

# FINAL REPORT

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State of Wyoming Department of Transportation U.S. Department of Transportation Federal Highway Administration



# HIGHWAY CONSTRUCTION RELATED BUSINESS IMPACTS: PHASE I

By:

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March 2004

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Abstract				
Business owners are typically quite concerned when a highway	construction project is proposed near their b	usinesses. Even though c	construction projects	
are only temporary situations, many business owners worry abo information that quantifies the estimated business impacts exist	at the level of impact and the length and mag s nationwide and none that is specific to Wyo	mitude of the recovery pe oming. The intent of this	study is to	
investigate the business-related impacts due to highway constru	ction projects in Wyoming. The findings fro	m this research effort, Ph	ase I and Phase II,	
will result in tools to address the concerns of business owners a estimates of both the perceived and actual business impacts from	nd response to unsupported statements of bus n previous projects will be included and miti	siness owners on future p	rojects. Quantified	
minimize the construction impact and to foster better relationships with adjacent business owners.				
Phase Leoncentrates on evaluating impacts of past construction	projects and Phase II concentrates on current	t and future projects. Dh	asa Lis composed of	
seven chapters including the introduction. Chapter 2 is a literature review on construction impacts and mitigation techniques. Chapter 3 includes the				
WYDOT survey including methodology and results. Chapter 4 introduces the Phase I projects. Chapter 5 gives details about the collected data, such as				
business categorization based on SIC codes, customer base, traffic volumes before, during and after construction, tax revenue before, during and after construction, tax revenue before, during and after construction, and the general economic trends occurring in the area. Chapter 6 contains data analysis on each of the following: traffic volumes, tax				
revenues, commercial property, business survey, summary of impact level, and perceived versus actual impacts. Chapter 7 contains the conclusions and				
recommendations and includes a section on the Phase II study.				
Key Words	Distribution Statemer	nt		
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# SI\* (Modern Metric) Conversion Factors

Appro	ximate Conversio	ns <mark>from</mark> SI U	Inits		Appro	ximate Conversions	to SI Units		
Symbol	When You Know	Multiply By	To Find	Symbol	Symbol	When You Know	Multiply By	To Find	Symbol
Length				U	Length				·
mm	millimeters	0.039	inches	in	in	inches	25.4	millimeters	mm
m	meters	3.28	feet	ft	ft	feet	0.305	meters	m
m	meters	1.09	yards	yd	yd	yards	0.914	meters	m
km	kilometers	0.621	miles	mi	mi	miles	1.61	kilometers	km
Area					Area				
mm <sup>2</sup>	square millimeters	0.0016	square inches	in <sup>2</sup>	in <sup>2</sup>	square inches	645.2	square millimeters	mm <sup>2</sup>
$m^2$	square meters	10.764	square feet	$ft^2$	$\mathrm{ft}^2$	square feet	0.093	square meters	$m^2$
m <sup>2</sup>	square meters	1.195	square yards	yd <sup>2</sup>	yd <sup>2</sup>	square yards	0.836	square meters	m <sup>2</sup>
ha	hectares	2.47	acres	ac	ac	acres	0.405	hectares	ha
km <sup>2</sup>	square kilometers	0.386	square miles	mi <sup>2</sup>	mi <sup>2</sup>	square miles	2.59	square kilometers	km <sup>2</sup>
Volume					Volume				
ml	milliliters	0.034	fluid ounces	fl oz	fl oz	fluid ounces	29.57	milliliters	ml
1	liters	0.264	gallons	gal	gal	gallons	3.785	liters	1
m <sup>3</sup>	cubic meters	35.71	cubic feet	$ft^3$	$ft^3$	cubic feet	0.028	cubic meters	m <sup>3</sup>
m <sup>3</sup>	cubic meters	1.307	cubic yards	yd <sup>3</sup>	yd <sup>3</sup>	cubic yards	0.765	cubic meters	m <sup>3</sup>
Mass					Mass				
g	grams	0.035	ounces	oz	OZ	ounces	28.35	grams	g
kg	kilograms	2.202	pounds	lb	lb	pounds	0.454	kilograms	kg
Mg	megagrams	1.103	short tons (2000 lbs)	Т	Т	short tons (2000 lbs)	0.907	megagrams	Mg
Tempera	ture (exact)				Tempera	nture (exact)			
°C	Centigrade	1.8 C + 32	Fahrenheit	°F	°F	Fahrenheit	5(F-32)/9	Celsius	°C
	temperature		temperature			temperature	or (F-32)/1.8	temperature	
Illuminat	ion				Illumina	tion			
lx	lux	0.0929	foot-candles	fc	fc	foot-candles	10.76	lux	lx
cd/m <sup>2</sup>	candela/m <sup>2</sup>	0.2919	foot-Lamberts	fl	fl	foot-Lamberts	3.426	candela/m <sup>2</sup>	cd/m <sup>2</sup>
Force an	d Pressure or Stress				Force an	d Pressure or Stress			
Ν	newtons	0.225	poundforce	lbf	lbf	pound-force	4.45	newtons	Ν
kPa	kilopascals	0.145	pound-force per square inch	psi	psi	pound-force per square inch	6.89	kilopascals	kPa

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# **EXECUTIVE SUMMARY**

# Introduction

Business owners are typically very concerned when a highway construction project is proposed near their businesses. Even though construction projects are only temporary situations, many business owners worry about the level of impact and the length and magnitude of the recovery period. Currently little information that quantifies the estimated business impacts exists nationwide and none that is specific to Wyoming. The intent of this study is to investigate the business-related impacts due to highway construction projects in Wyoming and provide project managers at the Wyoming Department of Transportation (WYDOT) with case studies and impact estimates to better address business owners' concerns.

The main objective of the research effort is to address the concerns of individual business owners. Case study information provided in this report, along with quantified estimates of both perceived and actual business impacts from previous WYDOT projects, can be used by WYDOT to address the concerns of business owners and to respond to unsupported statements of business owners in future projects. Mitigation techniques for future projects to minimize construction impacts and foster better relationships with business owners are also included.

# Literature Review

Information from previous studies outside of Wyoming shows that impacts experienced by businesses can vary as much as the businesses themselves. Usually, the travel related businesses, such as restaurants and gas stations, experienced the greatest temporary impacts during construction. The studies found that most of the businesses

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sales rebounded around two years after completion of construction. Many of the studies depended on surveys to determine information about the business. When comparing sales revenue activity perceived by the businesses to actual revenue data, the businesses seemed to be more pessimistic about their sales performance during construction than what the real numbers displayed.

Mitigation techniques are the most successful when both business and construction parties work together. Communicating from the planning phase and throughout the construction project to the businesses is very important for potential problems to be discovered and avoided. Holding public information meetings is an important way of doing that. The studies in the past have shown that construction projects will run better when both parties communicate openly and often.

Some other successful mitigation techniques include getting the whole community to "own" the project by sponsoring business parties and celebrations related to the construction. When business owners as well as the community understand the reason for the construction project and what needs to be done, they are more likely to accept the project and construction impacts can be minimized.

#### **Survey of State DOTs**

A survey sent to the 50 state DOTs to query each about their mitigation techniques to minimize impacts on businesses found that it is very important to establish communication between the stakeholders and DOTs early in the planning and project development process. This communication should be kept throughout construction so possible impacts can be recognized and averted.

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Allowing continuous access to businesses is very important for the business survival. When not possible, a detour access point, creating a new access point, or even paying the business for temporary closure seems to be effective in helping businesses. Special signing for business accesses and, in some cases, different colored directional cones can help the potential customer navigate to their destination.

Providing incentives and disincentives to speed up construction for the contractor can decrease the impacts the businesses experience and speed up the recovery for the businesses in the construction zone. In general, most businesses realize construction is temporary but getting the businesses involved can create excitement about the process and make the experience positive for everyone involved.

# Wyoming Project Locations

A total of 12 projects selected for analysis. Originally more projects were to be considered but it was found that not many projects had occurred in areas where a significant number of businesses were impacted. Projects were selected in the time frame between 1998 and 2001 to ensure that before, during, and after construction affects could be studied. To ensure an adequate regional distribution, potential construction projects were examined in each of Wyoming's seven commission districts.

Highway projects that were large enough to create an impact on businesses and that were located near business areas were selected from the Wyoming State Transportation Improvement Program (STIP) manual from 1998 through 2001 from each district. The project list includes construction projects in Saratoga, Worland, Moorcroft, Lander, Wheatland, Laramie (2 projects investigated), Cody, Cheyenne, Gillette, and Casper.

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The construction projects studied ranged from simple sidewalk and curb replacements to complete pavement rehabilitations. Many of the construction projects took place in the center of town or in major travel areas where businesses exist. Most of the businesses that were affected were travel oriented and consisted of restaurants, hotels, convenient stores, and automotive related businesses. Other businesses such as retail trade and service along with some professional services were also affected and studied.

# **Data Collection and Analysis**

#### **Business Categorization**

When examining actual sales trends, the tax revenue data collected from the Wyoming Department of Revenue (DOR) was required to be strictly confidential when presenting information to the public. Because of this, the data on businesses that was received from the DOR was classified using the 1987 standard industrial classification (SIC) code. This code classifies businesses by primary activity, determined by principal product, or group of products produced, distributed, and/or services rendered. The SIC code breaks the businesses into eight major categories including apparel, automobile, building and hardware, food stores, furniture, general merchandise, miscellaneous stores, and restaurants. Business lists for each project were created by the University of Wyoming research team and sent to the DOR. The DOR then searched for each business according to their address and the tax revenue data was then sent back for each project with only the SIC codes to identify the businesses.

The customer base of this report is categorized into local, tourist, and mixed businesses. Local businesses include retail sales, retail service, and professional services while tourist based businesses include hotels, fast food restaurants, automobile shops and

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other businesses located near major travel routes. Mixed categories include both tourist and local based businesses.

Using the Department of Revenue data, the list of businesses was examined and broken down into the corresponding business categories based on whether the business was local, tourist, or oriented toward both local and tourist as customers. Seven of the projects including the Saratoga, Worland, Lander, Wheatland, Cody, Gillette, and Casper projects had local businesses as the primary category in the construction zone. The other five projects, Moorcroft, Laramie 1, Thermopolis, Cheyenne, and Laramie 2, had businesses that were primarily oriented toward the tourism industry.

# Traffic Volume Data

Three sets of traffic volume data were examined for this report. For each project, the peak traffic volume information collected from the *Automatic Traffic Recorder Report* published by WYDOT, which report data from the permanent counters across the state to collect the annual average daily traffic (AADT) information. The peak month and day information gives information on when the peak tourism seasons or traffic flows occur. Using this knowledge, construction impacts can be examined based on whether they occurred during peak traffic flow seasons or not.

WYDOT also performs average daily traffic (ADT) counts in towns with a population greater than 5,000. These counts, which usually occur once every three years, were used to examine the traffic volume information before and after construction. This information is used to examine if the towns were experiencing increases or decreases in traffic volumes as a result of construction project or other factors.

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The business survey sent out to all the project businesses in the 12 case study locations also queried the businesses of their perceptions on traffic volumes during and after construction. This information was used to compare the business perceptions of traffic volumes to the actual traffic volumes collected from the ADT counts.

For the Wyoming projects, the majority of peak traffic flows happened during the summer months, the same months as peak construction and tourism seasons. Overall, the general trend with a majority of the cities investigated was that the traffic volumes tended to decrease during construction and increase afterward. This was primarily indicated by the ADT and business survey response data.

Since detour routes and the general unsightliness of the construction project often force or cause people to travel other routes, a decline in traffic during construction would seem most likely. After construction, the improved roadways and access points would most likely attract motorists and increase the traffic volumes. This seems to be the case for the Wyoming projects.

## Tax Revenue Data

Tax revenue data was collected from the Wyoming Department of Revenue. The data consisted of taxes collected from the project businesses for each case study from the years of 1997 to 2003. The tax revenue data was converted into estimated sales by dividing the tax revenue value by the tax percent number given by county in the *Sales/Use Tax Rate History for Counties with Option Taxes* document published by the DOR every year. The estimated sales were broken down monthly, quarterly, and yearly. Since some businesses reported sales only in yearly format, the yearly data was broken down and displayed by percent difference in sales from one year to the previous. This

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data was used to examine the before, during, and after construction trends in the sales revenues.

The yearly estimated sales information was also totaled for each project and compared to the total county sales of the corresponding county. A trend line analysis, using the total sales of the businesses with consistent data before, during, and after construction was also created to compare the during and after sales to a trend line based of the sales in the years before construction occurred. Businesses with more than one of the same type of business reporting sales were combined and examined to determine which types of businesses were most affected by construction.

The Worland, Laramie – 3<sup>rd</sup> Street, Cody, Cheyenne, Laramie – Curtis Street, and Casper projects experienced some of the greatest decreases in sales during construction. These cities all have populations greater than 5,000. For the Cody, Cheyenne, and Laramie projects, most of the businesses in the construction zone were in the tourist or mixed categories, while Worland and Casper's project businesses were primarily in the Local sector.

Based on the comparison of the project sales to the county sales, all of the previous six projects except Worland had increasing county sales trends during construction while the project sales changed very little or decreased. The Laramie  $-3^{rd}$  Street, Cody, Cheyenne, and Casper project businesses experienced an increase in sales after construction while the Worland and the Laramie-Curtis Street project experienced mixed results after construction. All of these projects except Casper experienced a growth in sales before construction. Due to the larger city size, the reason for the greater

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decrease in sales during could be to the other business districts available to the local and traveling public.

The projects in Saratoga, Lander, Wheatland, Thermopolis, and Gillette all had businesses that experienced decreases in sales. Thermopolis had around 40% of the businesses experiencing decreases in sales before and during construction, while the other projects had only a few businesses each that experienced a decrease during construction. What is similar about these five projects is that they experienced increasing trends in sales before construction and experienced greater declines in sales in the years after construction then during construction. This means that construction likely did impact the sales of some businesses during the construction period but it is unlikely that the construction caused the greater decreases in sales after construction. Most likely the construction period corresponded to a general downturn in the local economy.

When examining the county and project sales comparisons, for the projects in Saratoga, Lander, and Thermopolis, the county sales were beginning to rebound from a decline when the construction started. The Wheatland project county sales had an increasing trend in before and during construction while the Gillette county (Campbell County) sales were experiencing a decreasing trend before, during, and after construction.

After construction, the county sales for the Saratoga, Wheatland, Thermopolis, and Gillette experienced a declining trend. This decrease in county and project sales occurred between the years of 2000 and 2003, which makes it unlikely that the construction project was the main cause in the decline.

The sales for the Moorcroft project were decreasing before, during, and after construction. Three businesses were examined for this project and the data was sparse;

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however, since the county sales increased throughout the study period, it appears that the construction project did affect some of the businesses that were experiencing hard times before the construction started.

## Commercial Property ROW Data

The temporary and permanent loss of commercial property right-of-way (ROW) to easement needs was compiled for this study. This data was obtained from WYDOT Right-of-Way Department by receiving form R/W 57 appraisal review document for each parcel within the construction limits. This form indicated the area of land that was taken permanently or temporarily and the dollar amount of any other damages done. The amount of land taken and the total value of damages were totaled for each project. None of the businesses had to be relocated because of the construction.

The Worland, Lander, Wheatland, Laramie – 3<sup>rd</sup> Street, Cody, Cheyenne, Laramie – Curtis Street, and Casper all had ROW purchased for the construction project with the Wheatland project experiencing the greatest purchase. The projects in Worland, Lander, Wheatland, Laramie (both projects), and Casper all had land temporarily taken with Wheatland having the most land temporarily taken. All of the projects had properties that received damage payments.

# Business and Engineer Survey Data

The survey used to query businesses affected in the construction zones was designed to determine the perceived impacts to businesses both during and after construction. These perceived impacts are compared to the actual economic impacts as determined from the Wyoming Department of Revenue data later in this report. The survey was sent to each business in the construction zone for each project. Strict

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confidentially was assured to the businesses and a survey code was established to insure this could be met. The total response rate for every project was 29.6% with 98 out of 331 surveys being sent.

The survey was divided into four major parts. The four sections included an evaluation of the project contractor and WYDOT personnel, the impacts on businesses during and after construction, basic information about the business, and information on relocated businesses. The information can geared toward recognizing the possible economic, customer, and aesthetic impacts that construction could have caused.

A survey was also created and sent to the resident and project engineer for each project. This survey was designed to determine the engineer's perceptions of the construction project and asked questions similar to the business surveys. The total response rate for the engineer surveys was 100% with 22 out of 22 business surveys sent returned.

In general, a majority of the projects businesses perceived that their number of customers per day and sales declined during construction. After construction, many of the project's businesses perceived no change or an increase in the number of customers and sales during construction. Most project businesses felt that the noise level and air pollution increased during construction, while after construction; there was no change or a decrease in the noise level and air pollution.

Most of the resident engineers felt that the contractor performed a fair to very good job during construction. In general, the resident and project engineers for each site tended to notice slight to moderate decreases in the number of customers visiting the businesses in the project area during construction and a slight to moderate increase after

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construction. The majority of resident and project engineers also noticed an increase in the noise and air pollution levels during construction and a decrease afterward. Their opinions on the construction impacts tended to be similar to those of the business surveys returned although less severe in many cases.

#### Perceived versus Actual Impacts

When examining the perceived construction impacts on sales collected from the business surveys and comparing them to the actual sales impacts collected from the Wyoming Department of Revenue, a Chi Squared statistical test was performed to determine whether the responses of the two populations were statistically different from each other. The output of the Chi Squared test is a p-value which gives a confidence interval of the statistical difference between the two populations. In some cases, there was not enough data to produce a p-value for analysis.

Out of the twelve projects, seven projects had enough data to produce a p-value for the during construction comparison. Three of those projects had p-values small enough to be confident that the perceptions of the businesses were statistically different from the actual data at the 90% confidence level. After construction, eight of the twelve projects had enough data to produce a p-value. Of the eight projects mentioned above, three had small p-values to be 90% confident that the businesses perceptions were statistically different from the actual impacts. In the cases where the p-values were small enough to be statistically different during and after construction, the businesses responses were generally seemed pessimistic when comparing them to the actual impacts.

# Conclusions

Research into potential mitigation tools for minimizing business impacts found that, while it was a great concern to transportation agencies, there was limited information available. All agencies were dealing with these types of issues, most on a case by case basis, but no comprehensive source of information was available. The prevalent trend in mitigating impacts is in the information area. Most agencies are utilizing some form of increased public awareness, such as the use of public information specialists, websites, news and newspaper sources, and newsletters or fliers to provide the public with the details and importance of the project.

In general, it appears that the projects with the majority of project businesses that are tourist related businesses with populations greater than 5,000 experienced the greatest impacts during construction. The smaller towns with locally oriented businesses seemed to experience fewer impacts from the construction projects. It appears that every type of project can cause businesses to experience impacts but the duration of the project seems to have a greater impact if the project last longer than one construction season.

When examining the data, it seems like the towns with smaller populations are less susceptible to the impacts of construction and more susceptible to the county economy, while the construction projects in bigger cities are more susceptible to construction projects because there are alternatives in other parts of the city that customers can go to. Many smaller towns do not have other business districts to travel to so travelers and customers do not have the option to travel to another business district during construction. While the businesses both large and small towns experienced changes in their percent change in sales during construction, and most of the businesses

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in all of the project areas experienced a recovery within a year after construction. However, in many of the projects, the sales declined after construction between the years of 2000 and 2002 which would mean that something else may be responsible for the drop in the sales on both the project and county levels.

#### Recommendations

In the future, WYDOT could encourage a "working together" atmosphere to help businesses understand that construction is a temporary thing by getting the businesses involved in the construction projects early on and encouraging them to stay involved. The businesses are a vital part of the communities in which they exist. By becoming part of that community and sticking together throughout the construction process, the businesses of the Wyoming communities will thrive.

# **Additional Research**

The information obtained in this study could be analyzed using advanced statistical and econometric models to see if additional analysis yields more insight into the variables affecting the level of business impacts.

A focused study on mitigation techniques would also be warranted. As previously discussed, very little information on the full "toolbox" of techniques does not appear to exist and would certainly be of use to all transportation agencies.

## Phase II

Phase II of the WYDOT study will examine the construction impacts going on during and after current construction projects around Wyoming. This current impact information will be compared to Phase I to further gain a further understanding of the construction and business climate in Wyoming. By selecting current projects, it is

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possible to collect more detailed data on traffic volumes and business owners perceptions. A major advantage is that business owners do not have to rely on memory for recalling their perceived impacts.

# CHAPTER 1 INTRODUCTION

# **1.1 Problem Statement**

Business owners are typically very concerned when a highway construction project is proposed near their businesses. Even though construction projects are only temporary situations, many business owners worry about the level of impact and the length and magnitude of the recovery period. Currently little information that quantifies the estimated business impacts exists nationwide and none that is specific to Wyoming. The intent of this study is to investigate the business-related impacts due to highway construction projects in Wyoming and provide project managers at the Wyoming Department of Transportation (WYDOT) with case studies and impact estimates to better address business owners' concerns.

#### **1.2 Research Objectives**

The intent of this study is to investigate the business-related impacts due to highway construction projects on a scale typical of projects in Wyoming. While city or county-wide impacts will be studied, the main objective of the research effort is to address the concerns of the individual business owners. Research on the relationship between highway construction projects and business impacts in Wyoming before, during, and after construction will provide WYDOT's project managers the information needed to respond to concerned businesses during project development. In addition, the mitigation measures that can be used to minimize these impacts during construction will also be addressed.

The findings from this research effort will result in the following tools for the Wyoming Department of Transportation:

1. Case study information to address the concerns of business owners and to respond to unsupported statements of business owners in future projects. Quantified estimates of both the perceived and actual business impacts from previous projects will be included.

2. Mitigation techniques for future projects to minimize the construction impact and to foster better relationships with adjacent business owners.

# **1.3 Report Organization**

This report is divided into seven chapters including the introduction. Chapter 2 covers the literature review on construction impacts and mitigation techniques. Chapter 3 includes the state's Departments of Transportation (DOT) survey including the methodology and results. Chapter 4 introduces the Phase I projects and gives the criteria used to select them. Chapter 5 gives details about the data collected on Phase I projects. This includes the business categorization based on SIC codes, customer base, traffic volumes during the peak season and before, during and after construction, tax revenue information both for the different business types in the construction area and the general economic trends that were occurring in the area, information on the commercial property that was taken for right of way including temporarily and permanently, and a section on the survey of businesses including the methodology used and the response rate.

Chapter 6 contains the data analysis information, including a section on each of the following: traffic volumes, tax revenues, commercial property, business survey, summary of impact level, and perceived versus actual impacts. Chapter 7 contains the conclusions and recommendations and includes and section on the Phase II study.

# CHAPTER 2

# LITERATURE REVIEW

# 2.1 Introduction

The world of construction is bound by many hazards and obstacles. Construction workers have to be very considerate when it comes to the occupational hazards that they face working on the road everyday. These hazards are always on the workers mind, however, the impacts that construction can cause on businesses is not always considered.

There are many techniques which DOTs and businesses can apply to reduce the impacts construction can cause. The following studies where performed to determine the different impacts which can occur from construction. Some of the studies consider the overall impact experienced by businesses. Perceived economic impacts from surveys sent to businesses are also compared with actual economic impacts from state departments of revenue.

The following chapter looks at past research efforts and studies which examine the construction impacts on businesses along with mitigation studies. For most cases, the general, economic, customer, right of way, and aesthetic impacts were examined.

# 2.2 Business Impact Case Studies

The section is broken up into case studies performed in the same state, with the more comprehensive case studies. Case studies have been performed in Texas, Iowa, Indiana, and Minnesota.

# 2.2.1 Texas Studies

# State Highway 199 in Parker County

During the years from 1990 to 1994, 9.4 miles of an undivided section of State Highway (S.H.) 199 in Parker County, Texas, was studied by the Texas Transportation Institute (TTI). Business impacts were studied for a section of roadway widened to include a median and a two-way left turn lane close to the towns of Azle and Springtown (1). A survey was distributed to determine how the construction impacted the local businesses. Impacts considered included changes in gross and net sales, losses of customers, changes in traffic volumes, air pollution, and other impacts that could have occurred due to construction. The report covers both during and after construction effects.

Businesses in Azle that responded to the survey lost 33% of their parking spaces while Springtown businesses lost 16% of their parking spaces. After construction, only 9% and 3% of parking spaces were lost respectively. During construction Azle reported 60% fewer customers per day and Springtown reported 70% less customers per day (1). After construction in Azle, 63% of the business managers thought no change had occurred in their number customers while 56% of the Springtown managers thought the number of customers increased. Because of the declines during construction and increases afterwards, it was determined that businesses were affected more harmfully during construction than after construction.

Businesses selling exclusive merchandise were not affected as much as those selling readily obtainable products. Most sales managers believed sales decreased, but the researchers found this was contrary to what really happened. The sales reported for abutting businesses increased a little more than Azle gross sales but increased less than Parker County or Springtown sales (1). Some businesses, particularly in Azle,

experienced some negative impacts due to the construction; however, most impacts were outweighed by the benefits of better mobility and safety that the widened road provided.

Overall, Springtown, and Parker County appraised abutting property and land values declined during and after construction (1). This trend has been occurring since 1989. Because of this fact, it was determined that construction was not the sole cause in the decline in all of the area's property values. Abutting property owners, however, believed that their property values stayed the same during construction and half thought the property values increased after construction.

The Texas Department of Transportation (TxDOT) purchased 179 properties for right-of-way (ROW) which affected 193 owners and tenants. Forty five of the properties that were relocated belonged to businesses. Those who were displaced by TxDOT's right-of-way acquisition suffered the area's worst economic effects. This enforces the fact that the more properties and amounts of ROW taken, the greater the negative impact (1).

During the construction, the traffic volume was found to have decreased while travel time increased. Accidents also increased in Azle while they dropped in Springtown. After construction, travel time decreased 13% to 19% below 1991 levels while the number of accidents had decreased further than any year between 1990 and 1995 (1). There was no consensus on the general appearance of the site during the construction, but 84% thought the appearance of the site improved after construction was finished. Many of the businesses surveyed thought the air and noise pollution increased at the site during and after the construction project was finished (1).

A benefit-cost model was calculated for each town in the project zone to determine if the construction project improved or made conditions worse. The benefitcost ratios were found to be 2.95 and 1.48 respectively, which means that the town of Azle gained \$2.95 for every \$1.00 spent on the project while Springtown gained \$1.48 for ever \$1.00 spent. It was determined that the business customers and motorist greatly benefited from the construction and the effects will continue to be positive in the future for the Azle and Springtown area (1). The overall economic impact of the widening project was positive for business activity after the construction was finished and it is expected to accelerate in the future.

#### State Highway 21 in Caldwell

Between the years of 1991 and 1993, the Texas Transportation Institute (TTI) researched a 2.33 mile section of S.H. 21 in rural Caldwell, Texas to determine what business impacts exist. The construction project consisted of widening the existing highway into a continuous, two-way left turn lane with curbs and gutters and an additional mainline in both direction ns for one half of the section (2). Like the S.H. 199 project, during and after construction economic effects were studied.

During construction, the abutting businesses experienced a 7% decrease in parking spaces, and the number of occupied parking places decreased 60%. This corresponded to the businesses impression that the number of customers per day and percentage of out of town customers decreased during construction (2). However, after the construction, the amount of customers per day and out-of-town customers increased. Overall, the effects of construction on parking spaces and customers were negative, but the positive effects afterwards offset the negative effects experienced during.

While construction was occurring, the abutting businesses experienced a 4% decrease in sales while Caldwell's sales increased 7% and Burleson County's sales increased 14% (2). Once again, the researchers found that the businesses believed their sales values declined more then they actually did according to the tax records. Sales experienced an 8% increase after construction was over. As with the S.H. 199 study in Azle and Springtown, Texas, the businesses along S.H. 21 in Caldwell experienced similar negative trends during construction, but the benefits after construction outweighed those during construction.

No extra right-of-way property was needed for this project. No properties were relocated because of this project; however, abutting property values experienced a steady decline since 1985 due to the oil boom decline. Land values experienced a 1% decline during construction and increased 5% after construction (2). The construction apparently caused little change in the declining trend of property values in the area.

Traffic volumes on S.H. 21 experienced a slight increase during construction and accelerated after the construction was finished (2). Business owners did notice the increase in volumes; however, they noticed that the traffic flowed more efficiently after the project was finished. Travel time increased by 8.4% during the construction and decreased by 12% after construction which corresponds to what many of the responding businesses beliefs. The number of accidents also experienced a slight increase during construction but decreased significantly afterwards.

After construction was over, the TTI performed a benefit-cost analysis. The ratio for this project was estimated to be \$1.54, meaning that the motorist are getting \$1.54 value of benefits for ever \$1.00 spent on construction (2). From these results, it is clear

that the businesses in Caldwell experienced some negative effects during the construction phase. However, as with the S.H. 199 project through Azle and Springtown, Texas, after the construction was over, the motorist and businesses truly benefited.

#### US 59 in Houston

Between 1991 and 1997, a study was performed by the Texas Transportation Institute (TTI) on 2.2 miles of US 59 in Houston, Texas. The original 6-lane freeway with a 4-lane service road was widened to a 10-lane freeway with a 6-lane service road. Construction on this project was not finished during the study period. As a result, the impacts on businesses *during* the construction project were studied. A survey was administered to each of the effected businesses to determine the different types and levels of impacts which occurred (3).

During the project, abutting businesses lost 15% of their parking while 5% of the parking places were lost at the end of construction. The responding businesses also reported that 17% more parking places were occupied during construction than before construction occurred (3). At the end of construction on the study section, the number of occupied parking places was 20% less than before the construction began. Seventy percent of the businesses reported fewer customers per day while the percent of out of town customers fell from 22% to 13% during the construction project. Because of this change, it was interpreted that the businesses were more negatively affected at the end of construction than during.

In the effected area, 13 managers reported sale increases 13% nominally while 10 managers reported a 34% nominal decrease in sales. Their sales value in real terms declined 2% to 50% respectively. The City of Houston and Harris county sales increased 32% nominally and a 5% increase in real terms. With the rise in sales in Houston and

Harris County and the general fall in sales for the abutting businesses in the construction zone, it was interpreted that sales were negatively affected by the construction (3).

The commercial property values abutting the construction zone increased 25% nominally which was contrary to the managers' expectations from the surveys. Those properties which were not relocated because of the construction experienced an increase in property tax revenue while Houston property tax revenues fell between the right-of-way (ROW) acquisition period and the construction period. The Texas Department of Transportation (TxDOT) purchased 281 properties for ROW. Those property owners which were completely displaced by the purchase of ROW experienced the most negative economic effects. This translates into the more properties and ROW taken, the larger the effect will be (3).

Fifty to sixty percent of the responding businesses stated that the noise and air pollution increased during construction while 67% thought the site appearance deteriorated. The number of accidents slightly decreased as the construction progressed along with the travel time through the site which was contrary to the business managers' opinions on the survey (3). Overall, it appears that the business owners are most likely to be pessimistic about property values and site appearance.

The research showed that the lost of customers during the project negatively affected the businesses more toward the end of the construction project than during. By comparing the sales in Huston and Harris County to the business sales in the construction zone, it was concluded that the general decline in sales of the businesses in the construction zone was most likely due to the construction. In general, the researchers found that those businesses which where completely relocated from this project

experienced the most negative impacts while those abutting the construction zone that were not relocated experienced a slight decline in sales and customers due to the construction. Since the study ended before the construction, no after construction impacts were studied.

#### Summary

Texas is a state that has large rural and urban sections. Although most of Wyoming is rural, general and aesthetic impacts experienced by businesses are most likely the same regardless of if the businesses exist in a rural or urban section of Wyoming. Many towns in Texas depend on natural resources or agriculture to keep their economy going which is very similar to many towns in Wyoming. It is expected that the economic impacts experienced by Wyoming businesses will be similar to those experienced in the Texas studies.

# 2.2.2 Iowa Study

#### Access Management Study

Iowa performed a study concerning access management projects in several Iowa towns. The 1997 study focused on before and after effects to traffic safety and traffic operations, but the study also looked into the vitality of the businesses affected by each of the projects (4). Information from the businesses was obtained through personal interviews of business owners, business customers, and local officials. Five business case studies were performed for five cities; Ames, Ankeny, Clive, Fairfield, and Spencer. Each case dealt with installation of two-way left turn lanes, raised median, and driveway consolidation projects. A total of 63 businesses were surveyed from all five cities.

Statistics from the Iowa Department of Revenue and Finance and other published sources were examined to determine the economic impacts the businesses in the five
towns experienced (4). The research found that negative impacts on businesses tended to be confined to a small number of individual businesses. It was found that the five business study corridors where access management occurred actually performed better in sales activity than their surrounding communities once the construction was completed.

There was no particular business category that decreased in the number of establishments in the five study corridors (4). Home furnishings, services, and miscellaneous were the only business types that experienced a reduction in the number of establishments (5). For the business types mentioned above, they could have easily been affected by other businesses of similar type opening in other nearby communities. The business turnover rate was lower than expected and ranged from 2.6% to 10%, which is below or equal to the Iowa turnover rate of 10% per year (4). In general, retail sales in the study corridors notably outperformed their respected communities indicating that little harm was done to the businesses along the corridor. The city of Clive experienced a radical growth in retail sales during construction and the growth continued after the project was done indicating that the construction had a positive effect on the businesses.

Business owners were surveyed and their opinions were obtained to further understand the impacts the access management projects inflicted on them. It was found that over 80% of all business owners surveyed along the five business corridors expressed that their sales either increased, stayed the same, or that they were not sure how the access management affected them (4). Only the two corridors with the raised medians, Ankeny and Clive, both responded with the highest percentages of increase and decrease in sales.

Out of the businesses which responded to the survey, 19% stated that their customers complained or had some difficulty driving to their businesses after the project was finished (4). The complaints originated mostly from the Ames and Clive projects. Restaurants and service businesses, which are typically more sensitive to the ability of motorist to access them, had the highest number of complaints.

Motorist and customers were also surveyed along each corridor by the University of Northern Iowa to gather their opinions on the access management projects (4). Almost all motorists believed that the road improvements were needed. From 90% to 100% were favorable of the improvements made to the roadways. Business owners were not as favorable to the projects and are usually less optimistic than their customers about the project. Only 10% (6 out of 63 surveyed businesses) of the business indicated that they were not supportive of the completed product. All six of the responses were from different types of businesses in three different communities.

In conclusion, it should be expected that a limited number of businesses will experience a long term decline in sales activity when the projects are finished (4). The percentage of businesses can be up to 15%, but this percent depends on the type of the project, and more businesses may experience only temporary declines in sales during the project and recover rapidly.

#### Summary

Iowa is mostly a rural state with a strong agricultural economy. No Wyoming bypasses or access management cases were examined for this report. However, as the Iowa access management study found, In general, certain businesses will be more susceptible to the potential negative affects brought on by construction. Stores, like restaurants, and service businesses, within the construction zone will most likely

experience tougher times during construction than those businesses that sell unique items that people will need construction or not. If there are similar stores nearby that aren't being affected by the construction, customers will most likely visit the unaffected stores instead of traveling through the construction. Like the Iowa access management study found, motorist are most likely to be more favorable of a construction improvement than the business owners. In Wyoming, it is expected that the business turnover rate will be similar to Iowa's where the turnover rate in the study towns are smaller or equal to the statewide average.

# 2.2.3 Indiana Study

In 1996, a study was performed on twelve highway reconstruction projects concerning temporary sales impacts on businesses during construction (6). It was found that the average loss in retail sales during a major construction project was 13%. Some retail and service businesses reported a 95% loss in sales while few businesses reported an increase in sales during construction. The retail and service businesses which experienced an increase in sales were very few, and the probable reason for this was the increase in traffic due to the construction in their area due to detour routes near their storefronts. The businesses that experienced the greatest temporary loss were gas stations, grocery stores, consumer electronic stores, hardware stores, and automotive sales and service firms.

The study found that most businesses achieve full recover in two years, but 20% of the businesses did experience a long-term negative effect on their sales (6). The businesses most likely to experience the long-term negative effects were the gas stations, car washes and other types of automotive related businesses. Many of the businesses studied reported that they benefited from the project improvements and a majority

supported the necessity of the projects because of the better traffic flow and enhancement to their access points.

#### Summary

Indiana, like Iowa, is an agricultural state with some large urban areas. Like the Indiana study found, most of the businesses in Wyoming will most likely make a full recovery within two years. Like the Iowa access management study also suggested, motorist will most likely visit alternate stores which are plentiful in the town rather than drive through the construction. For example, motorist are more likely to visit gas stations away from the construction zone which may explain why the Indiana study found that stores like restaurants and automotive services experienced the greatest temporary loss. It is assumed that in the smaller towns in Wyoming where there is often only one grocery store or few restaurants and automotive services, there would be little or no impact on those businesses.

#### 2.2.4 Minnesota Study

A study was performed for the Minnesota DOT to determine the impacts roadway construction on TH 14/52 in Rochester, Minnesota would likely cause on businesses adjacent to the highway (7). The study compared four reconstruction staging alternatives by calculating road user cost, temporary construction cost, and retail impacts. The four alternatives ranged from the construction taking four to eleven years with varying phases and closures occurring depending on time schedules. The construction is scheduled to begin in 2003. The study was to determine which of the four staging alternatives would affect the community of Rochester with the least impact and be finished in the shortest time.

Retail impacts were evaluated using the estimated changes in sales of retail stores, services, and lodging establishments (7). Traffic volume, visibility, accessibly, and congestion were some of the construction impacts studied and used to evaluate each alternative. Traffic destination models and convenience models were created based on customer, business, and windshield surveys. Telephone surveys were also performed on 600 of Olmsted County residents to determine their shopping patterns concerning businesses in the TH 14/52 study area.

The report found that every alternative would cause an impact on the businesses in the study area (7). The fourth alternative, with the frontage road completed in 2003 and the construction of the TH 14/52 beginning in 2004, would limit most of the construction impacts to the years of 2005, 2006, and 2007. The alternative allowed all traffic to be retained within the highway corridor to the maximum extent possible, the reduction of traffic congestion in impacted areas during construction, and the job to be finished in 5 years. This alternative affected the businesses the least in the shortest amount of time, but the alternative was revised to have all 2006 construction work done between April and October, to reduce the impacts during the Christmas shopping season.

With the selection of the revised alternative, the retail sales were expected to drop from 3.0% to 3.5% within the impact areas (7). The construction of the TH 14/52 interchange would experience the highest annual retail sale decreases. Since the construction impacts have not been fully realized yet, it is not sure whether other unseen factors will affect the sales in the study area.

#### Summary

It is expected that the retail sales in Wyoming will behave in a similar fashion to those that were projected for the TH 14/25 construction project. The sales of the project

can be greatly affected by the scheduling and time length of the construction project. The shorter the time length and the more efficient the scheduling is, it is most likely that the impacts would be minimized.

## 2.2.5 Wyoming Study

A study was performed in Wyoming regarding the possible economic impacts to North Sheridan's businesses caused by the relocation of the existing port-of-entry, currently located in North Sheridan, to a location outside of the city, and the potential relocation of the North Sheridan I-90 interchange (8). The study identified and analyzed the travel and spending patterns of commercial truckers using the existing port-of-entry (POE), and also identified and analyzed the same characteristics for the customers stopping at area businesses. The objective of the study was to quantify the changes in customer spending in North Sheridan's businesses ensuing the relocation of the POE, and a separate look at the relocation of the North Sheridan I-90 interchange. Two separate surveys were used to find the information.

The survey found that 66% of the truck drivers presently using the port-of-entry would probably stop of definitely stop for goods and/or service in North Sheridan if the POE was relocated (8). The study also found that the total study-area business revenues may decline by an estimated 3.3% to 8.3% if the POE is relocated. The need for fuel, food, showers, and other related services determines most of the truck drivers' expenditures, not opportunistic purchases made in concurrence with a stop at the POE. If trucking related development occurs near the new POE or at other places along the 1-90 corridor in Northern Wyoming then the businesses in North Sheridan could experience a further decline in revenue depending on the level and speed of development.

The study concerning the relocation of the I-90 interchange found that slightly less than a half of the customers who currently stop at the North Sheridan businesses are using the I-90 interchange (8). Of those using the interchange to access the study area, 79% would probably stop or definitely stop if the interchange was relocated. The reduction in customer stops would reduce the total study-area business revenues by an estimated 6.4% to 6.9%. Comments on the survey suggested by the customers and truckers stated that if the business area remained visible from the interstate and if the proper signing was used at the new interchange, travelers would probably not be discouraged from stopping in North Sheridan.

The Sheridan economy is strong and has an annual growth rate of 4% (8). Because of this growth rate and should the rate continue, it was found that the businesses in North Sheridan would likely endure either of the relocation possibilities with some short term loss in revenue but no long term danger to their survivability.

#### Summary

Since the Sheridan is like many other larger towns in Wyoming and its economy is strong, towns with similar economic strength and size would likely endure construction and rebound afterwards. Sheridan is located on I-90 which is a critical link for truck drivers and commuters traveling from the eastern United States to the west. Cities and towns along the Wyoming interstates have stronger economies and a stronger capability for their businesses to withstand construction than towns that are not on the interstate system.

# 2.2.6 Other Studies

# Distinguishing Wide and Local Area Business Impacts of Transportation Investments

A study was performed by Glen Weisbrod to examine the business impacts of transportation projects to provide some tools that may help state and local planners assess the potential negative and positive effects of changes in the highway system (9). The report examines the economic impacts of businesses and breaks the impacts into two categories; the localized impacts which consist of shifts in traffic flow patterns and routes which usually apply to retails stores like gas stations and restaurants, and the regional business attraction effects of access improvements which have the specific intent of spurring economic activity where the upgrades to transportation and access take place.

When examining local commercial impacts it was found that in the long run, significant impact on store accessibility, traffic volumes, or traffic speeds can bring about changes in the mix of business activities (9). This can occur when existing businesses fail, or move away from the construction site and are replaced by a new type of store. The impact on business attraction and sales activity can be positive or negative depending on how far the traffic volumes and improvements in travel times offset the negative impacts of accessibility to particular areas. The overall net economic impact cannot be forecasted unless information about trip distribution and projections of the project's probable effects on traffic volumes, speed changes, and the support for new businesses by local population growth are taken into account.

For regional business attraction impacts, it was found that it is necessary to consider business attraction opportunities provided for the improvement region and the potential for offsetting businesses loss possibilities because of the improvements within the region where the improvements are made make the businesses with the improved

access more attractive (9). The impact the businesses can experience depends on the comparative cost of doing business in the region, the size of the region's consumer and labor markets, and the regions natural and/or historic attraction for business, which relies on proximity to access of raw materials or merchandise inputs.

#### 2.2.7 Bypass Studies

## Iowa Bypass Study

A 1991 study of 11 rural communities in Iowa where highway bypasses were constructed, studied the affects the bypasses caused on businesses (10). The results of the study found that the overall levels of retail sales in a community were not significantly affected by the presence of a bypass. It was found that the benefits of improved traffic flow from bypasses around rural communities along a transportation corridor did not appear to affect businesses which depend on local customers or repeat customers. These businesses were found to likely benefit from the bypass and improved downtown shopping environment. Over time, the majority of the merchants reported being in favor of the bypass.

Most of the businesses agreed that the traffic volume and noise level decreased since the construction of the bypass (10). This in turn improved or didn't change the shopping environment, regardless of location.

#### Kansas Bypass Study

In 1996, a bypass study was performed in Kansas to address some of the economic impacts of bypasses on 21 small towns (11). An origin and destination model as well as time-saving models, and many economic impact models of Kansas were generated to investigate the impacts experienced by these towns.

The study found that in the long term, typical businesses probably did not have any significant effects on the local economy, and many towns benefited from the long term construction of the bypasses (11). In the short term, transitory negative effects were experienced by some of the travel-related businesses including restaurants, bars, motels, and service stations. Some individual towns and firms were affected differently then those affected by the average effects. While some towns experienced permanent gains or losses due to the bypasses, some of the individual firms may have chosen to go out of businesses instead of adjusting to the change. It was determined that many factors besides bypasses affect the economy of small towns and individual firms, and the varying factors are more important than the bypasses.

#### Texas Bypass Study

A study, performed by Johann Andersen and other members of the Center for Transportation Research at the University of Texas at Austin, of bypassed towns in Texas was done using statistical models incorporating data on retail sales, gasoline sales, restaurant sales, and service receipts to analyze the economic and business volume related impacts of highway bypasses in six small Texas cities (12).

The study found that the economic impact on small cities in rural settings is not uniform across cities and for the most part, the impacts were minor (12). The econometric model found that the bypasses brought small, but statistically significant, decreases in business volumes in the bypassed cities. The reorientation of the local stores was responsible for counteracting the initial decrease in certain types of sales. Political and businesses leadership in the communities played an important role in the progression of the city after the construction of bypasses.

#### Wisconsin Bypass Study

In 1997, Wisconsin DOT performed a study of economic impacts of highway bypasses in 17 Wisconsin communities (13). The study used economic data, traffic counts, mapping, interviews, media research, and site visits to compare the 17 bypass communities to 14 similar control communities without major bypasses.

It was found that the highway bypasses had little unfavorable effects on the overall economic community (13). The economies of the smaller communities with populations less than 2000 had a greater potential to be adversely affected by a bypass. In medium to large bypassed communities, the average traffic levels on the "old routes" were found to be close or higher to the pre-bypass volumes indicating a strong trend in economic activity. Very little business relocation occurred due to the bypass constructions, and the communities viewed their bypasses as valuable overall due to the decrease in congestion, improvement in traffic flow, reduction of truck traffic, and the opportunities for planned development.

## Summary

In Wyoming, the travel related businesses would most likely experience the transitory temporary negative impacts, like the study of the small Kansas towns found. Smaller town businesses may have more trouble recovering from construction projects due to their smaller economies. As the study by Glen Weisbrod in the other studies section found, there are many factors to consider when studying impacts on businesses during and after construction. In Wyoming, it is expected many factors like traffic flow, traffic volumes, travel times, and regional attractiveness would need to be examined to determine the full extent of the impacts which the businesses experience. The impacts can be positive or negative.

## 2.3 Mitigation Case Studies

The following section looks at past studies which examine mitigation techniques employed by different agencies to minimize the impacts businesses experience during construction. Many of the mitigation techniques involve providing communication between all parties at the construction site and speeding up construction to reduce the duration businesses have to experience the impacts from construction.

## **2.3.1 Dallas North Central Expressway**

Texas performed a study on the Dallas North Central Expressway to investigate the mitigation of adverse impacts on the businesses affected by construction (14). Texas Department of Transportation (TxDOT) determined that a mobility task force should be created to address concerns and problems of access and mobility before and during the project. The member's task force consisted of staff of TxDOT, the Dallas Area Rapid Task Force, and the cities of Dallas, Highland Park, and University Park. A survey was used to assess the impacts and birth and death rates of businesses in the construction zone. A sales analysis was also performed on the affected businesses.

It was determined that the use of a mobility task force was very effective in minimizing adverse impacts on the site because of facilitated close contact between businesses, the contractor, and TxDOT (14). It was also found that when construction on frontage roads is expedited, the effects on businesses are very little. The study also found that a wide range of businesses did not feel a substantial impact from the construction and it appears that businesses may be more affected more by the overall economy than by construction projects. As the project progressed and neared completion, businesses became more positive about the construction, and the businesses began to benefit from the improved mobility and access.

The task force was instrumental in alleviating many of the unfavorable effects to the businesses by providing communication between all involved parties (14). An effective link between those carrying out the work and those expected to be effected by the construction activities was indicated by surveys after the project. The ability to report to a task force or communications officer if a problem arose was a very important benefit for businesses.

In the design phase, for large urban projects, the study found it critical to develop a plan that speeds construction up on the construction on frontage roads to provide access to abutting businesses (14). This should especially be done when multioccupancy buildings, large corporate offices, shopping malls, and areas where there is significant business activity. Most businesses interviewed through the survey indicated that there was little effect on driveway access and the completion of frontage roads first was very helpful in reducing the impacts of construction.

The study also revealed that relatively small retail stores experienced the highest level of start ups and failures during the construction projects (14). Adverse impacts to these stores can be mitigated by planning, traffic control, speeding up frontage road construction, and other activities. These sensitive stores should be identified before the construction begins to ensure the mitigation techniques will be appropriate.

## 2.3.2 New Mexico's "Big I" Project

New Mexico's "Big I" project, where the interchange of interstates 25 and 40 in Albuquerque was redesigned to increase capacity, was a major concern for local business owners (15). Important questions concerning congestion, public safety, impacts on businesses, and public inconveniences during construction were brought up during the environmental review and preliminary design of the project. The community realized

that the project was needed, but they made it clear that the construction should be done as quickly as possible. It was decided by New Mexico's State Highway and Transportation Department that the reconstruction of the interchange should be completed in 24 months instead of the 4 to 10 years similar past projects has taken to complete. This required a completely new approach.

One of the techniques used to get the job done was to use innovative financing that allowed property to be used as an incentive to the contractor, the unique/critical bridge review, design exception process, and the Plans Specifications and Estimate approval prior to the bid process (15). The approvals for the "Big I" project only took several days opposed to the months individual approvals usually take. With the tight timeline, the FHWA Division Bridge engineer put in four days a week of on-site involvement. This allowed decisions to be made on the spot which was critical to getting the job done early.

The increased traffic through local neighborhoods, restricted traffic flow along commercial arterials, continuously changing detour alignments, and noise and vibration of the construction caused many of the community activists to complain (15). In response, the highway and transportation department hired a local firm to handle the public input and communications. A website, toll-free hotline offering direct contact to project staff, and formal meetings of a public advisory group with representatives from businesses, neighborhoods, emergency medical providers, government agencies, and civic groups were created to handle the public input of concerns.

The project was successful because it got all of the community, including businesses involved (15). The construction schedule was compressed and two lanes of

traffic were kept open during the daytime to allow commuters to travel freely through. Local businesses and the public were also kept informed over the TV and the radio on upcoming events. Special events such as a ground breaking ceremony, a holiday thankyou print ad featuring over 350 construction workers forming the shape of a Christmas tree, a parade celebrating the opening of the first segmental bridge, and a "halfway celebration in which citizens were invited to place their hands in concrete were set up by the contractor and the New Mexico State Highway and Transportation Department let the community "own" the project which greatly helped the community deal with the construction.

## 2.3.3 Nebraska's "Working Together" Program

State department of transportation employees and contractors are not the only important parties when businesses are affected by construction. It is just as important for the businesses to get involved in the construction project as well. Nebraska's Department of Roads has created a brochure and video for businesses affected by construction projects (16). The brochure and video have guidelines on how businesses can survive and thrive during nearby construction. The video also contains interviews with business owners who where affected by construction. They explain how they survived and got involved with the project to make the construction project a successful one for the businesses.

Some of the guidelines in the brochure state who to contact about public hearings, which are required by law, during the design phase for projects (16). Getting involved early on in the process is one of the surest ways to survive the project. By going to the public meetings, questions can be asked and concerns can be addressed. Information such as the scope and design of the project, what to expect, who are the key contacts, and

the start up and completion dates can be known which can help the business prepare for what is coming.

The brochure also gives ideas to businesses to help survive the construction (16). Strategies include getting the word out by developing ads for the newspaper, radio, or television, and running special promotions such as flea markets, cookouts, blocks parties, parades, and grand finale days. Bumper stickers, signs, hardhat sales, and other creative business strategies can be employed to attract customers. Construction hotlines can be made or a construction liaison from the business can stay informed about the project by holding weekly construction meetings. Keeping signs posted around detour routes, using maps, stating business hours, or creating a delivery service are some of the other ways businesses can keep their customers informed and interested in their business.

Contacting other business communities to find out how they coped with construction is a good way to gain ideas (16). Communicating with state, local, and business officials is also very important. By forming a business association, businesses can provide a network of information for business owners to express their concern and brainstorm and develop strategies that can help the businesses work together to survive and thrive during construction.

## 2.3.4 Wisconsin's "In This Together" Program

The Wisconsin Department of Transportation has a similar program to help businesses during construction (17). While the "In this Together" workbook has comparable information to Nebraska's, Wisconsin's workbook also provides some other guidelines along with a check list worksheet with a timeline to guide the businesses in a helpful direction.

The workbook gives information regarding how other communities in Wisconsin came up with creative ways to make the construction experience a positive one (17). It also gives guidelines for businesses to follow about planning ahead, staying informed, handling and reducing traffic through the work zone, and keeping customers informed. The workbook even provides some special assistance suggestions for motor vehicle dealers to manage with construction.

Some of the basic actions businesses can perform to survive the roadway construction include forming an alliance with other businesses in the area affected, creating a logo for the collective group of affected businesses, and pooling resources to purchase group advertising (17). The workbook also strongly emphasizes establishing communication lines between the businesses and the construction parties. Continuous communication throughout the design and construction phase is very important to mitigate any potential problems that come along.

## 2.3.5 North Carolina Bypass Study

In 1991, a report was prepared for the North Caroline Division of Community Assistance, concerning the impacts of highway bypasses on community businesses (18). The report found that efforts should be made to maximize opportunities made available by the bypass improvements, as opposed to staying away from the new bypass improvements. It was found that the highway improvements generally are beneficial to the communities an efforts should be launched early to minimize any negative effects. Adequate advertising, signage along the new bypasses, and efforts to obtain adequate access between new and old routes should be done to mitigate the potential affects a bypass can cause.

## 2.3.6 Other Case Studies

# Prichard Alabama Study

In Prichard, Alabama, a road linking interstate highways I-10 and I-65 was built connecting the major cities of Montgomery and Birmingham (19). During construction, early contact with the local governments was made to explain the project and address concerns. Local leaders were enlisted to contact residents and a Design Advocacy Group consisting of DOT personnel was created to link the community with the DOT and contractors. A large amount of businesses and properties were relocated because of the construction. To address this, all affected persons were made sure that they understood what, where, and how the proposed construction action would affect them and also of proposed mitigation methods. This helped create support for the project which eventually helped the community reestablish itself.

#### The Big Dig

On of the largest, most complex, and technologically challenging highway construction project in American history is occurring in Boston, Massachusetts (20). "The Big Dig" consist of placing a tunnel under Boston Harbor, a 14-lane crossing of the Charles River, and an eight-to-ten-lane underground expressway to replace the existing deteriorated six-lane elevated highway built in the 1950s. The existing route is the only major highway route through the city and the construction, which has been going on since 1991 and scheduled to end in 2004, must allow the businesses to operate normally.

Mitigation has been going on since the project began and has a cost of one-third the projects budget (20). Leaving the elevated 6-lane elevated highway open to help residents and businesses while construction occurs directly below it is one of the very expensive mitigation techniques being used to keep Boston "open for businesses". Some

of the other activities include one-on-one contacts with residents and business people as well as a computerized tracking system and reporting structure that ensures all mitigation commitments are monitored and met.

A whole staff of community liaisons is responsible for addressing community, neighborhood, and business concerns and resolving them by speaking for the project at meetings and distributing information to concerned groups and individuals (20). A 24-hour monitoring center provides the public an around-the-clock telephone service to forward complaints and incident reports to the project. During the nighttime, a "noise patrol" composed of project and City of Boston staff monitors construction noise and enforces noise regulations to allow residents near the construction site to sleep. Noise complaints dropped 50% after the "noise patrol" began.

Public participation, community outreach programs, environmental sensitivity, and keeping the city open for businesses has proved to be very successful in keeping the Boston city businesses alive (20). Skillfully building a consensus and coalition, while keeping a steady focus on the project benefits can help successfully gain support for the project. These techniques can be replicated anywhere

#### 2.4 Chapter Review

The studies examined in section 2.2 showed that impacts experienced by businesses can vary as much as the businesses themselves. Few studies in the past have quantified the impacts experienced by businesses both during and after construction and investigated the reasons why the businesses are affected during these times.

While many of the studies were performed in towns that were in rural and urban areas, Wyoming is mostly a rural state. Nevertheless, there has never been a study performed in Wyoming to examine Wyoming businesses during and after construction.

Each study presented in the literature presented similar trends in business sales and impacts during construction. Usually, the travel related businesses, such as restaurants and gas stations, experienced the greatest temporary impacts during construction. The studies also presented that most of the businesses rebounded in their sales around two years after the completion of the construction. Many of the studies depended on surveys to determine information about businesses. While many of the results regarding parking spaces and number of customers per day in the Texas studies coincided with the actual numbers, when the sales value activity perceived by the businesses was compared to actual revenue data, the businesses seemed to be more pessimistic about their sales performance during construction than what the real numbers displayed. From the survey results, it is important to establish whether business in Wyoming will behave the same way regarding perceived versus real impacts. It is also important to determine how close the businesses perceptions are to their actual impacts. This information may provide a means for DOTs to communicate information more affectively and accurately to businesses before, during, and after construction.

While most of the states studied were agricultural states, Wyoming's economy relies on agriculture too. However; Wyoming's economy is mostly influenced by natural resources. From this analogy, it is important to determine whether Wyoming businesses will behave differently because of the state economy or similar to those presented in the literature review. Tourism is also another major influencer of Wyoming's economy that can easily be affected by construction.

Since Wyoming is different from the states examined in the literature review, it is important to determine whether the trends presented are nationwide or separate from

different states. Wyoming's business climate is difficult even when construction is not occurring and public approval is growing increasingly important in the planning and construction processes. It is imperative to study the impacts businesses experience during road construction to better understand how WYDOT can address business concerns in the future. The cooperation and understanding between the state and businesses will eventually help both mitigate the potential impacts and keep Wyoming businesses thriving.

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# CHAPTER 3 SURVEY OF STATE DOTS

## 3.1 Introduction

The initial task for this research project was a survey of state departments of transportation (DOTs) regarding the methods used to address business owners concerns during the project development and construction stages. A telephone/email survey was sent to the 50 DOTs with two questions concerning their techniques for addressing business owners concerns during the project development phase and during the actual construction.

Currently, little information exists on construction impacts on businesses and, in particular, mitigation techniques. Since all DOTs address these issues it was believed that there might be a large body of knowledge that remained undocumented. In order to see what the state of the practice was in business impact mitigation techniques, a survey asking questions concerning the addressing business owners concerns during the project development phase and mitigation techniques during construction was created to determine the variety of techniques that are being utilized by different state departments of transportation.

## **3.2** Survey methodology

The survey was administered in the months of June and July in 2003. A search of the 50 DOT websites was performed to identify contacts in the design and construction areas. In addition to identifying contacts, the website was also searched for information regarding business impacts and mitigation techniques. Initially these contacts were sent e-mail messages with the following two questions:

- 1. How does your agency address business owners' concerns during project development?
- How does your agency mitigate impacts to business owners during construction?
  (e.g. special signing, force account items in the contract to provide a higher level of property access, advertisement campaigns)

If no response was received within two to three weeks, the DOTs were contacted by telephone and asked the same set of questions.

## **3.3 Results of the survey**

Responses were received from all 50 DOTs, a response rate of 100%. In order to ensure greater coverage within individual DOTs, personnel in different departments were contacted resulting in multiple responses from planning, design, and construction engineers of the 50 DOTs.

It was found that most of the DOTs had similar methods for addressing businesses owners concerns during the project development phase and construction phases. The following sections go into greater detail on the methods that were commonly used. In addition, unique techniques utilized by some DOTs are highlighted. A list of those responding to the survey can be found in Appendix A.

## **3.4 Project Development**

During the project development phase, most of the state DOTs who responded to the survey mentioned that they hold public meetings during this phase to let the businesses and other affected parties know about the project. As to be expected given the federal planning requirements regarding public involvement and impact analysis, all

states that responded have some form of public involvement process, although the level of involvement varied greatly by state. Some DOTs have presentations about the upcoming project which can include maps of what is to be done and in some cases, computer or physical models are used. The purpose of these meetings is to address the business owners' and other stakeholders' concerns. Questions about the construction project are answered and input from the stakeholders is collected. The input gathered at these meetings is often incorporated in the project design to minimize potential impacts. In many cases, this process identifies special access needs that are of a concern to individual businesses. For some cases, the input from stakeholders can change the nature of the construction project which may include a change in the alignment of the roadway. Many of the methods utilized by DOTs depended on how much the project will affect the stakeholders.

Florida has a community awareness program plan for every project. If the project involves adjustments to driveways or other direct impacts, Florida DOT holds a public workshop to explain the changes, often at the 60% and 100% design levels. Georgia schedules a concept team meeting with the local government officials before addressing the public at public information meetings. States including Hawaii, Ohio, and South Dakota responded that they perform environmental impact surveys for large-scale projects to determined how the whole impact area, including businesses, will be affected by the construction.

Louisiana produces a detailed planning and environmental analysis to produce project scope, budget and environmental clearance where mitigation is a top priority. After funding is achieved, final plans and specifications are drawn up with mitigation for

environmental, safety and business concerns in mind. New York holds monthly meetings for those affected and for some of the bigger projects they will create web sites with information about the upcoming project posted. South Dakota also creates informational web sites for bigger construction projects. Nebraska's first effort at mitigation takes place in the design stage. Project phasing usually tries to address the potential impacts and minimize them. It is not uncommon for the plans or special provisions to address specific locations and the need to maintain minimum levels of access to them.

Nevada will hire facilitators/liaisons to build consensus with affected parties during the predevelopment phase and they have the facilitator/liaison act as an interface for issues between the affected parties and the construction resident engineers. Nevada also has public information offices which work with the local radio stations and newspapers to provide press releases about upcoming construction impacts. In Ohio, local governments also get involved in the process by collecting comments and prioritizing conflicting issues. This process can lead to some of the best solutions for the problematic scenarios. Rhode Island has a community affairs section which is responsible for mailing information to the effected property owners before construction takes place. The mailings let the effected property owners know what to expect and what will go on during construction. The Utah Department of Transportation recently began to incorporate Context Sensitive Design solutions for their projects. During this process, they let the stakeholders know how long the project is expected to run and they give other important construction information to the businesses.

While most DOTs have public meetings where everyone is invited, the Vermont Department of Transportation attempts to meet individually with every property owner

along the affected area to gain input. The Washington Department of Transportation has found that good communications with the businesses early in the project process is very important. By understanding the adjacent businesses individual operations, Washington has found that tailoring their construction activities to those specific businesses needs is very effective in minimizing construction impacts during construction.

## 3.5 Project Level Analysis

During the construction phase, many state DOTs require access to businesses and property owners to be maintained at all times. Typically these requirements are written as specifications to the contractor. The specifications usually require the contractor to give DOT personnel and affected parties notice of access closure 48 hours or more prior to the closure. In some cases the specifications are written such that closure does not occur under any circumstance.

Typically, when access cannot be provided for a limited time, DOTs create detour or temporary access points. In extreme cases when access cannot be provided during a certain time, DOTs including California and Georgia will pay the business to put them out of business till they can reopen the access. Georgia requires the planning engineer to set up the project in stages in a way to show to the contractor how access points can remain open. In Massachusetts, each project has a traffic management plan which does its best to provide uninterrupted traffic flow through the construction zone.

Most state DOTs set up detour routes when whole sections of roads are shut down because of the construction. In most cases, the detour signs will lead the travelers back to the original street they are on. North Carolina sets up detour signs to direct people to where business areas are. For example, they will use a detour sign which states "Detour

to 1100 block of Main Street" or the particular street where the business area exist. West Virginia has a policy where, if a detour is used, they will try to make the detour acceptable to the businesses impacted.

To help drivers find their way to businesses in confusing construction zones or detour routes many DOTs use special signing. These signs may include the business owner's logo or name and an arrow pointing in the direction of the business. Figure 3.1 displays a typical business access sign taken in Casper, Wyoming during the 2<sup>nd</sup> Street construction of 2003.



Figure 3.1 Typical business access sign setup.

Some other states though are not allowed to use business owner's logos on signs. Colorado does not allow business signs with business names or logos in their right-ofway because the signs may be interpreted as an advertisement. Instead, Colorado and other states provide signs simply stating "Business Access" with an arrow pointing in the direction of the businesses. Oregon takes this a step further by providing business access signs and using blue tubular cones to guide those looking for the business access. The blue cones provide addition visual cues to the driver of a business access location. Figure 3.2 and Figure 3.3 display the typical setup for Oregon's blue cones along with a picture of the blue cones respectively.



Figure 3.2 Oregon's Blue Access Tube Approach Plan.



Figure 3.3 Oregon's Blue Tube with Temporary Business Access Sign.

Vermont DOT does not use special signing during construction projects. Instead they let the businesses move their signs temporarily to where people can see them. Illinois leaves the signing issue up to the businesses affected. In Utah, signing is designed more towards giving the driver a choice as to whether they want to drive through the construction zone rather than encouraging drivers to visit businesses.

Some states have advertising campaigns using newspaper, radio, and occasionally television media. This is typically done in special cases such as Colorado's T-Rex project going on in Denver where the impacts are expected to be great. Idaho does a broad campaign of news and press releases to let public know that businesses are open. The Iowa Department of Transportation is currently rebuilding I-235 through Des Moines and using an extensive media program and numerous small community and business meetings to successfully inform those impacted. Kentucky will alert the public and have media campaigns to advise residents and travelers of the construction. Advertising campaigns are a way for DOTs to assure potential customers that the businesses are open during the construction period. The advertisement campaigns may also provide additional guidance such as alternative access roads, suggested parking locations, etc. Since DOTs are typically restricted from promoting individual businesses great care must be taken to ensure that all business lists are inclusive. To avoid this many DOTs avoid naming the businesses individually.

Many states focus on getting the construction work done as fast as possible to minimize the potential impacts. They do this by offering incentives and disincentives in their contracts which encourage the contractor to finish the job quickly. The contractors are rewarded for finishing the job ahead of schedule and properly.

Florida Department of Transportation (FLDOT) is in the process of testing construction specifications whereby the Department conducts a survey of the local business owners and residential property owners at the beginning, middle, and end of the construction project. (21) Based on the results of this survey, the contractor is paid a monetary incentive. The survey, entitled the Business Accommodation Survey, asks the businesses 25 questions pertaining to preconstruction activities and project communications, access and parking, visibility and signage, congestion and traffic, utility outages, damage, and safety. Each question is assigned a score from zero to four points based on whether the respondent strongly agreed, agreed, did not agree or disagree, disagreed, or strongly disagreed to the individual questions in the categories. The survey is filled out and returned and an overall score is totaled from the responses given and an average score is found for all of the businesses affected by the construction. FLDOT then pays the contractor based upon the contractor's Business Accommodation performance average score. If a contractor receives a score below 39, there is no incentive. The Contractor receives incentive payment for scores above 39 by using a formula, payment = (Score - 39) \* \$4008 with the maximum bonus payment being \$152,000.

Indiana Department of Transportation (INDOT) is currently in the midst of a "Hyper Fix" job in Indianapolis in which all the interstates within the "outer loop" are under going a major upgrade and are completely closed. Before and during the closure, INDOT did a major media campaign to tell how to access businesses during the Hyper Fix project. Money was given to the City of Indianapolis prior to the project to improve pavement, turning radiuses, etc. on some of the major streets in the city that would

experience an increase in traffic during the Hyper Fix. The contractor was given 85 days of 24 hour work days to construct the project during the complete closure phase with an incentive for early finish. The incentive offered is \$ 100,000 a day up to 30 days. It appears the contractor will finish about one month early in July 2003.

Kentucky develops a contract schedule that allows the contractor to only work during non-busy time, such as weekends. In Mississippi, contractors are allowed to work after hours and at night to get the job done earlier. In Nevada and Texas, when complete closures occur, contractors are sometimes allowed to work continuously over a 24 hour period to maximize the impact over a shorter period of time. In big cities, like New York City, NYDOT will close half of the street and maintain crossing points for customers. They may work on sections, or do stage construction. They offer bidding incentives to speed up construction if impacts would be significant. Washington State has found that expediting construction is very effective in reducing the impacts experienced by businesses.

Some states do not allow construction work to occur during specific times of the year when special events occur. In New York, NYDOT doesn't allow work during tourist seasons in certain areas. If it is beach season, they won't do construction in beach areas during the day. Instead they will work at night and do the eastbound and then the westbound and so forth. Maryland and Pennsylvania have a similar technique. They try to schedule their project so there is a minimum impact, and sometimes they won't work during special events (i.e. county or city fairs) or they will work at night. In South Dakota, construction is shut down at the beginning of August within a 100 mile radius of Sturgis. For the duration of the Sturgis Motorcycle Rally, bikers and visitors along with

businesses experience minimal impacts due to construction and the safety of the travelers increases. If the Texas Department of Transportation is working on a construction project around a major shopping center or a mall, they will shut down construction between Thanksgiving and early January to reduce the potential impacts construction could cause on businesses during Christmas shopping season.

Communication with the businesses during construction is just as important as during the project development and planning phase. Many states hire an informational officer or public involvement specialist whose job is to work closely with the affected parties during construction. These people are in charge of holding meetings with the concerned public and businesses and corresponding their input with the contractors and state DOTs. They are also in charge of getting information out to the communities about the construction schedule, impacts to be expected, and ways to minimize those impacts. Methods of information dispersion often consist of the use of local newspaper, radio stations, and television broadcasts. Recently some states have created websites for big projects where correspondence can be achieved between those affected and those doing the construction.

During a project in Kansas, the foreman will go to the businesses and inform them on how and when the construction will be in front of their business. In Montana, project managers are tasked to work with land owners informally on a day to day basis. On some of the higher profile projects, they do weekly meetings where they meet in the morning and let the business owners know their schedule and what to expect in the future. Mississippi will send informational emails to the news and businesses affected by the construction in heavily populated areas. New Mexico will hold meetings with those

affected by the construction during the project duration to further address their concerns. Input gained at these meetings is used to mitigate any impacts that exist and are harming the stakeholders. While many states hold meetings with the stakeholders of the project, Pennsylvania does not, but they try to make sure the businesses have a contact in the agency. In Utah, UDOT has a specification that requires a public information services contract where the contractor has to hire an employee who deals with day to day business and community concerns. In Wyoming, each DOT district has a public involvement specialist who travels to towns in their districts and holds meetings with the chambers of commerce and those affected by the construction.

The Nebraska Department of Roads and Wisconsin Department of Transportation have created an "In this Together" program which consist of sending businesses a workbook which describes methods to help businesses thrive during highway construction. An informational video was also created by both states. The video has interviews with businesses who where affected by construction and they explain their many creative ways to combat the effects of construction and draw customers in. Some of the methods include having special construction themed sales, having barbeques and free food for customers, or even having parties and street dances to celebrate the coming of the construction. The "In this Together" programs help the business owners realize that there is a limitless number of methods to get involved in the construction process and turn a potentially negative situation into a positive one.

#### 3.6 Conclusions

There are many methods of addressing businesses concerns before construction begins, and many more to mitigate impacts during construction. While the methods vary

as much as the states themselves, there are certain methods which seem to have the most success.

It seems very important to establish communication between the stakeholders and the DOTs early on in the planning and project development process. By establishing a communication median to gain stakeholder input on the project, the possible impacts can be recognized and adverted before the construction starts. Communication should be kept between all involved parties during construction to further discover what can be done to reduce the impacts which could occur.

Allowing continuous access to businesses is very important for the businesses survival. If this is not possible, providing a detour access point, creating a new access point, or even paying the business for the temporary closure seems to be effective in helping the business. Providing special signing for business accesses and, in some cases, different colored directional cones can help the potential customer find their destination.

One of the most important things a DOT and contractor can do is to provide incentives and disincentives to speed up construction. The faster the construction project goes, there are fewer impacts the businesses experience, and in turn, the speedier the recovery for those businesses in the construction zone after the construction is done.

In general, most businesses realize that construction is a temporary thing and the result afterwards will provide better transportation for their customers. Getting businesses involved in the construction project can create excitement about the process and even a sense of project ownership in some cases. This can make the construction process a positive one for everyone involved.

The surveys of all 50 state DOTs will help other DOTs realize what is being done across the country and will provide a reference to WYDOT. By understanding what mitigation techniques have been used with the most success, WYDOT can determine if they are performing at their best potential.

The survey results also illustrated the need to develop a handbook at the state or national level to guide transportation agencies in minimizing construction impacts.
# CHAPTER 4 PHASE I PROJECT LOCATIONS

### 4.1 Introduction

The following chapter will examine the cities and towns that were chosen for business impact studies. The chapter will cover the selection process for the communities involved and examine each town for population, economic, and business trends. The construction projects studied in each community will also be briefly described.

### 4.2 The Selection Process

The original proposal from WYDOT for this study called for 20 to 30 Wyoming towns to be studied from the period of 1998 to the present. The reason that this time period was chosen was to reduce possible issues with changes in business ownership and type. Projects were to be selected to represent the different regions of the state and to determine if there are significant differences between the impacts in these regions.

Initially State Transportation Improvement Program (STIP) manuals from 1998 through 2003 were reviewed for possible construction projects to include in the study. For Phase I, projects were selected from the years 1998 through 2001 were examined to ensure that before, during, and after construction impacts could be examined. To ensure an adequate regional distribution, potential construction projects were examined in each of Wyoming's seven commission districts. Only the highway construction projects were examined in each district in the STIPs manuals to make sure that there was a potential for business impacts.

For 1998, seven projects were chosen to examine for potential business impacts. Projects in Saratoga, Sheridan, Thermopolis, Worland, Moorcroft, Lander, and Riverton

were chosen. After reviewing the construction projects in each community, the Sheridan and Riverton projects were dropped because the construction was not performed or the construction never occurred. The Thermopolis project was combined with another Thermopolis project which continued off where the 1998 project finished.

Five projects were selected from the 1999 STIP manual. One project from Wheatland and Laramie was chosen while two projects from Cody and the combined Thermopolis project were selected for examination. One of the Cody projects was removed due to the fact that only two businesses might have been affected and none of them returned the surveys.

For 2000, six projects were selected from the STIP manual for examination. Projects from Cheyenne, Laramie, Sheridan, Gillette, Casper, and Riverton were chosen for their construction projects. After examining each construction project and visiting each location, the Sheridan project was dropped because the construction occurred through a residential area and no businesses were apparently affected. The Riverton project was not started until 2003 and only one business was affected by the construction. A business impact survey was handed to the Riverton business but it was never received and the project was later dropped from examination.

In 2001, one project from Casper was selected but after visiting the site and contacting the district engineer, it was determined that the construction had never occurred on the project and no businesses were affected. The project was then dropped for consideration.

Out of the original 19 projects chosen to examine, only 12 were chosen for further study. Some of the original projects were dropped because there were no businesses

affected along the construction zone or the construction project did not take place yet. The original 20 to 30 projects to research could not be met due to the lack of major construction projects within the study time frame that could be expected to cause significant impacts on businesses. The issue of the change in the 20 to 30 projects down to 12 remaining projects was brought up before the WYDOT research committee in January 2004. They mentioned that the current 12 projects were adequate for the study. Figure 4.1 below displays a map of the project locations.



Figure 4.1 Phase I Project locations in Wyoming.

## 4.3 Town Descriptions

In this section each of the 12 projects will be examined along with their corresponding towns. The projects will be examined in order of their original choosing which was based on commission districts and year of the project.

# 4.3.1 Saratoga

Saratoga is a small Wyoming town in the south eastern region of the state with a population 1,726 (22) that is located near the southeastern corner of Carbon County. The town is situated in the high sagebrush plains on the North Platte River, near the Medicine Bow mountain range. It is located on State Highway 74 near the intersection of State Highway 130, which runs east to Laramie. Interstate 80 which is one of Wyoming's busiest shipping lanes lies 20 miles to the north.

Carbon County's economy is largely based on retail trade and service along with mining, transportation, and wholesale trade with the largest percent of employers working in the services and retail sector. Saratoga's economy is strongly based on tourism due to the pristine fishing the North Platte provides along with the nearby Medicine Bow Mountains which offer many year round recreational opportunities. Saratoga is home to hot springs which also draws many tourists. Figure 4.2 illustrates the economic trend for sales tax collection in Carbon County over the past 11 years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



A major employer of Saratoga was the Louisiana Pacific Sawmill. The mill burned down and was in bankruptcy putting around 140 people (23) out of work and caused approximately 55 families to leave town (24). The Saratoga Inn also experienced bankruptcy, and the cattle prices are around the lowest they ever had been (23). Currently, Saratoga's economy is in poor shape and some businesses have moved to Colorado and other places, or sold due to retirement (24).

Most of Saratoga's businesses are tourism businesses. Those investigated in the construction impact area consisted mainly of restaurants and retail shops with a few professional service stores.

The construction project examined in Saratoga consisted of pavement rehabilitation on West and East Bridge Avenue between N. 2<sup>nd</sup> Street and N. River Street.

Replacement of sidewalk, curb and gutter was also performed along Bridge Street. During the construction in 1998, the whole street was shut down in sections while the sidewalks were kept open to pedestrian traffic. Figure 4.3 shows Bridge Street and its surrounding businesses. The project extended from this point west for two blocks.



Figure 4.3 Bridge Street looking west from the North Platte River bridge.

# 4.3.2 Worland

Worland is a town in north central Wyoming with a population 5,250 (22) that is located in the central western region of Washakie County. The town is located in the Big Horn basin along the western flank of the Big Horn Mountains. The Big Horn River runs north along the western side of town. US Highway 16 runs east and west connecting Worland with Buffalo to the east and with Greybull to the north. US Highway 20 runs north from Thermopolis to Worland and converges with US Highway 16 in the center of downtown.

Washakie County's economy is strongly based on industry, including sugar refining, beverage bottling, aluminum can manufacturing, and petroleum drilling. The county contains large areas of fertile ground, which makes Washakie County an agricultural center that produces sheep, cattle, sugar beets, malt barley, and alfalfa. Most of Washakie County's residents are employed by the service, public administration, retail trade, and manufacturing sectors. Worland's economy is based on the same industries as the county with the highest number of employees employed in the agriculture, industry, wholesale and retail trades. Figure 4.4 shows the county's sales tax collected for the last 11 years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)

### Figure 4.4 Washakie County sales tax collections per fiscal year.

Most of the towns business consists of retail and service oriented businesses. Businesses in the construction-impacted zone in downtown Worland consist of restaurants, retail sales and service businesses, and automotive related businesses. The construction project which was studied occurred in 1998 and consisted of reconstruction and installation of Storm Sewer on Big Horn Avenue. Figure 4.5 shows Big Horn Avenue and its surrounding businesses.



Figure 4.5 Looking west at Downtown Worland along Bighorn Avenue.

# 4.3.3 Moorcroft

Moorcroft is a small town in northeastern Wyoming with a population of 807 (22) that is located on I-90 between Gillette and Sundance, Wyoming. It is located in the Southwest corner of Crook County near the Black Hills and Devils Tower. Keyhole reservoir is also located nearby which makes the area highly attractive for recreational users. US Highway16 approaches from the southeast and joins up with I-90 in Moorcroft while US Higway14 approaches from the northeast and is one of the main routes to the Black Hills and Devils Tower.

Crook County's principal economic activities consist of ranching, forest products, oil production, and tourism. The government is a large employer of Crook County residents along with construction, retail trade, and mining. Moorcroft's economy is strongly based on ranching, and coal and oil production. Figure 4.6 shows Crook County's sales tax collection trends over the last 11 fiscal years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



Most of the businesses in Moorcroft are travel oriented and consist of restaurants, gas stations, and hotels. In the construction area, two travel oriented businesses and a retail sales shop exist. The 1998 construction consisted of sidewalk replacement and curb and gutter replacement along both sides of Yellowstone Avenue from Converse Street north to the bridge of 1-90. Most of the construction occurred in residential areas and few businesses were affected. Figure 4.7 shows Yellowstone Avenue and the area affected by construction.



Figure 4.7 Looking north on Yellowstone Avenue in Moorcroft.

## 4.3.4 Lander

Lander is a town in central Wyoming of 6,867 residents (22) and located in south central Fremont County. The town is situated along the northeastern flank of the Wind River Range and is located on one of the main roads to Yellowstone and Teton National Parks. The Wind River Indian Reservation lies just north of town where State Highway 789 connects Lander to Riverton. US Highway 287 runs from the southeast to the northwest and bisects the town and connects Lander to Jackson in the west and Casper to the east.

The economy of Fremont County is strongly based on oil and gas production and agriculture. A major employer of Fremont County residents is the government. Lander's economy is based strongly off of tourism in the summer along with agriculture, and the economy has been stable over the past decade. One of the major employers in Lander is the government along with the retail trade and service sectors. Figure 4.8 shows the sales tax collection trends over the last 11 fiscal years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



Most of the businesses in the studied construction zone consist of restaurants, hotels, and some other tourism and culture related shops. Reconstruction including grading, draining, placing pit run subbase and reused surfacing, storm sewer installation, sidewalk, curb, gutter and double gutter installations, and miscellaneous work on 0.94 miles of North Main Street. Construction started in the summer of 1998 with the final acceptance in March of 2000. Figure 4.9 shows North Main Street and the area affected by construction.



Figure 4.9 Looking south toward Lander from North Main Street.

## 4.3.5 Wheatland

Wheatland is a town in southeastern Wyoming with a population of 3,548 (22) and is located in the central region of Platte County. The town is situated in the high grassy plains along the eastern flank of the Laramie Mountains and lies south of the Laramie River. Wheatland is the county seat of Platte county and lies along I-25 which runs North to Casper and South to Cheyenne. State Highway 34 intersects I-25 south of town and travels toward Laramie while US Highway 26 intersects I-25 north of town and travels to Scottsbluff, Nebraska.

Platte County's economy is based on ranching, farming, and power production. One of the major employers of the county is the Laramie River Station coal burning power plant which lies 6 miles east of Wheatland. Wheatland's economy is also largely ranching, farming, and power production. Wheatland's school district is also a large employer. Figure 4.10 displays the sales tax collection trends for the last 11 years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



Many of the businesses in Wheatland are oriented toward travelers along I-25. In the construction area studied, most of the businesses are retail businesses along with a few professional businesses. The construction of the 1999 project consisted of reconstruction including grading, draining, placing crushed base and bituminous pavement surfacing, the removal and replacement of the bridge over Rock Creek and Miscellaneous work on 1.50 miles of State Highway 316. Most of the construction took places outside of town but part of the downtown area on Gilchrist Street was affected. Figure 4.11 displays Gilchrist Street and the area affected by the construction.



Figure 4.11 Looking west on Gilchrist Street from Rock Creek Bridge.

# 4.3.6 Laramie

Laramie is the third largest city in Wyoming with a population of 27,204 (22). The city is located in south central Albany County between the Medicine Bow Mountain range and the Laramie Mountains, and it is bisected by the Laramie River. There are plenty of year round recreational activities surrounding Laramie, which is also home to the University of Wyoming campus. The city is positioned along I-80 which connects Laramie to Cheyenne in the east and Rawlins to the west. In Laramie, US Highway 287, from Fort Collins, Colorado in the south intersects with US Highway 30 which travels north toward Casper.

The economy of Albany County is strongly based on education because of the University of Wyoming. The county also has economic ties with recreation and entertainment activities as well as retail trade. Laramie's economy is also based off the same activities as Albany County. The University of Wyoming is a large employer in Laramie along with the retail trade sector. Figure 4.12 shows the fiscal year trends for the sales tax collected in Albany County.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



Two construction projects were studied in Laramie. The first project occurred between 2000 and 2001 and consisted of reconstruction including grading, draining, crushed base, bituminous and concrete pavement surfacing bridge replacements and miscellaneous work on 1.20 miles of both lanes of I-80 at the interchange with Third Street. The second project also took place between 2000 and 2001 and was the widening and resurfacing of Curtis Street between McCue Street and Third Street. Both projects indirectly affected businesses which were mostly travel related businesses such as restaurants, lodging, and gas stations. Figure 4.13 below displays the interchange of I-80 and Third Street and Figure 4.14 displays Curtis Street.



Figure 4.13 Looking south at the I-80/3<sup>rd</sup> Street interchange.



Figure 4.14 Looking west at Curtis Street from railroad bridge.

# 4.3.7 Cody

Cody is a medium sized town in northwest Wyoming with a population of 8,835 (22), and is located in eastern Park County. The town lies just east of Buffalo Bill Reservoir and on the eastern flank of the Absaroka Mountain range. The Shoshone River runs through the northern part of town. Cody lies on US Highway 14, 16, and 20, which runs west into Yellowstone National Park and east to Greybull and the Big Horn

Mountains. State Highway 120 runs from Thermopolis to the south and up to Billings, Montana in the north while US Alternate 14 runs northeast to Powell.

Park County contains part of Yellowstone National Park within its boundaries and also contains most of America's first national forest, the Shoshone National Forest. Because of Park County's close proximity to nature, the county's economy is mainly based off of tourism. Agriculture and mining are also strong economic supporters in the county. Cody's economy is similar to the county's economy and is currently steady. One of the town's major employers was Marathon Oil, which is experiencing some downsizing. As of now, the hospital, the school district, and Wal-Mart are some of the major employers in Cody. Figure 4.15 shows the sales tax trends for Park County over the last 11 fiscal years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)

Figure 4.15 Park County sales tax collections per fiscal year.

The construction project studied for Cody lasted from 1999 through 2001 and consisted of milling, an overlay, and an installation of a storm sewer on Yellowstone Avenue west of town. Most of the businesses that were affected by the construction were travel oriented businesses with a mixture of retail stores. Figure 4.16 shows the construction project area on Yellowstone Avenue.



Figure 4.16 Looking west at Yellowstone Avenue.

#### 4.3.8 Thermopolis

Thermopolis is a small town in north central Wyoming of 3,172 (22) in the eastern central region of Hot Springs County. The town is situated at the southern end of the Big Horn Basin and at the end of the Wind River Canyon. The town is home to some of the world's largest hot springs, and a few commercial establishments exploit the waters for public use. The town is also home to the Wyoming Dinosaur Museum and the nearby Legend Rock Petroglyph site. US Highway 20 runs from the south through the Wind River Canyon and cuts through the center of town on its way north to Worland. State Highway 120 intersects with US Highway 20 in the center of town and travels northwest to Cody. Hot Springs County's economy is based on oil and gas production with a large employer being in this field. Agriculture and tourism are other strong economic activities which occur in Thermopolis. Thermopolis' economy is more linked to Tourism and agriculture. There are many tourist attractions associated with Hot Springs State Park and the Wyoming Dinosaur Museum that make Thermopolis an attractive place to relax in warm waters and examine Wyoming's prehistoric history. Figure 4.17 below shows the sales tax collection trends over the last 11 years for Hot Springs County.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



Most of the town's businesses are geared toward tourism with restaurants, lodging, and convenience stores. There are also many retail oriented stores in the downtown region. The study area where the construction took places runs right down the main streets of Thermopolis and potentially affected many businesses. The construction occurred from 2000 through 2002 and took place on Shoshoni Street, 6<sup>th</sup> Street, and Park Street which is US Highway 20 that runs north to south though town. The work done consisted of grading, draining, placing asphalt pavement surfacing, and installation of curbs, gutters, and sidewalks. Figure 4.18 displays 6<sup>th</sup> Street which runs through the heart of town.



Figure 4.18 Looking north toward downtown Thermopolis from 6<sup>th</sup> Street.

# 4.3.9 Cheyenne

Cheyenne is the largest city in Wyoming with a population of 53,011 (22) and it is the capital of the state. The city is situated in south central Laramie County and along the eastern flank of the Laramie Range. It is home of the Wyoming Department of Transportation (WYDOT) along with Warren Air Force Base and the state government buildings. The two major interstates in Wyoming, I-80 and I-25, intersect in Cheyenne which connect the capital to the rest of the state and to the major cities in Colorado, like Denver.

Laramie County's economy is primarily based off of tourism, government, transportation, and agriculture. The government is a major employer for the county as well as retail and transportation. The economy is currently steady due to Laramie County's lack of dependence on oil, gas, and other resources that boom and bust. Cheyenne's economy is also strongly based on government, tourism, and transportation. The Cheyenne Frontier Days draw in many tourists and creates a large source of revenue for the city. The government, WYDOT, Union Pacific, and Air Force base are major employers for the city as well as the retail sector. Figure 4.19 shows the sales tax collection trends for Laramie County over the last 11 years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)

## Figure 4.19 Laramie County sales tax collections per fiscal year.

The construction project studied took place in 2000 on West Lincolnway and consisted of reconstruction including grading, draining, placing subbase, concrete pavement surfacing, structural modification, sidewalk, curb and gutter installations, and miscellaneous work on 0.650 miles of the street. Most of the businesses along the area affected are restaurants, hotels, and automotive related businesses. Figure 4.20 displays the area affected by construction on West Lincolnway.



Figure 4.20 Looking west on West Lincolnway in Cheyenne.

## 4.3.10 Gillette

Campbell County is home to Gillette, a town of 19,646 residents (22) and lies in the central grassland region of the county. The city is surrounded by coal mines and is located near the largest coal producing region in Wyoming. The Black Hills and Devils Tower lie east of Gillette along I-90 and the Big Horn Mountains and Buffalo are west along I-90. United States Highway 14-16 travels north of town to Sheridan while State Highways 50 and 59 travel south of town to Casper and Douglas and 59 continues north into Montana.

Coal, coalbed methane, and agriculture are the main economic bases for Campbell County. The county's rich fossil fuel production makes mining one of the major employers along with services and government. Gillette's economy is closely linked with the county's with the major employers in the mining, government, and the Campbell County school district. Figure 4.21 shows Campbell County's sales tax collections over the last 11 fiscal years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



The construction project studied began in December 2000 and was accepted in April 2002. The work done consisted of pavement rehabilitation including grading, draining, cold milling pavement, bituminous pavement leveling and surfacing concrete pavement, and miscellaneous work on 2.19 miles of US Highway 14-16 and State Highway 51. The businesses potentially affected were mostly travel-oriented businesses like restaurants, convenience stores, and hotels. Figure 4.22 shows the area on US Highway 14-16 where the construction occurred.



Figure 4.22 Looking east at US 14-16 in east Gillette.

### 4.3.11 Casper

Casper is the second largest city in Wyoming with a population of 49,644 (22) and it is located in the central region of the state and the eastern part of Natrona County. The town is in the high plains on the northern edge of the Laramie Range. The town is located near year round recreational areas with Casper Mountain to the south of town and Alcova and Pathfinder reservoirs nearby. Casper is situated along I-25 which traverses the state from north to south. State Highway 220 runs southwest of town to Lander while US Highway 20-26 runs to the west to Riverton and Thermopolis.

The economy of Natrona County is strongly based off of coal and oil production as well as transportation and tourism. The major employers in the county are in the services, government, retail trade, and mining sectors. Casper's economy and employment is closely linked to Natrona County's economic strongholds. The town has experienced major booms and busts in the passed based on oil production and the city is now trying to diversify its economy while its populations steadily grows. Figure 4.23 shows the sales tax collection trends for Natrona County over the last 11 fiscal years.



(Source: Wyoming Sales, Use, and Lodging Tax Revenue Report, 2003)



The construction project studied was the 2000 reconstruction including grading, placing crushed base, bituminous and concrete pavement surfacing, and miscellaneous work on 1.45 miles of CY Avenue. Most of the businesses affected were restaurants and retail sales and service oriented businesses. Figure 4.24 shows the area where CY Avenue was reconstructed and the surrounding businesses.



Figure 4.24 CY Avenue, looking west in western Casper.

# 4.4 Chapter Review

Wyoming is the 9<sup>th</sup> largest state in the country with a land area of 97,105 square miles, but the state has the smallest population in the union with 493,782 residents. Much of the state is rural with mountain ranges and high plains with the largest urban areas lying in Laramie and Natrona counties. Most of the cities chosen for this project are under 50,000 residents and share similar business trends.

Wyoming is one of the largest natural resource producing states in the country and a large amount of revenue generated in the state comes from the natural resource production. Wyoming also provides many tourist attractions and recreational activities which contribute to Wyoming's economy. Most of the cities and towns chosen for this project have economies based on oil and gas production, tourism, agriculture, and retail trade. Many of the major employers in the study cities and towns are based off the economies with the major employers being oil and gas production, retail trade, and the government. The construction projects studied ranged from simple sidewalk and curb replacements to pavement rehabilitations. Many of the construction projects took place in the center of town or at major travel areas where businesses exist. Most of the businesses that were affected were travel oriented and consisted of restaurants, hotels, convenient stores, and automotive related businesses. Other businesses such as retail trade and service along with some professional services were also affected and studied. This page intentionally blank.

# CHAPTER 5 DATA COLLECTION FOR PHASE I

#### 5.1 Business Categorization

The sales tax revenue data collected from the Wyoming Department of Revenue requires strict confidentiality when presenting information to the public. Because of this, standard industrial classification (SIC) codes are used to protect the identities of the individual businesses when examining tax revenue data.

Businesses will also be broken down and examined by customer base. The customer base categories will consist of local, tourist, or mixed bases. The following sections examine the data collection methods for the SIC code information and the customer base.

#### 5.1.1 Standard Industrial Classification Codes

The 1987 standard industrial classification (SIC) code was developed by the Federal Office of Management and Budget. Under this system, a business is classified by primary activity, determined by principal product, or group of products produced, distributed, and/or services rendered.

The SIC code breaks businesses into eight business categories. The categories include apparel, automobile, building and hardware, food stores, furniture, general merchandise, miscellaneous stores, and restaurants. Apparel stores consist of retail stores chiefly engaged in selling new clothing and other related articles of personal wear and adornment. Retail dealers selling new and used automobiles, boats, recreational vehicles, utility trailers, and motorcycles are part of the automobile category. Gasoline service stations and new automobile part sellers are also in the automobile category.

The businesses included in the building and hardware category include establishments engaged in selling lumber and other building materials, paint, glass, wallpaper, hardware, nursery stock, lawn and garden supplies, and mobile homes. Food stores include retail stores primarily engaged in selling food for home preparation and consumptions like grocery stores.

The furniture category includes retail stores selling goods used for furnishing the home such as furniture, floor coverings, draperies, glass and chinaware, domestic stoves, refrigerators, and other household electrical and gas appliances. The general merchandise group includes retail outlets such as department stores, variety stores, and general merchandise stores.

Miscellaneous stores include establishments not classified elsewhere like drug stores, liquor stores, and used merchandise stores. Restaurants include retail establishments that sell prepared foods and drinks for consumption on the premises. Lunch counters and refreshment stands, which sell food and drink for immediate consumption, also fall under this category.

The SIC codes for individual businesses were provided by the Wyoming Department of Revenue (DOR) and are used to ensure confidentiality of the businesses studied. Initially, a business list was created for each project area by the research team and provided to the DOR. The research team is allowed to view information about individual businesses, however; individual information cannot be released in any reports produced by the team. The compiled business list for each project was also used to distribute surveys to business owners.

After a business list was created for every project, the lists were sent to the Wyoming Department of Revenue. The DOR searched for each business according to their address and corresponding SIC code. They used this data to find the tax revenue data for the businesses. Some businesses (like chain restaurants and gas stations) report their tax information in one sum per city instead of breaking up the revenue by individual store. In this case, it was requested that the sum of revenues be reported.

### 5.1.2 Customer Base of Businesses

The customer base of businesses for this report will be categorized into local, tourist, or mixed businesses. Local businesses will include retail sales, retail service, and professional services in the study town which attract customers primarily from that town or region. Local businesses can include a grocery store, an inner city gas station, a sports gear store, and more.

Tourist businesses will include businesses oriented toward the tourism industry or businesses that provide retail sales, retail service, and professional service to out-of-town customers. Tourist based businesses can include, hotels, fast food restaurants, automobile repair shops, and other businesses located near major travel routes. The mixed categories include both tourist and local based businesses.

#### 5.2 Traffic Volume Data Collection

Higher traffic volumes are often correlated to customers visiting a business. As more vehicles pass a business area, the chances of the businesses being noticed and visited increases. Therefore a change in traffic volumes could indicate a change in the customers for businesses. This could be linked to a loss in sales. This is especially important for tourist-based businesses where additional traffic is typically associated with increases in sale revenue.

Knowing what time of year that peak volumes occur can help distinguish when tourist seasons are or when the community may be most affected by a construction project. For example, if construction work occurred in Cheyenne in a business area during the Cheyenne Frontier Days, the businesses along that road could experience more impacts than businesses not affected by the construction.

Decreases in traffic can often be linked to the reduced sales. The project can improve the roadway so that additional traffic is generated after construction. This study will look at traffic volumes before, during, and after construction (where necessary data is available).

By comparing the changes in traffic volumes in the project cities to general traffic growth rates, links between the changes in volumes and the level of impact can be made. This information can be used to determine when the optimal time for construction could occur that would reduce the level of impact businesses might experience. It can also be used valuable when working with businesses for proposed construction projects.

In the following sections, the methodology for collecting the traffic volume data and displaying the traffic volume data will be examined. Peak traffic volume data as well as the before and after average annual daily traffic information were examined for this report. Changes in traffic volumes experienced in each project area were also examined in the survey sent to businesses along the construction zone.

#### 5.2.1 Peak Traffic Information

The peak traffic volume information was used to determine when the peak traffic seasons occurred in each project city. The peak volumes were found using WYDOT's Planning Program *Automatic Traffic Recorder Report* for 2001. The Automatic Recorder Report uses traffic volumes collected from permanent counters around the state. For each

project, the nearest permanent counter to the construction zone was found. In some cases, the permanent counter was on the same street as the construction project. The milepost of the counter is given in the *Automatic Traffic Recorder Report* and was compared to the beginning of the project mile post to determine how close the counter was to the construction. For most of the projects the counters were located close to the project or in other regions of the community. Others had no nearby counters that would give an estimate to the peak months and days for traffic.

After the counters were located for each project, the peak monthly and daily traffic flows were examined. The recorder information is broken down into the average traffic during each day of the week for each month. From this table of information, the percent average monthly traffic was examined to determine which month of the year had the highest volumes. After the peak month was found, the two highest days of traffic were examined from the table. Since only the 2001 counter volumes were used, it was assumed that the peak month and daily volume trends would be the same for each year examined in this report. The Automatic Traffic Recorder Report is published every year.

The information obtained from the peak month and daily volumes was used to determine when the possible peak business and tourist seasons would be for each community. The information also can represent when businesses are the most vulnerable to impacts from construction. After the peak volume data was collected, the before and after traffic volumes for the city roads surrounding and in the construction zone.

### 5.2.2 Before and After Traffic Volumes

Before and after traffic volumes for each city containing a Phase I project was collected to compare with the corresponding growth rates in volumes. The comparison of these numbers could determine if additional traffic on the project area was generated due

to the project. The information can also be compared to the change in customers and sales to determine how change in volume affects businesses.

The volumes in this report represent the volumes of traffic traveling both ways in each lane combined. To get a good representation of the volume of traffic on a given road or road segment, the Average Daily Traffic (ADT) volume was used. For this project, the units of vehicles per day were used. This gives an idea of the average traffic that can be expected during an average day of the year.

When WYDOT collects volumes to find the ADT of a road, they usually count the vehicles on that road for one 24-hour day in the months of March or April and October or November. Because many people and a large amount of time are needed to find the traffic volume of each road or road segment, it is impractical to have volume counts done year round. Instead, WYDOT uses a few year round telemetry counters placed across the state to compare with the one day counts done in the spring and the fall.

Volumes are usually found for sections of roadways. This is especially true for cities or towns where the roads are broken into many segments by perpendicular roads. Each segment would have a different volume depending on the surrounding streets and the demand for people to travel through that area.

Because WYDOT cannot find the traffic volumes of every road segment in Wyoming, they find the volumes of the higher classified roads such as the local major and minor arterials and the local major and minor collectors. For some of the projects, the volume in the smaller towns was not collected at all so volume analysis could not be performed.

The business impact survey also queried the businesses on their perceptions of traffic volumes in front of their businesses. The businesses were asked for how the traffic volume changed during construction and after construction. This survey data can be compared to the actual traffic data to compare the perceived volume changes to the WYDOT AADT volume changes.

#### 5.2.3 Displaying the Volume Data

Once the volume data was collected from WYDOT, ArcView GIS software was used to store and display the data. The years when traffic volumes were collected were generally different for each project and in some cases, large gaps of traffic data were missing from the tables because volume data was not collected for those years. This made it difficult to display year to year trends in volumes. In most of the cases, the volumes for the project were collected every two or three years. To examine the volume trends before and after construction, volumes from 1994 to 2002 were examined for each project. These volumes were placed in a GIS database according to their corresponding road segment and city. The volumes can then be displayed by year on a city map produced by the GIS.

The GIS software was used to calculate the percent differences in volume from the years containing traffic volumes. Using equation 5.1. below the percent change in traffic volumes from each consecutive year was found along with the total percent volume change from the first year displayed to the last year.

Percent Change in Volume = 
$$\left(\frac{(V2 - V1)}{((V1 + V2)/2)}\right)$$
\*100 (5.1)

where,

V1 = Volume of Previous Year V2 = Volume of Year of Interest

After using ArcView GIS software to calculate the percent change in volume, these values can be displayed on a map of the city. The percent change of volume can be used to determine local traffic trends in the years before, during, and after construction and compared to the general traffic growth trend of the community. Only the permanent counter location, peak month, and the two highest peak days of traffic volume information is in Appendix B. No traffic volumes or change in traffic volumes are in Appendix B.

For each project, the survey information from the businesses was put into an Excel spreadsheet form and broken down by survey number and during and after traffic volume impacts. The impacts were given numbers according to the type and severity of impact experienced (i.e. significant decrease, moderate increase, etc.) and broken down by a histogram. The histogram data is shown in column graph format and displays the frequency of the severity of volume impacts during and after construction at the corresponding project site. This analysis can be found in Section 6.1.

# 5.3 Tax Revenue

The actual impacts consist of tax revenue data converted into estimated sales data for the businesses affected by each construction project in the study. Only businesses inside or near the construction zone were examined. The tax revenue data came from the
Wyoming Department of Revenue (DOR) and was available from 1997 through mid to late 2003 depending on when businesses last reported. The tax revenue data is converted into estimated sales data by dividing the tax revenue value by the tax percent number given by county in the *Sales/Use Tax Rate History for Counties with Option Taxes* document published by the DOR every year. The sum of the different tax rates depending on the years of usage will give the complete estimated sales when using finding the estimated sales. For example, in most cases the State Sales/Use, General Purpose County Option, and Special Purpose taxes were added together to find the total taxes taken out of the business revenues. The lodging tax was added to the previous taxes only businesses in the hotels and motels category. Equation 5.2 below displays the formula used to find the estimated sales

Estimated Sales = 
$$\frac{(\text{Tax Revenue Collected})}{(\text{Sum of Tax Rates Depending on Years of Use})}$$
(5.2)

Most of the business tax information is broken down monthly; however, there are some businesses which report their tax collections quarterly or yearly. The estimated sales from each business were broken down into monthly, quarterly, and yearly sales. The yearly data was used to determine the percent difference in sales between the years to determine the overall trends in sales. The percent difference is found by using the following equation 5.3. The years of 1998 and 1999 will be used for this example.

% Change in Sales = 
$$\frac{(1999 \text{ Sales} - 1998 \text{ Sales})}{(1998 \text{ Sales})}$$
(5.3)

The information was also broken down according to the business type. When more then one of the same type of business was reported, they were combined to those sales and compared them to the county and city trends (comparison to the city trends only occurs in the lodging sector). Tax revenue data can be seen in Appendix C.

#### 5.4 Commercial Property ROW

One impact a business may incur is loss of property both during and after construction. As part of this project, temporary and permanent loss of property to rightof-way and easement needs was compiled. This data was obtained from WYDOT Rightof-Way Department by receiving form R/W 57 appraisal review document for each parcel within the construction limits. This form indicated the area of land that was taken permanently or temporarily and the dollar amount of any other damages done. The amount of land taken and the total value of damages were totaled for each project. For the Phase I projects, 9 of the 12 projects had property taken. These were the projects in Worland, Moorcroft, Lander, Wheatland, both Laramie projects, Cody, Cheyenne, and Casper. This data can be found in Appendix D.

#### 5.5 Survey of Businesses and Engineers

The survey used to query businesses affected in the construction zones was designed to determine the perceived impacts to businesses both during and after construction. These perceived impacts are compared to the actual economic impacts as determined from the Wyoming Department of Revenue data later in this report. The survey was also designed to help WYDOT get a better understanding of the businesses attitudes as well as identifying additional impacts that may have occurred. The information gained from the survey was also designed to address ways to reduce any effects businesses may experience during construction in future projects.

The survey was based on a survey used in Texas to study the business impacts on the US Highway 59 project in Houston, State Highway 199 in Parker County, and State

Highway 21 in Caldwell, Texas (1, 2, 3). Many of the questions and tables were chosen from the Texas survey because of the similar goals which the Texas studies and the Wyoming study share.

Each survey sent had a cover letter explaining the construction project and the year(s) of occurrence. One cover letter was created for each project and each business address was later inserted to the letter to personalize the survey. The cover letter also stated that the strictest confidentiality would be used with the responses.

Each survey was given a code to determine which project and what business was responding when the survey was returned. These codes were kept in table format next to their corresponding businesses. For example, the Saratoga project was project number one on the Phase I list. Therefore each code for Saratoga businesses would receive a 01 at the beginning of the code and a three extra numbers to uniquely identify which business the survey was sent to. This allowed the business name to be kept separate from the survey responses.

#### 5.5.1 Survey Design

The survey was divided into four major parts. The four sections included an evaluation of the project contractor and WYDOT personnel, the impacts on businesses during and after construction, basic information about the business, and information on relocated businesses. The following section describes each section and its corresponding questions. A sample survey can be found in Appendix E along with the responses to the survey.

#### Evaluation of Project Contractors and WYDOT Personnel

The first section of the survey was designed to evaluate the performance of the private contractor and WYDOT personnel that worked on the construction project. The

first question was a table which lets the business rate the performance level of the contractor and WYDOT personnel by checking a box that ranks the performance as very good, good, fair, very poor, and don't know. Comments could be made below the table to gain further understand how the businesses felt about the performance of the two parties.

The second question asks what was done or could have been done by the contractor and/or WYDOT to reduce the impacts of the construction project. Since WYDOT values the presence of businesses, it is important to receive feedback that will help the agency work well with businesses in the future.

#### Impacts on Your Business During and After Construction

The second section was designed to gain an understanding on the different impacts and their corresponding levels during and after construction. The third question is in table format and asks the businesses how the construction project affected their business both during and after the construction was completed. The impact level was broken into four categories depending if the impact was significant, moderate, slight, or no change was experienced during and after construction. An increase or decrease greater than 20% was defined to be a significant change while a change between 5% and 20% was defined as moderate. Any increase or decrease below 5% was defined to be a slight change. The table was set up to evaluate the businesses' estimates on the change in number of customers per day, the change in gross sales, change in net profit, noise level, and air pollution.

Question four asks the business if there were any other effects that occurred because of the construction to determine the fullest extent of impacts. Question five asked how long the gross sales remained at the changed level during construction to determine

the length of time which the businesses experienced change in sales. Extra lines were provided for comments.

The sixth question asked the business what they thought the primary reason for the change in sales was for either during or after construction. This question was designed to determine any possible construction practices which could lead to a flux in sales.

Question seven was designed to determine how the construction affected the people, businesses, and travelers in the study town during and after construction. The same rating scales used for question three were used and the questions share the same table format. The question is broken into nine sub-questions concerning both during and after construction changes in the time it takes to travel through town, the number of accidents in the project area, the traffic volumes in the project area, employment in the other parts of town, and gross sales for other businesses within the construction zone. The changes in gross sales for other businesses outside the construction zone, changes in property values within and outside the construction zone, and changes in the general appearance of the roadway inside the construction zone were also considered in this question. Lines for extra comments were also provided.

Question eight concerns the percent change in customers from out-of-town. Businesses were asked to estimate the percentage before, during, and after construction to determine whether the customer base was affected by the construction.

#### Basic Information About Your Business

The third section was designed to collect information regarding business type and other aspects about individual businesses that could assess types of impacts the business experienced. Question nine queried the business as to whether they were retail sales,

retail service, professional service, or other type of business. If a business was both retail sales and service, the survey asked what percentage of each the business was. This question was designed to determine whether certain types of businesses experienced more impacts than others.

The tenth question was designed to determine if businesses who own or lease their building experienced any differences in impacts, while question eleven asks how long the business has been in the current building to determine if new businesses experience different levels of impacts then older businesses.

Question twelve asks how many parking spaces the business has for their customers during the busiest hour of an average day before, during, and after construction. This question was designed to determine if a change in parking can be linked to any economic impact on the business, while question thirteen addresses any change in employees due to the construction project. A change in employees could be a significant impact from construction because it could represent that the business could not afford to keep employees because of a loss in revenue during construction.

#### Information on Relocated businesses

The last section of the survey was designed to determine the impacts that relocated businesses may have experienced. Questions sixteen through nineteen address information on businesses that were relocated because of the construction project. Since very little commercial property was lost and no businesses were relocated in all of the selected projects, this section will not be discussed in detail. Had the project list contained projects that required relocation, this section of the survey would have collected information on the economic impacts of relocation.

After the business survey was created and sent, it was a long time before the last of the surveys were returned in the mail. It was discovered in some cases that many of the businesses had different addresses all together or some businesses did not exist anymore. In a few cases, the post office could not deliver the survey because the receiving businesses had no mailboxes. The first of the surveys were sent in mid July of 2003 while the last surveys were sent in August 2003.

After the follow-up calls were made and additional surveys were sent, the responses increased making the final response rate 29.6% of the 331 surveys sent. The information gained from the returned surveys will be analyzed to determine the impacts business experienced, and what could be done in the future to reduce those impacts. Economic tax revenue information from the Wyoming Department of Revenue will also be compared to the perceived economic impacts stated in the returned surveys to establish any trends.

#### 5.5.2. Business Survey Response Rates

A total of 331 surveys were sent to the businesses in the 12 projects studied. Ninety-eight surveys were received making the total return rate 29.6%. Table 5.1 displays the return rates for the business surveys in each of the study projects. As you can see from the table, the individual response rates varied from a low of 13.6% to a high of 66.7%. In cases where the response rates were below 30% follow-up calls were made to businesses in an effort to increase the response rates. Some of these calls resulted in responses being taken over the phone.

Project Location	Number of Surveys Sent	Number of Surveys Received	Return Rate
Saratoga	22	10	45.5%
Worland	39	11	28.2%
Moorcroft	3	2	66.7%
Lander	17	6	35.3%
Wheatland	18	5	27.8%
Laramie - 3rd Street	25	11	44.0%
Cody	33	12	36.4%
Thermopolis	46	16	34.8%
Cheyenne	27	6	22.2%
Laramie - Curtis Street	29	6	20.7%
Gillette	22	3	13.6%
Casper	50	10	20.0%
Totals	331	98	29.6%

Table 5.1 Business survey response rates.

### 5.5.3. Resident and Project Engineer Survey

Another survey was created for the resident and project engineers for each project studied to obtain an engineering point-of-view of the construction impacts on businesses as well as the performances of the contractor. The information gained from the engineers surveys will be compared to the responses of the businesses from each project to determine if the engineer's perspective of the project is similar or different from those perceived by the businesses.

The resident engineers were contacted and informed about the survey regarding engineer's perceptions of what when on during the construction project. Fax numbers were obtained for each office, and the three page survey along with a cover letter explaining the purpose and location of the project was faxed to the corresponding office.

# Survey Design

The survey for the engineers is basically the same as the one used for the businesses. It is broken up into two sections regarding perceived impacts during and after construction and the contractor's performance. Question 1 is similar to the third table question on the business survey. The only difference is that the change in customers question was altered to change in number of parking spaces. Question two asked the engineer what other impacts were experienced by the local businesses.

Question 3 is another table formatted question geared toward finding out how the travel time, number of accidents, traffic volume, and property values in the construction zone changed during and after the construction project. Question 4 is extra space provided for comments regarding other impacts.

The questions regarding contractor performance at the project site is the same as questions one and two in the business survey. Appendix F displays the complete engineering survey along with a summary of the responses.

Out of the 22 number of surveys sent, the response rate from the engineers was 100%.

# 5.5.4 Chapter Review

The businesses were divided into categories to get a better understanding on whether the project was had more local, tourist, or mix businesses. This information can help determine if the project is in a tourism related area or local business area.

Traffic volumes data was collected from the peak traffic volume data sets printed by WYDOT each year, the ADT counts taken by WYDOT every few years, and the business survey. By finding the peak traffic volumes, conclusions can be made on which time of the year businesses may be harmed the most by construction. The comparison of before and after ADT volume counts in the project areas can help determine the impacts construction actually had on traffic volumes. Business perceptions on traffic volumes

can be compared to the actual traffic volume changes to determine how the businesses felt the change in traffic volumes affected their business.

The tax revenue data collected can be used to determine the actual impacts on the businesses sales in the corresponding project areas. This data can also be compared to the businesses perceptions on the change in sales to determine how businesses perceptions match up to the actual impacts during and after construction.

Commercial property data was collected to examine the extent of the impacts on businesses that may have experienced a temporary loss in property because of construction. This information can be used to determine how the loss of property during construction affected the business.

The business and engineer surveys were designed to obtain as much information as possible from the businesses affected by the construction projects. The information can geared toward recognizing the possible economic, customer, and aesthetic impacts that construction could have caused. The surveys were also designed for feedback on WYDOT personnel and the project contractors regarding their performances

In the following chapter, the description of the data collected to determine the actual impacts and the methodology used to analyze this information will be examined and explained.

# CHAPTER 6 DATA ANALYSIS

In this chapter, the data discussed in Chapter 6 will be analyzed for the 12 study projects. The data collected and analyzed includes business categorization, traffic volume, tax revenue, commercial property ROW, business survey, resident and project engineer survey, and perceived versus actual impact data.

#### 6.1 **Business Categories**

Using the Department of Revenue data, the list of businesses was examined and broken down into the corresponding business categories based on whether the business was local, tourist, or oriented toward both local and tourist as customers. All businesses with DOR data were used to determine the categories. Even businesses that did not exist during construction were included to determine the business characteristics of the project area.

The percent of the local, tourist, and mixed businesses for each project can be seen in Table 6.1. As the table displays, the businesses in the Saratoga, Worland, Lander, Wheatland, Cody, Gillette, and Casper projects were primarily oriented toward local customers. Businesses in the Moorcroft, Laramie - 3rd Street, Thermopolis, Cheyenne, and Laramie - Curtis Street projects were primarily oriented toward tourism.

These categories were established using the SIC codes provided by the DOR. Each business with sales tax information provided by the DOR was displayed using the SIC code categories. These SIC codes falling into the local, mixed, or tourism related businesses were combined to find the percentage of those three categories in each project

as displayed in Table 6.1. The SIC category information can be seen in section 5.1 on pages 74 through 76.

	% of Project Businesses			
	Local	Tourist	Mixed	
Saratoga	78.9%	5.3%	15.8%	
Worland	79.4%	3.0%	17.6%	
Moorcroft	33.0%	67.0%	0.0%	
Lander	69.0%	23.0%	8.0%	
Wheatland	100.0%	0.0%	0.0%	
Laramie - 3rd				
Street	32.0%	50.0%	18.0%	
Cody	44.0%	38.0%	18.0%	
Thermopolis	37.0%	47.0%	16.0%	
Cheyenne	29.4%	41.2%	29.4%	
Laramie -				
Curtis Street	23.0%	54.0%	23.0%	
Gillette	60.0%	33.0%	7.0%	
Casper	52.0%	17.0%	31.0%	
Average	53.1%	31.5%	15.3%	

Table 6.1 Percent of Project businesses in each business category.

## 6.2 Traffic Volume Analysis

The following section will examine the traffic volume data collected from the peak volume data as well as the AADT traffic data and business survey volume data. This data will be presented project by project.

Once the traffic volume information was collected and displayed in GIS and excel graph and table format, analysis was performed on the volume information to determine the general trends experienced in each project area. The following section will examine the volume characteristics for each project where traffic volume information was available. The data from the permanent traffic counter information can be seen in Appendix B. For each project, the traffic volume data from the permanent counters, annual average daily traffic (AADT) data from WYDOT, and the traffic volume data from the business surveys will be analyzed.

# 6.2.1 Saratoga

There were no permanent counters near Saratoga and no AADT traffic volume counts taken in or near the community. As a result, the traffic volume information from the surveys cannot be compared to the actual volume information. However, the traffic volume information from the surveys was analyzed using a histogram shown in figure 6.1 to represent the perceived changes in traffic volume experienced during and after the construction project in 1998.

Eight surveys out of the 10 surveys returned gave their perceived views on the changes in traffic volumes. Because the whole of Bridge Street was shut down in sections while the sidewalks were kept open to pedestrian traffic, it seems realistic the traffic volumes would have declined during construction. Figure 6.1 displays the survey results showing this trend.



Figure 6.1 Saratoga Perceived Changes in Volume DURING and AFTER Construction.

# 6.2.2 Worland

After examining the permanent counter volume information, it was found that two counters were close to the project location. A permanent counter on 15<sup>th</sup> Street in Worland which is designated a collector street, experienced its peak volume in the month of April while the peak days were Wednesday and Friday. Fifteenth Street is a north/south bound street that is east of the downtown project area and intersects with Big Horn Avenue. The second counter is located on Big Horn Avenue where the construction took place. Big Horn Avenue is designated as another principal arterial and the peak volume occurs in the month of July while the peak days are Wednesday and Friday. The high traffic volumes in July on Big Horn Avenue could be due to the high tourist and recreational draw of Yellowstone and the Big Horn Mountains in the summer.

The AADT traffic volume data from WYDOT was taken from the years of 1996, 1999, and 2002 traffic volumes. These years were chosen to get a representative of the before and after construction volume changes because of the construction project in 1998. Between the years of 1996 and 1999, the traffic volumes on Big Horn Avenue in the project area increased from1% to 23%. The traffic on the other roads surrounding Big Horn Avenue also experienced a general growth trend while US Highway 20-16 north of town experienced a general decline in traffic.

Between the years of 1999 and 2002, traffic volumes on Big Horn Avenue in the project area experienced a loss in traffic that ranged from no change (0%) to a -19% change. The roads surrounding Big Horn Avenue also experienced a negative trend in traffic.

Between the years of 1996 and 2002 the traffic volumes on Big Horn Avenue in the project area experienced a growing trend traffic volume. The rest of the streets surrounding the downtown region experienced a decline in volumes with the section of US Highway 20-16 from Big Horn Avenue to north of town experiencing the greatest decline in traffic.

Ten out of 11 surveys returned from Worland businesses reported the changes in volumes. Figure 6.2 shows the expected trend of lower volumes during construction.



Figure 6.2 Worland Changes in Volume DURING and AFTER Construction.

Comparing the perceived survey data to the AADT value does not appear to show the trend presented by the actual AADT data after the construction occurred. The survey results showed a decrease in traffic during construction and no change after construction when the actual data shows that there was a decrease in traffic after construction. It is understandable that the traffic volumes would decrease for the period of construction and recover to the original values or grow after the construction work is done. Based on actual data, this doesn't seem to be the case for Worland. The actual overall trend in traffic on Big Horn Avenue between 1996 and 2002 appears to be mixed while the rest of the town seems to be experiencing a decline in traffic volumes.

It is likely that construction affected the volumes for the duration of the project, however, the decline in volumes after the construction between 1999 and 2002 on Big Horn Avenue and the rest of the town most likely was influenced by other factors. More

investigation would be needed along with future traffic volume information for Worland to determine if this is a short lived or long lived trend. The economic trend for Washakie County (see Figure 4.4) shows a declining trend in sales tax collections over the same period.

#### 6.2.3 Lander

After examining the permanent counter volume information for Lander, three counters were found close to the project on Main Street. A permanent counter on 5<sup>th</sup> Street, which is designated a collector street to the north of Main Street, and a minor arterial street to the south of Main Street, experienced its peak volume in the month of June. The peak days on 5<sup>th</sup> Street were Wednesday and Friday. The other two counters are located on Fremont Street located in the south part of town. Fremont Street is the main road that travels south to Sinks Canyon and the Southeastern Wind River Mountains. The peak month for both counters was July and the peak days were Wednesday and Friday. The high traffic volumes in the summer months are most likely due to Landers high tourist and recreational location.

Traffic volume data analyzed for Lander was collected in 1995, 1998, and 2001. Between the years of 1995 and 1998, Main Street, where the construction took place, experienced traffic volume increases with no sections experiencing traffic loss. Growth rates ranged from 0% to 11%. Most of the major streets in Lander also experienced a growing trend in traffic while a few local streets experienced declines.

Between the years of 1998 and 2001, the Main Street project area experienced a growing trend in traffic volume with growth rates between 0% and 18%. Only the section in the project area on Main Street between Amoretti and Washakie Street experienced a decline in traffic volume of -17% and the section of US Highway 287

north of Western Ave experienced a change of -4%. The rest of the town experienced little change or a growing pattern.

Between the years of 2001 and 1995, there was a general increase of traffic on the reconstructed section of Main Street ranging from a 0% increase to a 22% increase. The rest of the town experienced a growing trend in the traffic volumes while a few north-south streets experienced a slight decline.

Four of the six surveys returned from the businesses in Lander reported changes in traffic volumes. Figure 6.3 below shows the perceived changes in volumes.





Overall it appears that Lander is experiencing a growing trend in traffic volumes and it appears from the data that the construction on North Main Street between 9<sup>th</sup> Street and Western Avenue did not have negative affect on traffic after construction. The survey data also displays a similar trend.

# 6.2.4 Wheatland

Wheatland has two permanent traffic counters located on 16<sup>th</sup> Street and Oak Street. Although the construction took place on Gilchrist across town, these counters were used to get general peak volume information as they are the only traffic data available. The counter on 16<sup>th</sup> Street reported the highest volumes in August while the counter on Oak Street experienced a surge in traffic volume in October. The October volumes for Oak Street in the 2001 Automatic Traffic Counter report seems to be in error because the average Saturday had average traffic volume of 19,244, which is extremely high considering this is the largest single day volume from both counters and it is located on a local street. The peak days for the 16<sup>th</sup> Street counter were Wednesday and Friday. 16<sup>th</sup> Street is a major local street in Wheatland where most of the travel related businesses are.

Five of the five responding Wheatland businesses reported their perceptions on changes in volumes. Figure 6.4 displays the trends experienced in Wheatland.

Due to the fact that WYDOT does not perform traffic analysis in urban areas with a population of less than 5,000, no comparisons could be completed.



Figure 6.4 Wheatland Perceived Changes in Volume DURING and AFTER Construction.

# 6.2.5 Laramie – 3<sup>rd</sup> Street

The city of Laramie has two permanent traffic counters. Both counters lie on minor arterial streets. The counter on Grand Avenue has a peak month in September and peak days on Thursday and Friday while the counter on Jackson Street (Snowy Range Road) has a peak month in July and peak days on Thursday and Friday. The probable reason for Grand Avenue having the highest peak month in September could be from the influx of activity on the University of Wyoming campus.

Between the years of 1996 and 1998, Interstate 80 traffic volumes increased from 18% west of the 3<sup>rd</sup> Street interchange to 36% east of the interchange. The west bound off ramp experienced a 15% increase in traffic volume while the west bound onramp experienced a -10% trend. The eastbound onramp experienced a 22% increase and the eastbound off ramp experienced a 14% increase. Third Street experienced a small

increase of traffic (around 3%) during this time period, while US Highway 287 experienced a 10% increase in traffic.

Between the years of 1998 and 2000, Interstate 80 traffic volumes tended to stay around the same east of the 3<sup>rd</sup> Street interchange, while west of the interchange the traffic volume increased only 4%. The westbound off ramp experienced an 8% increase while the westbound onramp experienced a -8% change. The eastbound onramp experienced an 11% decrease and the eastbound off-ramp experienced a 25% decrease. The eastbound spiral off ramp was removed and changed into a diamond interchange off ramp. This is most likely the reason for the 25% decrease. Third Street experienced a decrease of traffic which averaged around 4%. US Highway 287 also experienced a general decrease in traffic volume trend in this time period.

Between the years of 1996 and 2000, the traffic volumes on Interstate 80 increased from 18% to the west of the 3<sup>rd</sup> Street Interchange to 40% east of the interchange. There was a 23% increase from the westbound off ramp at the 3<sup>rd</sup> Street interchange while there was an 18% decrease on the westbound onramp. The Eastbound onramp experienced an 11% increase while the eastbound off ramp experienced a 11% decrease. Third Street experienced little change between those years while Soldier Springs Road experienced a 52% increase in traffic between these years and US Highway 287 experienced a -5% change.

Eleven businesses in the project area returned surveys. Eight of these responded to the traffic volume questions. Figure 6.5 displays the trends in volume experienced by the Third Street businesses near the I-80 interchange.



Figure 6.5 Laramie – 3<sup>rd</sup> Street Perceived Changes in Volume DURING and AFTER Construction.

The perceived survey data appeared to represent the actual changes in the AADT data. Overall, the construction of this project was large enough in scale to affect traffic volumes. The construction could have possibly deterred people from using the 3<sup>rd</sup> Street exits and use exits nearby which also provide traveler's services and access to Laramie.

# 6.2.6 Cody

There are three permanent counters near the Cody project. A counter on US Highway 14-16-20 (West Yellowstone Avenue) lies on the same road as the project. The other two counters located east and northeast of the project respectively are on 16<sup>th</sup> Street (US Alternate 14 and State Highway 120) and on Salsbury Avenue. The counters on US Highway 14-16-20 and 16<sup>th</sup> Street are on minor arterial roads and the Salsbury counter is on a local street. The peak month for the US 14-16-20 counter and the 16<sup>th</sup> counter is July while their respective peak days are Sunday and Friday and Thursday and Friday. The peak month for the Salsbury counter is June with the peak days on Thursday and Friday. The most likely reason for the peak seasons being in the summer months is due to the high tourist traffic traveling to Yellowstone National Park's east entrance.

The AADT volumes were collected for the years 1994, 1996, and 2001 for the city of Cody. Between the years of 1994 and 1996 there was a significant decrease in traffic volumes. The section of US Highway 14-16-20 in the project zone west of South Fork Street experienced a 129% decline in traffic volumes while the section east of South Fork Street had a 56% decrease in traffic.

Between 1996 and 2001, the project area on West Yellowstone (US Highway 14-16-20) showed growth in traffic with rates ranging from 7% and 50%. The rest of the town experienced a growth in traffic.

Between the years 1994 and 2001, the traffic volumes in the project area experienced a general decline in traffic volumes. The section of US Highway 14-16-20 in the project zone west of South Fork Street experienced a decline in traffic of 94% while the section east of South Fork Street experienced a 53% loss in traffic. Sections on West Yellowstone Avenue also experienced losses of traffic of negative 50%.

Out of the 12 businesses that responded to the survey, ten businesses responded with during construction traffic volume information while nine businesses responded with after construction volume information. Figure 6.6 shows the perceived volume changes along West Yellowstone Avenue during and after construction. As Figure 6.6 illustrates, most businesses reported a decrease in traffic during construction and no change or increases after construction.



Figure 6.6 Cody Perceived Changes in Volume DURING and AFTER Construction.

When comparing the perceived survey data to the actual count data for both the during and after periods, the AADT data seems to show a decline in traffic overall while the survey data shows that the traffic volume declined during construction in 2001 and did not change or increased afterwards. West Yellowstone and US Highway 14-16-20 have been experiencing construction years before the particular construction project studied for this project. Most of the work occurred on US Highway 14-16-20 between Cody and Yellowstone National Park. This could be the explanation for the declining in the AADT data.

# 6.2.7 Thermopolis

There is only one permanent traffic counter located near Thermopolis. It lies approximately 4 miles west of town on State Highway 120. In the town of Thermopolis, State Highway 120 (Broadway Street) intersects with US Highway 20-16 (6<sup>th</sup> Street) where construction project took place between 1999 and 2000. The peak month for this traffic counter was July and the peak days were Thursday and Friday. Thermopolis has many public hot springs pools in Hot Springs State Park and the town also lies on a major Yellowstone National Park route which could explain the peak volumes in the summer months.

Out of the 15 surveys from responding businesses, ten businesses reported their during and after traffic volumes. Figure 6.7 displays the business survey responses. As the figure shows, the business were split between an increase in traffic during construction while most businesses agreed the traffic volume increased after construction.

Thermopolis does not have AADT traffic data collected because it is less than the 5,000 population threshold for requiring counts. Because of this, no comparison could be made with the survey results.



Figure 6.7 Thermopolis Perceived Changes in Volume DURING and AFTER Construction.

#### 6.2.8 Cheyenne

Cheyenne has a total of nine permanent traffic counters located around the city. Four permanent traffic counters that were closest to the project on West Lincolnway Street (West 16<sup>th</sup> Street) were chosen to evaluate. The counters located on the I-80 Viaduct, Deming Underpass, and on Warren Avenue all had peak months in July and peak days on Thursday and Friday. A counter located on 22<sup>nd</sup> Street had a peak month in June and peak days on Tuesday and Friday. The Cheyenne Frontier Days occur in July which could be the reason why most of the traffic counters experience peak months in July.

The AADT traffic volume data for Cheyenne is very sparse. The years from 1996 through 2001 were examined and the construction project year of 2000 had the most sections of road with traffic volume data on West Lincolnway. Traffic volumes taken in other years were sparse making a year to year comparison between the years difficult. The AADT traffic volumes for 2000, displayed that the traffic volumes west of the I-80 interchange experienced the lowest traffic volumes while the traffic volumes downtown near the intersection with the River Viaduct were the highest. The traffic volumes in the construction zone ranged from 3,000 to 9,000 vehicles per day in the eastbound direction.

Out three surveys returned only one business reported traffic volume data. The business reported a moderate decrease in traffic during construction and a significant increase afterward. Due to the lack of consistent AADT data for West Lincolnway and the lack of survey responses from Cheyenne, no comparison can be made.

# 6.2.9 Laramie – Curtis Street

The peak volume permanent counter information for this project is the same as described under the Laramie  $-3^{rd}$  street project. The construction on this Curtis Street

project took place in 2000 and 2001. Between the years of 1996 and 1998, the traffic volumes in the project zone on Curtis Street increased by 5% east of McCue Street and 2% west of 3<sup>rd</sup> Street. Interstate 80 also experienced a growth with a 37% increase to the west of Curtis Street and a 26% increase to the east of Curtis Street. Only Curtis Street east of 3<sup>rd</sup> Street and between I-80 and McCue Street experienced a decline in traffic of 11% and 6% respectively.

Between the years of 1998 to 2000, the traffic volume decreased within the project boundaries. Curtis Street experienced a 13% decrease from just east of McCue Street to 31% decrease just west of 3<sup>rd</sup> Street. There was also a decrease on Curtis Street (approximately 15%) traffic volumes on the west side of the interchange with I-80. Interstate 80 experienced a general growth trend in volume along with the section of Curtis Street between I-80 and McCue where the Pilot Travel Center is located.

Between the years of 1996 to 2000, the traffic volume tended to decrease within the project boundaries. Curtis Street experienced an 8% decrease east of McCue and a 29% decrease west of 3<sup>rd</sup> Street. There was an increase in traffic volumes (5%) on Curtis Street just west of the interchange with I-80. Interstate 80 experienced a growth in traffic volume (39% west of Curtis Street and 29% east of Curtis Street). All onramps and off ramps at the I-80 interchange increased in traffic volume with the eastbound off ramp gaining the most volume of 43%. North Banner Road experienced a 76% drop in volume.

Three of the five responding businesses reported their opinions on traffic volumes during and after construction. Figure 6.8 shows the businesses responses. As the figure

shows, most of the businesses perceived a decrease during construction and an no change after construction.



Figure 6.8 Laramie – Curtis Street Perceived Changes in Volume DURING and AFTER Construction.

Many of the businesses surveyed for this project are close to the I-80 interchange or in town on 3<sup>rd</sup> Street. Most of the construction occurred between these two business centers which would seem to indicate that the effects of traffic volume on the businesses should be minimal since the I-80 businesses primarily rely on travelers while the 3<sup>rd</sup> Street businesses mostly serve the community. The two businesses who reported a decrease in traffic during construction along with the declines in actual traffic counts in the construction section tell a different story. Overall, indications show that the construction did affect the traffic volumes in the construction zone. It appears, however, that the businesses that depend on interstate users, such as the Pilot Travel Center, were not affected by the decrease in traffic volume because their access point was not in the construction zone.

#### 6.2.10 Gillette

Two permanent counters were examined for the Gillette construction project. A permanent counter on I-90 approximately three miles east of town was found to have a peak month in August and peak days on Friday and Saturday. The other counter located on 59 (designated as a principal arterial, other) located around one mile south of the I-90 interchange has a peak month of June and peak days on Thursday and Friday. The counter on State Highway 59 is in a large business district where Wal-Mart and other major shopping centers are.

Between the years of 1995 and 1998, the sections of US Highway 14 in the project zone showed positive growth ranging from 8% east of State Highway 59 and 16% west of Garner Lake Road. I-90 experienced some growth (5%) east of the State Highway 59 exit but the volume declined (-13%) west of the intersection. The rest of the city experienced a general growing trend during this time period.

Between the years 1998 and 2000, US Highway 14 in the project zone experienced a slight decline (3%) in traffic volume just east of US Highway 59 while it experienced a slight increase (6%) west of Garner Lake Road. Interstate 90 and the off ramps for the US Highway 14 intersection experienced the greatest decrease of volume between these years. West of the US Highway 14 interchange, I-90 experienced a 7% decrease while east of the interchange experienced a 12% loss in traffic. Traffic volumes on I-90 west of the State Highway 59 interchange had a 5% increase in traffic.

Between the years of 2000 and 1995 there was a slight increase in traffic on US Highway 14 in the project zone which ranged from 3% to 8% west of the I-90

intersection and it increased 22% west of Garner Lake Road. I-90 experienced a general decline (7 to 8%) in volume between these years. Most of the town experienced a growth trend between these years.

Three out of the three responding businesses in Gillette reported volume changes near their businesses. Figure 6.9 shows the Gillette business responses regarding traffic volumes. As the figure shows, all of the businesses felt there was a decrease in sales during construction and no change after construction.



Figure 6.9 Gillette Perceived Changes in Volume DURING and AFTER Construction.

Since the construction work on US Highway 14 between State Highway 59 and Garner Lake Road started in December of 2000 and the final acceptance was in April 2002, the AADT volume does not show the traffic volumes after construction took place. More AADT traffic volume data is needed to compare with the survey data received. More businesses should be surveyed to determine the overall trend since Gillette had one of the poorest survey response rates.

#### 6.2.11 Casper

There were no traffic counters on or in the general area where the construction on CY Avenue. The two closest permanent counters on Center Street and 1<sup>st</sup> Street were used to examine the peak traffic characteristics. The counter on Center Street located near downtown Casper (minor arterial) has a peak month in April and peak days on Thursday and Friday. The counter on 1<sup>st</sup> Street (principal arterial other) located between the Salt Creek Highway and Poplar Street had a peak month in June and peak days on Thursday and Friday.

The traffic volumes were taken at inconsistent years for Casper and this made it difficult to establish any trends. Between the years of 1997 and 2000, the traffic volumes of 13<sup>th</sup> Street and Poplar Street near the intersection with CY Avenue experienced some decline in traffic volumes (ranging around 30%). CY Avenue itself experienced a decline of 33% in traffic volume between those years.

In general, CY Avenue experiences high traffic volumes (around 15,000 to 20,000 ADT). There was a slight decrease of traffic volumes in the construction area between 2000 and 2002.

Eight out of ten surveys returned from responding businesses reported traffic volume information for during and after construction. Figure 6.10 below shows the responses from the Casper businesses. As the figure shows, most of the businesses perceived a decrease in traffic volumes during construction and an increase after construction.



Figure 6.10 Casper Perceived Changes in Volume DURING and AFTER Construction.

Since the construction on CY Avenue started in late September 2000 and was accepted in late June 2002, more traffic volume data is needed to determine if the volumes in the construction zone recovered. The survey data seems to show a moderate decline in traffic during and a slight recovery after construction. This data is difficult to compare to the AADT data due to the inconsistencies in the volume collection process.

## 6.2.12 Conclusions

Overall, the general trend with a majority of the cities investigated was that the traffic volumes tended to decrease during construction and increase afterward. In some cases, the locations of businesses seem to dictate the changes in volume experienced. For example, businesses along detour routes can experience an increase in traffic during construction while those businesses in areas shut down will experience decreases.

Businesses can experience different impacts related to changes in traffic. It is believed that businesses which rely on impulse customers are more likely to suffer when traffic volumes are low. Other businesses such as gas stations may experience declines in sales as the volume declines because travelers may visit other gas stations along detour routes or in other parts of town not affected by construction. Businesses that sell unique items or provide a professional service may experience fewer impacts by volume fluctuations. More comparisons of this nature will be made in the sales analysis chapters to determine if these trends exist in the Wyoming towns studied.

# 6.3 Tax Revenues

In the following sections, the actual impacts (construction and otherwise) on the businesses as determined by Department of Revenue data is reported along with the comparison of the total estimated sales for each project with the corresponding estimated county sales collected. The city and county sales collection trends are also compared to the projects lodging sales collected. The percent of businesses that experienced different level of impacts will also be determined for each project.

Some of the businesses shut down or were started during the period of construction or after and were not considered in the summary. The number of businesses in the project area experiencing the impacts were divided by the total number of businesses with tax revenue data from the DOR to get the percent of businesses in each category. Because of this, analysis of sales on each project was only performed on the businesses with consistent before, during, and after tax revenue data for each project to ensure sales trends could be examined

#### 6.3.1 Saratoga

Department of Revenue data was obtained for 19 businesses impacted by the Bridge Street project in Saratoga. Of the 19 businesses, only the businesses with data before, during, and after the construction time periods were used in the analysis. The businesses in the project area include retail stores, eating establishments, repair and automotive shops.

The estimated county sales were also obtained and compared against the project sales figures. Figure 6.11 illustrates both the county and project level sales over a period from 1996 to 2003. When examining this time period, it appears that both the county and the project experienced overall growth with short periods of decreasing sales. This figure also illustrates that the project area growth in sales was at a lower rate than that of the county. Trend lines have been added to the figure to illustrate linear changes over the time period.

Fourteen of the 19 Saratoga businesses were included in the impact level analysis for both the during and after construction periods. The Department of Revenue could not provide tax revenue data from the year 1996 due to a change the department's data management system that occurred that year. Because of this, the percent change of sales before construction between the years 1996 and 1997 could not be examined. Comparing a period before construction (1997) to a period during construction (1998), it was found that three businesses (21.4%) experienced a decline in sales; the remaining businesses experienced increased sales revenue. The average percent change in sales for that period was an increase of 18%. Figures for individual businesses can be found in Table 6.2.



Figure 6.11 The retail sale trends for Saratoga at project and county levels.

Comparing the period after (1999) with the period during (1998) to construction, 2 of the 14 businesses experienced a decline with the average change being an increase of 24%. After construction the number of businesses experiencing decreasing sales dramatically increases as shown in the last three columns of Table 6.2. It is unclear what caused the decline in sales for those three periods but it is unlikely that the construction of the Bridge Street project would have had a delayed and long-term affect given the small scale of the project and short time period of construction.

	DURING	AFTER	AFTER	AFTER	AFTER
	(97-98)%	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change	Change
1	20.18%	-5.17%	-7.30%	-4.72%	-1.28%
3	-22.60%	64.29%	-13.09%	-13.68%	22.74%
5	-57.79%	-39.52%	21.48%	-83.40%	-55.84%
6	176.55%	99.34%	-21.44%	9.13%	-17.04%
7	<b>-20.58%</b>	70.58%	0.82%	3.21%	-34.84%
8	6.89%	16.00%	19.36%	-3.06%	27.86%
9	16.19%	12.70%	6.86%	3.16%	-1.52%
10	14.05%	14.53%	-23.71%	-7.18%	2.76%
11	34.61%	15.14%	9.51%	-6.61%	3.06%
12	1.40%	21.93%	-11.31%	-5.53%	-1.80%
13	38.61%	36.47%	-28.45%	-22.65%	-18.31%
17	13.22%	16.08%	3.93%	10.53%	-4.13%
18	3.97%	3.10%	14.25%	1.03%	-11.67%
19	26.62%	13.71%	-14.02%	12.03%	-10.97%
Average	17.95%	24.23%	-3.08%	-7.70%	-7.21%

Table 6.2 Percent change in annual sales revenue in Saratoga

The businesses in Table 6.2 are identified only by a business number to protect the confidentiality of the sales tax revenue data. The name of the business was not provided by the Department of Revenue to protect confidentiality but the type of business was provided. In cases where several businesses of the same type were in the data set, a separate analysis was run to see if certain business types are more susceptible to construction impacts.

The eating and drinking places sector as well was the retail stores not elsewhere classified sectors had more than one business reporting for each. As Table 6.3 displays, during construction, there was no loss in sales in for the eating and drinking businesses and only one of the unclassified retail stores experienced a 20.6% decrease. Most of the decrease occurred three and four years after construction occurred meaning that the construction was probably not the cause for the decreases in sales later on.
		DURING	AFTER	AFTER	AFTER	AFTER
Туре	#	(97-98)% Change	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
	1	34.61%	15.14%	9.51%	-6.61%	3.06%
	2	1.40%	21.93%	-11.31%	-5.53%	-1.80%
	3	3.97%	3.10%	14.25%	1.03%	-11.67%
	_	13.33%	13.39%	4.15%	-3.70%	-3.47%
RETAIL STORES	1	<b>-20.58%</b>	70.58%	0.82%	3.21%	-34.84%
NOT ELSEWHERE CL	2	6.89%	16.00%	19.36%	-3.06%	27.86%
	3	14.05%	14.53%	-23.71%	-7.18%	2.76%
		0.12%	33.70%	-1.17%	-2.34%	-1.41%

Table 6.3 Saratoga sales trends by business type.

## 6.3.2 Worland

Department of Revenue data was obtained for 34 businesses impacted by the Main Street construction project in Worland. Of the 34 businesses, only 17 businesses that had consistent data before, during, and after construction were used in the following analyses. Most of the businesses in the project are include retail stores, automotive shops, and eating establishments.

The county estimated sales were also obtained and compared against the project sales figures. Figure 6.12 illustrates both the county and project level sales over a period a period from 1997 to 2003. When examining this time period, it appears that the county sales experienced an overall small growing trend with short periods of decreasing sales. The project sales tended to decline at a slight but steady rate during the time period. Trend lines have been added to the figure to illustrate linear changes over the time period.



Figure 6.12 The retail sale trends for Worland at project and county levels.

The Department of Revenue could not provide tax revenue data from the year 1996 due to a change of the department's data management system that occurred that year. Because of this, the percent change of sales before construction between the years 1996 and 19997 could not be examined. Comparing a period before construction (1997) to a period during construction (1998), it was found that six out of the 17 businesses (35.3%) experienced a decline in sales with the average percent change of sales at -1.3%.

After construction the number of businesses experiencing decreasing sales increased to nine businesses (52.9%) for each of the last four columns of Table 6.4. It is unclear what caused the increase of businesses experiencing a decline in sales after construction. It is likely that the construction project did cause some of the decrease during construction but not the long term decreases after construction. The project was during a short period of time but included a major part of Main Street.

	DURING	AFTER	AFTER	AFTER	AFTER
	(97-98)%	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change	Change
1	4.43%	5.14%	16.75%	-4.49%	-6.75%
2	-20.47%	-0.88%	3.01%	15.29%	-11.03%
3	12.12%	-7.84%	-43.89%	39.88%	16.37%
4	-27.59%	-5.04%	11.28%	-13.53%	-14.97%
5	4.77%	1.01%	5.80%	6.86%	2.87%
6	-9.01%	-12.93%	-20.35%	6.09%	-16.86%
11	-21.36%	1.58%	-0.53%	-5.00%	-5.48%
13	2.33%	10.85%	4.47%	-5.47%	5.66%
14	1.26%	5.08%	14.07%	-11.21%	-35.89%
22	-11.42%	29.05%	-17.28%	11.78%	-10.48%
23	3.30%	-10.60%	-10.64%	-4.06%	19.05%
28	10.60%	8.82%	-3.25%	-6.36%	5.02%
29	5.07%	-1.76%	-1.85%	12.18%	8.12%
30	22.63%	5.25%	10.81%	10.47%	22.63%
31	-6.53%	-20.99%	-10.42%	-2.38%	-12.25%
32	4.46%	-2.51%	11.64%	14.41%	-0.41%
33	3.02%	-0.85%	-14.04%	-1.57%	3.79%
Average	-1.32%	0.20%	-2.61%	3.70%	-1.80%

Table 6.4 Percent change in annual sales revenue in Worland.

The Worland project only had one type of business with more than one of the same type of business reporting. The eating and drinking places sector had three businesses reporting. During construction, two of the three businesses (66.7%) of the businesses experienced a decrease in sales with the average of percent change of the three businesses being 8.5%. After construction, both businesses that experienced a decline in sales during construction continued to experience a decline in sales throughout the period. Only one business did not experience a decline in sales throughout the time period. Table 6.5 displays the trends experienced by the eating and drinking places in Worland.

		DURING	AFTER	AFTER	AFTER	AFTER
	#	(97-98)% Change	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
	1	4.77%	1.01%	5.80%	6.86%	2.87%
	2	- <b>9.01%</b>	-12.93%	-20.35%	6.09%	-16.86%
FLACES		-21.36%	1.58%	-0.53%	-5.00%	-5.48%
		-8.53%	-3.45%	-5.03%	2.65%	-6.49%

Table 6.5 Worland sales trends by business type

# 6.3.3 Moorcroft

Department of Revenue data was obtained for three businesses impacted by the Yellowstone Avenue construction between August 2000 and July 2001. Of the three businesses, only two businesses had consistent before, during, and after construction data that was used in the following analysis. A majority of the businesses in the construction area were in the lodging sector.

The county estimated sales were also obtained and compared against the project sales figures. Figure 6.13 illustrates both the county and project level sales over a period from 1998 to 2003. When examining this time period it appears that the county sales experienced overall growth with some short periods of decreasing sales. The project experienced a decline in sales during and after construction. The trend lines have been added to the figure to show the linear changes in sales over the time period.



Figure 6.13 The retail sale trends for Moorcroft at project and county levels.

All three of the Moorcroft businesses were included in the impact level analysis for both during and after construction periods. All three businesses had consistent data after construction between the years of 2001 and 2002. Comparing the year before construction (1999) to a period during construction (2000), it was found that the one business with consistent data was experiencing a decrease in sales of 10.4%. Two businesses had a decrease (6.2% average) in sales during construction between the years of 2000 and 2001. After construction, all businesses except one experienced a decrease in sales.

It appears that the businesses in the project area were experiencing hard times before the construction project occurred. Construction projects on US-14 toward Devil's Tower which occurred north of town before the 2000-2001 construction project could have been the reason for the tough times experienced by project businesses. Due to the small scale of the study project and the decreasing trend before construction, it is unlikely that the construction project on Yellowstone Avenue caused any significant decline in sales. Table 6.6 displays the percent change in sales trends from the years before, during, and after construction.

	BEFORE	DURING	DURING	AFTER
Business	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
1				8.84%
2			-12.02%	-20.35%
3	-7.15%	-10.40%	-0.41%	-22.85%
Average	-7.15%	-10.40%	-6.22%	-11.45%

 Table 6.6 Percent change in annual sales revenue in Moorcroft.

To ensure confidentiality, the businesses in Table 6.6 are labeled by number. The two hotels in the project area did not have enough revenue data to create a separate analysis to examine how the hotels were affected by the construction project.

## 6.3.4 Lander

The North Main Street project had a total of 13 businesses with tax revenue data. Most of the businesses in the project area are in the eating and drinking places sector as well as the automotive and retail sales sectors. Out of the 13 businesses, nine had revenue data throughout the study period and were used for the level of impact analysis. Eight businesses were used for the county sales comparison data.

Figure 6.14 displays the total retail sales experienced by the eight businesses with data through the time period. As Figure 6.14 illustrates, the county sales experienced a general growing trend with short decreases in sales before and after construction. The project business sales experienced a general growing trend with some short decreases in sales after construction as well. The project area sales experienced a lower rate of growth



than the county. Trend lines have been added to the figure to illustrate linear changes over the time period.



Table 6.7 displays the percent change in sales experienced by the Lander businesses before, during, and after construction for the individual businesses. The Department of Revenue (DOR) could not provide tax revenue data from the year 1996 due to a change in the department's data management system that occurred that year. Because of this, the percent change of sales before construction between the years 1996 and 1997 could not be examined. Comparing a period before construction (1997) to a period during construction (1998), it was found that three businesses (33.3%) experienced a decline in sales while the remaining businesses experienced an increase in sales. The average percent change in sales for that period was a decrease in sales of 0.20%. The figures for individual businesses can be seen in Table 6.7. After construction, three businesses (33.3%) experienced a decline in sales between the years of 1999 and 1998 and between 2000 and 1999. After this time period, the number of businesses experiencing decreasing sales dramatically increased as show in the last two columns of Table 6.7. It is unclear what caused the decline in sales for those two periods but it is unlikely that the construction of the North Main Street project was responsible for the delayed and long term negative affect given the small scale and time period of the project.

	During	After	After	After	After
	(97-98)%	(98-99)%	(99-00)%	(00-01)%	(02-01)%
Business	Change	Change	Change	Change	Change
2	8.90%	28.31%	-6.26%	-5.12%	17.12%
3	5.13%	1.88%	-17.75%	-0.06%	-29.78%
6	-3.54%	-12.38%	21.08%	-3.35%	-10.58%
7	15.05%	-3.45%	-0.03%	-8.44%	-13.99%
8	-2.85%	4.51%	14.37%	-4.16%	12.80%
9	10.15%	17.29%	25.28%	-4.27%	3.78%
11	4.06%	8.71%	16.33%	9.79%	3.13%
12	-44.60%	136.51%	12.98%	-91.90%	-88.61%
13	5.93%	-21.07%	11.63%	-9.30%	32.57%
Average	-0.20%	17.81%	8.63%	-12.98%	-8.17%

Table 6.7 Percent Change in annual sales revenue in Lander.

To ensure confidentiality, the individual businesses are represented by numbers in Table 6.7. Since the DOR provides business type when, an individual business by type of business analysis could be made when there is more than one of the same type of business with consistent during and after construction data. In the case of the Lander project, there was not more than one of the same type of business reporting consistent data and an individual business by business type analysis could not be made.

#### 6.3.5 Wheatland

The Gilchrist Avenue project had a total of 15 businesses with tax revenue data. Most of the businesses in the project area are in the retail sector including clothing, furniture, and clothing stores. Of the 15 businesses, only seven had revenue data throughout the study period. One of these was only missing the first year of data and is therefore used in some of the analysis. Figure 6.15 displays the total retail sales experienced by the seven businesses with data throughout the time period. As Figure 6.15 illustrates, there is an increase in total county sales, while the project area sales increase at a lower rate. Both county and project sales show a decrease during the end of the time period. Trend lines have been added to the figure to illustrate linear changes over the time period.





Table 6.8 displays the percent change in sales experienced by the Wheatland businesses before, during, and after construction for the individual businesses. Comparing two years prior to construction (1997 to 1998) all of the businesses except one experienced growth in sales with the average growth rate being 13.5% Comparing a period during (1999) to a period prior (1998) to construction, three of the eight businesses experienced a decrease in sales although the average among all businesses was a positive increase of 0.5%. Since most of the project occurred outside of town, it seems unlikely that the construction work caused any significant impacts on the study businesses. Use for Wheatland. After construction more businesses experienced negative sales growth as seen in the last three columns of Table 6.8.

	BEFORE	DURING	AFTER	AFTER	AFTER
	(97-98)%	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change	Change
1	25.04%	21.10%	-14.80%	64.08%	-55.51%
2	2.55%	0.93%	-7.05%	-13.75%	-8.87%
3	11.15%	11.15%	2.17%	31.94%	-14.81%
4	-4.30%	-8.57%	-6.84%	4.40%	-22.21%
5	9.87%	3.60%	11.26%	<b>-8.08%</b>	-2.33%
6		5.76%	3.24%	<b>-2.68%</b>	1.17%
7	49.31%	-19.53%	-15.36%	-51.60%	
8	1.47%	-10.21%	-11.44%	0.06%	-16.56%
Average	13.58%	0.53%	-4.85%	3.05%	-17.02%

 Table 6.8 Percent change in annual sales revenue in Wheatland.

Eight businesses with data available for the before, during, and after construction periods were examined using a trend line based off of the sales figures for the two years prior to construction. Figure 6.16 shows this projected trend line and the percent difference between this line and the actual sales figures. As seen in this figure, the actual sales figures were lower than the projected sales by 3% for the period during construction.



Figure 6.16 Wheatland retail sales analysis.

# 6.3.6 Laramie – 3<sup>rd</sup> Street

The DOR returned tax revenue data for 22 businesses close to the 3<sup>rd</sup> Street Interchange project in Laramie. Out of the 22 businesses, 16 businesses had revenue throughout the time period. As Figure 6.17 displays, both the county and project experienced a growing trend in their sales before, during, and after construction. The project sales increased at a lower rate than the county sales. Trend lines were added to the figure to illustrate linear changes over the time period.



Figure 6.17 The retail sale trends for Laramie - 3rd Street at project and county levels.

Table 6.9 displays the percent change in sales experienced by the Laramie - 3rd Street businesses before, during, and after construction for the individual businesses. Before construction, only 15 businesses had consistent revenue data while 19 businesses had consistent data during and after construction. Most of the businesses were tourist oriented such as hotels, gas stations, restaurants, and automobile repair shops.

Comparing two years prior to construction (1998 to 1999), five businesses (33.3%) experienced a decrease while the rest of the businesses experienced an increase making the average change in sales 4.9%. Comparing a period during (2000) to a period prior (1999) to construction, 11 businesses (57.9%) experienced a decrease in sales with the average change in sales at -0.3%. Comparing the during period (2001) to the

previous during period (2000), nine businesses (47.4%) experienced a decrease in sales although the average change in sales was 3.6%.

After construction, seven businesses (36.8%) experienced a decrease in sales with the average change in sales at 1.9% as displayed in the last column of Table 6.9. From the declining trends during the two construction periods in Table 6.9 appears that the construction project did have an impact on the businesses close to the I-80/3<sup>rd</sup> Street interchange with the strongest impact during the 1999 to 2000 construction period. A general recovery in average sales occurred after this period.

	BEFORE	DURING	DURING	AFTER
Business	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
1	35.88%	8.43%	11.71%	8.30%
2		2.02%	-0.33%	0.75%
3	21.69%	8.01%	-22.77%	-12.98%
4	23.42%	-10.64%	3.56%	0.57%
5		-4.45%	-15.78%	11.44%
6	5.62%	-6.37%	-0.23%	-33.80%
7		25.36%	-5.26%	-9.30%
8	2.67%	-2.49%	-1.46%	9.42%
10	14.00%	-8.03%	12.53%	-2.25%
12	-10.15%	51.32%	61.23%	11.45%
13	-13.37%	-3.36%	48.72%	6.30%
14	-19.08%	-39.78%	6.19%	79.30%
15	1.02%	-2.35%	19.61%	15.49%
16		-3.86%	-9.19%	-4.16%
17	-59.67%	1.27%	2.09%	2.96%
18	1.40%	-7.88%	-17.49%	-13.29%
21	35.74%	9.06%	9.16%	15.36%
22	37.45%	12.47%	1.11%	3.53%
23	-3.54%	-34.90%	-35.44%	-52.54%
Average	4.87%	-0.32%	3.58%	1.92%

Table 6.9 Percent change in annual sale revenue in Laramie - 3rd Street.

Fifteen businesses with data available for the before, during, and after

construction periods were examined using a trend line based off the sales figures for the two years prior to construction. Figure 6.18 shows this projected trend line and the

percent difference between this line and the actual sales figures. As seen in this figure, the actual sales figures were lower than the projected sales by 13.4% and 28.4% for the two year period during construction.



Figure 6.18 Laramie – 3<sup>rd</sup> Street retail sales analysis.

The Laramie –  $3^{rd}$  Street project had four types of businesses with more than one of the same type reporting. Businesses in the automobile repair shops, eating and drinking places, gasoline service stations, and hotels and motels sectors had more than one business with consistent data reporting. As displayed in Table 6.10, businesses in the gasoline service stations sector experienced an average decrease in sales before construction of 11.3% and an average decrease of 13.4% and 12.6% during the two periods of construction. It appears that, while the other three business sectors did experience decreases in sales throughout the time period, the gas service stations were the most affected by the construction.

		BEFORE	DURING	DURING	AFTER
Туре	#	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
	1	5.62%	<b>-6.37%</b>	-0.23%	-33.80%
AUTOMOBILE REPAIR SHOPS	2	14.00%	-8.03%	12.53%	-2.25%
Average		9.81%	-7.20%	6.15%	-18.02%
	1	35.88%	8.43%	11.71%	8.30%
EATING & DRINKING PLACES	2	23.42%	-10.64%	3.56%	0.57%
	3	1.02%	-2.35%	19.61%	15.49%
Average		20.11%	-1.52%	11.63%	8.12%
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	1		-4.45%	-15.78%	11.44%
GASOLINE SERVICE	2		25.36%	-5.26%	-9.30%
STATIONS	3	-19.08%	-39.78%	6.19%	79.30%
	4	-3.54%	-34.90%	-35.44%	-52.54%
Average		-11.31%	-13.44%	-12.57%	7.23%
	1		2.02%	-0.33%	0.75%
	2	21.69%	8.01%	-22.77%	-12.98%
HOTELS AND MOTELS	3		-3.86%	-9.19%	-4.16%
	5	35.74%	9.06%	9.16%	15.36%
		37.45%	<b>12.47</b> %	1.11%	3.53%
Average		31.63%	5.54%	-4.40%	0.50%

Table 6.10 Laramie – 3<sup>rd</sup> Street sales trends by business type.

## 6.3.7 Cody

For the West Yellowstone Avenue project in Cody, 34 businesses adjacent to the construction site were examined from the DOR tax revenue data. Of the 34 businesses, 17 businesses had consistent data before, during, and after construction that was used for the county sales comparison. A majority of the businesses along the project zone are in the retail sales sector which includes retail stores, restaurants, grocery stores, and gas stations. There are also a large number of hotels and motels along the project corridor.

Figure 6.19 displays the total retail sales experienced by the 17 businesses with data throughout the time period. As Figure 6.19 illustrates, the there is an increase in

county sales, while the project sales experience a decreasing trend. Trend lines were added to the figure to illustrate linear changes over the time period.



Figure 6.19 The retail sale trends for Cody at project and county levels.

Eighteen of the 34 Cody businesses were included in the impact level analysis for the years between 1998 to 1999 and 2001 to 2002. Nineteen businesses were included for the years between 1999 and 2000 and 2000 and 2001. Before construction, (1998-1999) and (1999-2000), it was found that 5 businesses (27.8%) and 10 businesses (52.6%) experienced a decline in sales respectively.

Comparing the period during (2001) to the period prior (2000) to construction, 12 out of the 19 businesses (63.2%) experienced a decrease in sales with an average percent change of -3.3%. After construction, 3 out of 18 businesses (16.7%) experienced a decrease in sales with an average change in sales of 5.0%. It appears that the construction did cause an impact on the West Yellowstone Avenue businesses with the strongest sales impact during construction and a recovery in the sales of most businesses after construction. Table 6.11 displays the individual business trends for the Cody project.

	BEFORE	BEFORE	DURING	AFTER
	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change
1	-10.35%	-12.46%	17.76%	9.79%
2	5.81%	0.36%	0.96%	11.03%
3	16.90%	8.65%	-1.17%	1.67%
4	5.97%	-16.60%	-14.52%	16.58%
5	-24.69%	-7.09%	-32.30%	75.21%
6	-15.23%	10.28%	-7.57%	-40.32%
7	6.81%	19.73%	-1.99%	0.72%
11	0.47%	10.35%	4.16%	2.30%
13	11.66%	-1.94%	-17.79%	9.00%
14	270.67%	-17.12%	<b>-26.58%</b>	1.22%
16	-5.84%	-2.18%	4.50%	33.98%
19	0.43%	8.18%	-3.45%	5.01%
20	130.03%	-8.77%	- <b>26.12%</b>	
22	20.04%	-10.59%	-21.23%	22.34%
23	151.80%	41.91%	56.00%	-62.55%
27	-11.41%	-2.89%	0.53%	16.20%
30	13.22%	-3.34%	-4.28%	14.83%
33		16.49%	12.04%	11.49%
34	4.27%	0.51%	-2.42%	-38.50%
Average	31.70%	1.76%	-3.34%	5.00%

Table 6.11 Percent change in annual sales revenue in Cody.

Seventeen businesses with data available for the before, during, and after construction periods were examined using a trend line based off of the sales figures for three years prior to construction. Figure 6.20 shows this projected trend line and the percent difference between this line and the actual sales figures. As seen in the figure, the actual sales figures were lower than the projected sales by 1.6% during construction. After construction, the actual sales were 46.4% lower than the projected sales. The overall trend from the before construction sales trend line is negative which could be a result of the years of construction between Cody and Yellowstone National Park on US 20-14-16 west of town.



Figure 6.20 Cody retail Sales and analysis.

The Cody project had three types of businesses with more than one of the same business reporting. The three types of businesses were in the eating and drinking places, hotels and motels, and retail stores not elsewhere cloths sectors. During construction, the hotels and motels sector was affected the most with an average decrease in sales of 12.9%. The eating and drinking places sector experienced an average decrease in sales of 2.3% while the retail stores not elsewhere cloths sector experienced an average decrease of 6.7%. All of the sectors businesses experienced a rebound in sales after construction. Table 6.12 displays the trends experienced by the businesses in these three sectors before, during, and after construction.

		BEFORE	BEFORE	DURING	AFTER
		(98-99)%	(99-00)%	(00-01)%	(01-02)%
	#	Change	Change	Change	Change
	1	-10.35%	-12.46%	17.76%	9.79%
EATING & DRINKING PLACES	2	0.43%	8.18%	-3.45%	5.01%
	3	20.04%	-10.59%	-21.23%	22.34%
Average		3.37%	-4.96%	-2.31%	12.38%
	1	5.81%	0.36%	0.96%	11.03%
	2	16.90%	8.65%	-1.17%	1.67%
	3	5.97%	-16.60%	-14.52%	16.58%
HOTELS AND MOTELS	4	-24.69%	-7.09%	-32.30%	75.21%
	5	130.03%	-8.77%	-26.12%	
	6	13.22%	-3.34%	-4.28%	14.83%
Average		24.54%	-4.46%	-12.90%	23.86%
		_			
RETAIL STORES NOT	1	11.66%	-1.94%	-17.79%	9.00%
ELSEWHERE CL	2	-5.84%	-2.18%	4.50%	33.98%
Average		2.91%	-2.06%	-6.65%	21.49%

Table 6.12 Cody sales trends by business type.

## 6.3.8 Thermopolis

The Thermopolis DOR revenue data consisted of 43 businesses in the construction zone with tax revenue information received. A majority of the businesses were traveler oriented in the construction zone. These businesses include gas stations, restaurants, hotels and motels. There was also a substantial number of retail stores along the study corridor.

For Figure 6.21, 21 of the businesses had consistent before, during, and after data and were used to represent the changes in retail sales at the project level as well as the county level. The county and project sales increased throughout the time period with the county experiencing some periods of decreasing sales. The projects sales increased at a lower rate than the county sales. Trend lines have been added to the figure to illustrate changes over time.



Figure 6.21 The retail sale trends for Thermopolis at project and county levels.

Twenty five of the 43 Thermopolis businesses were included in before construction the impact level analysis while 29 businesses with consistent data were examined for the during and after construction periods. Before construction (1998-1999), it was found that 7 out of 25 businesses (28%) experienced a decrease in sales with the average percent change in sales at 7.2%.

Comparing the period during construction (2000) with the period prior (1999) to construction, 10 out of 29 businesses (34.5%) experienced a decline in sales with an average change in sales of 0.79%. Comparing the during construction year of 2001 to the prior construction year 2000, it was found that 9 out of 29 businesses (31.0%) of the businesses experienced a decline in sales with an average change in sales of 2.6%.

After construction, 16 out of the 29 businesses (55.2%) experienced a decrease in sales, but the average change in sales was 2.6%. From the data displayed in Table 6.13 it

is unclear what caused the decline in sales for the last period. The Shoshoni Street, 6<sup>th</sup> Street, and Park Street project most likely did cause an impact on some businesses during construction but it appears that the greatest impact occurred after construction. This may be due to the long period of construction and the extent of the project.

	BEFORE	DURING	DURING	AFTER
	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change
1	6.41%	-4.12%	6.56%	-24.16%
2	-2.94%	13.99%	2.81%	0.22%
3		11.86%	17.59%	-2.44%
4	0.19%	15.32%	1.01%	-0.86%
5	0.42%	-7.52%	-1.53%	-0.50%
6	-4.60%	2.91%	-5.60%	-2.17%
7	37.38%	-5.72%	15.41%	-7.04%
8		-0.15%	-9.36%	-10.79%
9	15.09%	15.03%	3.76%	-10.49%
11	-73.21%	-83.68%	-8.41%	-11.89%
14	2.53%	7.81%	<b>-9.38%</b>	4.30%
15	7.47%	1.17%	7.97%	3.28%
17	0.00%	0.00%	0.00%	110.39%
18		28.24%	11.74%	27.58%
19	22.50%	-39.66%	13.86%	-11.17%
20	24.10%	5.92%	-1.93%	4.99%
21	-19.27%	-17.23%	4.70%	-5.63%
22	-21.80%	24.81%	-12.82%	-7.25%
23	20.87%	43.36%	14.05%	0.57%
25	-12.93%	1.02%	23.43%	-4.34%
26	-10.24%	-3.02%	2.67%	4.45%
27		2.55%	10.08%	-7.22%
28	24.14%	-15.93%	-6.61%	-2.15%
29	-0.74%	13.65%	-1.07%	6.96%
30	144.31%	7.25%	-5.97%	3.93%
31	3.88%	-2.63%	0.54%	3.52%
32	0.00%	0.00%	2.05%	7.97%
33	4.18%	6.83%	0.83%	-3.12%
34	11.23%	0.81%	-1.48%	7.99%
Average	7.16%	0.79%	2.58%	2.58%

 Table 6.13 Percent change in annual sales revenue in Thermopolis.

Seventeen businesses with data available for the before, during, and after construction periods were examined using a trend line based off of the sales figures for the two years prior to constructions. Figure 6.22 shows this projected trend line and the percent difference between this line and the actual sales figures. As seen in this figure, the actual sales were higher than the projected sales by 1.6% and 2.7% for the two years during construction.



Figure 6.22 Thermopolis retail sales analysis.

The Thermopolis project had three business types with more than one of the same business reporting. The business types were in the hotels and motels, gasoline service stations, and eating and drinking places sectors. As Table 6.14 displays, the hotels and motels sector experienced the greatest decreases in sales in the last year of construction and the year after construction. The gasoline and service stations also experienced decreases in sales during this period but at a lower level.

## 6.3.9 Cheyenne

The West Lincoln Way (West 16<sup>th</sup> Street) project had a total of 18 businesses with tax revenue reported from the DOR data. Most of the businesses were tourism related such as hotels and motels, gas stations, and eating and drinking places.

		BEFORE	DURING	DURING	AFTER
Types	#	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
	1	6.41%	-4.12%	6.56%	-24.16%
	2	0.19%	15.32%	1.01%	-0.86%
	3	-4.60%	2.91%	-5.60%	-2.17%
HOTELS AND MOTELS	4	2.53%	7.81%	-9.38%	4.30%
	5	144.31%	7.25%	-5.97%	3.93%
	6	3.88%	-2.63%	0.54%	3.52%
Average		25.45%	4.42%	<b>-2.14%</b>	<b>-2.57%</b>
	1	24.10%	5.92%	-1.93%	4.99%
GASOLINE SERVICE STATIONS	2	-21.80%	24.81%	-12.82%	-7.25%
	3	20.87%	43.36%	14.05%	0.57%
Average		7.72%	24.69%	-0.23%	-0.56%
_					
	1	0.42%	-7.52%	-1.53%	-0.50%
EATING & DRINKING PLACES	2	52.22%	-0.15%	-9.36%	-10.79%
	3		28.24%	11.74%	27.58%

Table 6.14 Thermopolis sales trends by business type.

Of the 18 businesses, only seven businesses had revenue data throughout the study period that was used for the county and project sales comparison. Figure 6.23 displays the total retail sales compared to the county sales from 1998 to 2002. When examining this period, it appears that the county sales experienced an increasing trend in sales with a short period of deceasing sales during 2001. The county experienced a similar decrease in sales during 2001 but the overall trend for the sales was decreasing by a small amount. Since the project occurred during 2000, it seems unlikely that the

construction project was the cause of the decline in sales for the project and the county during 2001.





Table 6.15 displays the percent change in sales experienced by the Cheyenne businesses before, during, and after construction. Eleven businesses were used for the before construction period and the last after construction period, while 12 businesses were used for the period during and the first period after construction.

Comparing two years prior to construction (1998 to 1999), only one business out of 11 businesses (9.1%) experienced a decline in sales with the average change in sales at 11.4%. Comparing a period during construction (2000) to a period prior (1999) to construction, six out of 12 businesses (50.0%) experienced a decrease in sales with an average percent change in sales of approximately -0.8%. In the first column in Table

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6.15 after construction, most of the businesses experienced a rebound in sales however in the last column, four of 11 businesses (36.4%) experienced a decline in sales.

	BEFORE	DURING	AFTER	AFTER
Business	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
1	7.86%	-2.48%	2.15%	-3.20%
2	4.08%	5.01%	15.57%	-1.58%
3	7.22%	-1.92%	2.36%	-7.21%
4	2.38%	-8.70%	10.05%	0.02%
6	3.15%	-8.31%	-25.25%	0.44%
7	-0.09%	-36.94%	-18.42%	
8	35.05%	10.07%	15.14%	13.69%
11		-11.43%	1.36%	12.99%
12	10.18%	7.85%	8.96%	6.74%
13	31.24%	18.77%	10.29%	6.62%
16	0.79%	1.05%	10.72%	5.38%
17	23.45%	17.56%	15.56%	12.46%
Average	11.39%	-0.79%	4.04%	4.21%

 Table 6.15 Percent change in annual sales revenue in Cheyenne.

Eleven businesses with data available for the before, during, and after construction periods were examined using a trend line based off of the sales figures for two years prior to construction. Figure 6.24 shows this projected trend line and the percent difference between this line and the actual sales figures. As seen in this figure, the actual sales figures were lower than the projected sales by 7.4% for the period during construction.

The Cheyenne project had two business types with more than one of the same business reporting. The business types were in the eating and drinking places and hotels and motels sectors. As Table 6.16 displays, businesses in the hotels and motels sector experienced the greatest decreases in sales during and after construction.



Figure 6.24 Cheyenne retail sales analysis.

	BEFORE	DURING	AFTER	AFTER
#	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
1	7.22%	-1.92%	2.36%	-7.21%
2	35.05%	10.07%	15.14%	13.69%
3	0.79%	1.05%	10.72%	5.38%
4	23.45%	17.56%	15.56%	12.46%
	16.63%	6.69%	10.94%	6.08%
	# 1 2 3 4	BEFORE           (98-99)%           # Change           1         7.22%           2         35.05%           3         0.79%           4         23.45%           16.63%	BEFORE         DURING           (98-99)%         (99-00)%           #         Change         Change           1         7.22%         -1.92%           2         35.05%         10.07%           3         0.79%         1.05%           4         23.45%         17.56%           16.63%         6.69%	BEFORE         DURING         AFTER           (98-99)%         (99-00)%         (00-01)%           #         Change         Change           1         7.22%         -1.92%         2.36%           2         35.05%         10.07%         15.14%           3         0.79%         1.05%         10.72%           4         23.45%         17.56%         15.56%           16.63%         6.69%         10.94%

Table 6.16 Cheyenne sales trends by business type.

	1	4.08%	5.01%	15.57%	-1.58%
	2	2.38%	-8.70%	10.05%	0.02%
HOTELS AND MOTELS	3	3.15%	-8.31%	-25.25%	0.44%
	4	-0.09%	-36.94%	-18.42%	
	5	10.18%	7.85%	8.96%	6.74%
Average		3.94%	-8.22%	-1.82%	1.41%

#### 6.3.10 Laramie – Curtis Street

For the second Laramie project along Curtis Street, 26 businesses adjacent to and close by the construction work had tax revenue data examined. Over half of the businesses in the project area are tourism related businesses such as gas stations, hotels and motels, and restaurants. Of the 26 businesses, only ten had revenue data throughout the study period that was used for the county sales comparison.

Figure 6.25 displays the total retail sales experienced by the ten businesses with data throughout the time period. As Figure 6.25 illustrates, there is an increase in total county sales, while the project area sales increase at a lower rate. The county sales also experience a decreasing trend in sales in 2001 and 2002 while the county sales continued to increase.



Figure 6.25 The retail sale trends for Laramie – Curtis Street at project and county levels.

Table 6.17 displays the percent change in sales experienced by the Laramie – Curtis Street project businesses before, during and after construction for the individual businesses. A total of 13 businesses were examined for this analysis; however, only ten of those businesses had sales data for the period before construction. Comparing two years prior to construction (1998 to 1999), three out of the ten businesses (30.0%) reporting experienced a decrease in sales with the average percent change in sales at 11.3%. Comparing a period during construction (2000) to a period prior (1999) to construction, five of the 13 businesses (38.5%) experienced a decrease in sales with an average percent change in sales of 15.7%. The second period of construction between 2000 and 2001 saw eight out of the 13 businesses (61.5%) of the businesses experiencing a decrease in sales with an average percent change in sales of negative 1.7%. After construction five businesses (38.5%) experienced a decrease in sales with the average percent change in sales of 5.5%.

	BEFORE	DURING	DURING	AFTER
	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change
1	10.70%	9.89%	-2.44%	5.47%
2	38.26%	0.61%	-1.52%	10.44%
5	-4.72%	-22.06%	-13.46%	21.37%
6		-1.79%	9.36%	-11.29%
7		1.23%	3.21%	14.72%
9	-2.64%	-29.04%	-9.95%	-1.31%
11	1.14%	3.24%	-7.43%	2.96%
13	16.87%	4.86%	-18.27%	-64.40%
16	50.34%	1.82%	11.85%	4.38%
23	-9.54%	-41.57%	-4.06%	<b>-2.18%</b>
24	11.71%	17.10%	5.08%	-5.53%
25	0.60%	215.19%	-7.43%	3.37%
26		43.92%	13.63%	15.76%
Average	11.27%	15.65%	-1.65%	-0.48%

Table 6.17 Percent change in annual sales revenue in Laramie – Curtis Street.

Ten businesses with data available for the before, during, and after construction periods were examined using a trend line based off of the sales figures for the two years prior to construction. Figure 6.26 shows this projected trend line and the percent difference between this line and the actual sales figures. As seen in this figure, the actual sales were lower than the projected sales by 1.1% and 13.8% during the two years of construction. The after construction sales were lower than the projected sales as well.



Figure 6.26 Laramie – Curtis Street retail sales analysis.

The Laramie – Curtis Street project had three business types with more than one of the same business reporting. The business types were in the eating and drinking places, gasoline service stations, and hotels and motels sectors. As Table 6.18 displays, businesses in the eating and drinking places experienced the greatest loss in revenue during the first period of construction while the gasoline service stations experienced the greatest decrease in sales during the second period of construction. The hotels and motels performed well during construction with only one business experiencing a decrease in sales during the second period of construction.

		BEFORE	DURING	DURING	AFTER
Туре	#	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
		-4.72%	<b>-22.06%</b>	-13.46%	21.37%
	2		-1.79%	9.36%	-11.29%
EATING & DRINKING FLACES	3		1.23%	3.21%	14.72%
		-2.64%	-29.04%	<b>-9.95%</b>	-1.31%
Average		<b>-3.68%</b>	-12.92%	<b>-2.71%</b>	5.87%
GASOLINE SERVICE STATIONS		10.70%	9.89%	-2.44%	5.47%
		16.87%	4.86%	-18.27%	<b>-64.40%</b>
Average		13.79%	7.38%	-10.35%	-29.46%
HOTELS AND MOTELS		38.26%	0.61%	-1.52%	10.44%
		50.34%	1.82%	11.85%	4.38%
Average		44.30%	1.21%	5.17%	7.41%

Table 6.18 Laramie – Curtis Street sales trends by business type.

## 6.3.11 Gillette

The US 16-14 construction project in Gillette had a total of 15 businesses with tax revenue data. Around two thirds of the project businesses were locally oriented such as retail stores, grocery stores, and liquor stores, while around a third were tourist oriented. Of the 15 businesses, only nine had revenue data throughout the study period that was used for the county sales comparison.

Figure 6.27 displays the total retail sales experienced by the nine businesses with the county sales data throughout the time period. As Figure 6.27 displays, the project area businesses experienced a general increasing trend while the county retail sales increased until the middle of July 2000 and began to decline afterward. The project sales leveled off after December 2000. Trend lines have been added to the figure to illustrate linear changes over the time period.



Figure 6.27 The retail sale trends for Gillette at project and county levels.

Table 6.19 displays the percent change in sales experienced by the Gillette businesses before, during, and after construction for individual businesses. In the first column of Table 6.19 seven of the nine businesses had data while in the second column eight of the nine businesses had data. In the last two columns, all nine businesses had data.

In the first column, none of the seven businesses experienced a loss in revenue. Comparing two years prior to construction (1999-2000), one of the eight businesses (12.5%) experienced a decline in sales with an average percent change in sales of 30.1%. Comparing a period during (2001) to a period prior (2000) to construction, one business out of the nine (11.1%) reporting experienced a decrease in sales with an average percent change in sales of 39.9%. After construction, five businesses (55.6%) of the businesses experienced a decline in sales with the average percent change in sales of negative 3.8%. Even though the project wasn't completely finished and accepted until early 2002, the greatest impact from the construction should have occurred during 2001. It is unlikely that the construction caused the decrease in sales after construction due to the small scale of the project and the downward trend in county sales at the same time. Table 6.19 displays these trends.

	BEFORE	BEFORE	DURING	AFTER
	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change
3	16.01%	25.73%	-2.78%	-0.93%
4	9.18%	-0.36%	0.06%	6.13%
5	24.43%	37.25%	54.08%	-18.40%
10	0.84%	67.66%	94.13%	-5.82%
11			106.49%	-40.07%
12	11.40%	2.19%	21.14%	0.48%
13	15.18%	21.83%	10.21%	12.86%
14		39.80%	14.48%	-2.83%
15	125.97%	46.62%	61.10%	14.59%
Average	29.00%	30.09%	39.88%	-3.78%

 Table 6.19 Percent change in annual sales revenue in Gillette.

Seven businesses with data available for the before, during, and after construction periods were examined using a trend line based off the sales for the three years prior to construction. Figure 6.28 shows this projected trend line and the percent difference between this line and the actual sales figures. As seen in this figure, the actual sales were higher than the projected sales by 4.3% for the period during construction but lower than the projected sales by 5% after construction.



Figure 6.28 Gillette retail sales analysis.

The Gillette project had two business types with more than one of the same business reporting. The business types were in hotels and motels and liquor stores sectors. As Table 6.20 displays, businesses, one of the hotels experienced a decrease in sales after construction while one liquor store experienced a decline in sales during and after construction.

		BEFORE	BEFORE	DURING	AFTER
Туре	#	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
		24.43%	37.25%	54.08%	-18.40%
HOTEES AND MOTEES	2	11.40%	2.19%	21.14%	0.48%
Average		17.91%	19.72%	37.61%	-8.96%
LIQUOR STORES		16.01%	25.73%	-2.78%	-0.93%
		15.18%	21.83%	10.21%	12.86%
Average		15.59%	23.78%	3.71%	5.97%

Table 6.20 Gillette sales trends by business type.

## 6.3.12 Casper

Thirty five businesses along the CY Avenue construction project zone in Casper were examined from the DOR data. Most of the businesses were local such as retail stores, grocery stores, and automobile shops. Of the 35 businesses, only 16 had revenue data throughout the study period.

Figure 6.29 displays the total retail sales experienced by the 16 businesses with county data throughout the time period. As Figure 6.29 illustrates, there is an increase in total county sales, while the project sales increase at a lower rate. The project sales did experience a small decline in sales during construction but rebounded afterward.



Figure 6.29 The retail sale trends for Casper at project and county levels.

Table 6.21 displays the percent change in sales experienced by the Casper businesses before, during, and after construction for the individual businesses. The before construction column on Table 6.21 has 15 businesses with consistent data while the last three columns have 19 businesses with consistent data.

Comparing two years prior to construction (1998 to 1999), ten of the 15 businesses (66.7%) experienced a decline in sales with an average percent change in sales of negative 4.3%. Comparing a period during (2000) to a period prior (1999) to construction, nine out of 19 businesses (47.4%) experienced a decline in sales while the average percent change in sales was around negative 9%. During the second period of construction (between 2001 and 2000), 11 out of 19 businesses (57.9%) experienced a decrease in sales but the average percent change in sales was 12.5%. After construction, only three businesses (15.8%) experienced a decline in sales with the average percent change in sales around 10%.

As Table 6.21 displays, it seems like many of the businesses were experiencing decreases in sales before construction and throughout construction. Due to the project size and length in time, it is likely that construction did cause a decrease in sales for some businesses but it is unclear why many businesses were experiencing decreases in sales before. Most of the businesses experienced a rebound in sales after construction.

	BEFORE	DURING	DURING	AFTER
	(98-99)%	(99-00)%	(00-01)%	(01-02)%
Business	Change	Change	Change	Change
1	-22.06%	-52.98%	-2.15%	-100.00%
2	-5.12%	4.39%	-3.95%	3.32%
6	-6.86%	6.23%	29.60%	36.36%
7	-2.51%	-1.76%	-12.11%	8.77%
8		-43.79%	181.39%	45.69%
10	11.47%	14.13%	39.62%	166.17%
12	66.19%	9.74%	-14.79%	9.51%
18	-90.96%	-0.93%	9.15%	2.76%
19	-3.62%	4.54%	6.67%	4.56%
20	-5.27%	-2.97%	-3.21%	4.53%
22	2.28%	6.93%	-7.00%	1.79%
23		-99.49%	40.79%	-30.50%
25	-6.31%	0.98%	-10.34%	5.77%
26	5.45%	-19.27%	-11.45%	4.93%
27		2.13%	-3.65%	-14.70%
28	5.19%	16.67%	10.90%	21.98%
29	<b>-9.98%</b>	-17.07%	-16.97%	3.61%
32	-2.43%	-7.08%	-5.08%	7.90%
35		9.35%	9.59%	6.54%
Average	-4.30%	-8.96%	12.47%	9.95%

 Table 6.21 Percent change in annual sales revenue in Casper.

Fifteen businesses with data available for the before, during, and after construction were examined using a trend line based off of the sales two years before construction started. Figure 6.30 shows this projected trend line and the percent difference between this line and the actual figures. As seen in this figure, the actual sales figures were above the projected sales by 0.6% during the first year of construction but lower than the projected line by 1.6% during the second year of construction. After construction the sales were above the projected line by 12.6%. As Table 6.21 displayed, the sales prior to construction were already experiencing a decrease which means that something other than the construction project was responsible for the decreasing trend line in Figure 6.30.


Figure 6.30 Casper retail sales analysis.

The Casper project had two business types with more than one of the same business reporting. The business types were in the automobile repair shops and eating and drinking places sectors. As Table 6.22displays, businesses in the automobile repair shops sector experienced the greatest impacts before and during construction. Some of the businesses in the eating and drinking places sector also experienced a decrease in sales before and during construction. All of the businesses displayed in this table experienced an increase in sales after construction.

		BEFORE	DURING	DURING	AFTER
	#	(98-99)% Change	(99-00)% Change	(00-01)% Change	(01-02)% Change
AUTOMOBILE REPAIR SHOPS	1		-5.72%	0.71%	14.01%
	2	-6.31%	0.98%	-10.34%	5.77%
Average		-6.31%	-2.37%	-4.81%	9.89%
EATING & DRINKING PLACES	1	-5.12%	4.39%	-3.95%	3.32%
	2	-2.51%	-1.76%	-12.11%	8.77%
	3	11.47%	14.13%	39.62%	166.17%
	4	-3.62%	4.54%	6.67%	4.56%
	5	5.19%	16.67%	10.90%	21.98%
	6	-2.43%	-7.08%	-5.08%	7.90%
Average		0.50%	5.15%	6.01%	35.45%

Table 6.22 Casper sales trends by business type.

## 6.4 Commercial Property ROW

The loss of commercial property right-of-way (ROW) was studied to determine the level of impact the businesses experienced. The number of properties with damages as well as the amount of ROW purchased and temporarily taken was examined for each project. The total damages in dollars to the properties in the construction zones were also examined for each project. These values are summarized in Table 6.23 below. As Table 6.23 shows, the Wheatland project required the largest amount of right-of-way purchase in terms on overall amount. When normalized by the overall length of the project (ratio of total square feet purchased over length of the project), Lander experienced the greatest loss. The Lander, Wheatland, and Cody projects also had significant amount of right-ofway purchases when divided by the length of the total project. None of the construction projects in this study required a business to relocate.

Lastian	Number of	Length of	Amount of ROW Purchased			Amount of Land Temporary Taken			Total
Location	Properties with damages	Project (miles)	Total (sf)	Avg. Size	Ratio (sf/mi)	Total (sf)	Average Size	Ratio (sf/mi)	es (\$)
Worland	15	0.34	2,186	729	6,429	17,713	1,181	52,097	370
Lander	24	1.0	237,180	11,859	237,180	70,380	4,140	70,380	3,005
Wheatland	23	1.55	345,840	24,703	223,122	87,755	5,485	56,616	28,015
Laramie – 3 <sup>rd</sup> Street	4	1.0	95,431	31,810	95,431	27,472	13,736	27,472	0
Cody	5	0.27	55,693	11,1139	206,270	0	0	0	100
Cheyenne	2	0.71	6,439	6,439	9,069	0	0	0	2,305
Laramie – Curtis St	1	0.92	84.44	84.44	92	2,010.55	2,010	2,185	0
Casper	49	1.79	32,091	1,459	17,928	43,421	1,113	24,258	995

Table 6.23 A Summary of Property losses and damages for each Phase I project.

#### 6.5 Business Survey

This section presents the results of the business surveys for determining perceived impacts both during and after construction. The following sections highlight results from the surveys. A complete reporting of all results can be found in Appendix E. Survey response rates for each project were reported in Section 5.5.2.

#### 6.5.1 Saratoga

In Saratoga, most businesses reported a slight decrease in the number of customers per day during the construction; while after construction, the number of customers was perceived to not change or increased slightly. The gross sales and net profit decreased slightly or did not change during construction, and after construction, most businesses noticed a slight decrease or no change in sales and profits. Also, during construction most businesses felt that the noise level and air pollution level did not change, while after construction businesses reported a slight decrease in noise and air pollution. These responses are shown in the Figure 6.31 and Figure 6.32.



Figure 6.31 Saratoga impacts DURING construction.



Figure 6.32 Saratoga impacts AFTER construction.

# 6.5.2 Worland

Most Worland businesses stated that they had a moderate to significant decrease in the number of customers per day during the construction; but after construction, the majority responded that the number of customers did not change or increased. Likewise, the majority observed decreases in gross sales and net profits during construction, while afterwards the majority responded to no change in both categories. Most businesses responded that noise levels did not change or increased during and reported no change after construction. Air pollution was reported by businesses as slightly higher during construction, with no change after construction. These responses are shown in the Figure 6.33 and Figure 6.34.



Figure 6.33 Worland impacts DURING construction.



Figure 6.34 Worland impacts AFTER construction.

## 6.5.3 Moorcroft

Moorcroft businesses did not answer the questions regarding the levels of impact to their businesses. Three businesses had surveys sent to them but only one business sent a survey back and another perceived no change during and after construction after a phone survey was performed. The survey that was sent back did not comment on the impacts mentioned in this section.

#### 6.5.4 Lander

In Lander, most businesses reported a slight or moderate decrease in the number of customers per day and gross sales during the construction. After construction, the number of customers and sales did not change or decreased slightly or increased significantly depending on the businesses. Also, during construction most businesses felt that the noise level and air pollution level increased slightly. After construction businesses reported a slight to moderate increase in noise with a slight increase in air pollution. These responses are shown in the Figure 6.35 and Figure 6.36.



Figure 6.35 Lander impacts DURING construction.



Figure 6.36 Lander impacts AFTER construction.

## 6.5.5 Wheatland

Most Wheatland businesses reported that they had a moderate decrease or no change in the number of customers per day during construction; but after construction, the majority of the businesses perceived that the number of customers increased slightly or did not change. After construction, a majority of the businesses reported no change or a slight to moderate increase in the number of customers and sales. A majority of the businesses reported no change or a slight to significant increase in the noise level and air pollution during construction. After construction, a majority of the businesses felt there was no change or a slight increase and decrease in the noise level, while most businesses perceived no change or a slight decrease in air pollution. These responses are shown in the Figure 6.37 and Figure 6.38.



Figure 6.37 Wheatland impacts DURING construction.



Figure 6.38 Wheatland impacts AFTER construction.

# 6.5.6 Laramie – 3<sup>rd</sup> Street

In Laramie with the 3<sup>rd</sup> Street interchange, most businesses noticed a slight to significant decrease in the number of customers per day and sales during the construction. After construction, a majority of the businesses reported no change or a slight to moderate increase in their number of customers and sales. During construction most businesses felt that the noise level and air pollution level did not change or increased slightly to significantly. After construction all businesses reported a no change in noise with a significant decrease or no change in air pollution. These responses are shown in the Figure 6.39 and Figure 6.40.



Figure 6.39 Laramie – 3<sup>rd</sup> Street impacts DURING construction.



Figure 6.40 Laramie – 3<sup>rd</sup> Street impacts AFTER construction.

## 6.5.7 Cody

A majority of the Cody project businesses reported a slight to significant decrease in their number of customers and sales during construction while a few businesses reported a slight to moderate increase in these two categories. After construction, the majority of businesses reported no change or a slight to moderate decrease and increase in their number of customers and sales. A majority of the businesses felt there was a slight to significant decrease or slight to moderate increase in the noise level during construction and no change to a slight decrease in the noise level after construction. A majority of the businesses reported no change or a slight decrease or increase in air pollution during construction and no change to a slight decrease in air pollution after construction. These responses are shown in the Figure 6.41 and Figure 6.42.



Figure 6.41 Cody impacts DURING construction.



Figure 6.42 Cody impacts AFTER construction.

## 6.5.8 Thermopolis

A majority of the Thermopolis businesses perceived there was a significant decrease to slight decrease in their number of customers and sales while a few businesses thought there was no change or a slight to moderate increase in these categories during construction. After construction, a majority of the businesses felt there was no change or a slight to moderate increase in their number of customers and sales while a few businesses reported a slight to significant decrease in these categories. During and after construction, a majority of the businesses reported a moderate decrease to a significant increase in the noise level and air pollution. These responses are shown in the Figure 6.43 and Figure 6.44.



Figure 6.43 Thermopolis impacts DURING construction.



Figure 6.44 Thermopolis impacts AFTER construction.

# 6.5.9 Cheyenne

Cheyenne businesses felt they did not experience any change during or after construction in the number of customers per day, sales, and air pollution. While a majority of businesses reported no change in the noise level during and after construction, one business reported a slight increase in the noise level during construction and a moderate decrease in the noise level after construction. These responses are shown in the Figure 6.45 and Figure 6.46.



Figure 6.45 Cheyenne impacts DURING construction.



Figure 6.46 Cheyenne impacts AFTER construction.

# 6.5.10 Laramie

Most of the Laramie businesses near Curtis Street stated that they had a slight to moderate decrease or no change in the number of customers per day and sales during the construction. Many of the businesses reported no change or a slight to significant increase in the noise level and air pollution during construction. After construction, all of the businesses reported no change in the five fields considered. These responses are shown in the Figure 6.47 and Figure 6.48.



Figure 6.47 Laramie impacts DURING construction.



Figure 6.48 Laramie impacts AFTER construction.

# 6.5.11 Gillette

During construction, a majority of the Gillette project businesses reported a slight to significant decrease in their number of customers and sales while a majority felt the noise and air pollution decreased or increased slightly to moderately. After construction, most of the businesses felt there was no change or a slight decrease in the five fields considered. These responses are shown in the Figure 6.49 and Figure 6.50.



Figure 6.49 Gillette impacts DURING construction.



Figure 6.50 Gillette impacts AFTER construction.

## 6.5.12 Casper

For the Casper project, while most of the businesses felt there was a significant to slight decrease in their number of customers and sales, a few businesses reported no change or a moderate to significant increase in their number of customers and sales. A majority of the businesses reported no change or a moderate to significant increase in sales while one business reported a significant decrease in these two fields during construction. After construction, a majority of the businesses reported a slight to significant increase in the number of customers and sales, while a few businesses reported no change or a moderate to significant decrease in the number of customers and sales. A majority of the businesses reported no change or a moderate to significant decrease in the number of customers and sales. A majority of the businesses reported no change or a moderate to significant decrease in the number of customers and sales. A majority of the businesses reported no change or a moderate to significant decrease in the number of customers and sales. A majority of the businesses reported no change or a moderate to significant decrease in the number of customers and sales. A majority of the businesses reported no change or a moderate to significant increase in the noise level and air pollution during and after construction. These responses are shown in the Figure 6.51 and Figure 6.52.



Figure 6.51 Casper impacts DURING construction.



Figure 6.52 Casper impacts AFTER construction.

## 6.6 Resident and Project Engineer Survey Analysis

The WYDOT resident and project engineers for each project were surveyed to gain an engineering perspective on the impacts the businesses in their corresponding construction sites may have experienced. The following section will examine the results from the resident and project engineer surveys of each project. Complete survey responses can be found in Appendix F.

#### 6.6.1 Saratoga

The resident and project engineer for the Bridge Street construction project in Saratoga was the same person. The engineer felt that the contractor performed very well during the construction project and worked hard to provide the least disruption to businesses along Bridge Street. During the construction, the engineer felt that travel time and noise level had a moderate increase, while air pollution levels only increased slightly. They responded that accidents and property values in the city did not change, but the property values in the construction zone, along with the site appearance, decreased slightly. The number of customers per day and the traffic volumes experienced a moderate decrease, while the number of parking spaces decreased significantly.

After the construction, the engineer responded that site appearance had a significant increase, and the number of customers per day experienced a moderate increase. The parking spaces, traffic volumes, and property values both in the construction zone and in the city all experienced a slight increase. The engineer responded that the noise level, air pollution, and travel time did not change; and the number of accidents decreased slightly.

## 6.6.2 Worland

For the Main Street construction project in Worland, both the resident and project engineer thought that the contractor performed a very good job and mentioned that the work was well coordinated and there were no complaints from the public. The project engineer mentioned that extensive planning was done during the design phase and the city had an advisory committee which was active so the town was represented in the planning phase. They also stated that the contractor made a genuine effort to inform the businesses of utility outages and traffic flow changes through out construction. Informal sidewalk meetings were held weekly to address questions and concerns of the business owners and general public.

During construction, both engineers responded that the number of parking spaces decreased significantly while the number of customers only decreased slightly. The site

was reported to have a moderate to significant decrease in appearance, while the noise level had a slight increase and air pollution increased slightly or did not change. The engineers were mixed on whether the travel time experienced a moderate increase or a slight decrease. The number of accidents was reported to have increased moderately or had not change, while the traffic volumes had a slight to moderate decrease. Property values in the construction area did not change, while those outside the construction zone slightly increased or did not change.

After construction, the engineers were mixed in whether the number of parking spaces increased slightly or decreased slightly. They said the number of customers experienced a slight to moderate increase, with the sight appearance having a slight to significant improvement. The noise level and air pollution was not changed or decreased slightly, while the travel time increased slightly or did not change. They report the number of accidents did not change, while the traffic volumes did not change or had a moderate increase. The property values in the construction zone increased moderately or did not change, and likewise those outside the zone increased slightly or did not change.

#### 6.6.3 Moorcroft

One engineer was both the resident and project engineer for the North Yellowstone Avenue construction project in Moorcroft. The engineer felt that the contractor performed a good job and made an effort to keep the work site in a small area at a time and cleaned up as they went along. The engineer also mentioned that because the project took place mostly in a residential area, when detours were necessary, the traffic was sent through the business area in town.

During construction the engineer reported the number of parking spaces and site appearance experience a moderate decrease, while the property values in the construction

zone decreased slightly. The number of customers, traffic volumes, and accidents, along with the property values outside the construction zone did not change. Air pollution levels and travel time were reported to increase slightly, while the noise level had a moderate increase.

After construction the engineer reported that the site appearance increased moderately, while the noise level and the property values within the construction zone experience a slight increase. The rest of the categories (parking spaces, number of customers, air pollution, travel time, traffic volumes, property values outside the zone, and accidents) did not change.

#### 6.6.4 Lander

For the North Main Street construction project in Lander, the resident engineer was surveyed; however, the project engineer for this project has since retired and was not surveyed. The resident engineer felt that the contractor on this job had performed a fair job. They also noticed that many of the businesses had to use their alley accesses to get their customers in while the trench work for the water and sewer work was performed.

During construction, the engineer responded that the number of parking spaces had a moderate decrease, while the number of customers per day, traffic volumes, and the site appearance decreased slightly. The number of accidents, and property values, both within and outside the construction zone did not change. The engineer reported that the noise level, air pollution level and travel all slightly increased during construction.

After construction, the engineer replied that the site appearance increased moderately; while property values both inside and outside the construction zone increased slightly. The rest of the categories (parking spaces, number of customers, noise level, air pollution, travel time, traffic volumes, and accidents) did not change.

#### 6.6.5 Wheatland

Both the resident and project engineer for the Gilchrist Street project in Wheatland commented on the project. Both engineers thought that the contractor performed very well on the project and that the quality of work was above average. Mr. Barnes mentioned that weekly informational meetings were held with the businesses.

During construction, both engineers responded that the number of parking spaces decreased significantly, while the number of customers only decreased moderately or did not change. The site was reported to have a moderate decrease in appearance, while the noise level had a moderate to significant increase and air pollution increased moderately. The engineers were mixed on whether the travel time experienced a moderate increase or a moderate decrease. The number of accidents was reported to have not changed or decreased slightly, while the traffic volumes had a slight to moderate decrease. One engineer reported a slight decrease in property values in the construction area, while those outside the construction zone did not change. The other engineer did not answer the property value questions.

After construction, the engineers responded that the number of parking spaces did not change or increased moderately. They said the number of customers experienced a slight increase or did not change, with the sight appearance having a moderate to significant improvement. The noise level and air pollution was not changed or decreased moderately, while the travel time decreased slightly to moderately. They reported the number of accidents decreased slightly, but were mixed on whether traffic increased slightly or decreased moderately. The property values in the construction zone increased

slightly, while those outside the zone did not change. Only one engineer answered the questions about property values.

# 6.6.6 Laramie – 3<sup>rd</sup> Street

The resident and project engineers for the Laramie project at the 3<sup>rd</sup> Street – Interstate 80 interchange responded to the survey. Both engineers felt that the contractor performed a good job and mentioned that traffic was maintained through the construction zone at all times and press releases were performed.

During construction both engineers had the same responses. They reported that the number of parking spaces, traffic volumes, and property values outside the construction zone did not change, while the number of customers and property values inside the construction zone decreased slightly. The appearance of the site decreased moderately, while the noise level increased slightly. They reported that air pollution increased moderately, while the travel time and number of accidents increased slightly.

After construction the engineers responded that the number of parking spaces, noise and air pollution levels, traffic volumes, and property values outside the construction zone did not change. They reported that the number of customers and property values within the construction zone increased slightly, while the site appearance had a slight to moderate improvement. Both travel time and accident were reported to have a slight decrease after construction.

## 6.6.7 Cody

The resident engineer for the West Yellowstone Avenue construction project in Cody responded to the survey but the project engineer had since retired and was not sent a survey. The engineer felt that the contractor for this project performed very well and completed the project in a timely fashion and under adverse conditions. It was suggested that night work would have sped up the process but was not allowed due to the nearby hotels and private residences. The engineer also mentioned that the travel time increased and fewer travelers stopped at the businesses due to the increased delay time getting in and out of mainline traffic.

During construction the engineer reported that noise level and travel time experienced a moderate increase, while air pollution, accidents, and parking spaces increased slightly. Traffic volumes and property values both in and out of construction zone did not change, while the number of customers per day and the site appearance decrease moderately.

After construction the engineer responded that the appearance of the site experienced a moderate improvement, and property values, both within and outside the construction zone, increased slightly. The rest of the categories (parking spaces, number of customers, noise level, air pollution, travel time, traffic volumes, and accidents) did not change.

#### 6.6.8 Thermopolis

The resident and project engineer for the Shoshoni, 6<sup>th</sup>, and Park Streets project in Thermopolis responded to the survey. Both engineers felt that the contractor performed a good job and worked very well with all businesses. They also mentioned that most of the businesses had 2 entrances and only one at a time was closed while signs were placed to help people locate the open entrances.

During construction the engineers responded that the number of parking spaces decreased moderately, while the number of customers decrease slightly. The site appearance decreased moderately to significantly. They were mixed on whether noise levels increased moderately or decreased moderately, and likewise air pollution was

reported as a slight increase or a moderate decrease. The travel time was reported as significant increase or a moderate decrease, while the number of accidents did not change. The traffic volumes decreased moderately or did not change, while property values both in and outside of construction did not change or decreased slightly.

After construction, the engineers reported that the parking spaces, number of customers, accidents, and traffic volumes did not change, while the site appearance experienced a significant improvement. The noise level increased slightly or did not change, and likewise air pollution increase moderately or did not change. The engineers reported that the travel time increased slightly or did not change, while property values in and out of the construction zone increased slightly or significantly.

#### 6.6.9 Cheyenne

The resident and project engineers for the West Lincolnway project both answered the survey. The resident engineer thought that the contractor performed a fair job while the project engineer felt the contractor did a good job. One engineer mentioned that the prime contractor made an agreement with some businesses to move approaches temporarily to get mainline work done more quickly and efficiency so traffic could be restored.

During construction, the engineers responded that the number of parking spaces decreased slightly or did not change, while the number of customers decreased moderately. The site was reported to have a moderate to significant decrease in appearance, while the noise level had a moderate increase or slight decease and air pollution increased slightly or decreased slightly. The engineers reported the travel time and number of accidents experienced a slight increase, while the traffic volumes had a

slight decrease. The engineers reported a slight to moderate decrease in property values in the construction area, while those outside the construction zone did not change.

After construction, the engineers responded that the number of parking spaces did not change or increased slightly. One said the number of customers did not change, while the sight appearance improved slightly to significantly. One reported that noise level did not change and both said that air pollution did not changed along with travel times. One reported the number of accidents decreased slightly and the traffic volumes increased slightly. The property values in the construction zone increased slightly to moderately, while those outside the zone did not change or increased slightly.

#### 6.6.10 Laramie – Curtis Street

For the second Laramie project on Curtis Street, the resident and project engineer replied. Both engineers thought that the contractor did a good job and mentioned that access to all buildings and streets were kept open at all times. One engineer mentioned that WYO-Tech students and truck traffic that used the Curtis Street route were affected by the delays caused by the narrow ten foot road.

During construction, both engineers responded that the number of parking spaces decreased significantly, while the number of customers and site appearance decreased slightly. The noise level had a moderate increase and air pollution increased slightly to moderately. The engineers were mixed on whether the travel time experienced a moderate increase or a slight decrease. The number of accidents was reported to have increased slightly, while the traffic volumes had a slight decrease. The engineers reported no change in property values in the construction area, while those outside the construction zone did not change or increased slightly.

After construction, the engineers responded that the number of parking spaces did not change, while the number of customers increased slightly or significantly. They said the site appearance had a moderate improvement. The noise level did not change or increased slightly and air pollution increased slightly, while they were mix with the travel time increased slightly or decreased moderately. They reported a mix on the number of accidents, either increased slightly or decreasing moderately, and said traffic increased slightly or moderately. The property values in the construction zone did not change, while those outside the zone did not change or increase moderately.

## 6.6.11 Gillette

The resident engineer and project engineer for the US 14-16 (2<sup>nd</sup> Street) construction project answered the survey. While the resident engineer felt the contractor performed a good job and seemed to work well notifying businesses and keeping them informed, the project engineer thought that the contractor performed a fair job. One engineer mentioned that the project had a 20 day window for mainline roadway work and 14 day window for ramp work. They also mentioned that holiday weekends were blocked out and at least one access to each business had to be left open.

During construction, both engineers said that the number of parking spaces did not change, while they were mixed on whether the number of customers only decreased moderately or increased moderately. The site was reported to have a slight or moderate decrease in appearance, while the noise level had a moderate increase and air pollution increased slightly to moderately. The engineers said the travel time experienced a moderate increase, while the number of accidents was reported to have not changed or increased slightly. The traffic volumes had a slight to slight decrease or no change, with no change occurring in the property values within or outside of the construction zone.

After construction, both engineers responded that the number of parking spaces, noise levels, air pollution, the number of accidents, traffic volumes, and property outside the construction zone did not change. They said the number of customers experienced a slight increase or did not change, with the sight appearance having a slight to moderate improvement. The travel time did not change or decreased slightly, and property values within the construction zone were reported to have increased slightly or did not change.

#### 6.6.12 Casper

For the CY Avenue project in Casper the resident and project engineer both replied. One engineer felt that the contractor performed a fair job and mentioned that in some cases the number of accesses from the street was restricted during construction.

During construction, one engineer responded that the number of parking spaces decreased slightly, while the number of customers decreased moderately. The site was reported by one to have a significant decrease in appearance, while the noise level had a moderate increase and air pollution increased slightly. The engineers reported a slight to moderate increase in travel time, while the number of accidents did not change or increased slightly. Traffic volumes were reported by both engineers to have increased slightly. One engineer reported a slight increase in property values in the construction area, while those outside the construction zone did not change. The other engineer did not answer many of the questions.

After construction, one engineer responded that the number of parking spaces did decreased slightly, while the number of customers did not change. The sight appearance was reported by one of having a slight improvement, while noise increased slightly and air pollution did not change. The travel time and accidents were reported by both engineers to have decreased slightly to moderately while traffic volumes did not change

or decreased moderately. One engineer reported that the property values inside and outside the construction zone did not change. The other engineer did not answer several of the questions.

#### 6.7 Perceived versus Actual Impacts

This section of the report contains a comparison and analysis of the perceived gross sales data collected from the business surveys and actual gross sales data collected from the Wyoming Department of Revenue (DOR). This section is designed to determine whether the businesses perceptions of changes on their gross sales during and after construction are similar or different from the actual sales data during and after construction.

For each of the following projects, the business survey gross sales impacts were compared to the corresponding actual DOR sales data. Since the confidentiality of the DOR data did not allow for a direct comparison on the individual business level, all of the businesses with consistent during and after data were combined for the analysis for the perceived and actual data. In all of the cases, the business survey response rate was smaller than the DOR data, which included all businesses with tax collections reported in the construction zone.

The gross sales data from the business surveys and the DOR data were broken down into the level of impact (in percent change) in sales ranges represented by the business survey. The level of impact ranged from being a significant increase or decrease (>20%), moderate increase or decrease (20% to 5%), slight increase or decrease (<5%), or no change. By putting both perceived and actual data in the same scale, a comparison can be made.

The data was broken down by histogram depending on the level of impact and frequency of each level. The perceived versus actual data for each project will be compared using a histogram of the results. In addition a Chi Squared analysis was done to determine if there was a statistical significance to the two sets.

A statistical analysis using the Chi Squared tabular method using statistical software was performed to determine if the perceived data was statistically different than the actual data meaning that the survey responses are not statistically similar to the actual impacts. The Chi Squared test uses the null hypothesis to determine how well the two categories fit together. The null hypothesis is used in this case to determine if the responses from the perceived data and the actual data are statistically significant by rejecting null hypothesis if the differences between the perceived and actual impacts would occur rarely by chance. This would mean the null hypothesis is true and the perceived and actual data is statistically significant or the business perceptions were not with reality. If the null hypothesis is true, it is rejected and a p-value is given.

The p-value describes how significant the relationship is between the sets of data. A small p-value means that the data is more statistically significant and also gives us the confidence interval. For example, a p-value of 0.10 means that we can be 90%, a p-value of 0.20 gives confidence interval of 80% and so on. This means we can be 90% confident that the perceived data is not the same as the actual data. A small p value (typically below 0.05 meaning a 95% confidence interval) means that the data sets are different or the business perceptions were different from what really occurred. Since this project examines human responses when comparing the business survey results, a higher p value is more acceptable. For this study, a p-value of 0.1 was used.

Because of small sample sizes in the perceived data, the impact categories had to be combined where changes in gross sales between positive five and negative five percent became a single impact category. Changes in sales greater than five percent became a significant increase and changes in sales below negative five percent became a significant decrease. The actual impact data was broken down the same way as the perceived data to ensure a comparison could be made. Using the actual impact data, the average percent change of the years during and two years after construction were found.

Table 6.24 displays the p-values found for the projects when comparing the actual sales to the perceived sales during and after construction. Some of the perceived data sample sizes were too small even after the combination of the impact categories. In this case, the statistical software could not produce a p-value for the comparison.

A small p-value (typically below 0.05) means that the data sets are different or the business perceptions were different from what really occurred. Since this project examines human responses when comparing the business survey results, a higher p value is more acceptable. For this study, a p-value of 0.100 was used. The following sections look at the perceived versus actual impacts for each project individually.

		Actual During	Actual After
Saratoga	Perceived During	0.006	
Saratoga	Perceived After		0.007
Worland	Perceived During	0.2	
wonanu	Perceived After		0.166
Moorcroft	Perceived During	N/A	
	Perceived After		N/A
Lander	Perceived During	N/A	
	Perceived After		N/A
Wheetland	Perceived During	N/A	
wheatianu	Perceived After		0.23
Laramie1	Perceived During	0.115	
	Perceived After		0.598
Cody	Perceived During	0.627	
COUY	Perceived After		0.085
Thormonolio	Perceived During	0.066	
mermopolis	Perceived After		0.657
Cheyenne	Perceived During	N/A	
	Perceived After		N/A
Laramie2	Perceived During	0.144	
	Perceived After		0.036
Gillette	Perceived During	N/A	
	Perceived After		N/A
Cooper	Perceived During	0.098	
Casper	Perceived After		0.886

Table 6.24 P-values for each project from the Chi Squared Analysis.

# 6.7.1 Saratoga

The response rate for the Saratoga business impact survey was 45.5% with ten out of 22 businesses reporting. Of those ten businesses, eight businesses responded to the change in gross sales question during and after construction. Fourteen of the 19 DOR businesses had consistent data to examine the during and after construction level of impacts.

Figure 6.53 and Figure 6.54 below compare the actual gross sales impacts to the perceived sales impacts for Saratoga during and after construction. As the figures

display, while most of the sales actually increased, a majority of the businesses felt their sales decreased during construction. After construction, a majority of the businesses felt there was no change in their sales, while the actual sales increased.

The Chi Squared statistical analysis between the perceived and actual impacts during and after construction both had low p values. As shown in Table 6.23, during construction, the p-value was 0.006 and after construction the p-value was 0.007. This means that we can be 99.4% and 99.3% confident that the businesses had a statistically different view about their sales then what the actual sales show during and after construction respectively. As the figures show, it seems that the businesses were more pessimistic about their sales during and after construction.



Figure 6.53 Saratoga Perceived Sales Vs. Actual Sales DURING construction.





## 6.7.2 Worland

The response rate for the Worland business impact survey was 28.2% with 11 out of 39 businesses reporting. Of those 11 businesses, ten businesses responded to the change in gross sales question during and nine businesses responded to the change in gross sales question after construction. Seventeen of the 34 DOR businesses had consistent data to examine the during and after construction level of impacts.

Figure 6.55 and Figure 6.56 below compare the actual gross sales impacts to the perceived sales impacts for Worland during and after construction. As the figures display, many of the businesses perceived their sales decreased while the actual sales increased during construction. After construction, a majority of the businesses felt there was no change in their sales while a majority of the businesses experienced an increase in sales.






Figure 6.56 Worland Perceived Sales Vs. Actual Sales AFTER construction.

The Chi Squared statistical analysis between the perceived and actual impacts during and after construction both had low p-values. As shown in Table 6.23, during construction, the p-value was 0.2 and after construction the p-value was 0.166. Since these p-values aren't below 0.1, we can not be 90% confident that these two populations are statistically different.

#### 6.7.3 Moorcroft

The response rate for the Moorcroft business impact survey was 66.7% with two out of 3 businesses reporting with one of the responding businesses reporting no change in all categories over the phone. Two of the three DOR businesses had consistent data to examine the during construction trends and three out of three had after construction level of impact data. Figure 6.57 and Figure 6.58 below compare the actual gross sales impacts to the perceived sales impacts for Moorcroft during and after construction. As the figures display, during construction, the businesses reported no change in their sales while the actual sales declined. After construction, the businesses also reported no change in sales while the actual sales moderately increased for one business and significantly decreased for two businesses.

There was not enough perceived or actual data to produce a p-value for the Chi Squared test.



Figure 6.57 Moorcroft Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.58 Moorcroft Perceived Sales Vs. Actual Sales AFTER construction.

# 6.7.4 Lander

The response rate for the Lander business impact survey was 35.3% with six out of 17 businesses reporting. Of those six businesses, four businesses responded to the change in gross sales question during and after construction. Nine of the 13 DOR businesses had consistent data to examine the during and after construction level of impacts.

Figure 6.59 and Figure 6.60 below compare the actual gross sales impacts to the perceived sales impacts for Lander during and after construction. As the figures display, a majority of the businesses perceived a decrease in sales during construction while most of the businesses sales actually increased. After construction, half of the businesses perceived no change in sales while a majority of the sales increased.



Figure 6.59 Lander Perceived Sales Vs. Actual Sales DURING construction.





There was not enough perceived or actual data to produce a p-value for the Chi Squared test.

# 6.7.5 Wheatland

Five out of 18 businesses returned their surveys for the Wheatland survey. All five businesses responded to the during and after gross sales question. Eight out of the 15 DOR businesses were examined for during and after business trends.

Figure 6.61 and Figure 6.62 display the during and after comparisons between the actual and perceived data respectively. During construction, a majority of the businesses perceived there was no change in sales while a majority of the sales increased. After construction, a majority of the businesses felt there was no change in their sales, while after construction, half of the actual sales decreased or increased.



Figure 6.61 Wheatland Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.62 Wheatland Perceived Sales Vs. Actual Sales AFTER construction.

The Chi Squared statistical analysis between the perceived and actual impacts produced a p-value for the after construction comparison; however, not enough information was available for the during construction comparison. As shown in Table 6.23, after construction, the p-value was 0.23. Since this p-value isn't below 0.1, we can not be 90% confident that these two populations are statistically different.

# 6.7.6 Laramie – 3<sup>rd</sup> Street

Out of the 25 surveys sent to the Laramie  $-3^{rd}$  Street businesses eight businesses responded with gross sales data during and after construction. Nineteen of the 22 DOR businesses had consistent information during and after construction and were used for this analysis.

Figure 6.63 and Figure 6.64 display the comparisons for the perceived versus actual sales during and after construction. As Figure 6.63 displays, during construction a majority of the businesses perceived they were more negatively impacted then the actual sales trends show. Figure 6.64 shows, both perceived and actual impacts were close after construction.



Figure 6.63 Laramie – 3<sup>rd</sup> Street Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.64 Laramie – 3<sup>rd</sup> Street Perceived Sales Vs. Actual Sales AFTER construction.

The Chi Squared statistical analysis found a p-value of 0.115 when comparing the during information and a p value of 0.598 for the after comparison. In general, we can't be 90% confident that the businesses perceptions were statistically different from the actual sales during construction because the p-value is not less than 0.1, but as Figure 6.85 displays, the businesses did seem to be more pessimistic about their sales during construction.

### 6.7.7 Cody

The response rate for the Cody business impact survey was 36.4% with 12 out of 33 businesses reporting. Of those12 businesses, 11 businesses responded to the change in gross sales question during construction, and ten businesses responded to the change in gross sales question after construction. Nineteen of the 34 DOR businesses had consistent data to examine the during and after construction level of impacts.

Figure 6.65 and Figure 6.66 below compare the actual gross sales impacts to the perceived sales impacts for Saratoga during and after construction. As the figures display, during construction, many of the businesses perceptions about there sales were in agreement with what was actually occurring to the sales. After construction, a majority of the businesses were more pessimistic about their sales reporting no change or a decrease in sales while the majority of the businesses actual sales increased.







Figure 6.66 Cody Perceived Sales Vs. Actual Sales AFTER construction.

The Chi Squared statistical analysis between the perceived and actual impacts after construction had a low p-value. As Table 6.23 displays, during construction, there was a p-value of 0.627 while after construction the p-value of 0.085. This means that we can be 91.5% confident that the businesses were perceptions were not the same as reality. In general, the Cody businesses were pessimistic about their sales after construction.

#### 6.7.8 Thermopolis

The response rate for the Thermopolis business survey was 34.7% with 16 out of 46 businesses reporting. Out of those businesses 14 reported changes in gross sales during construction and 12 reported changes in gross sales after construction. The DOR data contains sales tax collection data collected from 43 businesses with 29 businesses considered for the during construction period while after construction, 34 businesses were represented in the actual data.

Figure 6.67 and Figure 6.68 display the trends of the business survey responses and actual gross sales data during and after construction for the Thermopolis project respectively. As the figures display, during construction a majority of the businesses perceived their sales decreased at a significant level while most of the actual sales decreased slightly or moderately. Over half of the businesses experienced an actual increase in sales during construction. After construction, there was no apparent trends that appeared between the perceived and actual data.



Figure 6.67 Thermopolis Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.68 Thermopolis Perceived Sales Vs. Actual Sales AFTER construction.

The Chi Squared statistical analysis found a low p-value for the comparison of perceived and actual data during construction. As Table 6.23 displays, during construction the p-value was 0.066 while after construction the p-value was 0.657. The after construction p-value is too high but we can be 93.4% confident that the during perceived sales were statistically different from the actual sales. In general the businesses were more pessimistic about their sales than what actually happened.

#### 6.7.9 Cheyenne

Three out of 27 surveys were received from the Cheyenne businesses and all three reported no change in sales during and after construction. For the DOR data, 12 out of 18 businesses had consistent data during construction while 14 businesses had consistent data after construction.

Figure 6.69 and Figure 6.70 display the during and after comparisons of perceived versus the actual sales data. The three businesses that responded to the survey perceived no change in their sales during and after construction. During construction, half of the businesses experienced a decrease or increase in their actual sales while after construction, a majority of the businesses actual sales increased.

There was not enough information to compare the survey data to the DOR data for the Chi Squared statistical analysis. Because of this, no p-values could be found.



Figure 6.69 Cheyenne Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.70 Cheyenne Perceived Sales Vs. Actual Sales AFTER construction.

## 6.7.10 Laramie – Curtis Street

Five businesses surveys returned out of the 29 sent had consistent during and after sales data to analyze for this section. Fifteen out of the 26 DOR businesses had consistent during and after data for comparison.

Figure 6.71 and Figure 6.72 display the comparisons of perceived data versus actual data for the second Laramie project. During construction most of the businesses perceived that their sales experienced no change or decreased, while a majority of the actual sales increased. After construction all of the businesses felt there was no change while the actual sales increased or decreased.



Figure 6.71 Laramie – Curtis Street Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.72 Laramie – Curtis Street Perceived Sales Vs. Actual Sales AFTER construction.

The Chi Squared analysis found low p values for the during and after comparisons. As Table 6.23 displays, the during construction p-value was 0.144 while the after construction p-value was 0.036. While the during construction p-value is low it is not low enough to have a 90% confidence interval. After construction, we can be 96.4% confident that the businesses perceptions were different from what really occurred. As figure 6.94 displays, the Cheyenne businesses tended to believe they were not experiencing changes in their sales while they actually did.

### 6.7.11 Gillette

The Gillette business survey response rate was 13.6% with three out of 22 businesses responding. Those three business surveys were used in the comparison with

the DOR data during and after construction. Nine out of the 15 DOR businesses had consistent data for analysis during and after constructions.

Figure 6.73 and Figure 6.74display the comparisons of the perceived versus actual data during and after construction respectively. During construction all three businesses perceived their sales declined while in most businesses in the construction zone actually experienced an increase in sales. After construction, a majority of the businesses perceived their sales decreased while over half of the businesses actually experienced a decrease in sales.



Figure 6.73 Gillette Perceived Sales Vs. Actual Sales DURING construction.





There was not enough data for the Chi Square statistical analysis to find a p-value given the small sample sizes. However, it does appear that the businesses perceptions during construction were pessimistic.

## 6.7.12 Casper

The response rate for the Casper business surveys was 20% with ten out of 50 surveys returned. Of those ten surveys, nine surveys had consistent gross sales data during and after construction and were considered for this study. Twenty six out of 35 DOR businesses had consistent sales data for the comparison with the perceived data.

Figure 6.75 and Figure 6.76 display the during and after construction comparisons of the business survey and DOR data. During construction, a majority of the businesses perceived their sales decreased during construction while half of the businesses actual sales declined. After construction, both the perceived and actual data seem to match.



Figure 6.75 Casper Perceived Sales Vs. Actual Sales DURING construction.



Figure 6.76 Casper Perceived Sales Vs. Actual Sales AFTER construction.

As Table 6.23 displays, the Chi Squared statistical analysis found a p-value of 0.098 for the comparison of the perceived during construction data to the actual during construction data. After construction the p-value was 0.886. The low p-value during construction means that we can be 90.2% confident that the businesses perceptions were statistically different from the actual sales. In general, the Casper business's perceptions tended to be pessimistic about their sales during construction and close to the actual sales after construction.

#### 6.8 Summary of Impacts

Each of the project locations has unique settings and business climates. To get a full understanding of what happened before, during, and after construction, this section summarizes the impacts and list possible reasons for the impacts for each of these projects. Summarized are the impacts on traffic volumes, tax revenues, commercial property, business perceptions, resident and project engineer perceptions, and perceived versus actual impacts.

### 6.8.1 Saratoga

The pavement rehabilitation on West and East Bridge Avenue in Saratoga started in the summer of 1998 and ended in the late fall that same year. Since there are no permanent counters in or around Saratoga and the town is too small warrant regularly scheduled traffic counts, the business survey results regarding perceived changes in traffic volume could only be analyzed. During construction the over half the businesses that responded to the survey thought the traffic volume decreased during construction while most businesses felt there was no change in traffic volumes after construction.

When examining the estimated sales trends from the DOR tax revenue data, it appears that during 1998 and 2001, Carbon County experienced a decline in sales while

the sales for the project businesses had a steady increasing trend. During construction, three out of 14 businesses experienced a decline in sales while the average percent change in sales was around 18%. For the averaged two years after construction, four out of 14 businesses experienced a decrease in sales while the average percent change in sales was 10.6%. The increase in sales for the project businesses began to level off after 1999. There was no right-of-way (ROW) purchased or commercial property taken for this construction project.

During construction, over half the businesses that returned surveys reported that there was no change or a slight to moderate decrease in their number of customers, gross sales, and net profit. Most businesses thought there was no change or an increase in the noise level and air pollution during construction. After construction, most of the businesses thought there was no change in the number of customers, gross sales, net profit, noise level, or air pollution. The resident engineer for the project felt that the number of customers moderately decreased during the construction but moderately increased after construction.

When comparing the perceived sales data from the business survey to the actual sales data from the DOR, the Saratoga businesses tended to be pessimistic about their sales during and after construction. The low p-values (see Table 6.23) indicate that the two sets of during and after construction data are statistically different.

The closure of the Louisiana Pacific Sawmill along with difficult economic climate after September 11, 2001 could be the reason for the declines in the county sales and the leveling of the project sales. Overall it seems that the project did not affect the

most of businesses in the project area. In general the sales increased during construction but dropped several years after.

#### 6.8.2 Worland

The reconstruction of Big Horn Avenue in Worland started in the summer of 1998 and ended in the late summer that same year. The permanent counters in Worland, located on 15<sup>th</sup> Street and Big Horn Avenue found the peak months of April and July respectively. When comparing the AADT traffic volume data to the survey responses, it appears that the businesses perceptions during and after construction seen to be different from what the AADT traffic volume data showed. During construction, the AADT traffic volume shows a general increase in traffic in the construction zone while after construction the AADT information shows a decrease in volumes. The businesses reported a decrease in traffic volumes during and no change after construction. The construction project was finished in one summer and probably did not affect the AADT counts.

When examining the estimated sales trends from the DOR tax revenue data, Washakie County experienced a decline after and increase in sales when the construction started and the construction project sales also experienced a decreasing trend. During construction, six out of 17 of the businesses experienced a decline in sales, while the average percent change in sales was a negative 1.3%. For the average of the sales two years after construction, six out of 17 businesses experienced a decline in sales, while the average percent change was a negative 1.2%. The eating and drinking places seemed to be the most affected by the construction project.

It is likely that construction did cause an economic impact on the Worland businesses during construction. However, the cause for the decrease in sales after

construction is unclear. There was a total of 2,186 square feet of ROW purchased for this project and 17,713 square feet of land temporarily taken with total damages at \$370.

During construction, a majority of the businesses perceived that their number of customers and sales decreased. Most businesses thought there was no change or an increase in the noise level and air pollution during construction. After construction, most of the businesses thought there was no change or a slight to moderate decrease in the number of customers, sales, noise level, and air pollution. Both the resident and project engineer thought the number of customers per day decreased slightly during construction and increased slightly to moderately after construction.

When comparing the actual sales to the perceived sales, it appears that the businesses tended to perceive their sales more negatively during construction then the actual sales indicate. Even though the p-values displayed in Table 6.23 are low, they are not low enough to statistically be confident that there was a difference between the business perceptions and the actual sales.

Overall it appears that the construction project did have an impact on the Worland project businesses. It is unclear what was responsible for the decline in sales years after construction however, the county sales tended to fluctuate as much as the project businesses which could mean that the businesses sales are more intoned with the county sales. The project covered most of the downtown Worland region but took a summer to finish which would most likely keep the impacts at a minimum.

#### 6.8.3 Moorcroft

The reconstruction of the sidewalks, curbs and gutters on North Yellowstone Avenue in Moorcroft started in the summer of 2000 and was accepted in during the summer of 2001. Since there are no permanent counters in or around Moorcroft and the

town is too small to warrant regularly scheduled traffic counts no actual traffic volume information could be examined. There was no response on the business survey regarding the perceived traffic volume changes which means that no traffic volume trends could be studied for Moorcroft.

When examining the estimated sales trends from the DOR tax revenue data, the county sales increased while the project sales tended to increase. During construction, two out of the two businesses experienced a decline in sales while the average percent change in sales was a negative 6.2%. After construction, two out of three businesses experienced a decline in sales while the average percent change in sales was a negative 11.5%. The project businesses were experiencing a decline in sales before the construction started. There was no right-of-way (ROW) information for this project.

Moorcroft businesses did not answer the questions regarding the levels of impact to their businesses. Three businesses had surveys sent to them but only one business sent a survey back and another perceived no change during and after construction after a phone survey was performed. The survey that was sent back did not comment on the impacts mentioned in this section. The resident and project engineer for the Moorcroft project felt that there was no change in the customers during and after construction.

There was not enough data to find a p-value for the perceived sales versus actual sales analysis. However, the businesses tended to believe there was no change in their sales during and after construction while the actual sales decreased during and a majority decreased after construction.

Overall it appears that the construction may have affected the businesses during construction but the negative trends before are caused by something else. The cause for

the greater decrease in sales after construction is unclear; however, it appears that the project businesses in Moorcroft were experiencing some tough times throughout the study period.

#### 6.8.4 Lander

The reconstruction of North Main Street in Lander started in the summer of 1998 and ended in the late summer of that same year. The three permanent counters in Lander, located on 5<sup>th</sup> and two on Fremont Street, found the peak months of June and July respectively. The North Main Street construction zone was experiencing increases in traffic volumes during and after construction as found by the AADT data. The survey results show that businesses perceived a decrease in sales during construction but a no change or an increase afterward. From this data, it appears that the traffic volumes were temporarily affected by the construction project and recovered after.

When examining the estimated sales trends from the DOR tax revenue data, Fremont County was experiencing an increase in sales after a decrease when construction started. During construction, three of the nine businesses experienced a decline in sales while the average percent change in sales was a negative 0.2%. The average of the two years after construction found two of the nine businesses experiencing a decline in sales with an average percent change in sales at 10.9%. While it appears some businesses were affected by the construction, the greatest decreases in sales for the project businesses occurred three to four years after construction. The later decline in sales is unlikely caused by the construction project.

There was a total of 237,180 square feet of ROW purchased for this project and 70,380 square feet of land temporarily taken with total damages at \$3,005. The Lander

project had the second greatest amount of ROW land affected by the construction project after the Wheatland project.

During construction, a majority of the businesses reported a slight to moderate decrease in the number of customers per day and sales, while after construction the majority of businesses reported no change with one business reporting a slight decrease and significant increase in the two fields. During construction, a majority of the businesses reported an increase or no change in the noise and air pollution level, while after construction most businesses felt there was no change in the two fields. The resident engineer for the project felt that the number of customers slightly decreased during the construction and didn't change after construction.

There was not data to find p-values for the Lander perceived sales versus actual sales analysis. In general the businesses thought their sales decreases more then they actually did during construction. After construction, a majority of the businesses perceived no change in sales while the actual sales increased.

In general, it seems likely that only a few of the Lander businesses was affected by the 1998 construction project. Two of the three businesses that experienced a decline in sales during construction had an increase in sales after construction. The major impact on the business sales occurred three to four years after the project was finished. Due to the small scale and time frame of the project, the Lander construction project had a minimal impact on the businesses.

#### 6.8.5 Wheatland

The reconstruction of Gilchrist Street in Wheatland started in February 1999 and ended in January 2000. The peak traffic volumes on the local Wheatland streets were around August and October. No traffic counts were performed in Wheatland due to the

small town size; however, the majority of the returned business surveys showed the businesses thought there was no change in traffic volumes during and after construction.

The DOR tax revenue data showed that during construction, three out of eight project businesses experienced a decrease in sales while the average percent change in sales was 0.5%. The average of the two years after construction showed that four of the eight project businesses experienced a decline in sales, while the average percent change in sales was a negative 2.2%. Platte County and project sales declined sharply after 2002.

There was a total of 345,840 square feet of ROW purchased for this project and 87,755 square feet of land temporarily taken with total damages at \$28,015. This made the Wheatland project the most impacted by ROW purchases and damages.

During and after construction, a majority of the businesses that returned the business survey felt that there was no change in their number of customers, gross sales, or net profit. After construction some businesses felt their sales had increased slight to moderate. Air pollution was reported by businesses as slightly higher or not changing during construction, with no change or a slight decrease after construction. The resident engineer thought there was no change in the number of customers per day during and after construction while the project engineer felt there was no change in customers during construction but a slight increase afterward.

A comparison of the actual sales impacts to the perceived sales impacts shows that a majority of businesses before and after construction felt there was no change in their sales, while a majority of the businesses actual sales increased during construction and decreased after construction. A p-value could only be found for the after

construction comparison but it was not small enough to make the two sets of data statistically different.

While a small amount of businesses did experience a decline in sales during construction, it appears that there was a greater decline in sales after the construction project was over. Since only the downtown portion of Gilchrist Street is downtown, it is most likely that the construction project did not have a significant affect on businesses. Possible explanations for the decline in sales after construction (especially after 2002 at project and Platte County level) could have been due to the other downtown construction projects which occurred along with the national economic problems before and after September 11, 2001. More investigation would be needed to determine the reasons for the decline in sales after construction.

# 6.8.6 Laramie – 3<sup>rd</sup> Street

The reconstruction of the I-80 –  $3^{rd}$  Street interchange took place between 2000 and 2001. The permanent counters in Laramie, located on Grand Avenue and Jackson Street found the peak months of September and August respectively. When comparing the AADT traffic volume data to the survey responses, it appears that the businesses perceptions during and after construction seen to match what the AADT traffic volume data showed. During construction there was a general decrease in traffic volumes around the project area while after construction the traffic volume rebounded.

During the two year construction period, using the average, nine out of 19 project businesses experienced a decline in sales, while the average percent change in sales was 1.6%. After construction seven out of 19 project business sales declined while the average percent change in sales was 1.9%. The during and after sales seem to be below what they should have been when comparing the during and after total sales data with the

before construction trend line. It appears that convenience related businesses such as gas stations experienced the greatest decrease in sales during and after construction.

There was a total of 55,693 square feet of ROW purchased for this project and \$100 in total damages.

The majority of businesses that responded to the survey felt their number of customers, gross sales, and net profit decreased during construction and didn't change after. Many of the businesses perceived no change or an increase in noise level and air pollution during and no change in these two fields after construction. Both the resident and project engineers felt there was a slight decrease in the number of customers per day during construction while after construction a slight increase in customers per day.

While the businesses seemed to be more pessimistic about their sales during construction, the p-value was not small enough to statistically be confident the populations were different. After construction the business's perceptions on their sales were close to what actually occurred.

The Albany County sales experienced a steady increasing trend before, during, and after construction, while the construction project businesses seemed to experience an increasing trend before and during construction. After construction it appears that the project sales leveled off. In general, it appears that there was an impact on number of customers, sales, profit, noise and air pollution on the project businesses due to construction. The impact seems to be minimal and most businesses that experienced a decline in sales during construction appeared to make a rebound in sales afterward.

### 6.8.7 Cody

The construction work on Yellowstone Avenue in Saratoga started in the summer of 2001 and ended in the fall of that same year. The permanent traffic counters in Cody,

located on US 14-16-20, 16<sup>th</sup> Street, and Salsbury Avenue had peak months in July for the first two and a peak month in June for the Salsbury Avenue counter. The AADT data seems to show an overall decline in traffic in the project area before construction while the survey data shows the traffic volume declined during construction and did not change or increased afterward. Since there were construction projects between Yellowstone National Park and Cody before the study project, it is like traffic decline was due to these prior projects.

When examining the estimated sales trends from the DOR tax revenue data, Park County experienced an increasing trend throughout the study period while the project sales experienced a decreasing trend. The average of the two years before construction saw six out of 19 businesses experience a decrease in sales, while the average percent change in sales was 16.3%, however the year before construction saw ten out of 19 businesses experience a decline in sales. During construction, 12 out of 19 businesses experienced a decline in sales. During construction, 12 out of 19 businesses experienced a decline in sales while the average percent change in sales was a negative 3.3%. After construction, three out of 18 businesses experienced a decline in sales, while the average percent change in sales was 5.0%. The during and after sales are below what they should have been when comparing the during and after total sales data with the before construction trend line. The total sales for the project were greatly below the begin sales trend line which It appears that hotels and motels and retail stores experienced the greatest decrease in sales during construction while most of the businesses rebounded in sales after construction.

There was a total of 84.44 square feet of ROW purchased for this project and 2,010.55 square feet of land temporarily taken with no cost in total damages.

During construction, over half the businesses that returned surveys reported that there was no change or a slight to moderate decrease in their number of customers, gross sales, and net profit. Most businesses thought there was no change or an increase in the noise level and air pollution during construction. After construction, most of the businesses thought there was no change in the number of customers, gross sales, net profit, noise level, or air pollution. The resident engineer for the project felt that the number of customers moderately decreased during the construction and did not change after construction.

During construction, the businesses perceptions were close to what actually occurred but after construction the business perceptions were more pessimistic. The Chi Squared statistical analysis between the perceived and actual impacts after construction had a low p-value. This means that we can be 91.5% confident that the businesses were perceptions were not the same as reality. In general, the Cody businesses were pessimistic about their sales after construction.

Overall, it appears that Cody was affected by the 2001 construction project. Even though the project was small in scale and short in size, the construction projects between Yellowstone National Park and Cody may have been responsible for adding to the loss in sales leading up to the project. While the greatest loss in sales occurred in 2001, a majority of the business experienced a recovery the year after construction however their total sales were below what the beginning sales was.

# 6.8.8 Thermopolis

The reconstruction of Shoshoni Street, 6<sup>th</sup> Street, and Park Street took place between May 2000 and February 2002. The permanent traffic counter 4 miles outside of town on State Highway 120 found the peak traffic month to be in July when tourism

season is at its peak. No AADT traffic data was collected from Thermopolis due to its small population. Traffic volumes during construction as reported from the survey information show that a third of the businesses felt the traffic increased while another third thought the traffic decreased. After construction half of the businesses felt there was no change in volumes while rest thought the traffic volumes increased.

The DOR sales data showed that when the two years during construction were averaged, 11 of the 29 project businesses experienced a decline in sales, while the average percent change in sales was 1.7%. After construction 16 of the 29 project businesses experienced a decrease in sales while the average percent change in sales was 2.6%. Hot Springs County experienced a decline in sales in the 2000 fiscal year but rebounded in the 2001 fiscal year only to have the sales level off afterward, while the project sales as a whole had a steady increasing trend before, during, and after construction. When comparing the before sales to the during and after construction sales, the during and after construction sales are above the before construction trend line meaning they performed better than projected. From the DOR data, it seems that lodging and gas station businesses experienced the greatest decrease in sales during and after construction. There was no purchase or temporary loss of commercial property for this project.

During construction, the majority of the businesses that responded to the survey felt their number of customers per day, gross sales and net profit generally decreased in the significant range while after the construction while around a majority of the businesses felt there was no change or an increase in number of customers and sales. The

resident and project engineers both reported a slight decrease in the number of customers during construction and no change after construction.

Overall it appears that the Thermopolis businesses were more pessimistic about their sales during construction than what actually happened. A p-value of 0.066 (as seen in Table 6.23) means that there is a 93.4% confidence interval that the perceived impacts are statistically different than the actual impacts. After construction there was no apparent trend that could be made between the perceived and actual impacts

From the data, it appears that there was an impact on construction that was experienced by at least half of the businesses in the study area. Some of the businesses were not doing well before construction and continued to experience a decline in sales during and after construction. While the Hot Springs county sales tended to fluctuate throughout the project study period, the total project sales tended to have a slight but steady increasing trend. Thermopolis's economy strongly relies on tourism and the construction most likely affected the project businesses as well as the town.

#### 6.8.9 Cheyenne

The reconstruction of West Lincolnway in Cheyenne started in March of 2000 and ended in the same year. Four permanent counters in Cheyenne near West Lincolnway had peak months in June and July. There was not enough consistent AADT data or business survey responses to draw any conclusions on the construction impacts on traffic volume during and after construction.

During construction, six out of 12 project businesses experienced a decline in sales, while the average percent change in sales was a negative 0.8%. The average of the two years after construction found four out of 14 businesses experiencing a decline in sales, while the percent change in sales was 6.4%.

The county sales generally experienced a growing trend except for the fiscal year of 2001 where the sales declined. The total project sales increased slightly during construction however declined after construction around the same time the county sales declined. The both the project and county sales rebounded after the 2001 fiscal year. When comparing the project before construction sales to the during and after construction sales by trend line, the during and after sales are lower than what would be expected had they followed the trend line. When examining individual business trends, it appears that those businesses in the lodging sector had been impacted the most during construction.

There was a total of 6,439 square feet of ROW purchased for this project with total damages at \$2,305.

There was a small return in surveys from the Cheyenne businesses. Those that did respond felt there was no change in their number of customers, gross sales, net profit, noise level, and air pollution. Some businesses that were contacted by phone mentioned that their businesses were harmed by the construction but did not want to fill out a survey. The resident and project engineers reported a moderate decrease in the number of customers during construction, while the resident engineer reported no change in the number of customers during.

When examining the perceived versus actual sales data, the business perceptions during and after construction were all in the no change category. The half of the businesses actual sales decreased during construction while a majority of the sales increased after construction. Not enough survey data was available to find a p-value in the analysis.

The businesses in the West Lincolnway construction zone did experience some impacts during construction. After examining the retail sales data and comparing it to the county revenue, it appears that many businesses experienced a decline in sales after construction in the county and project sales data possibly meaning that outside forces caused the decline. Cheyenne's economy relies on government, tourism, and transportation, meaning the businesses might be more resilient to construction than those in smaller towns.

## 6.8.10 Laramie – Curtis Street

The widening and resurfacing of Curtis Street in Laramie took place between January 2000 and September 2001. The permanent counters in Laramie, located on Grand Avenue and Jackson Street found the peak months of September and August respectively. The AADT and survey data both show a decrease in traffic volumes during construction. After construction the businesses reported no change or an increase in volumes. It is likely that the construction project affected volumes temporarily but returned to normal after construction.

The DOR sales data showed that when the two years during construction were averaged, six out of 13 project businesses experienced a decline in sales, while the average percent change in sales was 7.0%. The greatest loss in sales happened during the second year of construction with eight of the 13 businesses reporting a loss in sales and the average percent change in sales at a negative 1.7%. After construction, 5 of the 13 project businesses experienced a decrease in sales while the average percent change in sales at a negative 1.7%.

The Albany County sales experienced a steady increasing trend before, during, and after construction, while the construction project businesses seemed to experience an increasing trend before and during construction. After construction, the project sales decreased slightly. When comparing the before sales to the during and after construction sales to the before construction trend line, the during and after sales were lower than what was expected. From the DOR data, it seems that eating and drinking places and gas station businesses experienced the greatest decrease in sales during and after construction.

There was a total of 84.44 square feet of ROW purchased for this project and 2,010.55 square feet of land temporarily taken with no total damages.

During construction, a majority of the businesses felt their number of customers per day, gross sales, and net profit did not change or decreased while the noise and air pollution didn't change or increased. After construction, the businesses thought that none of the five categories experienced a change. During construction, both the resident and project engineer thought there was a slight decrease in the number of customers while after construction, the resident engineer perceived a slight increase and the project engineer reported a significant increase.

During construction, most of the businesses perceived no change or a slight to moderate decrease in their sales while a majority of the businesses actual sales increased. After construction, all of the businesses perceived no change in their sales while some of the businesses experienced declines or increases in their sales. The p-value for the after construction comparison was 0.036, which means there is a 96.4% confidence interval that the perceived and actual data is statistically different.
From the data, it appears that the Curtis Street businesses in Laramie were affected by the construction project between 2000 and 2001. While some of the greatest impacts occurred during the last year of construction (2001), there were still some impacts on businesses after construction. It is unclear what is responsible for this decrease in sales after construction but the project could be responsible.

#### 6.8.11 Gillette

The pavement rehabilitation project on US-14 (2<sup>nd</sup> Street) in Gillette took place between December 2000 and April 2002. Because of the time frame, the main impacts during 2001 were focused on. The permanent counters in Laramie located on I-90 and State Highway 59 found the peak months of August and July respectively. The AADT did not cover the during and after construction period time frame. The survey responses showed that the businesses perceived a decrease in volumes during construction and no change or a decrease after construction.

The DOR sales data showed that during construction, one out of nine project businesses experienced a decline in sales, while the average percent change in sales was 39.9%. The greatest loss in sales happened after construction with five of the 9 businesses reporting a loss in sales and the average percent change in sales at a negative 3.8%.

The Campbell County sales experienced a steady decreasing trend before, during, and after construction, while the construction project businesses seemed to experience a leveling trend in sales before during, and after construction. When comparing the before sales to the during and after construction sales to the before construction trend line, the during total sales were higher than expected but the after total sales were lower. From the DOR data, it seems that hotels and motels were the most affected after construction.

There was no commercial right-of-way property affected by the construction project.

During construction, all of the businesses believed there was a decrease in their number of customers, gross sales, and net profits, noise level, and air pollution. After construction a majority of the businesses believed there was no change or a slight decrease in the number of customers, gross sales, net profit, noise level, and air pollution. The resident engineer perceived that the number of customers moderately decreased during construction and slightly increased afterward. The project engineer thought the number of customers moderately increased during construction and no change occurred after construction.

There was not enough data to find p-values for the during and after perceived versus actual sales impacts. In general, the businesses were more pessimistic about their sales during construction, but a trend could not be established for the after construction comparison.

It appears that the Gillette project businesses were not impacted by the construction project since only one business experienced a decline in sales during construction. The greatest decreases in sales happened after the construction project. While the construction did cause a temporary impact on the traffic volumes, the businesses tended to perceive the impacts more negatively than they actually were. The county sales were decreasing at the same time period which could be the reason for the greater impact on sales after construction.

#### 6.8.12 Casper

The reconstruction of CY Avenue in Casper took place between October 2000 and November 2001. The permanent counters near the project in Casper located on

Center Street and 1<sup>st</sup> Street found the peak months of April and June respectively. There was not enough consistent AADT data to make a comparison to the survey responses. The survey responses showed a majority of the businesses perceived a decrease in volumes during construction and an increase in volumes after construction.

When the average of the two years during construction was performed, the DOR data showed that 11 out of 19 project businesses experienced a decline in sales, while the average percent change in sales was 1.8%. After construction, three of the 19 businesses experienced a decrease in sales, while the average percent change in sales was around 10%.

The Natrona County sales experienced a steady increasing trend before, during, and after construction, while the construction project businesses seemed to experience a decreasing trend before and during construction. After construction the project county sales experienced an increase. When comparing the before sales to the during and after construction sales using a before construction trend line, the first year of during total sales were higher than expected but the last year of construction was lower than expected. After construction, the sales where higher than expected. From the DOR data, it seems that automobile repair shops were the most affected after construction.

There was a total of 32,091 square feet of ROW purchased for this project and 43,421 square feet of land temporarily taken with \$995 in total damages. The Casper project had the largest number of properties (49) affected by construction.

During construction, a majority of the businesses perceived a decrease in the number of customers, gross sales, and net profit, while a majority reported an increase in the noise level and air pollution. After construction, most of the businesses perceived an

increase in the number of customers and sales. The resident engineer reported a slight decrease in the number of customers per day during construction and no change in customers after construction.

During construction, a majority of the businesses perceived a decrease in the sales while half of the businesses actually experienced a decrease in their sales. After construction the business's perceptions tended to agree with the actual sales trends. A small p-value of 0.098 was found for the during construction meaning there is a 90.2% confidence interval that the businesses perceived their sales more negatively during construction.

The Casper businesses were impacted by the CY Avenue construction project. The sales of the businesses were decreasing before the construction occurred and the greatest economic impacts occurred during 2000 when the project started later in the year. The traffic volumes and commercial property were affected temporarily by the construction project and most of the businesses perceptions regarding their sales were pessimistic during construction. However, the sales of the project businesses, with the exception of a few, did experience an increase a year after construction.

## CHAPTER 7 CONCLUSION AND RECOMMENDATIONS

When construction season rolls around, businesses are often concerned about the possible impacts they will experience. In general, construction projects are good for the communities because they often provide better roads, access to businesses, and less congestion. However, impacts do occur when the construction work takes place and the concern becomes whether businesses can survive these temporary impacts. Business owners often have questions for transportation officials regarding the level of impacts that can be expected and how long these impacts typically last. Typical construction impacts include temporary loss of access, detours, and the confusion of the construction zone can often cause travelers to take alternate routes or to not stop at a business that they would have had the business been easily accessed and visible.

As discussed in Chapter 1, the intent of this study is to investigate the businessrelated impacts due to highway construction projects in Wyoming in order to address the concerns of business owners in current and future construction projects through the development of two tools for use by the Wyoming Department of Transportation. The first tool was the creation of case study information of past construction projects including both the perceived and actual impacts. The second tool was mitigation techniques for use on future projects to minimize impacts.

The twelve projects included in Phase I were selected to provide a broad mix of project types, geographical location, community size, and local versus tourist customer bases. The sections on the various impacts resulting from these projects provide a

comprehensive collection of case studies for future use. The idea is that business owners in future project locations could identify with a least one of the past project case studies.

Research into potential mitigation tools for minimizing business impacts found that, while it was a great concern to transportation agencies, there was limited information available. All agencies were dealing with these types of issues, most on a case by case basis, but no comprehensive source of information was available. The prevalent trend in mitigating impacts is in the information area. Most agencies are utilizing some form of increased public awareness, such as the use of public information specialists, websites, news and newspaper sources, and newsletters or fliers to provide the public with the details and importance of the project.

The following conclusions and recommendations are based on information found during this research effort. While earlier sections of the report look at the impacts for individual projects, the following section looks for trends across projects. Section 7.3 discusses further research questions that arose from the current study. The second phase of this research is also discussed in section 7.4 and is put in the context of what additional information will be provided through the continuing research effort.

#### 7.1 Conclusions

The conclusions are divided into impacts during construction and after. Each section discusses the maximum and average impacts as well as any trends that were discovered in terms of which businesses were typically most affected and town characteristics that often led to higher or lower impact levels.

#### 7.1.1 Impacts During Construction

Some level of construction impacts on businesses did occur in all of the 12 projects studied Phase I of this research effort. The tax revenue data discussed in section

6.3, indicates that the businesses in Moorcroft and Casper had the largest average decline in sales revenue during construction with a -10.4% and -9.0% sales decrease respectively. Of the 12 projects studied, 8 had negative average change in sales revenue for at least one year during construction. (Note that for some projects the construction season spanned multiple years and therefore had two figures averaged for sales impacts during construction.)

While most projects suffered from sales declines during construction the average percent change in sales during construction for all projects was a positive 3.6% change. The projects in Moorcroft, Thermopolis, Laramie (both projects), Cody, Cheyenne, and Casper had over 40% of their project businesses experience a decline in sales during construction while the average percent change in sales during construction for the projects mentioned was 0.13%. Around a third of the businesses in Worland and Lander experienced a decline in sales but the average percent change in sales during construction was negative 1.3% and negative 0.2% respectively.

All of the projects mentioned in the previous paragraph except, Worland, Lander, and Casper had a majority of tourism related businesses in the project area (see Section 6.1). All of the projects towns except Moorcroft and Thermopolis have populations greater than 5000. All of these construction projects except the Moorcroft project were reconstruction projects that occurred in substantial business district areas. The Moorcroft, Laramie (both projects), Thermopolis, and Casper projects all had construction projects that lasted two construction seasons while the Cody and Cheyenne project only took one construction season.

The projects in Saratoga, Wheatland, and Gillette had less than 40% of their businesses experience a decline in sales while the average percent change in sales during construction for these three projects was 19.5%. All three of these projects had local businesses as the primary business type in the project zone. Saratoga and Wheatland are towns with populations below 5000 while Gillette has a population around 20,000. The projects in Saratoga and Wheatland were reconstruction projects while the project in Gillette was a pavement rehabilitation job. All three projects only took one construction season to complete.

In general, it appears that the projects with the majority of project businesses that are tourist related businesses with populations greater than 5000 experienced the greatest impacts during construction. The smaller towns with locally oriented businesses seemed to experience fewer impacts from the construction projects. It appears that every type of project can cause businesses to experience impacts but the duration of the project seems to have a greater impact if the project last longer than one construction season.

#### 7.1.2 Impacts After Construction

After construction, all 12 projects had a few businesses that experienced a decline in sales. The tax revenue data discussed in section 6.3, indicates that the businesses in Moorcroft and Gillette had the largest average decline in sales revenue during construction with a -11.5% and -3.8% sales decrease respectively. Of the 12 projects studied, 5 had negative average change in sales revenue for at least one year after construction. (Note that for some projects the construction season spanned multiple years and therefore had two figures averaged for sales impacts after construction.)

While most projects experienced a rebound in sales after construction the average percent change in sales after construction for all projects was a positive 2.4% change. The

projects in Moorcroft, Wheatland, Thermopolis, Laramie – Curtis Street, and Gillette had over 40% of their project businesses experience a decline in sales after construction while the average percent change in sales during construction for the five projects mentioned was -15.4%. Around a third of the businesses in Worland experienced a decline in sales when the two years of sales after construction was averaged, but the average percent change in sales during construction was negative 1.2%.

Of the six projects mentioned above, the projects in Moorcroft, Thermopolis, and Laramie – Curtis Street had a majority of tourism related businesses in the project area while the other three projects had a majority of locally related businesses. There was no apparent trend with these six projects in business type, size and duration of project, or population of the project town to draw a conclusion on the reason for the decrease in sales after construction.

The projects in Wheatland, Thermopolis, Laramie – Curtis Street, and Gillette all experienced a positive growth in their average percent change in sales during construction but experienced declines after construction while the projects in Saratoga and Wheatland experienced the greatest decrease from three to four years after the construction was complete. It is unlikely that the construction was responsible for the decline in sales after construction for these projects due to the positive growths in sales during construction for these projects.

The projects in Saratoga, Lander, Laramie  $-3^{rd}$  Street, Cody, Cheyenne, and Casper had less than 40% of their businesses experience a decline in sales after construction while the average percent change in sales after construction for these six projects was 7.5%.

#### Summary

In general it appears that the construction projects did impact the businesses in all project areas in some form. While traffic volumes, aesthetic aspects, and sales impacts did occur, it appears that the Wyoming businesses did behave similar to the businesses studied in the Texas Studies in Section 2.2. While many of the Texas study projects were bigger in scale and duration, most of the businesses that experienced a decrease in sales during construction experienced a recovery in sales after construction. Overall, it seems that the Wyoming businesses did not experienced as great as a decline in sales as the Texas businesses did during construction. Like the Texas Study found, most Wyoming businesses believed that their number of customers, traffic volumes, and sales decreased during construction. It does appear in some cases that the Wyoming businesses were more pessimistic about what was happening during construction that what was actually occurring.

When examining the data, it seems like the towns with smaller populations are less susceptible to the impacts of construction and more susceptible to the county economy, while the construction projects in bigger cities are more susceptible to construction projects because there are alternatives in other parts of the city that customers can go to. Many smaller towns do not have other business districts to travel to so travelers and customers do not have the option to travel to another business district during construction. While the businesses both large and small towns experienced changes in their percent change in sales during construction, and most of the businesses in all of the project areas experienced a recovery within a year after construction. However, in many of the projects, the sales declined after construction between the years of 2000 and 2002 which would mean that something else may be responsible for the drop in the sales on both the project and county levels.

#### 7.2 Recommendations

As the mitigation techniques found in Chapters 2 and 3 suggest, it is very important for WYDOT to establish communication with effected businesses in the construction area early on in the planning phase. When the businesses and public understand the reasoning for and what is to be expected when the construction occurs, they will be more likely to support the construction project. By allowing open channels of communications before and during construction, contractors and WYDOT can act accordingly should a problem arise. It is also important to realize that longer duration projects or back to back projects should be kept as short as possible by compressing schedules or offering to work night shifts should the businesses approve.

It is also important to understand that all parties affected by the construction project, whether they are the stakeholders, contractors, or government agencies, must be involved in the project. By getting businesses enthusiastic in the project and giving them a sense of ownership, they may be more willing to put up with the impacts during construction and even thrive due to the construction by having special construction sales, parties, and other festivities to celebrate the construction.

In the future, WYDOT could encourage this "working together" atmosphere to help businesses understand that construction is a temporary thing by getting the businesses involved in the construction projects early on and encouraging them to stay involved. The businesses are a vital part of the communities in which they exist. By becoming part of that community and sticking together throughout the construction process, the businesses of the Wyoming communities will thrive.

#### 7.3 Additional Research

While the research discussed in this report provides insight into the impacts on Wyoming businesses, as with most research, it also raises additional questions. These questions are discussed below.

The information obtained in this study could be analyzed using advanced statistical and econometric models to see if additional analysis yields more insight into the variables affecting the level of business impacts.

A focused study on mitigation techniques would also be warranted. As previously discussed, very little information on the full "toolbox" of techniques does not appear to exist and would certainly be of use to all transportation agencies.

#### 7.4 Phase II Study

Phase II of the WYDOT study will examine the construction impacts going on during and after current construction projects around Wyoming. This current impact information will be compared to Phase I to further gain a further understanding of the construction and business climate in Wyoming. By selecting current projects, it is possible to collect more detailed data on traffic volumes and business owners perceptions. A major advantage is that business owners do not have to rely on memory for recalling their perceived impacts.

Four construction projects have been chosen for examination around the state which include the Main Street project in Sheridan, the Broadway Street project in Thermopolis, the Buffalo West project (US-16 west of Buffalo), and the 2<sup>nd</sup> Street Project in Casper.

Surveys were given to the various businesses in the construction zone over the summer of 2003. Follow up surveys will be given to the businesses during the summer

of 2004 to determine if the businesses perceptions regarding the construction have changed since the last survey was filled out. This information will be finalized and presented to WYDOT by January of 2005.

In addition, since the number of projects is one-quarter of the Phase I amount, a more detailed analysis of impacts can be performed.

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## APPENDIX A DEPARTMENT OF TRANSPORTATION SURVEY RESPONDENTS

<u>State</u>	Contact Name	Contact Title
Alabama	Mark Strickland	
Alaska	Gary Eddy	Construction Standards Engineer
Arizona	Steve Jimeize	
Arkansas	Jerry W. Trotter	
California	Greg Landblad	
Colorado	Jim Bemelen	Resident Engineer
Connecticut	Mario Marrero	Project Concept
Delaware	Mike Simmons	
	Ananth Prasad and Brian A.	
Florida	Blanchard	
	Brent Story	Asst. State Road & Airport Design
Georgia		Engr
Hawaii	Ronald Tsuzuki	
Idaho	John Collins	Engineer Manager 1
Illinois	Jim Sullivan	
Indiana	Dennis Kuchler	
Iowa	Kent Nicholson	Rural Design
Kansas	John Saiki	
Kentucky	David Jones	
Louisiana	Alex Broussard	Public Information Officer
Maine	Ken Sweeney	Bureau of Project Development
Maryland	David Beaulieu	
Massachusetts	Scott Stevens, Tom Galvagni	
	Win Stebbins	Engineer of Design Services
Michigan		Section
Minnesota	Ed Idzorek	
Mississippi	Brad Lewis	Construction Division
Missouri	Jim Coleman	
Montana	Mark Wissinger	Construction Bureau Supervisor
Nebraska	Gary Britton, Mary Joe Hall	
Nevada	Frank Csiga	Design
New Hampshire	Jeff Allbright	
New Jersey	Joseph T. Sacco	
New Mexico	Rob Ortez	Highway Operations Engineer
New York	Dave Kent	Construction office information
North Carolina	Bryan Yamamoto	
North Dakota	Bob Fode	Planning
Ohio	Bob Jessberger	State Construction Engineer
Oklahoma	George Raymond	Construction Engineer
Oregon	Barnie Jones	
Pennsylvania	Daryl Kerns	Project development Manager
Rhode Island	Jim Caroselli	Construction Department
South Carolina	Cole Page	

		Project development Program
South Dakota	Monte Schneider	Manager
Tennessee	Wayburn Crabtray	
Texas	Mark Farrar	
		Director for Construction and
Utah	Darrell Giannonatti	Materials
Vermont	Gary DuBray	Construction Department
Virginia	Sande Fulk	
Washington	Kevin J. Dayton	State Construction Engineer
West Virginia	Norm Roush	
Wisconsin	Kristin McHugh	
Wyoming	Sponsor of this survey and research effort	

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# **APPENDIX B**

## PERMANENT TRAFFIC COUNTER LOCATIONS AND PEAK MONTHS AND DAYS

#	Town	Street(s) Under Construction	Permanent Counter(s) Nearby	Street of Counter	Peak Month	Top 2 Peak Days
1	Saratoga	Bridge Ave.	No	N/A	N/A	N/A
				15th St.	April	Wed.& Fri.
2	Worland	Big Horn Ave.	Yes (Two)	Big Horn Ave.	July	Wed. & Fri.
3	Moorcroft	Yellowstone Ave.	No	N/A	N/A	N/A
				5th St.	June	Wed. & Fri.
			Yes	Fremont St.	July	Wed. & Fri.
4	Lander	North Main St.	(Three)	Fremont St.	July	Wed. & Fri.
				16th St.	August	Wed. & Fri.
5	Wheatland	Gilchrist St.	Yes (Two)	Oak St.	October?	Fri. & Sat.
				Grand Ave.	September	Thurs. & Fri.
6	Laramie	3rd Street Interchange	Yes (Two)	Jackson St.	July	Thurs. & Fri.
7	Cody	Yellowstone Ave.	Yes (One)	US-14,16 & 20	July	Sun. & Fri.
8	Thermopolis	Shoshoni, 6 <sup>th</sup> , & Park	Yes (One)	WYO 120	July	Thurs. & Fri.
				I-180 Viaduct	July	Thurs. & Fri.
				Deming Underpass	July	Thurs. & Fri.
				22nd St.	June	Tues. & Fri.
9	Cheyenne	West Lincolnway	Yes (Four)	Warren Ave	July	Thurs. & Fri.
				Grand Ave.	September	Thurs. & Fri.
10	Laramie	Curtis Street	Yes (Two)	Jackson St.	July	Thurs. & Fri.
11	Gillette	US 14-16 & WYO 51	No	N/A	N/A	N/A
12	Casper	CY Ave.	No	N/A	N/A	N/A

### 2001 Automatic Traffic Record Report Permanent Counter Location for Phase I

## APPENDIX C: DEPARTMENT OF REVENUE DATA

- Saratoga
- Worland
- Moorcroft
- Lander
- Wheatland
- Laramie 1
- Cody
- Thermopolis
- Cheyenne
- Laramie 2
- Gillette
- Casper

The data contained in this appendix was derived from a data set sent from the Department of Revenue. The original data contained monthly, and/or quarterly revenue data as well as business types by Standard Industrial Classification (SIC). The business types have been removed to protect confidentiality. The monthly and quarterly data has been condensed into the annual data used in the analyses. Business numbers are based on the original data so businesses that did not contain full years of data was excluded so some business numbers may not be represented.

Sara		
#	Date	Annual Sales
1	Dec-97	\$630,281.20
1	Dec-98	\$757,456.17
1	Dec-99	\$718,324.17
1	Dec-00	\$665,880.17
1	Dec-01	\$634,429.47
1	Dec-02	\$626,310.20
2	Jan-00	\$2,234.00
2	Jan-01	\$1,332.67
2	Jan-02	\$2,183.00
3	Oct-97	\$77,485.80
3	Oct-98	\$59,975.83
3	Oct-99	\$98,532.67
3	Oct-00	\$85,636.17
3	Oct-01	\$73,917.67
3	Oct-02	\$90,728.40
4	Oct-99	\$60,220.50
4	Oct-00	\$100,282.67
4	Oct-01	\$142,070.50
4	Oct-02	\$268,568.40
5	Jan-98	\$3,314.67
5	Jan-99	\$2,004.67
5	Jan-00	\$2,435.33
5	Jan-01	\$404.17
5	Jan-02	\$178.50
6	Oct-97	\$23,254.20
6	Oct-98	\$64,310.50
6	Oct-99	\$128,193.50
6	Oct-00	\$100,713.00
6	Oct-01	\$109,907.50
6	Oct-02	\$91,178.60
7	Dec-97	\$64,772.50
7	Dec-98	\$51,444.33
7	Dec-99	\$87,752.00
7	Dec-00	\$88,475.83
7	Dec-01	\$91,318.53
7	Dec-02	\$59,502.80
8	Dec-97	\$49,147.40
8	Dec-98	\$52,532.17
8	Dec-99	\$60,935.33
8	Dec-00	\$72,735.17
8	Dec-01	\$70,506.27
8	Dec-02	\$90,148.40
9	Dec-97	\$532,672.57
9	Dec-98	\$618,925.63
9	Dec-99	\$697,541.25
9	Dec-00	\$745,422.75
9	Dec-01	\$768,979.61
9	Dec-02	\$757,311.86
10	Dec-97	\$169,099.60
10	Dec-98	\$192,856.33
10	Dec-99	\$220,885.00
10	Dec-00	\$168,507.00
10	Dec-01	\$156,403.27

10	Dec-02	\$160,724.00
11	Dec-97	\$71,862.00
11	Dec-98	\$96,731.17
11	Dec-99	\$111,376.17
11	Dec-00	\$121,971.83
11	Dec-01	\$113,915.23
11	Dec-02	\$117,398.40
12	Dec-97	\$370,605.20
12	Dec-98	\$375,781.67
12	Dec-99	\$458,193.67
12	Dec-00	\$406,370.17
12	Dec-01	\$383,915.33
12	Dec-02	\$377,000.60
13	Jan-98	\$7,111.17
13	Jan-99	\$9,704.83
13	Jan-00	\$6,943.83
13	Jan-01	\$5,371.17
13	Jan-02	\$4,387.67
14	Dec-99	\$0.00
14	Dec-00	\$0.00
14	Dec-01	\$0.00
14	Dec-02	\$0.00
15	Jan-99	\$39,191,83
15	Jan-00	\$11.523.83
15	Jan-01	\$458.33
15	Jan-02	\$1.375.00
16	Dec-99	\$286.082.17
16	Dec-00	\$379,573.17
16	Dec-01	\$453,552.27
16	Dec-02	\$431,252.60
17	Dec-97	\$2,131,381.60
17	Dec-98	\$2,413,186.50
17	Dec-99	\$2,801,347.17
17	Dec-00	\$2,911,445.83
17	Dec-01	\$3,218,163.03
17	Dec-02	\$3,085,119.80
18	Dec-97	\$159,228.20
18	Dec-98	\$165,554.67
18	Dec-99	\$170,692.67
18	Dec-00	\$195,015.00
18	Dec-01	\$197,025.07
18	Dec-02	\$174,039.80
19	Dec-97	\$191,254.60
19	Dec-98	\$242,174.67
19	Dec-99	\$275,368.50
19	Dec-00	\$236,757.50
19	Dec-01	\$265,234.03
19	Dec-02	\$236,145.60
-		

### Worland

#	Date	Annual Sales
1	Dec-97	\$800,116.25
1	Dec-98	\$835,526.50
1	Dec-99	\$878,438.25
1	Dec-00	\$1,025,535.75
1	Dec-01	\$979,502.75
1	Dec-02	\$913,385.75
2	Dec-97	\$1,370,294.75
2	Dec-98	\$1,089,748.75
2	Dec-99	\$1,080,167.25
2	Dec-00	\$1,112,631.00
2	Dec-01	\$1,282,764.00
2	Dec-02	\$1,141,253.00
3	Dec-97	\$255,809.00
3	Dec-98	\$286,814.50
3	Dec-99	\$264,324.75
3	Dec-00	\$148,314.50
3	Dec-01	\$207,460.00
3	Dec-02	\$241,413.50
4	Dec-97	\$704,188.00
4	Dec-98	\$509,928.00
4	Dec-99	\$484,248.00
4	Dec-00	\$538,864.00
4	Dec-01	\$465,932.75
4	Dec-02	\$396,204,25
5	Dec-97	\$149,723,75
5	Dec-98	\$156.866.50
5	Dec-99	\$158,453.25
5	Dec-00	\$167.636.00
5	Dec-01	\$179,140.75
5	Dec-02	\$184,277.25
6	Dec-97	\$152,069.25
6	Dec-98	\$138,368.50
6	Dec-99	\$120,480.00
6	Dec-00	\$95,958.25
6	Dec-01	\$101,798.00
6	Dec-02	\$84,637.25
7	Dec-02	\$134,242.00
8	Jan-98	\$5,124.50
8	Jan-99	\$3,448.75
8	Jan-00	\$4,155.00
8	Jan-01	\$3,290.25
8	Jan-02	\$3,477.50
8	Jan-03	\$1,011.25
9	Dec-99	\$205,968.75
9	Dec-00	\$154,330.00
9	Dec-01	\$108,532.50
9	Dec-02	\$80,840.25
10	Dec-02	\$53,065.75
11	Dec-97	\$470,093.25
11	Dec-98	\$369,688.00
11	Dec-99	\$375,520.75
11	Dec-00	\$373,529.25
11	Dec-01	\$354,841.50
11	Dec-02	\$335,402,75

12	Oct-02	\$13,963.75
13	Dec-97	\$278,155.25
13	Dec-98	\$284,626.50
13	Dec-99	\$315,501.75
13	Dec-00	\$329,615.25
13	Dec-01	\$311,585.75
13	Dec-02	\$329,223.00
14	Dec-97	\$96,735.50
14	Dec-98	\$97,957.00
14	Dec-99	\$102,932.00
14	Dec-00	\$117,417.00
14	Dec-01	\$104,258.75
14	Dec-02	\$66,841.50
17	Dec-98	\$49,840.00
17	Dec-99	\$52,101.50
17	Dec-00	\$55,841.75
17	Dec-01	\$43,707.75
17	Dec-02	\$38,324.00
18	Dec-97	\$122,832.25
18	Dec-98	\$173,530.25
18	Dec-99	\$186,118.50
18	Dec-00	\$200,189.75
18	Dec-01	\$196,915.25
18	Dec-02	\$336,080.00
19	Dec-99	\$63,914.00
19	Dec-00	\$80,723.75
19	Dec-01	\$81,037.00
19	Dec-02	\$105,263.50
20	Jan-00	\$5,059.25
20	Jan-01	\$2,911.00
20	Jan-02	\$3,019.75
20	Jan-03	\$386.00
22	Dec-97	\$137,201.75
22	Dec-98	\$121,535.50
22	Dec-99	\$156,841.00
22	Dec-00	\$129.746.00
22	Dec-01	\$145.027.25
22	Dec-02	\$129,822.00
23	Dec-97	\$129,981.25
23	Dec-98	\$134,266.25
23	Dec-99	\$120.032.25
23	Dec-00	\$107,261.00
23	Dec-01	\$102,909.75
23	Dec-02	\$122.511.50
24	Dec-97	\$122,832.25
24	Dec-98	\$173.530.25
24	Dec-99	\$186.118.50
24	Dec-00	\$200,189,75
24	Dec-01	\$196.915.25
24	Dec-02	\$336,080,00
26	Dec-01	\$137.422.50
26	Dec-02	\$142,293,75
20	Dec-98	\$125 900 75
27	Dec_00	\$147 576 25
27	Dec-00	\$155 173 00
27	Dec-01	\$148 982 50
27	Dec-02	\$126 357 75
<i>∠1</i>	DCC-02	\$120,337.73

28	Dec-97	\$322,136.25
28	Dec-98	\$356,274.25
28	Dec-99	\$387,702.75
28	Dec-00	\$375,090.75
28	Dec-01	\$351,222.25
28	Dec-02	\$368,853.50
30	Dec-97	\$1,144,813.25
30	Dec-98	\$1,202,878.50
30	Dec-99	\$1,181,764.00
30	Dec-00	\$1,159,878.75
30	Dec-01	\$1,301,169.50
30	Dec-02	\$1,406,769.00
31	Dec-97	\$44,817.50
31	Dec-98	\$54,957.75
31	Dec-99	\$57,842.25
31	Dec-00	\$64,093.50
31	Dec-01	\$70,804.00
31	Dec-02	\$86,825.75
32	Dec-97	\$317,709.00
32	Dec-98	\$296,954.00
32	Dec-99	\$234,621.75
32	Dec-00	\$210,174.75
32	Dec-01	\$205,164.00
32	Dec-02	\$180,034.25
33	Dec-97	\$334,802.75
33	Dec-98	\$349,745.00
33	Dec-99	\$340,959.00
33	Dec-00	\$380,646.00
33	Dec-01	\$435,495.50
33	Dec-02	\$433,724.25
34	Dec-97	\$149,000.25
34	Dec-98	\$153,505.50
34	Dec-99	\$152,202.25
34	Dec-00	\$130,826.75
34	Dec-01	\$128,776.50
34	Dec-02	\$133,656.00

#### Moorcroft

#	Date	Annual Sales
1	Dec-01	\$32,646.57
1	Dec-02	\$35,533.71
2	Jan-00	\$16,365.60
2	Jan-01	\$14,398.20
2	Jan-02	\$11,468.60
3	Dec-97	\$86,577.14
3	Dec-98	\$98,254.71
3	Dec-99	\$91,226.71
3	Dec-00	\$81,738.14
3	Dec-01	\$81,399.14
3	Dec-02	\$62,799.00

#### Lander

#	Date	Annual Sales
2	Dec-97	\$787,562.00
2	Dec-98	\$857,652.90
2	Dec-99	\$1,100,435.00
2	Dec-00	\$1,031,592.85
2	Dec-01	\$978,729.25
2	Dec-02	\$1,146,306.50
3	Dec-97	\$219,215.25
3	Dec-98	\$230,460.25
3	Dec-99	\$234,781.60
3	Dec-00	\$193,100.75
3	Dec-01	\$192,975.25
3	Dec-02	\$135,509.75
4	Dec-99	\$191,174.40
4	Dec-00	\$260,122.70
4	Dec-01	\$352,341.50
4	Dec-02	\$361,763.75
5	Dec-00	\$220,745.50
5	Dec-01	\$246,088.50
5	Dec-02	\$255,024.00
6	Dec-97	\$3,266,719.50
6	Dec-98	\$3,150,969.70
6	Dec-99	\$2,760,813.60
6	Dec-00	\$3,342,657.60
6	Dec-01	\$3,230,724.25
6	Dec-02	\$2,888,973.75
7	Dec-97	\$124,938.00
7	Dec-98	\$143,738.14
7	Dec-99	\$138.776.57
7	Dec-00	\$138,737.98
7	Dec-01	\$127.028.50
7	Dec-02	\$109,262.83
8	Dec-97	\$236,391.75
8	Dec-98	\$229.659.55
8	Dec-99	\$240.018.60
8	Dec-00	\$274,505,25
8	Dec-01	\$263,086,25
8	Dec-02	\$296.771.25
9	Dec-97	\$2.319.725.25
9	Dec-98	\$2,555,229,15
9	Dec-99	\$2,997,071,80
9	Dec-00	\$3,754,747,40
9	Dec-01	\$3 594 309 75
9	Dec-02	\$3.730.275.75
11	Dec-97	\$204,088,75
11	Dec-98	\$212.367.00
11	Dec-99	\$230,873.20
11	Dec-00	\$268.584.90
11	Dec-01	\$294 866 75
11	Dec-02	\$304 095 00
12	Oct-97	\$12 678 00
12	Oct_98	\$7 023 25
12	Oct-99	\$16 610 80
12	Oct-00	\$18,767,50
12	Oct-01	\$1 519 50
14	000-01	φ1,517.50

12	Oct-02	\$173.00
13	Jan-98	\$12,654.75
13	Jan-99	\$9,988.00
13	Jan-00	\$11,149.80
13	Jan-01	\$10,112.50
13	Jan-02	\$13,405.75

### Wheatland

#	Date	Annual Sales
1	Jan-98	\$0.00
1	Jan-99	\$46.00
1	Jan-00	\$0.00
1	Jan-01	\$0.00
1	Jan-02	\$0.00
2	Jan-98	\$0.00
2	Jan-99	\$0.00
2	Jan-00	\$0.00
2	Jan-01	\$0.00
2	Jan-02	\$0.00
3	Dec-97	\$303,207.40
3	Dec-98	\$379,117.20
3	Dec-99	\$459,102.80
3	Dec-00	\$391,155.60
3	Dec-01	\$641,800.20
3	Dec-02	\$285,509.80
4	Dec-97	\$182,108.00
4	Dec-98	\$186,742.80
4	Dec-99	\$188,478.60
4	Dec-00	\$175,182.20
4	Dec-01	\$151,093.00
4	Dec-02	\$137,697.40
5	Dec-97	\$170,533.60
5	Dec-98	\$189,555.00
5	Dec-99	\$210,686.20
5	Dec-00	\$215,263.20
5	Dec-01	\$284,018.80
5	Dec-02	\$241,946.20
7	Dec-97	\$101,287.60
7	Dec-98	\$96,932.20
7	Dec-99	\$88,627.60
7	Dec-00	\$82,564.00
7	Dec-01	\$86,194.40
7	Dec-02	\$67,052.60
8	Dec-97	\$186,865.20
8	Dec-98	\$205,306.40
8	Dec-99	\$212,697.80
8	Dec-00	\$236,650.00
8	Dec-01	\$217,539.60
8	Dec-02	\$212,471.00
9	Jan-98	\$0.00
9	Jan-99	\$0.00
9	Jan-00	\$0.00
9	Jan-01	\$0.00
9	Jan-02	\$0.00
10	Dec-02	\$60,422.40
11	Dec-98	\$52,434.20

11	Dec-99	\$55,452.00
11	Dec-00	\$57,249.60
11	Dec-01	\$55,714.60
11	Dec-02	\$56,367.80
13	Oct-98	\$10,151.20
13	Oct-99	\$7,913.60
13	Oct-00	\$7,729.20
13	Oct-01	\$3,231.00
13	Oct-02	\$1,760.80
14	Jan-98	\$7,886.00
14	Jan-99	\$6,734.80
14	Jan-00	\$5,350.20
14	Jan-01	\$7,012.00
14	Jan-02	\$1,527.20
14	Jan-03	\$7,454.20
15	Dec-97	\$196,297.00
15	Dec-98	\$199,192.20
15	Dec-99	\$178,861.20
15	Dec-00	\$158,393.80
15	Dec-01	\$158,490.20
15	Dec-02	\$132,244.60

### Laramie 1

#	Date	Annual Sales
1	Dec-98	\$599,182.83
1	Dec-99	\$814,180.83
1	Dec-00	\$882,824.00
1	Dec-01	\$986,246.67
1	Dec-02	\$1,068,084.33
2	Dec-99	\$615,681.33
2	Dec-00	\$628,117.22
2	Dec-01	\$626,038.67
2	Dec-02	\$630,748.89
2	Dec-03	\$633,859.31
3	Dec-98	\$667,769.10
3	Dec-99	\$812,592.44
3	Dec-00	\$877,721.56
3	Dec-01	\$677,821.00
3	Dec-02	\$589,822.00
4	Dec-98	\$502,920.00
4	Dec-99	\$620,709.33
4	Dec-00	\$554,669.33
4	Dec-01	\$574,406.00
4	Dec-02	\$577,657.00
5	Dec-99	\$328,540.83
5	Dec-00	\$313,930.67
5	Dec-01	\$264,379.00
5	Dec-02	\$294,637.00
6	Dec-98	\$90,804.83
6	Dec-99	\$95,906.00
6	Dec-00	\$89,795.83
6	Dec-01	\$89,588.67
6	Dec-02	\$59,311.50
7	Dec-99	\$137,851.67
7	Dec-00	\$172,817.67
7	Dec-01	\$163,733.00

7	Dec-02	\$148,509.00
8	Dec-98	\$126,869.83
8	Dec-99	\$130,252.67
8	Dec-00	\$127,007.00
8	Dec-01	\$125,153.67
8	Dec-02	\$136,948.67
9	Dec-02	\$60,930.83
10	Dec-98	\$217,237.50
10	Dec-99	\$247,656.33
10	Dec-00	\$227,778.67
10	Dec-01	\$256,329.67
10	Dec-02	\$250,552.67
10	Dec-03	\$293,189.50
11	Dec-02	\$80,328.17
12	Jan-98	\$2,466.00
12	Jan-99	\$2,215.67
12	Jan-00	\$3,352.67
12	Jan-01	\$5,405,50
12	Jan-02	\$6.024.17
13	Dec-98	\$96,783,33
13	Dec-99	\$83.846.17
13	Dec-00	\$81.027.33
13	Dec-01	\$120 500 33
13	Dec-02	\$128,092.50
14	Dec-98	\$92 504 17
14	Dec-99	\$74 855 33
14	Dec-00	\$45,076,67
14	Dec-01	\$47,865,33
14	Dec-02	\$85 823 67
15	Dec 02	\$368 271 83
15	Dec-99	\$372.017.33
15	Dec-00	\$363,264,83
15	Dec-00	\$434 503 50
15	Dec-02	\$501 789 17
16	Dec-98	\$282 318 60
16	Dec-99	\$202,310.00
16	Dec-00	\$357,007,11
16	Dec-00	\$324 211 00
16	Dec-02	\$310 728 56
17	Dec-98	\$70,056,50
17	Dec-99	\$28,256,00
17	Dec-00	\$28,230.00
17	Dec-01	\$29,212,50
17	Dec-02	\$30,078,33
18	Dec-98	\$94 335 00
18	Dec 99	\$94,555.00
18	Dec 00	\$95,055.17
18	Dec 01	\$72,706,83
10	Dec-01	\$62.046.00
10	Dec 02	\$76 /18 67
10	Dec 09	\$1 105 700 20
19	Dec 00	\$1,105,700.20
19	Dec-99	\$1,519,/52.6/
19	Dec-00	\$1,709,284.22
19	Dec-01	\$1,728,201.00
19	Dec-02	\$1,789,217.33
20	Dec-02	\$255,198.00
21	Dec-98	\$470,035.00

21	Dec-99	\$638,029.89
21	Dec-00	\$695,829.33
21	Dec-01	\$759,585.56
21	Dec-02	\$876,223.22
22	Jan-98	\$74,914.00
22	Jan-99	\$72,260.50
22	Jan-00	\$47,040.33
22	Jan-01	\$30,370.50
22	Jan-02	\$14,413.50

## Cody

#	Date	Annual Sales
1	Dec-98	\$16,185.50
1	Dec-99	\$14,511.00
1	Dec-00	\$12,703.00
1	Dec-01	\$14,958.75
1	Dec-02	\$16,423.75
2	Dec-97	\$598,163.75
2	Dec-98	\$614,312.00
2	Dec-99	\$649,990.88
2	Dec-00	\$652,307.88
2	Dec-01	\$658,578.38
2	Dec-02	\$731,214.13
3	Dec-97	\$82,600.25
3	Dec-98	\$104,323.50
3	Dec-99	\$121,958.63
3	Dec-00	\$132,510.25
3	Dec-01	\$130,965.75
3	Dec-02	\$133,149.75
4	Dec-97	\$189,972.00
4	Dec-98	\$210,863.00
4	Dec-99	\$223,462.00
4	Dec-00	\$186,357.50
4	Dec-01	\$159,307.63
4	Dec-02	\$185,726.38
5	Dec-97	\$46,434.00
5	Dec-98	\$66,934.00
5	Dec-99	\$50,408.00
5	Dec-00	\$46,835.00
5	Dec-01	\$31,706.00
5	Dec-02	\$55,553.00
6	Dec-97	\$23,228,649.75
6	Dec-98	\$19,529,290.00
6	Dec-99	\$16,554,528.25
6	Dec-00	\$18,256,642.75
6	Dec-01	\$16,873,955.25
6	Dec-02	\$10,070,417.25
7	Jan-99	\$436,593.00
7	Jan-00	\$466,339.75
7	Jan-01	\$558,368.75
7	Jan-02	\$547,251.75
7	Jan-03	\$551,187.75
8	Dec-02	\$1,389,108.25
9	Jan-02	\$66,866.63
9	Jan-03	\$80,339.75
10	Dec-02	\$141,786.00

11	Dec-97	\$328,203.50
11	Dec-98	\$302,846.25
11	Dec-99	\$304,279.75
11	Dec-00	\$335,785.50
11	Dec-01	\$349,754.25
11	Dec-02	\$357,784.00
13	Dec-97	\$196,717.25
13	Dec-98	\$223,119.25
13	Dec-99	\$249,141.25
13	Dec-00	\$244,318.75
13	Dec-01	\$200,851.00
13	Dec-02	\$218,936.25
14	Jan-98	\$45,346.25
14	Jan-99	\$15,031.75
14	Jan-00	\$55,718.50
14	Jan-01	\$46,178.00
14	Jan-02	\$33,902.00
14	Jan-03	\$34.315.25
15	Dec-97	\$264,737,75
16	Dec-98	\$90.270.50
16	Dec-99	\$84 995 00
16	Dec-00	\$83,140,25
16	Dec-01	\$86 881 75
16	Dec-02	\$116 400 75
17	Dec-02	\$141 786 00
18	Jan-03	\$6 563 25
10	Dec-97	\$304 126 75
10	Dec 98	\$382 365 75
19	Dec 99	\$382,505.75
19	Dec 00	\$384,014.75
19	Dec-00	\$401 102 75
19	Dec-02	\$421 206 25
20	Dec-97	\$29,443,13
20	Dec-98	\$26,664,50
20	Dec-99	\$61 336 88
20	Dec-00	\$55,959,88
20	Jul-02	\$41 343 00
20	Dec-97	\$56 580 00
21	Apr-03	\$442 524 00
21	Dec-98	\$58,929,75
22	Dec-99	\$70,737,00
22	Dec-00	\$63,246,75
22	Dec-01	\$49,818.25
2.2	Dec-02	\$60 948 50
23	Dec-98	\$22,354,50
23	Dec-00	\$56 288 25
23	Dec-00	\$79 881 25
23	Dec-01	\$124 617 75
23	Dec-02	\$46 672 50
23	Jan-98	\$7 645 00
24	Jan-99	\$4 181 00
24	Jan-00	\$4 264 00
24	Jan-00	\$955.00
24	Jan-03	\$6 563 75
25	Jan 03	\$1,410,00
20	Dec_07	\$40 775 25
27	Dec 08	\$58 185 50
<i>∠1</i>	DUC-90	\$J0, <del>4</del> 05.50

27	Dec-99	\$51,814.50
27	Dec-00	\$50,316.00
27	Dec-01	\$50,584.25
27	Dec-02	\$58,778.50
29	Dec-01	\$755,835.75
29	Dec-02	\$836,453.38
30	Dec-97	\$570,963.38
30	Dec-98	\$675,157.88
30	Dec-99	\$764,439.25
30	Dec-00	\$738,932.50
30	Dec-01	\$707,276.75
30	Dec-02	\$812,136.00
33	Dec-99	\$646,174.75
33	Dec-00	\$752,721.00
33	Dec-01	\$843,336.75
33	Dec-02	\$940,200.00
34	Dec-97	\$176,199.00
34	Dec-98	\$114,041.50
34	Dec-99	\$118,913.75
34	Dec-00	\$119,523.00
34	Dec-01	\$116,630.00
34	Dec-02	\$71,726.00

## Thermopolis

#	Date	Annual Sales
2	Dec-98	\$528,190.57
2	Dec-99	\$562,072.00
2	Dec-00	\$538,893.71
2	Dec-01	\$574,220.00
2	Dec-02	\$435,501.43
3	Dec-98	\$733,847.80
3	Dec-99	\$712,252.40
3	Dec-00	\$811,906.00
3	Dec-01	\$834,747.80
3	Dec-02	\$836,572.80
4	Dec-99	\$306,921.20
4	Dec-00	\$343,319.20
4	Dec-01	\$403,726.00
4	Dec-02	\$393,882.80
5	Dec-98	\$121,354.71
5	Dec-99	\$121,581.00
5	Dec-00	\$140,212.00
5	Dec-01	\$141,625.00
5	Dec-02	\$140,406.00
6	Dec-98	\$287,838.00
6	Dec-99	\$289,050.40
6	Dec-00	\$267,306.80
6	Dec-01	\$263,213.00
6	Dec-02	\$261,896.20
7	Dec-99	\$58,906.57
7	Dec-00	\$60,620.86
7	Dec-01	\$57,224.00
7	Dec-02	\$55,982.00
8	Jan-98	\$2,571.80
8	Jan-99	\$2,076.20
8	Jan-00	\$2,579.20

8	Jan-01	\$2,145.00
8	Jan-02	\$2,107.00
9	Dec-98	\$51,408.60
9	Dec-99	\$70,625.20
9	Dec-00	\$66,588.80
9	Dec-01	\$76.851.20
9	Dec-02	\$71,439,00
10	Dec-99	\$280,035,00
10	Dec-00	\$279,609,80
10	Dec-01	\$253,427,20
10	Dec-02	\$226,072,60
11	Dec-98	\$466 365 80
11	Dec-99	\$536 741 40
11	Dec 00	\$617.431.60
11	Dec-00	\$640.651.60
11	Dec-01	\$040,031.00
11	Dec-02	\$573,459.40
12	Dec-00	\$52,763.00
12	Dec-01	\$90,074.20
12	Dec-02	\$135,067.20
13	Oct-98	\$30,572.40
13	Oct-99	\$13,793.00
13	Oct-00	\$1,174.40
13	Oct-01	\$1,357.20
13	Oct-02	\$860.80
14	Dec-00	\$426,533.80
14	Dec-01	\$444,377.80
14	Dec-02	\$464,780.60
15	Dec-00	\$30,880.00
15	Dec-01	\$35,035.00
15	Dec-02	\$40,567.20
16	Dec-98	\$46,154.71
16	Dec-99	\$47,321.29
16	Dec-00	\$51,017.86
16	Dec-01	\$46,233.57
16	Dec-02	\$48,221.00
17	Dec-98	\$2,386,516.40
17	Dec-99	\$2,564,831.20
17	Dec-00	\$2,594,817.00
17	Dec-01	\$2,801,602.40
17	Dec-02	\$2,893,558.60
18	Dec-01	\$109,332.00
18	Dec-02	\$90,268.40
19	Dec-02	\$68,498.71
20	Dec-99	\$306,604.60
20	Dec-00	\$393,196.80
20	Dec-01	\$439,341.20
20	Dec-02	\$560,491.20
21	Dec-98	\$90,200,80
21	Dec-99	\$110,500.00
21	Dec-00	\$66 679 20
21	Dec-01	\$75 918 80
21	Dec_02	\$67 /38 80
21	Dec 02	\$378 076 20
22	Dec 00	\$320,770.20
22	Dec 00	\$408,200.80 \$422,416.20
22	Dec-00	\$432,410.20
22	Dec-01	\$424,085.40
22	Dec-02	\$445,265.00

23	Dec-98	\$133,165.20
23	Dec-99	\$107,503.80
23	Dec-00	\$88,985.00
23	Dec-01	\$93,170.60
23	Dec-02	\$87,928.40
24	Jan-98	\$1,819.20
24	Jan-99	\$1.637.00
24	Jan-00	\$879.00
24	Jan-01	\$1.824.40
24	Jan-02	\$2,764.00
25	Dec-98	\$444.311.00
25	Dec-99	\$347.461.20
25	Dec-00	\$433.663.20
25	Dec-01	\$378,055,60
25	Dec-02	\$350,652,00
26	Dec-02	\$17 231 40
2.7	Dec-98	\$194 107 00
2.7	Dec-99	\$234,616.80
2.7	Dec-00	\$336 345 00
27	Dec-01	\$383 605 00
27	Dec-02	\$385 797 20
28	Dec-00	\$26,909,20
28	Dec-01	\$27,355,80
28	Dec-02	\$22,905,20
30	Dec-98	\$180,120,40
30	Dec-99	\$156 831 40
30	Dec-00	\$158,438,40
30	Dec 01	\$195,498.40
30	Dec-02	\$195,505.40
31	Dec-98	\$529,490,80
31	Dec-99	\$475,274,60
31	Dec-00	\$460,932,00
31	Dec-01	\$473 246 60
31	Dec-02	\$494 308 60
32	Dec-99	\$222 675 40
32	Dec-00	\$228,360,20
32	Dec-01	\$251 381 40
32	Dec 02	\$231,381.40
32	Dec-02	\$176 236 80
34	Oct-99	\$29,933,20
34	Oct-00	\$31 389 60
34	Oct-01	\$25 417 80
34	Oct-02	\$26,698,80
36	Ian-98	\$421.00
36	Jan_00	\$349.60
36	Dec-00	\$4 563 20
36	Dec-01	\$2,841,00
37	Dec-98	\$149 376 60
37	Dec-99	\$148 273 60
37	Dec-00	\$168 511 60
37	Dec-01	\$166 709 60
37	Dec-02	\$178 306 00
38	Dec-99	\$94 177 57
38	Dec-00	\$101.003.29
38	Dec-01	\$94 970 /3
38	Dec-02	\$98 698 1/
40	Dec-02	\$1 882 310 71
40	DUC-70	φ1,002,J17./1

40	Dec-99	\$1,955,394.57
40	Dec-00	\$1,903,964.86
40	Dec-01	\$1,914,252.43
40	Dec-02	\$1,981,668.29
41	Dec-00	\$454,296.00
41	Dec-01	\$463,600.14
41	Dec-02	\$500,554.71
42	Dec-98	\$342,069.20
42	Dec-99	\$356,368.00
42	Dec-00	\$380,715.20
42	Dec-01	\$383,887.60
42	Dec-02	\$371,898.40
43	Dec-98	\$253,121.40
43	Dec-99	\$281,559.00
43	Dec-00	\$283,845.60
43	Dec-01	\$279,658.60
43	Dec-02	\$302,013.60

### Cheyenne

#	Date	Annual Sales
1	Dec-98	\$2,485,609
1	Dec-99	\$2,680,862
1	Dec-00	\$2,614,387
1	Dec-01	\$2,670,624
1	Dec-02	\$2,585,221
2	Dec-98	\$643,280
2	Dec-99	\$669,513
2	Dec-00	\$703,040
2	Dec-01	\$812,489
2	Dec-02	\$799,647
3	Dec-98	\$7,584,186
3	Dec-99	\$8,132,021
3	Dec-00	\$7,975,523
3	Dec-01	\$8,163,476
3	Dec-02	\$7,574,738
4	Dec-98	\$156,315
4	Dec-99	\$160,042
4	Dec-00	\$146,120
4	Dec-01	\$160,799
4	Dec-02	\$160,829
5	Dec-00	\$152,874
5	Dec-01	\$216,601
5	Dec-02	\$181,686
6	Dec-98	\$22,407
6	Dec-99	\$23,112
6	Dec-00	\$21,192
6	Dec-01	\$15,842
6	Dec-02	\$15,911
7	Jan-98	\$9,958
7	Jan-99	\$13,029
7	Jan-00	\$13,018
7	Jan-01	\$8,209
7	Jan-02	\$6,697
8	Dec-98	\$206,410
8	Dec-99	\$278,747
8	Dec-00	\$306,820

8	Dec-01	\$353,258
8	Dec-02	\$401,633
9	Jan-98	\$0
9	Jan-99	\$0
9	Jan-00	\$0
9	Jan-01	\$0
9	Jan-02	\$0
10	Dec-00	\$894,280
10	Dec-01	\$1,481,431
10	Dec-02	\$1,654,029
11	Dec-99	\$2,505,332
11	Dec-00	\$2,218,936
11	Dec-01	\$2,249,150
11	Dec-02	\$2,541,289
12	Dec-98	\$646,133
12	Dec-99	\$711,919
12	Dec-00	\$767,775
12	Dec-01	\$836,570
12	Dec-02	\$892,995
13	Dec-98	\$1,854,693
13	Dec-99	\$2,434,161
13	Dec-00	\$2,891,024
13	Dec-01	\$3,188,473
13	Dec-02	\$3,399,540
15	Dec-01	\$49,738
15	Dec-02	\$79,087
16	Dec-98	\$252,500
16	Dec-99	\$254,488
16	Dec-00	\$257,166
16	Dec-01	\$284,741
16	Dec-02	\$300,058
17	Dec-98	\$478,571
17	Dec-99	\$590,790
17	Dec-00	\$694,559
17	Dec-01	\$802,601
17	Dec-02	\$902,613

#### Laramie 2

#	Date	Annual Sales
1	Dec-98	\$4,980,549.17
1	Dec-99	\$5,513,613.50
1	Dec-00	\$6,059,179.83
1	Dec-01	\$5,911,569.17
1	Dec-02	\$6,235,198.33
1	Dec-03	\$5,953,363.33
2	Dec-98	\$379,551.90
2	Dec-99	\$524,761.22
2	Dec-00	\$527,944.56
2	Dec-01	\$519,918.67
2	Dec-02	\$574,193.67
3	Dec-02	\$3,173,139.33
4	Dec-98	\$2,630,369.83
4	Dec-99	\$2,822,948.83
5	Dec-98	\$133,751.67
5	Dec-99	\$127,435.00
5	Dec-00	\$99,317.67

5	Dec-01	\$85,951.17
5	Dec-02	\$104,319.83
6	Dec-99	\$169,281.67
6	Dec-00	\$166,249.50
6	Dec-01	\$181,806.00
6	Dec-02	\$161,288.33
7	Dec-99	\$707,883.50
7	Dec-00	\$716,598.67
7	Dec-01	\$739,610.17
7	Dec-02	\$848,444.50
8	Dec-98	\$312,934.67
8	Dec-99	\$334,372.83
9	Dec-98	\$401,160.33
9	Dec-99	\$390,562.50
9	Dec-00	\$277,146.00
9	Dec-01	\$249,571.17
9	Dec-02	\$246,304.50
10	Dec-00	\$298,839.83
10	Dec-01	\$314,456.17
10	Dec-02	\$368,397.83
11	Dec-98	\$935,439.83
11	Dec-99	\$946.132.50
11	Dec-00	\$976,767.67
11	Dec-01	\$904,202.33
11	Dec-02	\$930,989.17
11	Dec-03	\$881,614.67
12	Dec-98	\$1,304,532.17
12	Dec-99	\$1,524,587.83
12	Dec-00	\$1,598,626.00
12	Dec-01	\$1,306,627.83
12	Dec-02	\$465,197.17
13	Dec-00	\$638,332.00
13	Dec-01	\$648,199.00
13	Dec-02	\$612,618.78
14	Dec-02	\$856,886.78
14	Dec-03	\$899,702.42
15	Dec-98	\$126,358.70
15	Dec-99	\$189,963.67
15	Dec-00	\$193,417.11
15	Dec-01	\$216,339.56
15	Dec-02	\$225,823.33
19	Dec-03	\$224,010.50
20	Oct-99	\$26,019.33
20	Oct-00	\$30,422.50
20	Oct-01	\$30,468.00
21	Dec-02	\$697,247.33
22	Oct-98	\$17,701.50
22	Oct-99	\$16.012.67
22	Oct-00	\$9.355.67
22	Oct-01	\$8,975.83
22	Oct-02	\$8,780.33
22	Oct-03	\$9,424.33
23	Dec-98	\$2,658,429,83
23	Dec-99	\$2,969,659,83
23	Dec-00	\$3,477,506.83
23	Dec-01	\$3.654.054.67
23	Dec-02	\$3,452.025.50

23	Dec-03	\$2,598,682.83
25	Jan-98	\$10,300.00
25	Jan-99	\$10,362.00
25	Jan-00	\$32,659.50
25	Jan-01	\$30,233.67
25	Jan-02	\$31,254.00
25	Oct-03	\$29,374.83
26	Dec-99	\$303,606.17
26	Dec-00	\$436,959.33
26	Dec-01	\$496,538.17
26	Dec-02	\$574,809.83

### Gillette

#	Date	Annual Sales	
1	Dec-98	\$719,141.20	
1	Dec-99	\$864,883.60	
1	Dec-00	\$882,089.00	
3	Dec-98	\$408,440.60	
3	Dec-99	\$473,841.40	
3	Dec-00	\$595,766.60	
3	Dec-01	\$579,202.50	
3	Dec-02	\$573,843.43	
4	Dec-98	\$279,042.80	
4	Dec-99	\$304,660.40	
4	Dec-00	\$303,550.00	
4	Dec-01	\$303,744.87	
4	Dec-02	\$322,372.57	
5	Dec-98	\$160,531.57	
5	Dec-99	\$199,742.14	
5	Dec-00	\$274,138.00	
5	Dec-01	\$422,378.78	
5	Dec-02	\$344,662.21	
6	Dec-02	\$952,665.38	
8	Oct-02	\$1,998.10	
9	Dec-01	\$303,205.88	
9	Dec-02	\$268,585.71	
10	Dec-98	\$54,864.20	
10	Dec-99	\$55,323.60	
10	Dec-00	\$92,757.40	
10	Dec-01	\$180,066.51	
10	Dec-02	\$169,584.95	
11	Dec-00	\$419,846.60	
11	Dec-01	\$866,927.11	
11	Dec-02	\$519,588.76	
12	Dec-98	\$301,590.86	
12	Dec-99	\$335,967.86	
12	Dec-00	\$343,326.86	
12	Dec-01	\$415,895.21	
12	Dec-02	\$417,885.52	
13	Dec-98	\$672,731.20	
13	Dec-99	\$774,818.20	
13	Dec-00	\$943,953.20	
13	Dec-01	\$1,040,326.58	
13	Dec-02	\$1,174,121.71	
14	Dec-99	\$2,030,837.20	

14	Dec-00	\$2,839,017.20
14	Dec-01	\$3,250,202.50
14	Dec-02	\$3,158,101.52
15	Dec-98	\$34,128.60
15	Dec-99	\$77,118.80
15	Dec-00	\$113.070.20
15	Dec-01	\$182,151,16
15	Dec-02	\$208 721 52
Casp	er	*
#	Date	Annual Sales
1	Dec-98	\$18,308.40
1	Dec-99	\$14,270.40
1	Dec-00	\$6,709.40
1	Dec-01	\$6,565.40
1	Dec-02	\$0.00
2	Dec-98	\$1,346,156.80
2	Dec-99	\$1,277,266.60
2	Dec-00	\$1,333,395.20
2	Dec-01	\$1,280,678.40
2	Dec-02	\$1,323,227.40
3	Dec-00	\$24,550.00
3	Dec-01	\$34,632.40
3	Dec-02	\$60,945.80
4	Jan-00	\$14,397.00
4	Jan-01	\$14,695.60
4	Jan-02	\$8,746.40
5	Jan-98	\$507.40
5	Jan-99	\$0.00
6	Dec-98	\$47,159.20
6	Dec-99	\$43,921.80
6	Dec-00	\$46,660.00
6	Dec-01	\$60,470.00
6	Dec-02	\$82,457.40
7	Dec-98	\$558,770.40
7	Dec-99	\$544,761.80
7	Dec-00	\$535,191.40
7	Dec-01	\$470,368.00
7	Dec-02	\$511,639.60
8	Oct-99	\$100,323.60
8	Dec-00	\$56,388.60
8	Dec-01	\$158,670.00
8	Dec-02	\$231,159.00
9	Oct-02	\$192,006.20
10	Dec-98	\$127,574.80
10	Dec-99	\$142,205.00
10	Dec-00	\$162,295.00
10	Dec-01	\$226,602.60
10	Dec-02	\$603,153.20
11	Jan-98	\$999.60
11	Jan-99	\$1,240.00
11	Jan-00	\$827.00
12	Dec-98	\$181,078.40
12	Dec-99	\$300,927.60
12	Dec-00	\$330,229.60
12	Dec-01	\$281,385.80

-		
12	Dec-02	\$308,147.20
13	Dec-02	\$338,474.40
14	Jan-00	\$0.00
14	Jan-01	\$0.00
14	Jan-02	\$0.00
15	Dec-98	\$1,588,794.20
15	Dec-99	\$1,616,527.60
16	Dec-00	\$2,138,525.20
16	Dec-01	\$2,393,780.40
16	Dec-02	\$2,219,892.00
17	Dec-00	\$1,179,982.80
17	Dec-01	\$1,241,211.20
17	Dec-02	\$1,354,846.00
18	Dec-98	\$20,035.60
18	Dec-99	\$1,811.80
18	Dec-00	\$1,795.00
18	Dec-01	\$1,959.20
18	Dec-02	\$2,013.20
19	Dec-98	\$304,759.00
19	Dec-99	\$293,732.20
19	Dec-00	\$307,064.40
19	Dec-01	\$327,556.00
19	Dec-02	\$342,507.00
20	Dec-98	\$766.828.80
20	Dec-99	\$726,451,00
20	Dec-00	\$704.869.20
20	Dec-01	\$682.221.40
20	Dec-02	\$713,150,40
22	Dec-98	\$53,876,80
22	Dec-99	\$55,102,80
22	Dec-00	\$58,919.00
22	Dec-01	\$54,792.20
22	Dec-02	\$55,770.80
23	Dec-99	\$2,061,963.80
23	Dec-00	\$10,526.40
23	Dec-01	\$14,820.40
23	Dec-02	\$10,299.80
24	Dec-99	\$570,374.80
24	Dec-00	\$537,750.00
24	Dec-01	\$541,556.60
24	Dec-02	\$617,443.20
25	Dec-98	\$602,965.00
25	Dec-99	\$564,917.20
25	Dec-00	\$570,465.80
25	Dec-01	\$511,502.00
25	Dec-02	\$541,003.00
26	Dec-98	\$340,460.00
26	Dec-99	\$359,013.80
26	Dec-00	\$289,835.20
26	Dec-01	\$256,646.60
26	Dec-02	\$269,298.60
27	Dec-99	\$432,162.20
27	Dec-00	\$441,375.80
27	Dec-01	\$425,256.80
27	Dec-02	\$362,763.00
28	Dec-98	\$521,787.60
28	Dec-99	\$548,855.40
		· · · · ·

28	Dec-00	\$640,368.80
28	Dec-01	\$710,146.80
28	Dec-02	\$866,207.00
29	Dec-98	\$94,142.40
29	Dec-99	\$84,750.00
29	Dec-00	\$70,286.00
29	Dec-01	\$58,361.40
29	Dec-02	\$60,465.40
30	Jan-00	\$16,627.40
30	Jan-01	\$15,318.60
30	Jan-02	\$21,420.20
32	Dec-98	\$2,267,676.80
32	Dec-99	\$2,212,503.60
32	Dec-00	\$2,055,960.20
32	Dec-01	\$1,951,517.60
32	Dec-02	\$2,105,651.40
34	Dec-00	\$2,156,957.80
34	Dec-01	\$2,300,994.40
34	Dec-02	\$2,588,825.60
35	Dec-99	\$1,514,853.29
35	Dec-00	\$1,656,552.00
35	Dec-01	\$1,815,490.20
35	Dec-02	\$1,934,258.88

## Appendix D: RIGHT-OF-WAY DATA

Project	Total Land (sf)	Temp Taking (sf)	Total Damages	Number of Properties w/ damages
Saratoga				
Worland	2,186	17,713	\$370	15
Lander	237,180	70,380	\$3,005	24
Wheatland	345,840	87,755	\$28,115	23
Laramie 1	95,431	27,472		4
Cody				
Thermopolis				
Cheyenne	6,439		\$2,305	2
Laramie 2	84.44	2,010.55		1
Gillette				
Casper	32,091	43,421	\$995	49

## Total amount of property taken for each project

### Worland

	Land (sf)	Temp Taking (sf)	Damages
		1076	
		807	
		1313	
		3732	
	247	1539	
	855	1798	
	1084	1905	\$70
		237	
		237	
		1464	\$95
		1378	
		366	
		624	
		484	
		753	\$205
Totals	2186	17713	\$370
Average	728.67	1180.9	\$123.33

### Lander

	Land (sf)	Temp Taking (sf)	Damages
	290	2,160	
	450	1,475	
	40	810	
	4,940	2335	\$750
		645	
	30,115	31,605	
		410	
		465	
		540	
	30	665	\$50
	55	800	\$50
	3,160	16,385	
	18,190	7,040	
	21,365		
	680		\$240
	510	525	\$100
	535		
	108,280		\$500
	25,055		\$1,290
	11,190		
	970		
	4,500		
	6,825	645	\$25
		3,875	
Totals	237,180	70,380	\$3,005
Average	11,859	4,140	

### Wheatland

 	Town Toking (of)	Demesse
Land (Sf)	20 550	Damages
	20,009	
	24,294	
	3,713	
	1,216	
	1,615	
	269	
	2,495	
	1,155	
10,890	\$100	
37,897	435	
84,942	2,178	
1,2197		\$335
16,988		
13,237	1,076	
1.042	,	
5 662		
7 405		
91 021	14 910	¢5.005
01,021	14,010	φ <u></u> 0,005
1,476		\$940

	38,333	6,970 3 485	\$21,735	
	7,841 20,909	3,485		
Totals Average	345,840 24702.86	87,755 + \$100 5484.7	\$28,015	

### Laramie 1

	Land (sf)	Temp Taking (sf)	Damages
	64,033	24,832	
	15,704		
		2,640	
	15,694		
Totals	95,431	27,472	
Average	31,810.3	13,736	

## Cheyenne

	<b>Land (sf)</b> 6439	Temp Taking (sf)	Damages
			\$2,305
Totals	6439		\$2,305
Average	6439		

### Laramie 2

	Land (sf)	sf) Temp Taking (sf)	Damages
	84.44	2,010.55	
Totals	84.44	2,010.55	
Casper			
-	Land (sf)	Temp Taking (sf)	Damages
	1,259		\$620
	2,099		·
	3,089		
	135	86	\$250
	135	904	\$125
		1,453	
	1,453		
	6,738		
	4,101		
	4,112		
	4,123		
	1,668		
		1,389	
		936	
		538	
		570	
		818	
		1,776	
		797	
	495	678	
	418	958	

		872	
		657	
		1,367	
		850	
		753	
	482	592	
	105	3,466	
	185	635	
	30		
		355	
		926	
		829	
		818	
		893	
	135	1,421	
	135	753	
		1,990	
	188	1,206	
	188	700	
		786	
		3,606	
		1,378	
		646	
		592	
		969	
	818	3,940	
		1,249	
		269	
Totals	32,091	43,421	\$995
Average	1,458.7	1,113.36	

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# APPENDIX E: BUSINESS SURVEY

- Sample Business Survey
- Business Survey Results

### Sample Business Survey

The Wyoming Department of Transportation (WYDOT) and the University of Wyoming are studying the impacts of construction on local businesses. WYDOT will use the information gained from this survey to address ways to reduce any effects businesses may experience during construction. Please answer the following questions and return the survey in the enclosed prepaid envelope. **All survey questions refer to the construction project identified in the cover letter.** Your help in this research effort is greatly appreciated.

### Evaluation of Project Contractor and WYDOT Personnel

 The following table is designed to evaluate the performance of the project contractor and the WYDOT personnel that worked on the construction project. Please check one of the boxes below for the contractor and the WYDOT personnel. Feel free to provide extra comments on the lines below.

	Performance Level							
	Very Good	Good	Fair	Very Poor	Don't Know			
<b>Construction Contractor</b>								
WYDOT Personnel								

Comments:

2. What <u>was done or could have been done</u> by the construction contractor and/or WYDOT to reduce the impacts of the construction project?

## Impacts on Your Business During and After Construction

- There are several ways construction projects could have affected your business both <u>DURING</u> construction and <u>AFTER</u> construction was completed. How do you think the construction activities impacted your business in the following areas? (Please select the box that represents the best estimate of the percentage impact, increase or decrease, on your business.)
  - To help with your estimates, consider the following guidelines: **Significant** - increases or decreases of 20% or more **Moderate** - increases or decreases between 5% and 20% **Slight** - increases or decreases of 5% or less **No Change** – no noticeable increase or decrease

			INCREASE		NO	C	DECREA	SE	
Pos	sible Effects	Time Period	Significant	Moderate	Slight	CHANGE	Slight	Moderate	Significant
3 1	Number of	DURING							
5.1	day?	AFTER							
	DURING								
5.2	5.2 Gross sales?	AFTER							
2.2	Not profit?	DURING							
5.5		AFTER							
2.4	Noise Level?	DURING							
3.4	AFTER								
	DURING								
5.5		AFTER							

4. Were there any other effects that occurred due to the construction? (Please state the type of impact and the estimated level of impact )

 Referring to question 3.2 above regarding the impact to gross business sales DURING construction, what length of time did your business' sales volume remain about that level?\_\_\_\_\_ months.

Please state any additional comments you may have regarding this question.

6. Once again referring to question 3.2 above, what do you think was the primary cause of this change, if any, in gross business sales? (For either DURING or AFTER construction).

7. There are several ways the construction could have affected the people, businesses and travelers in your town during and after the period of construction. How do you think the construction activities impacted the following items? (Please select the box that represents the best estimate of the percentage impact, increase or decrease. Remember that the survey question refer only to the construction project referred to in the cover letter.)

To help with your estimates, consider the following guidelines: **Significant** - increases or decreases of 20% or more **Moderate** - increases or decreases between 5% and 20% **Slight** - increases or decreases of 5% or less **No Change** – no noticeable increase or decrease

		INC	INCREASE			DECREASE			
Pos	sible Effects	Time Period	Significant	Moderate	Slight	CHANGE	Slight	Moderate	Significant
71	Time it takes to	DURING							
7.1	town?	AFTER							
72	Number of	DURING							
1.2	area?	AFTER							
73	Traffic volumes in	DURING							
7.5	project area?	AFTER							
74	Employment in other parts of your	DURING							
1.7	town?	AFTER							
	Gross sales	DURING							
7.5	businesses <u>within</u> construction zone?	AFTER							
	Gross sales	DURING							
7.6	businesses <u>outside</u> construction zone?	AFTER							
	Property values	DURING							
7.7	construction zone?	AFTER							
78	Property values	DURING							
7.0	construction zone?	AFTER							
	General	DURING							
7.9	roadway area within construction zone?	AFTER							

Please state any general comments you may have regarding question 7.

<b></b>					
<u></u>					
8. What pe	rcentage of your	customers wou	uld you est	imate were fro	m out of town?
	Before Const	ruction?	%		
	During Const	ruction?	%		
	After Constru-	ction?	%		
	Basic	c Information A	About You	<u>r Business</u>	
To help us to construction (Again this ir	properly analyz zone, would you formation will רפ	ze the answers u provide the fo emain <u>strictly co</u>	given by a llow inform onfidential.	II of the busine ation about yo	sses along the ur business?
9. What pri	mary type is you	Ir business?			
Reta Othe	il sales Re r (Please descri	etail service be)	Profess	ional service_	_
If bot	h retail sales an	d service, pleas	se give:		
Perce	ent sales	Percent servic	ce		
10. Do you c	wn or lease this	building?			
11. How long	g has your busin	ess been in this	s building?		
12. How mai of an ave	ny parking space erage day before	es did you have e, during, and at	e for your c fter the cor	ustomers durin nstruction?	g the busiest hour
Number Number Number	before construct during construct after constructic	tion ion n			
13. How mai construc <u>owner ar</u>	זע people were ( tion project? ( <u>Pl</u> nd/or manager.)	employed by yo ease give the av	our busines verage ani	s before, durin nual number, ir	g, and after the icluding working
		Retore	Di	uring	Atter
Full T Part	⊺ime Time				

#### Information on Relocated Businesses

16. Did you have to move your business due to the state taking property from construction? If yes, where was the original location?

If no, skip questions 17 through 19.

17. When did you begin business in the original location (the location that required relocation)?

Month Year

18. If you had to move, how much did you spend to relocate your business?

Moving Expenses?	\$
Land Purchase?	\$
Building Cost?	\$
Change in Monthly Rent (if tenant)?	\$
Other Expenses (please list)	

19. If you had to move, how much of the above expenditures for replacement facilities for business represents an improvement over the original facilities taken for right-of-way?

Purchase of Property:

Land and Buildings?	\$
Other Improvements?	\$
Change in Monthly Rent (if tenant)?	\$

If you have any questions or comments regarding this survey please contact Dr. Rhonda Young, Department of Civil and Architectural Engineering, University of Wyoming at (307) 766-2184 or rkyoung@uwyo.edu.

Thank you very much for your time in completing this survey. Your help with this research is greatly appreciated. **Please use the enclosed prepaid envelope to return the survey**.

# **Business Survey Results**

# Saratoga

Question 1: Performance

	Very Good	Good	Fair	Very Poor	Don't Know	No Answer
Contractor	2	4			3	1
WYDOT	2	3			4	1

# Question 3: Direct Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING			1	3	2	3		1
3.1 Customers AFTER		1	2	5	1			1
3.2 Gross Sales DURING			1	4	2	2		1
3.2 Gross Sales AFTER			2	6			1	1
3.3 Net Profit DURING			1	5	1		1	2
3.3 Net Profit AFTER			1	6			1	2
3.4 Noise DURING	1	1	1	3		1	1	2
3.4 Noise AFTER				5		1	2	2
3.5 Air Pollution DURING	1		1	4			2	2
3.5 Air Pollution AFTER				5	1		2	2

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
1	3	1

## Question 7: Other Impacts

	I	ncrease		No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING		1	2	4		1		2
7.1 Travel Time AFTER			1	7				2
7.2 Accidents DURING			1	7				2
7.2 Accidents AFTER				8				2
7.3 Traffic Volumes DURING				3	1	2	2	2
7.3 Traffic Volumes AFTER	1		1	5	1			2
7.4 Employment DURING		1	1	6				2
7.4 Employment AFTER			1	7				2
7.5 GS Within Const. DURING*				3	2	1	1	3
7.5 GS Within Const. AFTER*		1	2	2		1		3
7.6 GS Outside Const. DURING*				5		1		4
7.6 GS Outside Const. AFTER*				6	1			3
7.7 PV Within Const. DURING*				7				3
7.7 PV Within Const. AFTER*		1	1	5				3
7.8 PV Outside Const. DURING*				7				3
7.8 PV Outside Const. AFTER*				7				3
7.9 Road Appearance DURING			1	2	1	1	2	3
7.9 Road Appearance AFTER	3		2	2		1		2

\* GS = Gross Sales; PV = Property Values

Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	2	3		2
% During	3	2		2
% After	2	2		2

#### Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
3		3	1

Question 10: Own or Lease Building



Question 11: Years business in building

V		
≤2 Years	2-5 Years	>5 Years
0	1	7

Question 12: Number of parking spaces

	≤5	5-20	>20
Before	2	4	1
During	5	1	1
After	2	4	1

Question 13: Number employed

	Full Time			F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	3	2		3		
During	3	2		3		
After	3	2		3		

#### Comments

Question 1: Performance Comments

We did not open for business until 1999, after the construction was completed.

- This survey does NOT pertain to us directly, because we are a "wholesale" and NOT "retail" business.
- Not sure who was responsible, but street not repaved before winter. Had to endure dirt street, dust, mud, etc., for entire winter before street paved the follows spring and the winters are long up here.

Question 2: What was done or could have been done to reduce impacts Was done in the middle of tourist traffic Meet construction schedule

They did everything possible to accommodate out business None

Question 4: Other effects that occurred due to the construction

I specifically inquired about drainage down the storm sewer of my corner - water accumulates at the low spot prior to the storm drain- I was assured it would be installed properly -NOT. Also as they chip sealed (?) the final paving Large stones were left which a car knocked into my plate glass window requiring that I replace it, my cost.

No parking for customers None

Question 5: Length of time that gross sales change: comments

Our customers were able to conduct business with us by phone, so no change in business volume, just inconvenience

Question 6: Primary cause of gross sales change More people People couldn't get to my door. Just minor inconvenience Hard to get to business for customers

Question 7: Indirect impact comments I am not privy to other businesses customers. Stupid question.

### Worland

Question 1: Performance

	Very			Very	Don't	No		
	Good	Good	Fair	Poor	Know	Answer		
Contractor	4	3	2		1	1		
WYDOT	5	4			1	1		

Question 3: Direct Impacts

	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING			1	1	1	2	5	1
3.1 Customers AFTER		1	1	5	1	2		1
3.2 Gross Sales DURING			1	1	2	1	5	1
3.2 Gross Sales AFTER			2	5	1	2		1
3.3 Net Profit DURING				3	2	1	4	1
3.3 Net Profit AFTER			1	6	1	2		1
3.4 Noise DURING	1	2	1	3		2	1	1
3.4 Noise AFTER			1	8		1		1
3.5 Air Pollution DURING	1	2	1	5	1			1
3.5 Air Pollution AFTER		1		8		1		1

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
2	7	

Question 7: Other Impacts	3
---------------------------	---

		ncrease	1	No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING	3	5	1				1	1
7.1 Travel Time AFTER		1		7	1	1		1
7.2 Accidents DURING			1	9				1
7.2 Accidents AFTER			1	9				1
7.3 Traffic Volumes DURING				3	2	2	3	1
7.3 Traffic Volumes AFTER			1	8		1		1
7.4 Employment DURING	1			6	2			2
7.4 Employment AFTER				8				3
7.5 GS Within Const. DURING*				2	2	3	3	1
7.5 GS Within Const. AFTER*			2	6	1		1	1
7.6 GS Outside Const. DURING*	1	1	2	4	1			2
7.6 GS Outside Const. AFTER*	1		2	6				2
7.7 PV Within Const. DURING*				5	2		2	2
7.7 PV Within Const. AFTER*	1		4	2	1		1	2
7.8 PV Outside Const. DURING*				9				2
7.8 PV Outside Const. AFTER*			1	8				2
7.9 Road Appearance DURING	1			1	1	2	4	2
7.9 Road Appearance AFTER	6		2	1				2

\* GS = Gross Sales; PV = Property Values

# Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	6	1	1	
% During	6		1	
% After	6	1	1	

# Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
8	1		

Question 10: Own or Lease Building

Own	Lease
7	3

#### Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
1		9

Question 12: Number of parking spaces

	≤5	5-20	>20
Before	3	4	1
During	6	3	1
After	3	4	1

#### Question 13: Number employed

	Full Time			F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	7	3		7	1	
During	8	2		7		
After	7	3		7		

#### Comments

Question 1: Performance Comments

Both were very good to work with

- WYDOT worked with us on curb cut size. Contractor was not sympathetic to our business entrance
- Sorry, Do not have extra hour to fill out this. My comment is road construction is a necessary "evil" that we have to live with.

This was 5 years ago and I really don't remember any big problem.

Question 2: What was done or could have been done to reduce impacts

Really nothing - They did the best they could

Probably nothing -- for the "greater good" as they say

Time frame - all or most work done in peak of tourist season

Nothing else

Faster completion with less shutdown of Main Street.

We had to have back door access was a bit of a problem with parking and customers accommodation

Question 4: Other effects that occurred due to the construction

People are curious and the construction of the street and our building attracted some people. No one seemed to complain as they were less inconvenienced at our business than those in the heart of Main Street.

Slight cosmetic damage because of it being an older building - Some plaster ceiling breaking off from impact and vibration.

Trees should have been smaller-slower growing trees. The majority of trees planted are fast growing and block any type of signage. Out of town people generally cannot find a business without some difficulty.

I felt that people got used to shopping else where and it has taken a long time to bring them back

The road in front of our retail business was closed for some time as it was a major project. Our clients had only back door access. A lot of our clients went else where for supplies. The impact we felt was significant

Question 5: Length of time that gross sales change: comments Didn't make any difference

Question 6: Primary cause of gross sales change Most People like change Poor access Having to find their way around to a back entrance Construction of street and limited access to my business none No access to business Customers had a tough time getting to my store. People did not want to expend the extra effort to go in the back way or use the board walks.

No access to store

Question 7: Indirect impact comments

We began a major remodeling and enlargement of our business in May 1998, so we also were under construction the entire summer of 1998

### Moorcroft

Question 1: Performance

	Very Good	Good	Fair	Very Poor	Don't Know	No Answer
Contractor		1			1	
WYDOT		1			1	

### Question 3: Direct Impacts

		ncrease	;	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING				1				1
3.1 Customers AFTER				1				1
3.2 Gross Sales DURING				1				1
3.2 Gross Sales AFTER				1				1
3.3 Net Profit DURING				1				1
3.3 Net Profit AFTER				1				1
3.4 Noise DURING				1				1
3.4 Noise AFTER				1				1
3.5 Air Pollution DURING				1				1
3.5 Air Pollution AFTER				1				1

	_		_
Question	7.	Other	Imnacts
Question	1.	ounor	impacts

	I	ncrease	1	No	Decrease		No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING		1		1				
7.1 Travel Time AFTER				2				
7.2 Accidents DURING				2				
7.2 Accidents AFTER				2				
7.3 Traffic Volumes DURING				1		1		
7.3 Traffic Volumes AFTER		1		1				
7.4 Employment DURING				2				
7.4 Employment AFTER				2				
7.5 GS Within Const. DURING*				1		1		
7.5 GS Within Const. AFTER*		1		1				
7.6 GS Outside Const. DURING*			1	1				
7.6 GS Outside Const. AFTER*				1	1			
7.7 PV Within Const. DURING*				1	1			
7.7 PV Within Const. AFTER*			1	1				
7.8 PV Outside Const. DURING*			1	1				
7.8 PV Outside Const. AFTER*			1	1				
7.9 Road Appearance DURING				1		1		
7.9 Road Appearance AFTER			1	1				

\* GS = Gross Sales; PV = Property Values

# Comments

Question 2: What was done or could have been done to reduce impacts Timeline.

## Lander

Question 1: Performance

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor	1	2		1	1	1
WYDOT	1	1	1	1	1	1

# Question 3: Direct Impacts

-	l	ncrease	;	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING		1		1	2			2
3.1 Customers AFTER	1			2	1			1
3.2 Gross Sales DURING				1	2	1		2
3.2 Gross Sales AFTER	1		2	1				2
3.3 Net Profit DURING				1	2		1	2
3.3 Net Profit AFTER	1			2	1			2
3.4 Noise DURING	1	1		1			1	2
3.4 Noise AFTER		2		1		1		2
3.5 Air Pollution DURING	1	1		1			1	2
3.5 Air Pollution AFTER		1	1	2				2

# Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
	2	1

\_\_\_\_\_

Question 7: Other Impacts

		ncrease	•	No	Decrease		No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING	2			2				2
7.1 Travel Time AFTER				3		1		2
7.2 Accidents DURING	1			3				2
7.2 Accidents AFTER				3	1			2
7.3 Traffic Volumes DURING			1	1		1	1	2
7.3 Traffic Volumes AFTER		1	1	2				2
7.4 Employment DURING			1	3				2
7.4 Employment AFTER			1	3				2
7.5 GS Within Const. DURING*				1	1		2	2
7.5 GS Within Const. AFTER*		1		3				2
7.6 GS Outside Const. DURING*		1	1	1				3
7.6 GS Outside Const. AFTER*				3				3
7.7 PV Within Const. DURING*				3	1			2
7.7 PV Within Const. AFTER*		1	1	2				2
7.8 PV Outside Const. DURING*				3				3
7.8 PV Outside Const. AFTER*				3				3
7.9 Road Appearance DURING		1			1		2	2
7.9 Road Appearance AFTER		1	1	1				3

\* GS = Gross Sales; PV = Property Values

## Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	3			1
% During	3			1
% After	2			1

Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
1	1	1	

Question 10: Own or Lease Building

Own	Lease
4	

Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
		4

Question 12: Number of parking spaces

	≤5	5-20	>20
Before		1	3
During		1	3
After		1	2

Question 13: Number employed

	Full Time			F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	3	1		4		
During	3	1		4		
After	3			3		

#### Comments

Question 1: Performance Comments

I was not in business during 1998 when this project was going on.

There was no one that works here now that worked when this construction project was in progress, so se can not answer these questions.

No communication with anyone about anything!

Question 2: What was done or could have been done to reduce impacts Had made entrance to my business as acceptable as possible Implement what they said would happen during the pre-construction meeting

Question 4: Other effects that occurred due to the construction Dust

Failure to prevent wind erosion of dirt piles cause very severe dust problems and damage to property

Question 6: Primary cause of gross sales change Road Construction and detour During--access was harder; After--The road was much nicer Patients not wanting to navigate the construction process

Question 7: Indirect impact comments

Bowling center only open 3 days a week during the summer months. Little impact when we were closed most of the time.

### Wheatland

Question 1: Performance

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor	1	2	1		1	
WYDOT		2	2		1	

# Question 3: Direct Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING				4		1		
3.1 Customers AFTER		2		3				
3.2 Gross Sales DURING		1		3			1	
3.2 Gross Sales AFTER		2		3				
3.3 Net Profit DURING		1		3			1	
3.3 Net Profit AFTER		2		3				
3.4 Noise DURING	1		1	2		1		
3.4 Noise AFTER		1		2	2			
3.5 Air Pollution DURING			2	3				
3.5 Air Pollution AFTER				3	2			

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
1	2	

# Question 7: Other Impacts

		ncrease		No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING		2		3				
7.1 Travel Time AFTER				4	1			
7.2 Accidents DURING		1		4				
7.2 Accidents AFTER				5				
7.3 Traffic Volumes DURING		1		4				
7.3 Traffic Volumes AFTER				5				
7.4 Employment DURING			1	3				1
7.4 Employment AFTER				3		1		1
7.5 GS Within Const. DURING*			1	2		1	1	
7.5 GS Within Const. AFTER*		1		4				
7.6 GS Outside Const. DURING*		1		4				
7.6 GS Outside Const. AFTER*				5				
7.7 PV Within Const. DURING*				3			1	1
7.7 PV Within Const. AFTER*			1	3				1
7.8 PV Outside Const. DURING*				4				1
7.8 PV Outside Const. AFTER*			1	3				1
7.9 Road Appearance DURING					1	1	1	2
7.9 Road Appearance AFTER	2		1			1		1

\* GS = Gross Sales; PV = Property Values

Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	4			
% During	4			
% After	4			

#### Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
4		1	

Question 10: Own or Lease Building

Own	Lease
4	1

Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
	1	4

Question 12: Number of parking spaces

	≤5	5-20	>20
Before	1	2	
During	1	2	
After	1	2	

### Question 13: Number employed

	Full Time			ŀ	Part Time	e
	≤5 5-20 >20			≤5	5-20	>20
Before	2	2		2		
During	2	2		2		
After	2	2		2		

### Comments

Question 1: Performance Comments

Contractor went out of their way to keep access to the front of our store as easy as possible

I'm not sure what construction project you are referring to; but, if it is what I think it is, it was past enough of my business to have no impact. Therefore, I did not complete the survey

Question 2: What was done or could have been done to reduce impacts

Nothing in particular-- Except: the entry into our place of business is quite different Fire Trig Dowson: This man was a horse's ass and he practices unsafe work conditions.

The city was forced to repair sewer system that had problems for ten years

Question 4: Other effects that occurred due to the construction Slightly dustier conditions

A nice big tree was planted in front of store sign to block it—surely that could have been placed in a different spot -- There was plenty of space.

Question 6: Primary cause of gross sales change

Sales and traffic increase moderately due to the newness of the completed project No change

# Question 7: Indirect impact comments

I personally observed car accidents due to unsafe working conditions. It was raining very hard and a car slid right off the due to the increase in mud. This car was NOT driving too fast.

# Laramie – 3<sup>rd</sup> Street

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor	2	2	4		1	1
WYDOT	1	5	1		1	1

# Question 3: Direct Impacts

		ncrease	;	No	Decrease		No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING		1		2	3	1	2	1
3.1 Customers AFTER		4	1	3		1		1
3.2 Gross Sales DURING			1	2	3	1	2	1
3.2 Gross Sales AFTER		3	2	3		1		1
3.3 Net Profit DURING			1	2	3	1	2	1
3.3 Net Profit AFTER		3	2	3		1		1
3.4 Noise DURING	1	1		5		1		2
3.4 Noise AFTER				6				4
3.5 Air Pollution DURING	2			5	1			2
3.5 Air Pollution AFTER			1	6			1	2

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
	4	2

	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING		2		4			2	2
7.1 Travel Time AFTER			3	2		1		4
7.2 Accidents DURING		1	2	4				3
7.2 Accidents AFTER				5	1			4
7.3 Traffic Volumes DURING		1		3		1	2	3
7.3 Traffic Volumes AFTER			1	4				4
7.4 Employment DURING	1			6				3
7.4 Employment AFTER	1			6				3
7.5 GS Within Const. DURING*					3	1	2	4
7.5 GS Within Const. AFTER*		1	4	1				4
7.6 GS Outside Const. DURING*		1	2	1			1	5
7.6 GS Outside Const. AFTER*				4		1		5
7.7 PV Within Const. DURING*				6				4
7.7 PV Within Const. AFTER*			1	5				4
7.8 PV Outside Const. DURING*				6				4
7.8 PV Outside Const. AFTER*			1	5				4
7.9 Road Appearance DURING		1	1		3	2		3
7.9 Road Appearance AFTER	1	2	4					3

### Question 7: Other Impacts

\* GS = Gross Sales; PV = Property Values

# Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	1		3	4
% During	1	3		4
% After	1		3	4

# Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
4	2	1	

### Question 10: Own or Lease Building

Own	Lease
7	1

#### Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
		8

#### Question 12: Number of parking spaces

	≤5	5-20	>20
Before		2	2
During		2	2
After		2	2

Question 13: Number employed

	Full Time			F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	5	3		4	2	
During	6	2		3	2	
After	5	3		4	2	

#### Comments

Question 1: Performance Comments

- The I-80, Exit 313 project was necessary, however, it was economically painful. We have yet to recover from its impact. Travelers seen to bypass areas with road construction
- I had very little contact with either of them; however, my concerns were handled very well by both
- This had no impact on our business
- I did not take over the store until January of 2002, so I don't think I would be of very much help to you. Sorry.
- There could be better communication when they are blocking off ingress to business and when heavy equipment is working in front of business

Question 2: What was done or could have been done to reduce impacts

More water to prevent dust.

They finished the project on schedule.

The project had very little impact on my business because probably 99% of my

business is local and the project didn't bother them getting here for repairs. Better Signage

Better Signage

Better signage

See above, plus better signage to direct potential customers into business

Question 4: Other effects that occurred due to the construction

Could not find the exit

Sometimes traffic was backed up on 3rd Street for a long period of time and my customers couldn't get in or out of my business.

I have signs at exit through the state and have asked for them to be put back up and to this day still no sign on east bound off ramp.

Over time the rebuilding of the interchange will help the business aspects - we do understand this and do appreciate the better traffic flow

Question 5: Length of time that gross sales change: comments

Varied

Three months at the height of tourist season

Throughout whole construction term

Question 6: Primary cause of gross sales change

Several construction crews stayed at motel

Our exit for west bound traffic was placed approximately one mile away from our

property. Would be customers did not associate temporary exit with our property.

People could not tell where the exit off of I-80 was.

Signage

Signage

Signage

During - the customers could not find how to get into our business, plus many travelers will not get off highway on exchanges that are under construction

### Cody

Question 1: Performance

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor	5	2	4	1		
WYDOT	5	1	5	1		

### Question 3: Direct Impacts

	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING			2		2	3	4	1
3.1 Customers AFTER			3	4	1	2		2
3.2 Gross Sales DURING		1	1		3	3	3	1
3.2 Gross Sales AFTER		2	1	4		3		2
3.3 Net Profit DURING		1	1		2	3	4	1
3.3 Net Profit AFTER		1	2	4	1	1		3
3.4 Noise DURING	1	2	3	1	2	1		2
3.4 Noise AFTER				7	2			3
3.5 Air Pollution DURING		1	3	3	3			2
3.5 Air Pollution AFTER				7	2			3

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
3	8	1

		ncrease		No	Decrease		No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING	3	1	1	1	2		1	3
7.1 Travel Time AFTER				6	1	2		3
7.2 Accidents DURING		1	2	6				3
7.2 Accidents AFTER			1	7				4
7.3 Traffic Volumes DURING	1		1	1	1	5		3
7.3 Traffic Volumes AFTER			3	4	1	1		3
7.4 Employment DURING				7				5
7.4 Employment AFTER				6				6
7.5 GS Within Const. DURING*				2		5	2	3
7.5 GS Within Const. AFTER*				6		1		5
7.6 GS Outside Const. DURING*	1	1	2	2		3		3
7.6 GS Outside Const. AFTER*				6		2		
7.7 PV Within Const. DURING*	1			4	2	1		4
7.7 PV Within Const. AFTER*			2	5				5
7.8 PV Outside Const. DURING*	1		1	6				4
7.8 PV Outside Const. AFTER*			1	5				6
7.9 Road Appearance DURING	1		1	1		4	1	4
7.9 Road Appearance AFTER	2	3	2	1				1
* GS = Gross Sal	$ as \cdot P V = 1 $	Pronerty	Values					

# Question 7: Other Impacts

GS = Gross Sales; PV = Property Values

# Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	3	1	1	5
% During	3	2		5
% After	2	2		5

# Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
6			1

### Question 10: Own or Lease Building

Own	Lease		
8	2		

#### Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
1	3	6

#### Question 12: Number of parking spaces

	≤5	5-20	>20
Before		3	3
During		3	4
After		3	4

Question 13: Number employed

	Full Time			Part Time		
	≤5	5-20	>20	≤5	5-20	>20
Before	5	1	3	2	1	1
During	5	2	3	2	2	1
After	5	2	3	2	2	1

#### Comments

Question 1: Performance Comments

Overall attitude of all was good

Very friendly and informative

Flag people wonderful

- First of all this project was in 2001-not 1999-at least that is my opinion. And my books prove it. Would NOT even talk to us on the day they totally blocked entry into our business. It was SO blocked that when any one with a camper tried to pull in they would take out two orange posts.
- I had some of the stupidest suggestions as to what I could do with the new intersections at my business; they talked when they did not know the problem and would not listen
- In planning stage we were told 2-way traffic would always be maintained it was not. Sand and gravel were piled in front of our entry way for 2 days making it difficult for guests to enter
- I think they did a fine job as the construction; Everyone was courteous and even though it was a drawn out project that I had to drive though out and look each day It will be worth it.

Question 2: What was done or could have been done to reduce impacts

Start earlier in the spring or later in the fall- rather than start when tourist season is getting into height of season.

After project was started- none. There was no consideration given to the timing of this project. Cody had just come out of 8 years of road construction - East Entrance to Yellowstone in which AAA routed members around Cody. We really need a break. This really should have been held off a few years. This was poor planning by WYDOT

Construction could have been done prior to and after peak tourist season. Work should have been done overnight.

The Project could have been done in the spring.

Talk to people while they worked and explain

- Starting earlier and being business friendly. It was comical the reaction one got to complaints from the girls running the barriers
- Jobs took very long to completed. Seemed like they worked (dug and paved) the same areas numerous times

As far as I'm concerned everything was done just fine

Far as I could see nothing was done to help my business

Perform as previously agreed

Possibly work on one side of the road - shoulder and have 2 way traffic on the other side, until it would be necessary to blend it all together.

Question 4: Other effects that occurred due to the construction

Business was off only to businesses in immediate area of construction

Moderate sales/traffic redaction from local customers due to inconvenience of construction

We couldn't see much change. If you serve a good product and give good service the people will get to you.

Two days when our entryway was virtually cut off and one day at prime check-in time (4-6pm) when entryway was closed for paving. When a gas line was cut, entire town was shut down for almost half day

Since I drive back and forth each day it took a great impact on my car - gravel and rock chips literally wore the paint off fender wells, bumper and rocker panels. They were very helpful in cleaning of road tar, and the employees of the company were always courteous and know they put up with many, many rude people.

Question 5: Length of time that gross sales change: comments

But, we only have 4 months

Have had big losses due to continual construction from here to finishing bridge last 9 years

3 days total

Question 6: Primary cause of gross sales change

Inconvenience

No one wants a motel room around construction

Traffic delays during peak business hours; only one road leads to store and it was torn up

It was difficult entering my business through the construction. Also, local traffic was reduced as they avoided the construction area

New business

Couldn't get in drive easily noise with equipment 2-3 ton dirt in front of business

We were decimates by the time of the construction and the attitude of the girls running the barriers

Road and driveways were blocked. Even with the flaggers at the entrances to businesses, tourist thought they could not cross the area of the road which was being worked on.

People did not travel North Fork because there has been construction of one kind or the other for the last 10 years

guests unable to access or access easily our property

I believe that local people put up with the situation - Some tourist business was lost due to their choosing to go a different route on their trip.

Question 7: Indirect impact comments

Just take care of my own business don't worry about every one else. They didn't do anything to make the road look better

I have very little respect for WYDOT and certainly would not believe anything they said or promised again.

Rural construction information causes people to re-route if possible

# Thermopolis

Question 1: Performance

	Very Good	Good	Fair	Very Poor	Don't Know	No Answer
Contractor	3	6		1	3	2
WYDOT	4	3		1	4	3

Question 3: Direct Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING		2		2	1		8	3
3.1 Customers AFTER		3	2	2	1	1	2	4
3.2 Gross Sales DURING		3	1	2			7	3
3.2 Gross Sales AFTER		4	1	2	1		3	5
3.3 Net Profit DURING	1		1	2	2		6	4
3.3 Net Profit AFTER	1		2	2	2		3	6
3.4 Noise DURING	2	1	1	4	1	1	3	3
3.4 Noise AFTER	1		1	4	1		3	6
3.5 Air Pollution DURING	1	1	2	2	3	1	2	4
3.5 Air Pollution AFTER	1		1	2	3	1	2	6

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
2	5	3

## Question 7: Other Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING	3	4			2	1	3	3
7.1 Travel Time AFTER	1	1	2	4	3		1	4
7.2 Accidents DURING			1	10				5
7.2 Accidents AFTER			1	9				6
7.3 Traffic Volumes DURING	1	1	1	4	1		3	5
7.3 Traffic Volumes AFTER	1		3	5			2	5
7.4 Employment DURING		1	4	4		1		6
7.4 Employment AFTER		1	1	6	1		1	6
7.5 GS Within Const. DURING*		2		2	3		4	5
7.5 GS Within Const. AFTER*	1	1		4	1	1	1	7
7.6 GS Outside Const. DURING*		1	1	4	1		3	6
7.6 GS Outside Const. AFTER*			1	6	1		1	7
7.7 PV Within Const. DURING*		1	1	5	1			8
7.7 PV Within Const. AFTER*		1	4	2	1			8
7.8 PV Outside Const. DURING*		1		7				8
7.8 PV Outside Const. AFTER*		1		7				8
7.9 Road Appearance DURING	2	1	1		2	1	6	3
7.9 Road Appearance AFTER	6	3	1	1			1	4

\* GS = Gross Sales; PV = Property Values

#### Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	1	3	6	2
% During	4	4	4	
% After	3	4	4	1

#### Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
6	1	1	3

Question 10: Own or Lease Building

Own	Lease
11	2

Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
	4	9

Question 12: Number of parking spaces

	≤5	5-20	>20
Before		8	3
During	2	7	2
After		8	3

Question 13: Number employed

		Full Time	;	Part Time			
	≤5	5-20	>20	≤5	5-20	>20	
Before	9	3		10	2		
During	8	3		10	1		
After	8	3		9	2		

#### Comments

Question 1: Performance Comments

Personnel very helpful, any problems were promptly corrected

Contractor was unable/unwilling to keep businesses informed as to scheduling. The concrete walks in front of our laundromat is already spalling. Won't make it 15 years

I had no contact other than business from them

Sorry I can not fill this out for you. We only bought the motel in June 2003. So I would have no idea on how it effected the business in 2000 to 2001.

My business lost 2 months of access during the busy tourist-July, August-season and has never recovered. Signs were taken down and not replaced

It was good other than a piece of equipment ran over a wooden flower barrel. When it happened, they said "Oh, we'll pay for it." But later when I approached them about it they denied it--it never got replaced

I am not returning the question survey as I was not at this address during the construction.

Never had contact with them

Question 2: What was done or could have been done to reduce impacts Given the nature and scope of the project, both parties did very well.

Flaggers need more training! Large pile of material was placed in a position to prevent highway tourist from seeing my business from the street

- Do not spread the project out in distance. The concrete work looked like a ping pong game. They did a little here, a little there, and any where. Should have started at one end and proceeded to the other without bouncing around. It all has to be done.
- I live near the project and traveled the road frequently. I noticed signs and paths made to businesses
- Access to the business should not have been blocked for so long of a period and traffic was routed to the back streets too long. Compensation for lost revenue should have been made.
- Should have worked on local business first

Done it faster

The flaggers seemed confused a lot

Question 4: Other effects that occurred due to the construction

Our sales loss due to inconvenienced to regular customers was more than made up by the increase in sales by contractors

During heavy rains, water poured through the property; that problem has been eliminated!! Level of impact: 100%

There was a period of about a week when the locals could not figure out how to get into our business. The tourists (which we rely on) just crept on by

hard to keep the dirt and dust down in and around the restaurant

Very dirty and lots of dust everywhere

OK

At several points we had both the area in front of the building and the side street access blocked off--so the was only access if you went around the block, parked some where else and walked in. We front the highway and noise level is high as well- can't put up banners, balloons, etc. to draw attention because of debris which ruined everything

Sorry, I wasn't in the heat of construction, I'm in Hot Springs state park. It didn't have big effect on us

Question 5: Length of time that gross sales change: comments

Refer to No. 4

The entire time we had growth.

We had a 40% decrease and we have never recovered

Summer months -- we are dependent on tourism traffic in summer

Question 6: Primary cause of gross sales change

No. 4

Construction workers used our business for lunch and supper

During construction, traffic bypassed this area as much as possible

Parking lot access blocked by either/ and or gravel berms - ditches

Only one way into the restaurant and that was where all the construction was going on, also blocked our entry several times

We have growth year after year.

My access to the business was blocked 6 - 8 weeks and traffic was routed to the back streets

Had tourist and workers getting food and drinks

Lack of accessibility, After construction the season passed

We rely heavily on tourists--when you have the entire front of my business blocked

off, what tourist is going to go around the block and come in on a side street Tourists were too annoyed to stop in Thermopolis.

Question 7: Indirect impact comments

- Not really sure of gross sales volumes of other businesses within or outside construction zone
- We are seasonal related construction period used up the best part of the tourist season

Business as usual; some hurt others OK

Traffic was always lined up in a pack. How do I know whether Traffic Volumes changes. Unknown for 7.5-7.8

## Cheyenne

Question 1: Performance

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor	1				2	
WYDOT	1				2	

Question 3: Direct Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING				3				
3.1 Customers AFTER				3				
3.2 Gross Sales DURING				3				
3.2 Gross Sales AFTER				3				
3.3 Net Profit DURING				3				
3.3 Net Profit AFTER				3				
3.4 Noise DURING			1	2				
3.4 Noise AFTER				2		1		
3.5 Air Pollution DURING				3				
3.5 Air Pollution AFTER				2				1

# Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
		1

\_\_\_\_\_

# Question 7: Other Impacts

		Increase		No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING		1				1		1
7.1 Travel Time AFTER	1							2
7.2 Accidents DURING				2				1
7.2 Accidents AFTER				1				2
7.3 Traffic Volumes DURING						1		2
7.3 Traffic Volumes AFTER	7							2
7.4 Employment DURING				1				2
7.4 Employment AFTER								3
7.5 GS Within Const. DURING*						1		2
7.5 GS Within Const. AFTER*	1							2
7.6 GS Outside Const. DURING*		1						2
7.6 GS Outside Const. AFTER*				1				2
7.7 PV Within Const. DURING*				1				2
7.7 PV Within Const. AFTER*	1							2
7.8 PV Outside Const. DURING*				1				2
7.8 PV Outside Const. AFTER*				1				2
7.9 Road Appearance DURING							1	2
7.9 Road Appearance AFTER	1							2

\* GS = Gross Sales; PV = Property Values

## Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before				1
% During				1
% After				1

Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
1			2

Question 10: Own or Lease Building

Own	Lease
3	

Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
		3

Question 12: Number of parking spaces

	≤5	5-20	>20
Before			2
During			2
After			2

#### Question 13: Number employed

		Full Time	;	Part Time			
	≤5	5-20	>20	≤5	5-20	>20	
Before	2	1		2			
During	2	1		2			
After	2	1		2			

#### Comments

Question 1: Performance Comments

Had no problems.

They did a good job; even though at times the situations were very trying and difficult The project was to the west of our business. It was not in front of our business so we were not directly impacted.

Question 2: What was done or could have been done to reduce impacts Nothing that I'm aware of Don't know

Question 4: Other effects that occurred due to the construction Not for myself. A lot of the workers ate at my diner here so it balanced out the slight traffic that we did lose.

Question 5: Length of time that gross sales change: comments

It looked a lot worse than it really was. The people in charge did an excellent job of keeping us informed of what was happening and what was gonna happen No Change

Question 6: Primary cause of gross sales change No Change

Question 7: Indirect impact comments

I think by the contractors way of doing things, such as informing us if they were gonna turn the water off, or close certain sections of the road, detours, etc. helped a lot in keeping tensions down

# Laramie – Curtis Street

Question	1:	Performance

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor		2			3	
WYDOT		2			3	

Question 3: Direct Impacts

-	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING				3	1	1		
3.1 Customers AFTER				5				
3.2 Gross Sales DURING				3	1	1		
3.2 Gross Sales AFTER				5				
3.3 Net Profit DURING				3	1	1		
3.3 Net Profit AFTER				5				
3.4 Noise DURING	1			4				
3.4 Noise AFTER				5				
3.5 Air Pollution DURING	1		1	3				
3.5 Air Pollution AFTER				5				

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
1	1	

# Question 7: Other Impacts

		ncrease		No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING			1	2				2
7.1 Travel Time AFTER				2		1		2
7.2 Accidents DURING				3				2
7.2 Accidents AFTER				3				2
7.3 Traffic Volumes DURING				1	1		1	2
7.3 Traffic Volumes AFTER			1	2				2
7.4 Employment DURING				3				2
7.4 Employment AFTER				3				2
7.5 GS Within Const. DURING*				1		2		2
7.5 GS Within Const. AFTER*			1	2				2
7.6 GS Outside Const. DURING*				3				2
7.6 GS Outside Const. AFTER*				3				2
7.7 PV Within Const. DURING*				3				2
7.7 PV Within Const. AFTER*				3				2
7.8 PV Outside Const. DURING*				3				2
7.8 PV Outside Const. AFTER*				3				2
7.9 Road Appearance DURING					2		1	2
7.9 Road Appearance AFTER	1	1	1					2

\* GS = Gross Sales; PV = Property Values

#### Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	1	2		1
% During	2	1		1
% After	1	2		1

#### Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
3	2		

Question 10: Own or Lease Building



Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
	1	4

Question 12: Number of parking spaces

	≤5	5-20	>20
Before			3
During			3
After			3

Question 13: Number employed

	Full Time			F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	4	1		3	1	
During	4	1		3	1	
After	4	1		2	1	

#### Comments

Question 1: Performance Comments Traffic flowed well.

Question 2: What was done or could have been done to reduce impacts

Did not affect my business. We are on the opposite side of I-80. There was no inconvenience for traffic getting to our facility Don't know

Question 4: Other effects that occurred due to the construction

no

Reduced or blocked traffic. Moderate negative impact

No - Because our business is located east of where the construction project was, there were few, if any, impacts on our sales. We do almost all of our sales via the phone and the internet, and construction did not affect us.

Question 6: Primary cause of gross sales change

Reduced traffic during construction. Traffic go back to normal after Was far enough away did not notice it.

Question 7: Indirect impact comments

This was a short term project and should not have had a significant affect. My customers are over the road truck drivers.

## Gillette

Question 1: Performance

	Very Good	Good	Fair	Very Poor	Don't Know	No Answer
Contractor			2		1	
WYDOT			2		1	

### Question 3: Direct Impacts

	lı	ncrease	;	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING					1	1	1	
3.1 Customers AFTER				1	2			
3.2 Gross Sales DURING					1	1	1	
3.2 Gross Sales AFTER				1	2			
3.3 Net Profit DURING					1	1	1	
3.3 Net Profit AFTER				1	2			
3.4 Noise DURING			1			2		
3.4 Noise AFTER				2	1			
3.5 Air Pollution DURING		1			1	1		
3.5 Air Pollution AFTER				2	1			

Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
2	1	

# Question 7: Other Impacts

	I	ncrease	1	No	[	Decreas	se	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING			1			1	1	
7.1 Travel Time AFTER				2	1			
7.2 Accidents DURING				1	1			1
7.2 Accidents AFTER				2				1
7.3 Traffic Volumes DURING					1	1	1	
7.3 Traffic Volumes AFTER				2	1			
7.4 Employment DURING				1				2
7.4 Employment AFTER				1				2
7.5 GS Within Const. DURING*							1	2
7.5 GS Within Const. AFTER*					1			2
7.6 GS Outside Const. DURING*					1			2
7.6 GS Outside Const. AFTER*					1			2
7.7 PV Within Const. DURING*				1			1	1
7.7 PV Within Const. AFTER*		1		1				1
7.8 PV Outside Const. DURING*				1	1			1
7.8 PV Outside Const. AFTER*				1	1			1
7.9 Road Appearance DURING			1			1		1
7.9 Road Appearance AFTER	1		1					1

\* GS = Gross Sales; PV = Property Values

# Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	1	1		
% During	1	1		
% After	1	1		

# Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
2	1		

### Question 10: Own or Lease Building

Own	Lease
1	2

#### Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
	1	2

#### Question 12: Number of parking spaces

	≤5	5-20	>20
Before		3	
During	1	2	
After		3	

#### Question 13: Number employed

	Full Time			F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	2			2		
During	2			1		
After	2			2		

#### Comments

Question 1: Performance Comments

- I was unhappy that they would park anywhere they wanted in my customer parking area without even asking permission. When asked to move some where, rude.
- The way the lines were painted after completion confuse our customers because they have to cross a double yellow line to get into our parking lot.
- Question 2: What was done or could have been done to reduce impacts Made the lanes for traffic wider.
- Question 4: Other effects that occurred due to the construction I wouldn't consider 19% Moderate; 10+ is significant

Question 6: Primary cause of gross sales change

People did not want to drive through it and looked for alternative routes Make entry / exit more difficult Decreased ability to easily access our facility

### Casper

### Question 1: Performance

	Very			Very	Don't	No
	Good	Good	Fair	Poor	Know	Answer
Contractor		2	4	2	2	
WYDOT	2	2	3	1	2	

#### Question 3: Direct Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
3.1 Customers DURING	1				1	2	5	1
3.1 Customers AFTER	3	1	2		1	2		1
3.2 Gross Sales DURING	1	1		1		1	5	1
3.2 Gross Sales AFTER	3	1	2	1		1	1	1
3.3 Net Profit DURING	1	1		1		1	5	1
3.3 Net Profit AFTER	3	1	1	1		1	1	2
3.4 Noise DURING	3	2		2		1	1	1
3.4 Noise AFTER	1	1	2	3	1		1	1
3.5 Air Pollution DURING	1	3		3		1	1	1
3.5 Air Pollution AFTER	1		2	4	2			1

# Question 5: Months of Impact

≤2 Months	2-6 Months	>6 Months
	2	6

Question 7: Other Impacts								
	Increase		No Decrease		e	No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
7.1 Travel Time DURING	7						2	1
7.1 Travel Time AFTER	1	1	1	3	1	2		1
7.2 Accidents DURING	1	3	1	2		1		2
7.2 Accidents AFTER		1		5	2			2
7.3 Traffic Volumes DURING	1				1	1	5	2
7.3 Traffic Volumes AFTER	1	4	1	2				2
7.4 Employment DURING			1	6				3
7.4 Employment AFTER			1	6				3
7.5 GS Within Const. DURING*					1	3	4	2
7.5 GS Within Const. AFTER*		3	2	1	1			3
7.6 GS Outside Const. DURING*	1	2	1	2	1			3
7.6 GS Outside Const. AFTER*			2	3	1	1		3
7.7 PV Within Const. DURING*				2	2	3		3
7.7 PV Within Const. AFTER*	1	1	2	2	1			3
7.8 PV Outside Const. DURING*				7				
7.8 PV Outside Const. AFTER*				7				
7.9 Road Appearance DURING	1			1	1	2	4	1
7.9 Road Appearance AFTER	4	2	3					1

\* GS = Gross Sales; PV = Property Values

### Question 8: Out of Town Customers

	≤15%	15-40 %	40-75%	>75%
% Before	5	2		
% During	7			
% After	5	2		

Question 9: Business Type

Retail Sales	Retail Service	Professional Service	Other
5	1		2

Question 10: Own or Lease Building

Own	Lease
5	4

Question 11: Years business in building

≤2 Years	2-5 Years	>5 Years
	1	8
Question 12: Number of parking spaces

	≤5	5-20	>20
Before		4	3
During	2	2	3
After		4	3

Question 13: Number employed

		Full Time	;	F	Part Time	e
	≤5	5-20	>20	≤5	5-20	>20
Before	8	1		3	2	
During	9			5		
After	8	1		3	2	

#### Comments

Question 1: Performance Comments

The contractor often would block access to our business without notification. WYDOT only responded to concerns if they were yelled at. Construction company used our lot for the their equipment and our lot is very small.

I was not the store manager during time of construction. I'm sorry I cannot answer these questions.

Communication started off good but tailed off

We have not had our grass put back in.

Question 2: What was done or could have been done to reduce impacts

When they were in front of my business they could have been better about blocking access. Very poor communication.

Better access to our store

- Project length too long time-wise. State and contractor failed to provide acceptable access to business
- Finished job in more timely manor. Beginning of project worked 3 to 4 days a week. Flag personnel caused a lot of traffic confusion

Pay more action to the business owner's requests

Kept business more informed of day to day situations that might impact that business Don't know

Better organization between WYDOT and JTL would have made a huge difference

Question 4: Other effects that occurred due to the construction

Every person who walked through my door complained about the hassles. It became very old after the first day

Because of reduced traffic (customers) we almost lost our business.

None

Access to the store was bad (significant)

Hard to say as 2002 was a banner year for our business due to the fact that we deliver most of our sales; however the construction did effect our walk - in customers and that has not fully recovered yet

There were days we had no customers because it was too difficult to get to our business.

Extremely high levels of dust and debris. Contractor needed to pick up left over materials instead of leaving it all over the construction zone

Question 5: Length of time that gross sales change: comments

Because of my type of business my customers were very loyal. Monetarily we were not affected.

Question 6: Primary cause of gross sales change

Lack of people will to brave the construction to come to our Store

Construction; our business is a car wash. People didn't want to drive through dirt, dust and mud to use a car wash. State's denial of asphalt temp access was unjustified

Accessibility to the business

Access

- Upside is the economy was not that bad in town. Walk in customers did want to have the hassle of messing with the construction mess.
- Traffic patterns on CY changed to Outer Drive or through Mills Turn Off -- people did not travel CY due to construction -- It took many months for people to begin traveling CY again after construction was complete.

Inability to gain access to the business, no parking and limited help from flaggers. Poor road conditions. Long waiting periods.

Question 7: Indirect impact comments

Because the majority of retail businesses are located on the east side of town, I don't feel that peoples' shopping patterns altered for items found at large discount stores. However, CY Ave. has many small specialty businesses whose business was significantly impacted

Only know about our business

Improvements were needed and it generally is better afterwards

# **APPENDIX F: ENGINEER SURVEY**

- Sample SurveySurvey Results

## Survey for Resident and Project Engineers

## Purpose of Survey

The Wyoming Department of transportation (WYDOT) along with the University of Wyoming is studying the impacts of construction on local businesses. WYDOT will use the information gained from this survey to address ways to mitigate the possible negative effects businesses may experience during construction, and maximize the positive impacts.

## Your Perceived Impacts on Businesses During Construction

1. There are several ways the past construction could have affected businesses on or near the construction corridor <u>DURING and AFTER</u> the construction period. If you were not in the project area after construction, you may leave the after section blank. How do you think the construction activities impacted the following items? (<u>Please give the best estimate of the percentage impact, up or down, on your business</u>)

			Increase				Decrease		
Possible Effects	Time	Significant	Moderate	Slight	No	Slight	Moderate	Significant	
	Period	Above 20%	5 to 20%	Below 5%	Change	Below 5%	5 to 20%	Above 20%	
1. Number of parking	During								
spaces?	After								
2. Number of customers	During								
per day?	After								
3. Site Appearance	During								
	After								
4. Noise Level?	During								
	After								
5. Air pollution level?	During								
•	After								

2. Were there any other effects of the construction on the local businesses you noticed? (please state)

3. There are several ways the construction could have affected the people, businesses, and travelers in the city during and after the period of construction. How do you think the construction activities impacted the following items? (Please give your best estimate of the percentage impact, up or down, on your city.)

	· · · · · · · · · · · · · · · · · · ·			Decrease				
Possible Effects	Time	Significant	Moderate	Slight	No	Slight	Moderate	Significant
	Period	Above 20%	5 to 20%	Below 5%	Change	Below 5%	5 to 20%	Above 20%
1. Time it takes to travel	During							
through the city?	After							
2. Number of accidents	During							
in construction zone?	After							
3. Traffic volumes in the	During							
construction zone	After							
4. Property values in the	During							
construction zone	After							
5. Property values in the	During							
construction city	After							

4. Please comment on any other effects you noticed during construction (if any) that effected the people or businesses during and after construction?

## **Evaluation of Contractor Performance**

1. How would you rate the overall performance of the project contractor? (Please check one below.)

Very Good \_\_\_\_ Good \_\_\_\_ Fair \_\_\_ Poor \_\_\_ Very Poor \_\_\_ Don't Know\_\_\_\_

Comments

2. What could have been done or was done by the project contractor to mitigate business impacts during construction?

# **Engineer's Survey Responses**

# Saratoga

<u> </u>	4	D	<b>T</b> .
()nection	1.	1)irect	Imnacte
Question	1.	Direct	impacts

		ncrease	;	No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING							1	
1 Parking AFTER			1					
2 Customers DURING						1		
2 Customers AFTER		1						
3 Site DURING					1			
3 Site AFTER	1							
4 Noise DURING		1						
4 Noise AFTER					1			
5 Air Pollution DURING				1				
5 Air Pollution AFTER					1			

Question 2: Other effects

With the new improvements, most businesses cleaned up and improved their store fronts.

Question 3: Other Impacts

	l	ncrease	;	No	[	Decreas	e	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING		1						
1 Travel Time AFTER				1				
2 Accidents DURING				1				
2 Accidents AFTER					1			
3 Traffic Volumes DURING						1		
3 Traffic Volumes AFTER			1					
4 PV Within Const. DURING*					1			
4 PV Within Const. AFTER*		1						
5 PV Outside Const. DURING*				1				
5 PV Outside Const. AFTER*			1					
* PV = I	Property	Values						

Contractor performance

Question 1: Overall

	Very			Very	Don't
	Good	Good	Fair	Poor	Know
Ĩ	1				

# Question 1: Comments

Contractor did good job of scheduling work to provide least disruption to businesses

Question 2: Impact Mitigation

Contractor made every attempt possible to ensure access to businesses. When access was to be closed to pedestrians for any amount of time, business owners were notified 24 hours in advance.

#### Worland

		ncrease	•	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING							2	
1 Parking AFTER			1		1			
2 Customers DURING					2			
2 Customers AFTER		1	1					
3 Site DURING						1	1	
3 Site AFTER	1			1				
4 Noise DURING			2					
4 Noise AFTER				1	1			
5 Air Pollution DURING			1	1				
5 Air Pollution AFTER				1		1		

Question 1: Direct Impacts

Question 2: Other effects

Access to some businesses was hindered for up to 3 weeks. Some businesses with only one access may have been inaccessible for up to two hours. Some businesses (fringe areas) may have profited from rerouting traffic.

Question 3: Other Impacts

-	l	ncrease	;	No	Γ	Decreas	e	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING			1		1			
1 Travel Time AFTER			1	1				
2 Accidents DURING		1		1				
2 Accidents AFTER				2				
3 Traffic Volumes DURING					1	1		
3 Traffic Volumes AFTER		1		1				
4 PV Within Const. DURING*				2				
4 PV Within Const. AFTER*		1		1				
5 PV Outside Const. DURING*			1	1				
5 PV Outside Const. AFTER*			1	1				
* PV = F	Property	Values						

Question 4: Comments

Many of the businesses in the enhanced area upgraded their store fronts to avoid standing out in a negative way.

Question 1: Overall

Very			Very	Don't
Good	Good	Fair	Poor	Know
2				

Question 1: Comments

No complaints from the public.

Overall, with six subcontractors working on the project, work was quite well coordinated.

Question 2: Impact Mitigation

Was done: Aggressive ad campaigns from merchants—"Find our back door" specials, for example.

Extensive planning was done during the design phase. The city had an advisory committee which was active so the town was represented in the planning phase.

The contractor made an effort (genuine) to inform businesses of utility outages and traffic flow changes throughout the construction phase.

Informal sidewalk meetings were held weekly to address questions (concerns) of the business owners and general public.

## Moorcroft

**Question 1: Direct Impacts** 

		ncrease	;	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING						1		
1 Parking AFTER				1				
2 Customers DURING				1				
2 Customers AFTER				1				
3 Site DURING						1		
3 Site AFTER		1						
4 Noise DURING		1						
4 Noise AFTER			1					
5 Air Pollution DURING			1					
5 Air Pollution AFTER				1				

Question 2: Other effects

Construction workers patronized businesses, particularly cafes, grocery stores, bars, and convenience stores.

## Question 3: Other Impacts

	Increase		No	[	Decreas	e	No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING			1					
1 Travel Time AFTER				1				
2 Accidents DURING				1				
2 Accidents AFTER				1				
3 Traffic Volumes DURING				1				
3 Traffic Volumes AFTER				1				
4 PV Within Const. DURING*					1			
4 PV Within Const. AFTER*			1					
5 PV Outside Const. DURING*				1				
5 PV Outside Const. AFTER*				1				
* PV = F	Property '	Values						

# Contractor performance

Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
	1			

## Question 1: Comments

The contractor made an effort to keep the work site in a small area at a time and cleaned up as they went along.

## Question 2: Impact Mitigation

We could have planned for extra signing to get motorcycles thru Moorcroft to Hulett / Devils Tower during the week of the Sturgis Rally.

Because this project took place in a mostly residential are, when detours were necessary we sent traffic thru the business area.

## Lander

**Question 1: Direct Impacts** 

		Increase		No	Decrease			No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING						1		
1 Parking AFTER				1				
2 Customers DURING					1			
2 Customers AFTER				1				
3 Site DURING					1			
3 Site AFTER		1						
4 Noise DURING			1					
4 Noise AFTER				1				
5 Air Pollution DURING			1					
5 Air Pollution AFTER				1				

#### Question 2: Other effects

With the type construction being in town which included water and sewer work, some business had to use their alley accesses to get their customers in while the trench work was being done. The roadway work allowed traffic to access those businesses on a regular basis.

Question 3: Other Impacts	on 3: Other Imp	acts
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	Increase		No	[	Decreas	e	No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING			1					
1 Travel Time AFTER				1				
2 Accidents DURING				1				
2 Accidents AFTER				1				
3 Traffic Volumes DURING					1			
3 Traffic Volumes AFTER				1				
4 PV Within Const. DURING*				1				
4 PV Within Const. AFTER*			1					
5 PV Outside Const. DURING*				1				
5 PV Outside Const. AFTER*			1					
* PV = F	Property '	Values						

Contractor performance

Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
		1		

## Wheatland

**Question 1: Direct Impacts** 

-	I	ncrease	;	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING							2	
1 Parking AFTER		1		1				
2 Customers DURING				1	1			
2 Customers AFTER			1	1				
3 Site DURING						2		
3 Site AFTER	1	1						
4 Noise DURING	1	1						
4 Noise AFTER				1		1		
5 Air Pollution DURING		2						
5 Air Pollution AFTER				1		1		

Question 2: Other effects

Being a small town, the local businesses benefited somewhat from the influx of construction workers.

During construction the local businesses formed an association to address concerns and distribute information.

#### Question 3: Other Impacts

	Increase No Decrease		e	No				
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING		1				1		
1 Travel Time AFTER					1	1		
2 Accidents DURING				1	1			
2 Accidents AFTER					1	1		
3 Traffic Volumes DURING					1	1		
3 Traffic Volumes AFTER			1			1		
4 PV Within Const. DURING*					1			
4 PV Within Const. AFTER*			1					
5 PV Outside Const. DURING*				1				
5 PV Outside Const. AFTER*				1				
* PV = F	Property	Values						

#### Question 4: Comments

After construction many beatification projects were initiated by local government and private citizens.

## Contractor performance

## Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
2				

## Question 1: Comments

Quality of work was above average and the operations were efficient.

#### Question 2: Impact Mitigation

The only thing that may have helped mitigate impacts would be to limit the length of each phase of work more. However, we would have increased the overall duration of the project.

Weekly informational meetings with businesses.

## Laramie 1

Question 1: Direct Impacts

	Increase		No	Decrease			No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING				2				
1 Parking AFTER				2				
2 Customers DURING					2			
2 Customers AFTER			2					
3 Site DURING						2		
3 Site AFTER		1	1					
4 Noise DURING			2					
4 Noise AFTER				2				
5 Air Pollution DURING		2						
5 Air Pollution AFTER				2				

## Question 3: Other Impacts

	Increase		No		Decreas	e	No	
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING			2					
1 Travel Time AFTER					2			
2 Accidents DURING			2					
2 Accidents AFTER					2			
3 Traffic Volumes DURING				2				
3 Traffic Volumes AFTER				2				
4 PV Within Const. DURING*					2			
4 PV Within Const. AFTER*			2					
5 PV Outside Const. DURING*				2				
5 PV Outside Const. AFTER*				2				
* PV = F	Property '	Values						

Contractor performance

Question 1: Overall

Very			Very	Don't
Good	Good	Fair	Poor	Know
	2			

Question 2: Impact Mitigation

Was done: Additional traffic control (i.e. wands, signs, etc.); Press releases Was done: Additional signing; Maintained traffic through project at all times

## Cody

**Question 1: Direct Impacts** 

		ncrease	;	No	De	ecrease		No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING				1				
1 Parking AFTER				1				
2 Customers DURING						1		
2 Customers AFTER				1				
3 Site DURING						1		
3 Site AFTER		1						
4 Noise DURING		1						
4 Noise AFTER				1				
5 Air Pollution DURING			1					
5 Air Pollution AFTER				1				

Question 2: Other effects

Construction did not affect parking because there is no on highway parking allowed. Construction did decrease business to nonessential services such liquor stores and gift shops.

Question 3: Other Impacts

	l.	ncrease	;	No	[	Decreas	e	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING		1						
1 Travel Time AFTER				1				
2 Accidents DURING			1					
2 Accidents AFTER				1				
3 Traffic Volumes DURING				1				
3 Traffic Volumes AFTER				1				
4 PV Within Const. DURING*				1				
4 PV Within Const. AFTER*			1					
5 PV Outside Const. DURING*				1				
5 PV Outside Const. AFTER*			1					
* PV = F	Property	Values						

**Question 4: Comments** 

The studied route is the only connection between the east entrance of Yellowstone Park and Cody, and the South Fork of the Shoshone River and Cody. There are no alternate routes. Traffic volume remained the same during construction with reduced number of travel lanes. Travel time increased, fewer travelers stopped at businesses within the construction zone due to the increased delay time getting in and out of mainline traffic.

Question 1: Overall

Very			Very	Don't
Good	Good	Fair	Poor	Know
1				

Question 1: Comments

The contractor completed the project in a timely fashion under adverse conditions..

Question 2: Impact Mitigation

The contractor started work with one storm sere installation crew. He added a second crew to try to complete the work in a more timely fashion. Night work would have speeded up the project, but it was not allowed due to the adjacent hotels and private residences.

## Thermopolis

Question 1: Direct Impacts										
		Increase		No	Decrease			No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer		
1 Parking DURING						2				
1 Parking AFTER				2						
2 Customers DURING					2					
2 Customers AFTER				2						
3 Site DURING						1	1			
3 Site AFTER	2									
4 Noise DURING		1				1				
4 Noise AFTER			1	1						
5 Air Pollution DURING			1			1				
5 Air Pollution AFTER		1		1						

Question 3: Other Impacts

	lı	ncrease	;	No	[	Decreas	e	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING	1					1		
1 Travel Time AFTER			1	1				
2 Accidents DURING				2				
2 Accidents AFTER				2				
3 Traffic Volumes DURING				1		1		
3 Traffic Volumes AFTER				2				
4 PV Within Const. DURING*				1	1			
4 PV Within Const. AFTER*	1		1					
5 PV Outside Const. DURING*				1	1			
5 PV Outside Const. AFTER*	1		1					
* PV = F	Property '	Values						

Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
	2			

Question 1: Comments

Contractor worked very well with all business.

Question 2: Impact Mitigation

Most business had 2 entrances, only one at time was closed. Signs were place so that people could find the open entrance.

Access to businesses maintained at all times.

#### Cheyenne

Question 1: Direct Impacts

	I	ncrease	;	No	C	ecrease)	9	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING					1			
1 Parking AFTER			1	1				
2 Customers DURING						2		
2 Customers AFTER				1				
3 Site DURING							2	
3 Site AFTER	1		1					
4 Noise DURING		1				1		
4 Noise AFTER				1				
5 Air Pollution DURING			1		1			
5 Air Pollution AFTER				2				

Question 2: Other effects

Access to most businesses was difficult due do a lack of area so move approaches that didn't interfere with parking on the businesses lot.

Question 3: Other Impacts

	l	ncrease	;	No	[	Decreas	e	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING			2					
1 Travel Time AFTER				2				
2 Accidents DURING			2					
2 Accidents AFTER					1			
3 Traffic Volumes DURING					2			
3 Traffic Volumes AFTER			1					
4 PV Within Const. DURING*					1	1		
4 PV Within Const. AFTER*		1	1					
5 PV Outside Const. DURING*				2				
5 PV Outside Const. AFTER*			1	1				
* PV = F	Property '	Values						

Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
	1	1		

#### Question 1: Comments

Prime contractor did a good job. Some of their subs were marginal at best.

Question 2: Impact Mitigation

The contractor made agreement with some businesses to move approaches temporarily to get mainline work done more quickly and efficiently so that traffic could restored and businesses was reopened.

## Laramie 2

	I	ncrease	;	No		Decrease	Э	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING				2				
1 Parking AFTER				2				
2 Customers DURING					2			
2 Customers AFTER	1		1					
3 Site DURING					2			
3 Site AFTER		2						
4 Noise DURING		2						
4 Noise AFTER			1	1				
5 Air Pollution DURING		1	1					
5 Air Pollution AFTER			2					

Question 1: Direct Impacts

#### Question 2: Other effects

No businesses within project limits—some on side streets.

WYO-Tech students had to use this section of roadway to and from school with a 10 ft width causing delays to school. This also effected truck traffic that used this route.

## Question 3: Other Impacts

	li	ncrease	•	No	[	Decreas	e	No
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING		1			1			
1 Travel Time AFTER			1				1	
2 Accidents DURING			2					
2 Accidents AFTER			1			1		
3 Traffic Volumes DURING					2			
3 Traffic Volumes AFTER		1	1					
4 PV Within Const. DURING*				2				
4 PV Within Const. AFTER*				2				
5 PV Outside Const. DURING*			1	1				
5 PV Outside Const. AFTER*		1		1				
* PV = F	Property '	Values						

**Question 4: Comments** 

During construction traffic was slowed and width was restricted. After, speeds were increase and the roadway widened, reducing the commute time.

#### Contractor performance

Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
	2			

Question 1: Comments

A few of the sub-contractors did not perform at a high quality of work.

Question 2: Impact Mitigation

We worked together, to get project information out to the local media when construction was going to effect travel.

Accesses to all buildings / streets were kept open at all times.

## Gillette

Question 1: Direct Impacts

	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING				2				
1 Parking AFTER				2				
2 Customers DURING		1				1		
2 Customers AFTER			1	1				
3 Site DURING					1	1		
3 Site AFTER		1	1					
4 Noise DURING		2						
4 Noise AFTER				2				
5 Air Pollution DURING		1	1					
5 Air Pollution AFTER				2				

Question 2: Other effects

- The drainage work made a big difference on getting the ponding in the R/W ditch, but a number of trees had to be removed.
- Some businesses did receive some sales due the contractor's personnel purchasing within the project limits.
- Driving time to some of the businesses was increased. This was due to requiring short duration ramp closures and rerouting traffic.

<b>C</b>								
	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING		2						
1 Travel Time AFTER				1	1			
2 Accidents DURING			1	1				
2 Accidents AFTER				2				
3 Traffic Volumes DURING					2			
3 Traffic Volumes AFTER				2				
4 PV Within Const. DURING*				2				
4 PV Within Const. AFTER*			1	1				
5 PV Outside Const. DURING*				2				
5 PV Outside Const. AFTER*				2				
* PV = F	* PV = Property Values							

Question 3: Other Impacts

#### Question 4: Comments

Travel lanes were reduced from 2 each direction to 1 each direction during surfacing operations. This increased traffic congestion and travel times during peak periods. After construction many beatification projects were initiated by local government and private citizens.

#### Contractor performance

#### Question 1: Overall

Very Good	Good	Fair	Very Poor	Don't Know
	1	1		

#### Question 1: Comments

Contractor seemed to work well notifying businesses and keeping them informed.

Question 2: Impact Mitigation

Some public notices may have been a benefit.

- The project had a 20 day window for mainline roadway work and 14 day window for interchange ramp work holiday weekends were blocked out.
- At least one access to each business had to be left open.

# Casper

Question 1: Direct Impacts

	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Parking DURING					1			1
1 Parking AFTER					1			1
2 Customers DURING						1		1
2 Customers AFTER				1				1
3 Site DURING							1	1
3 Site AFTER	1							1
4 Noise DURING		1						1
4 Noise AFTER			1					1
5 Air Pollution DURING			1					1
5 Air Pollution AFTER				1				1

Question 2: Other effects

In some cases the number of accesses from the street was restricted during construction.

Question 3: Other Impacts

	Increase		No	Decrease		No		
	Signif.	Mod.	Slight	Change	Slight	Mod.	Signif.	Answer
1 Travel Time DURING		1	1					
1 Travel Time AFTER					1	1		
2 Accidents DURING			1	1				
2 Accidents AFTER					1	1		
3 Traffic Volumes DURING		1					1	
3 Traffic Volumes AFTER			1			1		
4 PV Within Const. DURING*				1				1
4 PV Within Const. AFTER*			1					1
5 PV Outside Const. DURING*				1				1
5 PV Outside Const. AFTER*				1				1
* PV = F	Property '	Values						

# Question 4: Comments

Turning movements for the traveling public are easier and safer after construction.

Contractor performance

Question 1: Overall

Ī	Very Good	Good	Fair	Very Poor	Don't Know
Ĩ			1		

Question 2: Impact Mitigation

Most of the actions taken were at the direction of WYDOT.