified.

### ***Proposed Alternatives***

WYDOT developed and screened a range of alternatives as part of the North Sheridan Interchange EA. As described in the *Alternatives Technical Memorandum* (HDR Engineering 2012),<sup>1</sup> after screening WYDOT has two remaining build alternatives—Alternative 2 and Modified Alternative 4—that will be carried through the EA for further analysis in addition to the No-Build Alternative. More information on these alternatives, including location figures, can be found in the *Alternatives Technical Memorandum*.

Alternative 1: No-Build: This alternative represents the conditions if major improvements are not completed as a result of this study. This alternative would not improve the existing geometric deficiencies, regional connectivity shortcomings, or deteriorating roadway segments within the three study areas.

Alternative 2: Rebuild at the Existing Interchange: This alternative would construct a tight diamond interchange about 750 feet north of the existing interchange, and within the same general interchange

---

<sup>1</sup> Alternatives at Decker Road and farther north of Modified Alternative 4 were considered but were screened out because they did not meet purpose and need. They were screened out subsequent to the development of the survey. These interchange locations were included in the survey but are not included in this report.

footprint. The crossroad would connect with Decker Road using a free-flow T-intersection. The existing interchange would be demolished in order to build the new interchange. This alternative would include demolition of residences (including rental properties) and, potentially, relocation of a small business. This alternative would necessitate acquisition of land from the KOA tent site as well.

Modified Alternative 4: Diamond Interchange Close to Decker Road: This alternative would construct a diamond interchange about 2,300 feet west of existing Decker Road and about 4,560 feet northwest of the existing interchange. The “straight through” alignment of Decker Road would be eliminated and traffic would flow along a realigned North Main Street / Decker Road that would cross I-90 perpendicular. The existing North Sheridan Interchange would continue to carry traffic until construction of the proposed interchange is complete. Right-of-way would be required from currently undeveloped land. There would be no residential or commercial relocations.

### ***Economic Issues of the Project***

This report examines the socioeconomic pros and cons of the proposed North Sheridan Interchange alternatives; that is, would local businesses experience any significant adverse effects that would not be offset by the positive effects or benefits of the safety improvements? Currently, motorists exit I-90 and into north Sheridan using the existing North Main Street interchange and have access to several retail and service sector businesses in the vicinity. It is possible that the proposed North Sheridan Interchange alternatives may permanently reduce existing motorist trips to these businesses, which could result in loss of business revenues and cause layoffs or business failures. Simply stated, businesses near the existing interchange are concerned that if the North Sheridan Interchange project moves the interchange—even slightly—they would be adversely affected.

Although the North Sheridan Interchange alternatives would also have positive impacts related to safety, which could bring additional customers to north Sheridan businesses, these benefits are difficult to measure. While this study focuses on the potential for a reduction in trips to north Sheridan businesses, an adverse effect, a discussion of the alternatives’ beneficial impacts is also included.

This analysis of adverse impacts draws upon survey methodologies used in the Carrington Group Study (2001). However, a new analysis has been completed because conditions within the north Sheridan area at the time of the study have changed. The port-of-entry was relocated outside of North Sheridan in 2005.

## **Section 2: Existing Conditions**

### ***Overview***

Population, employment, and income trends were considered over the period 2001 to 2008, a period that includes significant recessionary activity in the national and regional economies. During this period, Sheridan County demonstrated considerable resilience through continued economic growth in three economic indicators: population, income, and employment. The following sections present more detail about these economic trends.

As shown in Table 1, during the period 2001 to 2009, Sheridan County and the city of Sheridan experienced steady population growth. The county and city grew slightly less than the state of Wyoming (1.1 percent) and the Wyoming Metropolitan Areas (1.0 percent). The growth, however, was on pace with the national average for the same period.

Table 1. Summary of Population, Income, and Employment Change (2001–2009)

Economic Indicator	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average Annual Percent Change
<b>Population</b>										
Sheridan County	26,648	26,879	26,981	27,012	27,159	27,482	27,998	28,370	29,163	
Percent Change		0.9%	0.4%	0.1%	0.5%	1.2%	1.9%	1.3%	2.8%	1.1%
Sheridan City	15,883	15,982	15,995	16,118	16,189	16,313	16,719	16,941	17,444	
Percent Change		0.6%	0.1%	0.8%	0.4%	0.8%	2.5%	1.3%	3.0%	1.2%
<b>Sheridan County Annual Income</b>										
Personal Income	\$870,267	\$895,248	\$953,166	\$1,051,836	\$1,156,394	\$1,297,062	\$1,450,686	\$1,516,411	\$1,555,392	
Percent Change		2.9%	6.5%	10.4%	9.9%	12.2%	11.8%	4.5%	2.6%	7.6%
Per Capita Income	\$32,660	\$33,317	\$35,352	\$38,979	\$42,638	\$47,207	\$51,908	\$53,020	\$53,334	
Percent Change		2.0%	6.1%	10.3%	9.4%	10.7%	10.0%	2.1%	0.6%	6.4%
Proprietors' Income	\$116,272	\$103,083	\$106,119	\$116,538	\$118,793	\$120,961	107,336	\$111,761	\$120,302	
Percent Change		-11.3%	2.9%	9.8%	1.9%	1.8%	-11.3%	4.1%	7.6%	0.7%
Nonfarm Proprietors' Income	\$113,647	\$107,433	\$105,586	\$118,836	\$122,977	\$130,364	121,788	\$123,509	\$134,214	
Percent Change		-5.5%	-1.7%	12.5%	3.5%	6.0%	-6.6%	1.4%	8.7%	2.3%
<b>Sheridan County Employment</b>										
Jobs	16,970	17,424	17,426	17,887	18,241	19,139	20,326	21,204	20,551	
Percent Change		2.7%	0.0%	2.6%	2.0%	4.9%	6.2%	4.3%	-3.1%	2.5%
Average Annual Earnings per Job	\$29,575	\$30,085	\$31,122	\$32,989	\$33,849	\$36,557	\$37,972	\$39,430	\$38,755	
Percent Change		1.7%	3.4%	6.0%	2.6%	8.0%	3.9%	3.8%	-1.7%	3.5%

Source: Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce, February 2012, <http://www.bea.gov/regional/>

Personal income over the same period (2001–2009) grew significantly (7.6 percent) within the county, outpacing the national average (4.7 percent). This was driven in large part by 10-12 percent annual growth in personal income between 2004 and 2007.

The County Economic Profile produced by the Wyoming Department of Administration and Information, Economic Analysis Division suggests the consideration of proprietors' income and wage and salaries as an indicator of the robustness and health of the local economy. Growth in proprietors' income can indicate the availability of entrepreneurship in local economies. Significant growth in the share of proprietors' income versus the share of wage earnings, however, can indicate that workers need to offset labor income with secondary jobs.

Table 1 also shows that overall growth in proprietors' income was near zero (0.7 percent) from 2001 through 2009 and while the share of proprietors income from nonfarm sources increased by 2.3 percent. The average increase in nonfarm proprietor's income is significantly lower (less than 5 percent) than the growth in personal income. Average earnings per job rose by 4.2 percent. These trends indicate that while the share of farm-proprietors' earnings is decreasing, the earnings of nonfarm-based proprietors are holding steady. In addition, the shares of income from wages are continuing to grow at a higher rate than nonfarm proprietor's income. Overall, the health of the Sheridan County economy is good. There continues to be opportunities for entrepreneurial activities, and private business growth continues to outpace the need for second jobs. This is validated further by a steady growth in employment during the recessionary period.

Sheridan County's total employment, as demonstrated in Table 2, grew by approximately 21 percent from 2001 to 2009. During this period, only the information and farm sectors saw minor declines in employment. Farm employment and farm-proprietors' income is likely to continue a steady decline within the county as urban development gradually replaces farm operations. Private nonfarm employment outpaced government employment during this period, indicating strong growth in local private industry. This is represented by strong growth in sectors such as mining, construction, real estate rental and leasing, arts and entertainment, and professional scientific and technical services.



**Table 2. Sheridan County Employment by Sector (2001–2009)**

Sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	Percent of Change
Total employment	16,970	17,424	17,426	17,887	18,241	19,139	20,326	21,204	20,551	21
Farm employment	777	816	740	707	673	636	696	704	531	-32
Nonfarm employment	16,193	16,608	16,686	17,180	17,568	18,503	19,630	20,500	19,857	23
Private employment	13,153	13,475	13,579	14,064	14,471	15,366	16,359	17,040	16,310	24
Forestry, fishing, and related activities	203	208	199	220	209	207	218	221	216	6
Mining	322	328	368	413	408	643	871	955	885	175
Utilities	(D) ^	(D) ^	56	61	61	71	86	86	76	NA
Construction	1,541	1,514	1,554	1,617	1,686	1,909	2,101	2,174	1,815	18
Manufacturing	488	483	459	493	482	494	497	498	420	-14
Wholesale trade	(D) ^	(D) ^	337	351	364	380	406	440	444	NA
Retail trade	2,144	2,117	2,091	2,116	2,170	2,229	2,363	2,401	2,251	5
Transportation and warehousing	653	653	673	703	713	778	810	830	762	17
Information	203	212	206	213	203	201	190	188	194	-4
Finance and insurance	645	652	666	679	683	704	822	888	1,103	71
Real estate and rental and leasing	689	693	678	801	907	984	1,123	1,241	1,186	72
Prof, scientific, and technical service	923	928	909	1,063	1,072	1,135	1,194	1,264	1,213	31
Mgmt of companies and enterprises	(D) ^	(D) ^	(D) ^	(D) ^	17	(D) ^	27	27	27	NA
Administrative and waste services	(D) ^	(D) ^	(D) ^	(D) ^	519	(D) ^	578	610	575	NA
Educational services	146	170	149	156	166	174	164	166	188	29
Health care and social assistance	1,481	1,620	1,639	1,703	1,786	1,814	1,852	1,876	1,799	21
Arts, entertainment, and recreation	307	335	308	316	394	410	402	436	454	48

Sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	Percent of Change
Accommodation and food services	1,495	1,563	1,643	1,595	1,578	1,616	1,575	1,646	1,641	10
Other services, except public administration	1,096	1,133	1,121	1,065	1,053	1,060	1,080	1,093	1,061	-3
Government	3,040	3,133	3,107	3,116	3,097	3,137	3,271	3,460	3,547	17

^D: Subject to non-disclosure due to small number of firms

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce, February 2012, <http://www.bea.gov/regional/>

The sectors that is likely to experience direct impacts from the North Sheridan Interchange relocation, retail trade, and accommodations and food services, experienced modest growth when compared to overall private sector employment during the period. The accommodations and food services sector experienced average annual growth of approximately 1 percent due to slight declines in 2004, 2005, and 2007. These declines coincide with the recession periods during which households decreased spending on recreation, trips, and dining out. The average annual growth of retail trade was 1 percent with declines between 2001 and 2003, and most recently in 2009 again matching the recessionary trends of the national economy.

### **Tax Revenues**

Taxes are used by state and local government as general fund revenue sources that cover state and local government operation expenditures. The two primary sources of tax revenues that could be affected by the North Sheridan Interchange alternatives are property and sales taxes. Typically property and sales tax revenues constitute the largest source of revenues for state and local governments; as such, significant reductions to tax revenues may have detrimental impacts to government services (safety and emergency services, schools districts, public libraries, etc.).

Property tax collections would be affected by acquisitions of properties for right-of-way in the alternatives. As shown in Table 3, the total valuation of property in Sheridan County is approximately \$793.5 million. The average mil levy of \$68 per thousand dollars of valuation resulted in actual tax revenues of \$11.4 million.

**Table 3. Sheridan County Total Assessed Valuation, Mil Levy, and Property Tax Revenues (Fiscal Year 2009)**

<b>Total Assessed Valuation</b>	<b>\$793,523,685</b>
Average Mil Levy (Dollars/\$1,000 of taxable valuation)	\$67.695
Actual Property Tax Collection	\$11,401,000

Sales and use tax collections are a measure of local business revenues. Changes in business revenues ultimately affect business operation decisions including employment, wage, and salary disbursements. The proposed alternatives may have temporary and lasting effects on these business revenues and tax collections.

The State of Wyoming collects a 4 percent sales tax. Wyoming cities and counties collect an additional amount; the Sheridan County local tax rate is 2 percent. Table 4 presents the sales tax collected in Sheridan County from retail trade, accommodations, and food service sectors. In fiscal year 2008, total tax collections from the 176 establishments in these sectors were \$19 million with \$13 million going to the state and \$6 million going to county and local government. These tax collections were 46 percent of overall sales and use tax collections in Sheridan County. More specifically, eating and drinking places are 7 percent of overall total sales and use tax collections coming from 68 businesses. Gas stations are 2 percent from 17 establishments. General merchandise stores comprise 9 percent from five businesses, and lodging is 2.6 percent from 28 establishments.

**Table 4. Sheridan County Retail Trade, Accommodation, Food Services, and Total Sales Tax Collections (Fiscal Year 2008)**

Sector	Number of Establishments <sup>a</sup>	State Share 4 percent Taxes <sup>b</sup>	County/Local Share Taxes <sup>b</sup>	Total Taxes <sup>b</sup>
Auto Dealers and Parts	26	\$883,134	\$441,568	\$1,324,703
Gasoline Stations	17	\$589,196	\$294,598	\$883,794
Home Furniture and Furnishings	13	\$342,974	\$171,488	\$514,462
Electronic and Appliance Stores	9	\$718,740	\$359,372	\$1,078,113
Building Material and Garden Supplies	19	\$2,311,654	\$1,155,829	\$3,467,483
Grocery and Food Stores	16	\$277,729	\$138,865	\$416,594
Liquor Stores	N/A	\$179,560	\$89,780	\$269,340
Clothing and Shoe Stores	15	\$149,988	\$74,995	\$224,984
Department Stores	N/A	\$428,019	\$214,010	\$642,029
General Merchandise Stores	5	\$2,647,278	\$1,323,623	\$3,970,900
Miscellaneous Retail	6	1,708,876	\$854,456	\$2,563,331
Lodging Services	28	\$702,327	\$351,164	\$1,053,491
Eating and Drinking Places	68	\$1,890,021	\$945,013	\$2,835,033
<b>Total</b>	<b>176</b>	<b>\$12,829,496</b>	<b>\$6,414,761</b>	<b>\$19,244,257</b>
<b>Grand Total Sales and Use Taxes</b>		<b>\$27,886,123</b>	<b>\$13,942,229</b>	<b>\$41,828,352</b>

<sup>a</sup> US Census Bureau, 2007 Economic Census, <http://www.census.gov>

<sup>b</sup> Economic Analysis Division, Department of Administration and Information, <http://eadiv.state.wy.us>

## Section 3: Methodology

The following section describes the methodology used to assess impacts from alternatives. The methodology presented below considers how North Sheridan Interchange alternatives:

- affect changes in business revenues by altering I-90 motorist stops in the short- and long-term,
- affect Sheridan County's long-term employment,
- affect property and sales tax revenues through right-of-way acquisitions and changes in business revenues, and
- affect auto and truck travel times in the region.

The impacts measured by these approaches are presented in Section 5 of this study.

### ***Survey Methodology***

This study considered the potential impact of the project on local businesses. In particular, the study focused on how the alternatives carried forward (including relocating the interchange north of Decker Road) would affect the behavior of the motorists exiting I-90 to shop at the businesses in the North Main Street area. This study uses the work done by the Carrington Group in 2001. The analysis done by the Carrington Group in 2001 evaluated the possible impact that relocating the port-of-entry and the North Sheridan Interchange would have on North Main Street businesses.<sup>2</sup> The 2001 study found that relocation of the interchange would not have significant impacts on businesses. Most importantly, the findings indicated that motorists arriving at businesses from routes other than I-90 would not change their behavior, thus the only impacts to motorist behavior from relocation of the interchange would be to those exiting the interstate.

Because the Carrington study did not distinguish between alternative locations, and because conditions have changed in the area with relocation of the port-of-entry, new surveys were administered to measure the effects to businesses since relocation of the port-of-entry. The businesses assessed in the Carrington Group study were revisited. Those locations are:

- Common Cents Truck Stop (gas station, and Country Kitchen Restaurant)
- McDonald's
- Kmart
- Pizza Hut
- Super 8 motel

A survey was administered to collect information regarding customers' spending and trip patterns and how the proposed North Sheridan Interchange location and configuration alternatives would have affected their decisions to stop. (A sample survey is included in Appendix A). The surveys were administered over a 1-week period in August of 2010, which is the peak travel season along I-90. Fourteen survey sessions were conducted during peak hours (breakfast, lunch, and dinner) at varying

---

<sup>2</sup> The Carrington Group, North Sheridan Economic Analysis: Impact on Businesses Due to Port-of-Entry and I-90 Interchange Relocations, January 2001, Page 19.

locations in order to randomize the sample results. Table 5 below shows the location, time, and dates of the survey sessions.

**Table 5. Location, Date, and Time of Surveys**

Survey Session	Location	Date	Time
1	Kmart	August 3, 2010	5:30-7:00 p.m.
2	Common Cents	August 4, 2010	8:15-10:30 a.m.
3	McDonald's	August 4, 2010	11:30 a.m.-1:30 p.m.
4	McDonald's	August 4, 2010	4:30 p.m.-6:30 p.m.
5	McDonald's	August 5, 2010	6:30-9:30 a.m.
6	Kmart	August 5, 2010	9:30-11:15 a.m.
7	Kmart	August 5, 2010	12:30-1:45 p.m.
8	Common Cents	August 5, 2010	5:00-7:00 p.m.
9	Country Kitchen	August 5, 2010	7:00-8:00 p.m.
10	Country Kitchen	August 6, 2010	8:00-9:00 a.m.
11	Common Cents	August 6, 2010	3:45-5:15 p.m.
12	McDonald's	August 7, 2010	8:30-10:15 a.m.
13	Common Cents	August 7, 2010	10:15-11:30 a.m.
14	Kmart	August 7, 2010	11:30 a.m.-12:30 p.m.

To facilitate the completion of the questionnaires, all surveys were administered during a face-to-face interview. A total of 300 surveys were completed.<sup>3</sup> The survey results were tabulated and used to estimate revenue impacts from changes in motorist stops at each business. The changes to business revenue were then used to estimate potential impacts to employment and sales tax collections.

***Estimation of Impacts Methodology***

Short- and long-term impacts to business revenues were calculated using the answers provided by the survey respondents. Customer spending, as indicated by the surveys, was assumed to be representative of annual business revenues. The customer spending was broken down by the respondent's direction of travel in order to identify the percentage of annual revenues from I-90 travelers. Short-term impacts from ramp closures are estimated by multiplying this percentage by the amount of time the ramps would be closed.

Long-term impacts are estimated by combining the percentage of revenues from I-90 travelers with the likelihood customers would stop at the alternative locations under consideration. The result is a percentage of business revenues affected by an alternative.

<sup>3</sup> The Carrington Group report conducted 368 surveys for business customers and a separate survey of trucks at the Port of Entry. The number of customer surveys administered in this study is comparable to the Carrington Group survey business survey numbers.

$$\% \Delta R_{a,e} = \sum_e \left( \frac{R_{e,i}}{R_e} * \frac{S_{a,e,i,l}}{S_{a,e,i}} \right)$$

Where:

R = business revenues as measured by customer total expenditures at each business

S = likelihood to stop

a = alternative

e = subscript denoting establishment (McDonald's, Pizza Hut, Fuel Stop, Country Kitchen, Kmart, Lodging)

i = subscript for subset of customers coming from I-90.

l = subscript denoting the combined subset of unlikely and very unlikely from the survey questions 8, 9, and 10 where in motorists indicated the likelihood they would exit at the alternative.

The equation provides a means to measure the revenues for each of the establishments that would be affected by a given alternative. It is important to note that the surveys were conducted during the peak tourist season. Because Sheridan is a stop-off point on I-90 for tourist traffic, it is reasonable to assume that business revenues from I-90 traffic are reduced somewhat during the off-peak season (approximately half of the year). Because the equation assumes the revenues are constant throughout the year at peak levels, these impacts represent the maximum possible impact on businesses.

The survey was conducted prior to modification of Alternative 4 (now Modified Alternative 4 as described in the Alternatives Technical Memorandum 2012). Modified Alternative 4 is located between Alternatives 3/4 and Alternative 5 as described in the survey. To account for this change, potential impacts to businesses from Modified Alternative 4 were estimated using an interpolation of impacts of the two alternative locations identified in the survey.

### ***Sales and Property Tax Impacts Methodology***

The impacts to business revenues were utilized to estimate employment and sales tax impacts.

Employment impacts are easily estimated by multiplying the reduction in business revenue by a ratio of business output to employment. Ratios of output per employee by business sector were obtained from the 2007 Economic Census. Impacts to sales tax revenues were estimated by multiplying reduction in business revenues by sales tax rates.

Impacts to the property tax base were evaluated using property valuations and county mil levies. The total assessed property valuations for parcels that could be acquired for right-of-way were combined with the Sheridan County mil levy to arrive at total property tax impact.<sup>4</sup>

<sup>4</sup> Property tax mil levies were obtained from the Wyoming Department of Revenue: <http://revenue.state.wy.us/portalvbvs/uploads/c-2010%20Property%20Tax%20Rates%20-%20Mill%20Levy%20Summary.pdf>.

### ***Travel Time Analysis Methodology***

The methodology incorporates approaches commonly used in U.S. Department of Transportation (DOT) Benefit-Cost Analysis (BCA) framework. Within this framework, benefits or costs from travel time are quantified in monetary terms. The travel time analysis thus represents the extent to which people and local jurisdiction welfare are impacted by the project through changes in costs of travel associated with the improvements.

The analysis is a forward-looking exercise that seeks to anticipate the welfare impacts of a project or proposal over its entire life-cycle. Future welfare changes are weighed against today's changes through discounting, which is meant to reflect society's general preference for the present, as well as broader inter-generational concerns.

The specific methodology developed for this application was developed using the above BCA principles and is consistent with USDOT guidelines. In particular, the methodology involves:

- establishing existing and future conditions under the build and no-build scenarios, and relevant alternatives;
- measuring travel time in dollar terms;
- using DOT guidance for the valuation of travel time savings; and
- discounting future benefits with the real discount rates recommended by the DOT (7 percent, and 3 percent for sensitivity analysis).

The base case of this analysis is a no-build scenario (Alternative 1) in which the interchange remains as is and no improvements beyond routine maintenance are made. Alternative 2 and Modified Alternative 4 are the build scenarios used for the analysis. The travel time analysis measures welfare impacts throughout a period of analysis beginning at the opening of the project and including 20 years of operations.

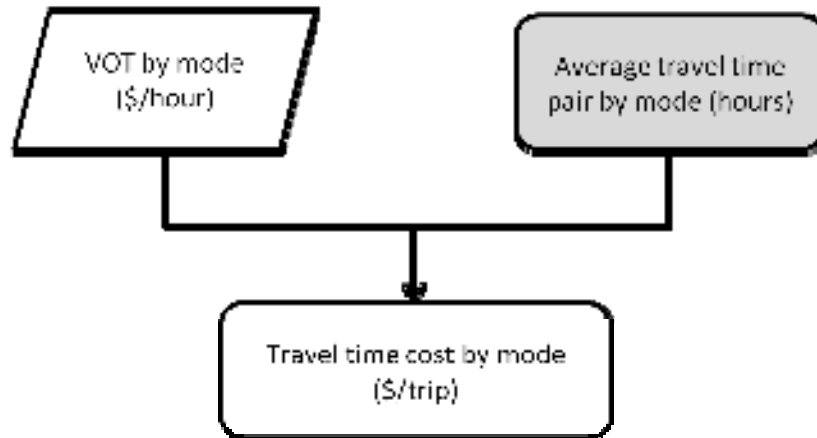
The monetized impacts are estimated in 2011 dollars with future dollars discounted in compliance with US DOT methodology using a 7 percent real rate, and sensitivity testing at 3 percent.

The methodology makes several important assumptions and seeks to avoid overestimation of benefits. Specifically:

- Input prices are inflated to 2011 dollars.
- The analysis period begins in 2021 and ends in 2041.
- A constant 7 percent real discount rate is assumed throughout the period of analysis. A 3 percent discount rate is used for sensitivity analysis.
- 2035 travel demand is an input to the analysis and a 4 percent growth rate is used to project back to opening year conditions and forward to the end year of the analysis.;

The steps involved in travel time analysis calculations are illustrated through a structure and logic diagram in Figure 1. Travel-time costs for travelers are dependant on their value of time (VOT) and the reduction of time spent on traveling (travel-time). For users of the study area, after the Project is

complete they experience a reduction or increase in travel-time as a result of better configuration of the interchange ramps and the distance of travel.



**Figure 1: Structure and Logic Diagram for Calculating the Generalized Travel Cost**

As described above, travel-time costs are estimated using estimates for VOT that are estimated based on USDOT principles and the estimated average travel times that result from the Project. The VOT used in this analysis is a weighted average of personal and business VOT, taking into account the share of each type of travel as reported in Bureau of Transportation Statistics National Household Travel Survey.

**Table 6. Location, Date, and Time of Surveys**

	Value
Value of Time (Local Travel – Automobiles) <sup>1,2</sup>	\$12.47
Value of Time (Trucks) <sup>3</sup>	\$24.75
Value of Time (Freight) <sup>4</sup>	\$30.00

Sources:

<sup>1</sup> Personal Local & Intercity Earnings/Hour Rates: The 2009 Median Household Income for US calculated by using the CPI Inflation Calculator available through the Bureau of Labor Statistics. Assumed 2080 work hours per year.

<sup>2</sup> Business Local & Intercity Earnings/Hour Rates: Earnings per hour rates were retrieved from the U.S. Bureau of Labor Statistics Employer Cost for Employee Compensation for U. S. Mountain Region workers in private industry. The most recent per hour data was collected (2nd Quarter 2009).

<sup>3</sup> Truck Drivers: Earnings per hour rates were retrieved from the U.S. Bureau of Labor Statistics Employer Cost for Employee Compensation for the U.S Transportation and Material Moving sector. The most recent per hour data was collected (4th Quarter 2011)

<sup>4</sup> "Assessing the Full Costs of Congestion Surface Transportation Systems" Feb 2009

The net change in travel-time is a function of travel time in the corridor and traffic volume. The estimated traffic volumes for each intersection increase over time as more travelers use the interchange. However, average travel times are held constant overtime and only vary based on build and no-build alternative conditions.



## Section 4: Survey Summary Results

The following figures summarize the characteristics of the motorists sampled by the survey. Figure 2 shows that of the 300 survey respondents, more than 60 percent came to the survey location (a business in the vicinity of the existing I-90 interchange) from I-90. Some of respondents were local Sheridan residents using I-90 to avoid construction on North Main Street; others were from outlying areas such as Big Horn, Ranchester, and Buffalo. The remaining respondents came from within Sheridan via Decker Road or Main Street.

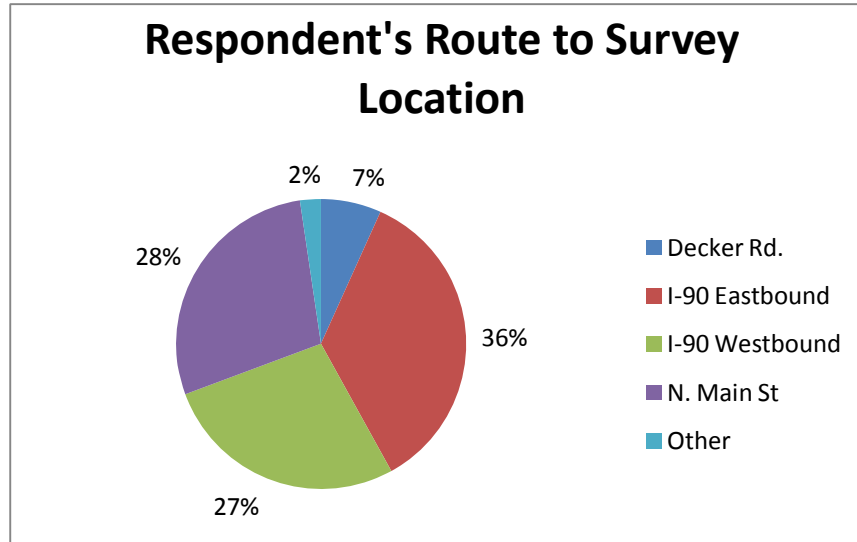
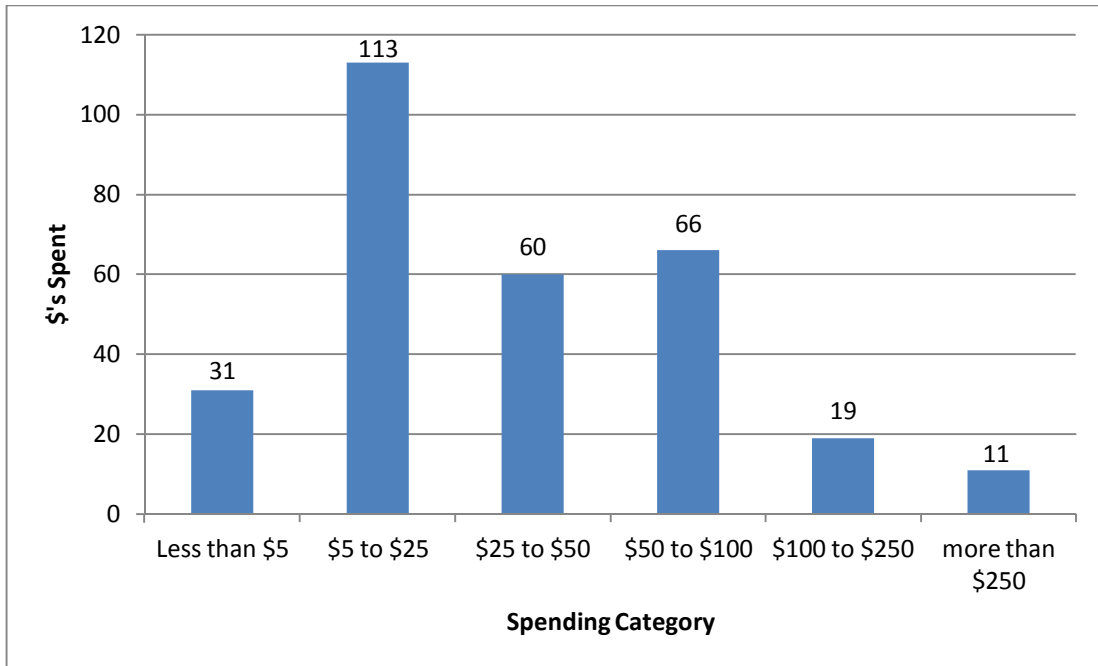


Figure 2. Route Taken by Survey Respondents to the Survey Location

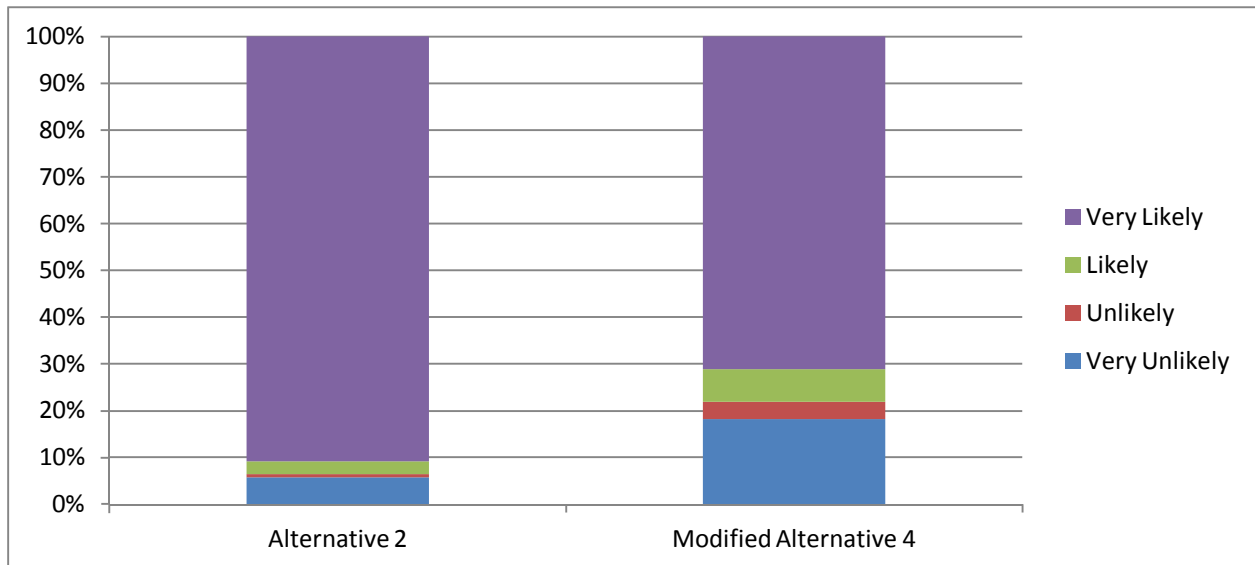
The survey results indicate that 10 percent of the sampled customers who came from I-90 were truck drivers. This is important because truck drivers (particularly those who use I-90 as a routine haul route) are more likely to make more than one stop using the North Sheridan Interchange during a year.

Figure 2 shows total dollar amounts respondents expected to or did spend at the businesses during their stop in the vicinity of the existing North Sheridan Interchange. Approximately one-third of customers expected to spend between \$5 and \$25 on gas, food, and retail services. Approximately 40 percent planned to spend between \$25 and \$100. Ten percent expected to spend less than \$5 or more than \$100.



**Figure 3. Number of Respondents in Each Spending Category**

Survey respondents recorded their preference for the North Sheridan Interchange location alternative by indicating the likelihood that they would exit there (See Figure 4). Under Alternative 2, 94 percent indicated they were likely to exit at that location, and under Modified Alternative 4, 78 percent indicated they were likely to exit at that location.



**Figure 4. Likelihood Customer Would Exit for Each Alternative**

## Section 5: Project-Related Impacts

**No-Build Alternative:** It is anticipated that socioeconomic conditions under the No-Build Alternative would be similar to the existing conditions. Because the ramp location would be maintained, it is assumed that there would be no change in the current number of vehicular exits from I-90 and, thus, no impacts to existing businesses.

**Alternative 2:** This alternative would be a tight diamond interchange located about 750 feet north of the existing interchange and within the same general footprint of the existing interchange. Construction of Alternative 2 would adversely affect business revenues in the short-term as ramps are periodically closed and traffic is shifted between alignments. Ramp closures would likely be alternated between the eastbound and westbound lanes with access closures of either lane lasting up to 3 months during construction. Assuming that construction takes place over 1 year, the impacts to the businesses shown in Table 6 could potentially be large.

**Table 7. Estimated Short-Term Impacts to Business Revenues from Reductions in I-90 Traveler Stops due to Construction**

<b>Establishment</b>	<b>Percentage of Business Revenue from I-90 Travelers</b>	<b>Percent impact to Business Revenue from Construction</b>
McDonald's	70	17
Pizza Hut <sup>a</sup>	70	17
Fuel	75	19
Country Kitchen	86	21
Kmart	34	8
Lodging	85	21

<sup>a</sup> Pizza Hut was not surveyed. Impacts are assumed to be similar to McDonald's.

Long-term impacts to business revenues were estimated using survey responses as described in the methodology section. The results from these estimates are shown below in Table 8.

**Table 8. Estimated Long-Term Impacts to Business Revenues from Reductions in I-90 Traveler Stops by Alternative**

Establishment	Percent Impact to Business Revenues	
	Alternative 2	Modified Alternative 4
McDonald's	6	20
Pizza Hut <sup>a</sup>	6	20
Fuel	6	22
Country Kitchen	0	22
Kmart	4	9
Lodging	0	13

<sup>a</sup> Pizza Hut was not surveyed. Impacts are assumed to be similar to McDonalds.

McDonald's, Pizza Hut, Fuel Stop, and Kmart revenues would be adversely affected; however, the impacts would be small because the alternative is located within part of the existing interchange footprint. Adverse effects are attributed to a small set of motorists that prefer either the No-Build Alternative or Modified Alternative 4. Thus, because either the No-Build Alternative or Modified Alternative 4 is preferred, the survey indicated a small economic effect for Alternative 2.

**Impacts to Employment**

Potential impacts to Sheridan County employment are shown in Table 8. Employment impacts are small compared to overall employment in Sheridan County.

**Table 9. Estimated Impacts to Employment in Sheridan County**

Sector	Total Jobs in Sector (2008)	Jobs Reductions from NSI Alternative 2	Jobs Reductions from NSI Modified Alternative 4
Retail	2,401	-	5
Accommodation and Food Services	1,646	2	7
Total Employment	21,204	2	12

**Tax Revenue Impacts**

Property tax revenue impacts are shown in Table 9. Alternative 2 would necessitate the acquisition of several occupied residential properties on the south side of the existing interchange and multiple vacant residential properties on the north side of the interchange. The total valuation of these properties is \$67,000. Acquisition of these properties would result in a minimal impact to the county property tax base (less than 1 percent).

**Table 10. Estimated Permanent Impacts to Sheridan County Property Tax Base, in 2011 Dollars**

	Alternative 2	Modified Alternative 4
Number of Parcels to Acquire	7	3
Valuation of Parcels	\$67,000	\$82,000
Property Taxes from Parcels	\$4,500	\$5,500
Percentage of Property Tax Revenue Reduction	0.04	0.05

Notes: Sheridan County FY 2009 property tax collections are \$11,401,000.

The estimated impacts to sales tax revenues are shown in Table 10. The total impact by Alternative 2 to state tax collections from Sheridan County would be a loss of \$12,300 of total sales tax collections. The impact to the county and local tax collections would be a loss of \$6,300. Both losses would result in a minor (less than 1 percent) impact to the respective tax bases.

**Table 11. Estimated Permanent Impacts to Sheridan County Sales Tax Base, in 2011 Millions Dollars**

Sector	Baseline Conditions		Alternative 2		Modified Alternative 4	
	Tax Collections (State 4 percent)	Tax Collections (County/Local 2 percent)	Tax Reductions (State 4 percent)	Tax Reductions (County/Local 2 percent)	Tax Reductions (State 4 percent)	Tax Reductions (County/Local 2 percent)
Retail	\$9.34	\$4.67	\$0.01	\$0.01	\$0.04	\$0.02
Accommodation and Food Services	\$2.47	\$1.23	>\$0.01	>\$0.01	\$0.01	\$0.01
Total	\$11.81	\$5.90	\$0.01	\$0.01	\$0.05	\$0.03
Percent Impact of Sheridan County Tax			0.04%	0.05%	0.19%	0.30%

Notes: Sheridan County total sales and use tax collections from state 4 percent tax are \$27,886,123 and for county/local 2 percent taxes is \$13,942,229.

While the impacts previously discussed describe the adverse impacts that could result from the project, there are opportunities that negate these impacts. As noted by survey respondents, signs help to inform motorists needing to stop for services. Increasing business visibility to I-90 motorists by using improved signs would help mitigate negative impacts. Furthermore, once customers stop for one business, they are more likely to visit other businesses. This statement is supported by the survey respondents, who indicated that they are more likely to frequent other businesses once they have stopped, even if visiting those businesses were not their original intent for the stop. Thus, increased visibility for key businesses (lodging, restaurants, and fuel) could help attract customers in spite of the interchange relocation. The

City of Sheridan is undertaking efforts that would support this through a revitalized the North Main Street featuring increased visibility at the interchange for these businesses.

**Travel Time Savings Impacts**

The table below lists the estimated travel time cost per hour for autos and trucks for the opening and final years of analysis for both alternatives.

**Table 11. Generalized Cost of Travel by Mode, in 2011 Dollars**

Mode of Transportation	Cost per Hour
Auto	\$12.47
Truck	\$54.75

The table below lists the net changes in travel time costs calculated for autos and trucks. The table shows that the cost of travel will increase with Alternative 2. These discounted life-cycle transportation costs are estimated to total an additional \$1.1 million and \$2.3 million (7 percent discounting and 3 percent discounting) over 20 years of operations.

**Table 12. Generalized Cost of Travel by Mode, in 2011 Millions Dollars**

Beneficiaries	Alternative 2		Modified Alternative 4	
	Discounted at 7 Percent	Discounted at 3 Percent	Discounted at 7 Percent	Discounted at 3 Percent
Automobiles	-0.73	-1.53	-5.53	-11.69
Trucks	-0.35	-0.75	-2.70	-5.70
Total Generalized Travel Cost Savings	-1.08	-2.28	-8.23	-17.39

Additionally, the improved safety of Alternative 2 would also have societal benefits through reduction in the number and cost of accidents at the existing interchange. As indicated by the US. Department of Transportation’s report *The Economic Impact of Motor Vehicle Crashes, 2000* reductions in loss of life, injury costs, and property damages could have economic significance. The magnitude of these benefits from a societal perspective could offset a portion of the adverse impacts.<sup>5</sup>

Modified Alternative 4: This alternative would be a diamond interchange located 4,560 feet northwest of the existing interchange and about 2,300 feet west of Decker Road. The relocation would move the interchange to an area of the city that was annexed in the last few years; this area is zoned Gateway

<sup>5</sup> Blincoe 2002. U.S. Average injury-related costs for accidents ranged between \$433 and \$40,056 per accident depending on accident severity. Noninjury-related costs from travel delays and property damage ranged between \$5,000 and \$40,868 depending on accident severity.

Development. Because the alternative involves the relocation of the interchange, there would not be short-term impacts to business revenues from interchange closures during construction.

Based on the results shown in Table 8, Modified Alternative 4 could have long-term impacts on each of the businesses in the vicinity of the existing North Sheridan Interchange. The largest impacts would be on McDonald's, Pizza Hut, Country Kitchen, and the gas stations. The survey results indicate that motorists from I-90 spent the largest percentage of their money at these locations. Thus, the impacts from Modified Alternative 4 affect these businesses the most.

While the general percentage of variable and fixed costs that affect the operations of the specific North Main Street businesses is unknown, a decline in revenue of 20–40 percent is generally within the operational fluctuation of most businesses.<sup>6</sup> As the estimated impacts are a maximum value, it is reasonable to infer that the impacts from Modified Alternative 4 could be less than stated and less than the operational fluctuation of most businesses.

The resulting revenue losses, employment impacts, and tax impacts are greater for Modified Alternative 4 than for Alternative 2. The estimated employment impacts shown in Table 8 are small when compared to overall employment in Sheridan County. The loss to state tax collections from Sheridan County would be \$53,000. The loss to the county and local tax collections would be \$26,500. Both reductions result in a minor impact (less than 1 percent) to the respective tax bases.

Table 12. Generalized Cost of Travel by Mode, in 2011 Millions Dollars shows that the cost of travel will increase with Modified Alternative 4. These discounted life-cycle transportation costs are estimated to total an additional \$1.1 million and \$2.3 million (7 percent discounting and 3 percent discounting) over 20 years of operations.

Although Modified Alternative 4 would relocate the interchange farther north than Alternative 2, comments from survey respondents indicate that it is likely that motorists would still frequent north Sheridan establishments, and in some cases, Modified Alternative 4 may improve the economic conditions for the local tax base and employment depending on the future development west of Decker Road. Respondents noted:

*"Likes Alternative 4"*

*"A drive of ¾ of a mile isn't a big deal ... "*

*"More options at Alternative 4 would make drivers more likely to get off the interchange."*

*"Likes Alternative 4 best, but uses North Main to get here to buy gas. Believes the existing interchange is dangerous."*

*"Alternative 4 would not hurt tourist traffic since it is still at the point of opportunity."*

---

<sup>6</sup> The Carrington Group, *North Sheridan Economic Analysis: Impact on Businesses Due to Port-of-Entry and I-90 Interchange Relocations*, January 2001, Page 19.

Increased visibility using improved directions and signs along I-90 as discussed with Alternative 2, would mitigate the adverse impacts of relocating the existing interchange. Additionally, promotion of these businesses in travel guides or navigation systems could mitigate effects. Travelers noted that they sought out McDonald's for Wi-Fi or because they wanted McDonald's coffee. One truck driver noted stopping at the Common Cents because of the Cat Scales, which was noted in their travel book.

Modified Alternative 4 would be located north of the current interchange location in an area currently zoned Gateway Development. The city has flexibility in guiding future land use in this zone to meet the vision of its *North Main Area Master Plan* (July 2009). Zoning on land located in the area vacated by removal of the existing interchange could be rezoned for development in support of the goals in the master plan should the city see fit. Doing so could mitigate the adverse impacts of the project by offering new development potential to attract motorists. As noted previously, survey respondents are more likely to visit other businesses once they have exited from the interstate. The resulting new business revenues, employment, and sales and property tax revenues would mitigate the minor adverse affects to the local and county tax base and employment.

Depending on the vision and development allowed in the Gateway District, the impacts could be completely mitigated. As Sheridan seeks to develop a gateway to the northern area of Sheridan, it is likely that additional tourists could be attracted to use the Modified Alternative 4 interchange. Additionally, the City of Sheridan is developing the Sheridan High-Tech Business Park west of Modified Alternative 4 and has approved a master plan for development south of Modified Alternative 4. These developments, once complete, could mitigate reductions in present revenues of the North Main Street businesses by generating additional vehicle trips and stops by motorists that would pass by the businesses. In support of these ongoing efforts by the city, businesses could expand services offered at their locations that could attract additional customers, such as increased offerings for truck drivers. Finally, the safety improvements of Modified Alternative 4 would result in societal benefits by reducing the annual cost of accidents at the existing interchange. Reductions in loss of life, injury costs, and property damages would likely have economic significance.

## **Section 6: Summary of Findings**

Based on the findings of this study, the largest potential impacts to existing businesses near the existing interchange could occur with Modified Alternative 4. Alternative 2 could have both short- and long-term disruptions to business revenues. Modified Alternative 4 would not disrupt business during construction but would have larger long-term impacts. Overall, employment and tax-base impacts to state and local treasuries would be small, less than a 1 percent loss for either alternative. Finally, improvements to the interchange would increase traveler's time in accessing various routes around the interchange. These travel time increases are largest for Modified Alternative 4.

In general, the findings indicate that the impacts from relocating the existing North Sheridan Interchange to Modified Alternative 4 would be somewhat larger than those estimated in the 2001 Carrington Group study. This appears to be driven primarily by the higher ratio of customers coming from I-90 in the 2010 survey compared to the 2001 survey.



Adverse impacts from either alternative could be mitigated by increased visibility and improved signs, as well as additional offerings by local businesses. Both alternatives could be supported by the initiatives of the North Main Area Master Plan. This plan was developed in 2009 and includes provisions to increase visibility of the businesses near the existing interchange. Both alternatives would have some additional impacts from right-of-way acquisitions. Modified Alternative 4 would require right-of-way from the Sheridan High-Tech Business Park stormwater facilities and some private property slated for future development and that impact would create additional changes in the property base. Alternative 2 would necessitate the acquisition of several residential properties, which would reduce property tax revenues. The extent of these impacts is small.

Although impacts to business revenues are expected to occur by replacing the existing interchange, both alternatives would provide safer access to I-90 and safer exits to Sheridan, and make pedestrian and roadway improvements in the North Main Street area. Both options provide the City of Sheridan different opportunities to fulfill the vision of the North Area Master Plan through an improved transportation facility. Additionally, the proposed Sheridan High-Tech Business Park and Wrench Ranch development area (Phase 1 has been approved) would generate trips that would pass by the existing North Main Street businesses. These specific improvements were not considered in the survey. Therefore, it is not possible to know if these improvements would induce new motorist trips into Sheridan that could replace the revenues that are expected to be lost for either Alternative 2 or Modified Alternative 4, but it is possible.

The results of this study are supported by published research that has found minor effects from relocated roadways and found that local planning efforts can further mitigate the negative effects. Leong and Weisbrod summarize the research in their 2000 publication. They found that bypasses<sup>7</sup> have little effect on community economic conditions. In 2007, the Maine Department of Transportation found that local land use planning and zoning ordinances can help mitigate negative impacts.

---

<sup>7</sup> The slight in change interchange location is unique to research studies that are available. However, a relocated interchange would be less substantial change than a bypass, whose economic impacts are fairly well studied.

## References

- Bureau of Transportation Statistics, *National Household Travel Survey*, 2001, [http://www.bts.gov/programs/national\\_household\\_travel\\_survey/](http://www.bts.gov/programs/national_household_travel_survey/)
- Bureau of Economic Analysis, US Department of Commerce, *Regional Economic Information System*, CA-1-3 Tables Population and Personal Income, Accessed February 2012 <http://www.bea.gov/regional/>.
- Bureau of Economic Analysis, US Department of Commerce, *Regional Economic Information System*, CA-04 Table Total Employment By County, Accessed February 2012 <http://www.bea.gov/regional/>.
- Bureau of Economic Analysis, US Department of Commerce, *Regional Economic Information System*, CA-04 Table Total Employment By County, Accessed February 2012 <http://www.bea.gov/regional/>.
- Bureau of Economic Analysis, US Department of Commerce, *Regional Economic Information System*, CA-30 Table Sheridan County Personal Income, Accessed February 2012 <http://www.bea.gov/regional/>.
- Bureau of Economic Analysis, US Department of Commerce, *Regional Economic Information System*, CA-25N Table Sheridan County Employment by NAICS Sector, Accessed February 2012 <http://www.bea.gov/regional/>.
- The Carrington Group, *North Sheridan Economic Analysis: Impact on Businesses Due to Port-of-Entry and I-90 Interchange Relocations*, January 2001.
- Economic Analysis Division, Department of Administration and Information, *A SocioEconomic Profile, Sheridan County, Wyoming*, <http://eadiv.state.wy.us>.
- Economic Analysis Division, Department of Administration and Information, *Sheridan County Retail Trade, Accommodation, and Food Services Sales Tax Collections*, <http://eadiv.state.wy.us>.
- HDR Engineering. 2012. *Alternatives Technical Memorandum*.
- L. Blincoe, A. Seay, E. Zaloshnja, T..Miller, E. Romano, S.Luchter, R.Spicer, "The Economic Impact of Motor Vehicle Crashes, 2000," U.S. Department of Transportation, National Highway Traffic Safety Administration Technical Report, May 2002.
- Leong and Weisbrod 2000. Summary of Highway Bypass Studies. Economic Development Research Group. Reprint Series. December 2000.
- Maine DOT. 2007. Wiscasset Rt. 1 Corridor Study.

US Census Bureau, *2007 Economic Census*, Geographic Area Series, Summary Statistics for the United States, Accessed October 2010 <http://www.census.gov>.

## Appendix A: Sample Survey

Interview Questions:

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM or PM Location: \_\_\_\_\_

1: Where did your trip originate: \_\_\_\_\_

2: Where is the destination for your trip: \_\_\_\_\_

3: Are you a truck driver? (circle one) Yes / No

4: Which direction did you come from (check one):

\_\_\_\_ I-90 Westbound

\_\_\_\_ Decker Rd.

\_\_\_\_ I-90 Eastbound

\_\_\_\_ Other

\_\_\_\_ N. Main St.

5: How many persons are traveling in the vehicle today? \_\_\_\_\_

6: Please indicate the reasons for your stop today:

\_\_\_\_ McDonalds

\_\_\_\_ Pizza Hut

\_\_\_\_ Fuel

\_\_\_\_ Country Kitchen Restaurant - Common Cents Truck Stop

\_\_\_\_ K-Mart

\_\_\_\_ Lodging

\_\_\_\_ Other (please explain) \_\_\_\_\_

7: Approximately how much money will (or did) you spend at the businesses today?

\_\_\_\_ McDonalds

\_\_\_\_ Pizza Hut

\_\_\_\_ Fuel

\_\_\_\_ Country Kitchen Restaurant - Common Cents Truck Stop

\_\_\_\_ K-Mart

\_\_\_\_ Lodging

\_\_\_\_ Other (please explain) \_\_\_\_\_

**Continue if used I-90.**

*The next 4 questions determine your response to changes in the structure and/or location of the current I-90 off-ramp. Please indicate your preference based on a scale of 1 to 4 where: 1 indicates it is highly unlikely, 2 would unlikely, 3 would be likely, 4 would be very likely.*

8: If you used I-90 today would you have still exited the interstate if the exit ramp were shifted northwest of the existing ramp up to a ¼ mile? See Alt 2 on Map (circle respondent answer)

1      2      3      4      No Response

9: If you used I-90 today would you have still exited the interstate if the exit ramp were relocated to between ¼ mile to half a mile northwest to Decker Road? See Alt 3/4 on Map (circle respondent answer)

1      2      3      4      No Response

10: If you used I-90 today would you have still exited the interstate if the exit ramp were relocated over one mile northwest of its current location, approximately ¾ miles west of Decker Road? See Alt 5 on Map (circle respondent answer)

1      2      3      4      No Response

11: Would your responses to questions 8 through 10 be different if services you have used today at this exit are not clearly marked in the situations described above? (please explain): \_\_\_\_\_

