US-20 Corridor

Port of Entry Study

Idaho Transportation Department

Prepared by:

Carter::Burgess

April 2004

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Prepared for:

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Prepared by:

Carter & Burgess, Inc.
420 East South Temple, Suite 345
Salt Lake City, UT 84111

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1.0 Introduction

1.1 Corridor Overview

The Idaho Transportation Department (ITD) has initiated a study to explore options for improving the weight and safety compliance of commercial vehicles (trucks) along approximately 94-miles of US-20 between Idaho Falls and the Montana state line. US-20 is a four-lane roadway from Idaho Falls to just south of the city of Ashton and a two-lane roadway from that point northward to the Idaho/Montana border. US-20 serves both regional and local travel needs in eastern Idaho, as well as the west entrance into Yellowstone National Park. **Figure 1-1** shows the study area.

Millions of dollars are spent each year on repairing and maintaining the infrastructure of the roads. Overweight vehicles are a contributing factor to this roadway damage. US-20 currently has no permanent facility, such as a port of entry, for checking local and interstate trucks for compliance with size, weight, safety, and other regulations. As such, ITD has roving inspectors that check truck compliance at various pullout locations along the corridor.

The overall US-20 Port of Entry project has been divided into phases. Phase 1 consists of this study that focus's on providing a sound technical analysis of the existing and future conditions along US-20. After the analysis, this study will explore options to improve both the efficiency and effectiveness of the truck compliance process and identify needs for improvement. The study objectives of Phase 1 are as follows:

- Improve weight and safety compliance on US-20.
- Improve the efficiency of the existing compliance operations on US-20.
- Investigate the feasibility of joint port of entry operations with Wyoming and Montana.
- Identify preliminary options and opportunities to increase weight and safety compliance on US-20.
- Identify potential funding sources for the options.

Phase 2 of this project, if ITD decides to pursue, will focus on exploring specific alternatives for improving compliance, including capital and operating costs, coordination and shared resources with Montana and Wyoming, and potential funding opportunities.

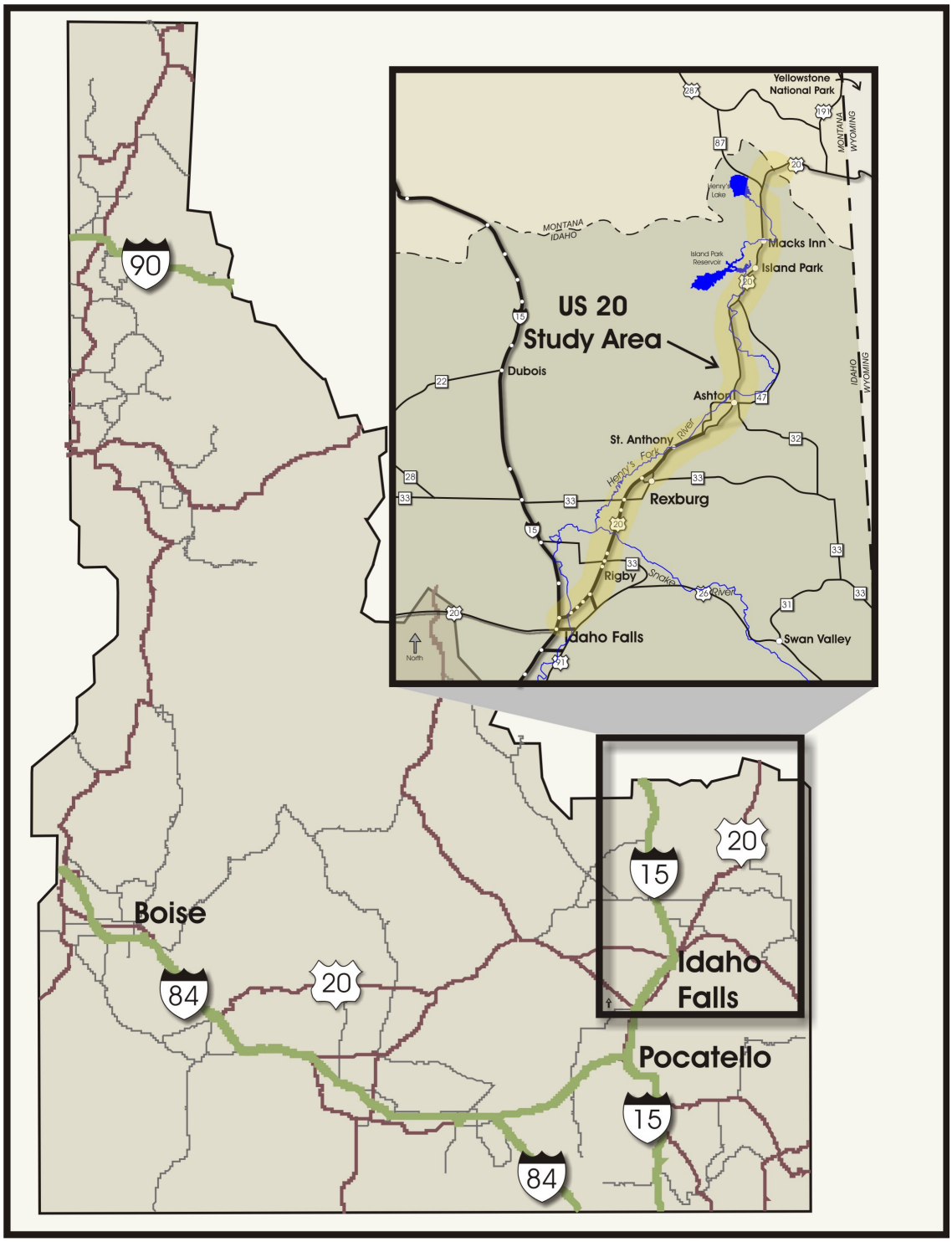


Figure 1-1 US-20 Corridor Study Area

1.2 Corridor Description

The US-20 Corridor currently serves both regional and local travel needs, including heavy tourist traffic. In the Northern Segment, US-20 is Idaho's gateway to Yellowstone National Park and provides access to Island Park, one of eastern Idaho's major recreational areas. The corridor connects the southeast Idaho communities of Idaho Falls, Rigby, Rexburg, St. Anthony, Ashton and Island Park. Residents of these communities use US-20 for commuting, personal, and business trips.

The area surrounding Ashton is some of the richest agricultural land in the state and generates high levels of local truck traffic during the annual agricultural season (June – October). Truck traffic along the corridor currently accounts for approximately seven percent of the Average Daily Traffic (ADT).

From north to south, the corridor generally falls in elevation – from approximately 7,000 feet at Targhee Pass to 4,700 feet at Idaho Falls – with mountainous terrain near the Montana state line north of State Route 87. The highway runs through the Targhee National Forest north of Ashton to the Montana state line. **Figure 1-2** shows environmentally sensitive areas along the corridor including national forests, rivers and streams.

The US-20 Corridor has different characteristics in the southern and northern areas. For this reason, the corridor was divided into two segments, the Southern Segment runs from Idaho Falls to Ashton and the Northern Segment continues northward from Ashton to the Montana state line. The distinct characteristics of the two segments are essential when considering motor carrier operations and compliance.

The 39-mile Southern Segment is primarily a four-lane divided highway that runs through several urban areas. Currently, there are many at-grade intersections as well as ten grade-separated interchanges. ITD has completed a planning study for this segment of US-20. Based on that study, improvement projects have been programmed to improve the operations and safety of the highway. According to the motor carriers, most of the traffic in this section is comprised of local farm to market haulers.

Southern Segment
Four-Lane Divided Highway

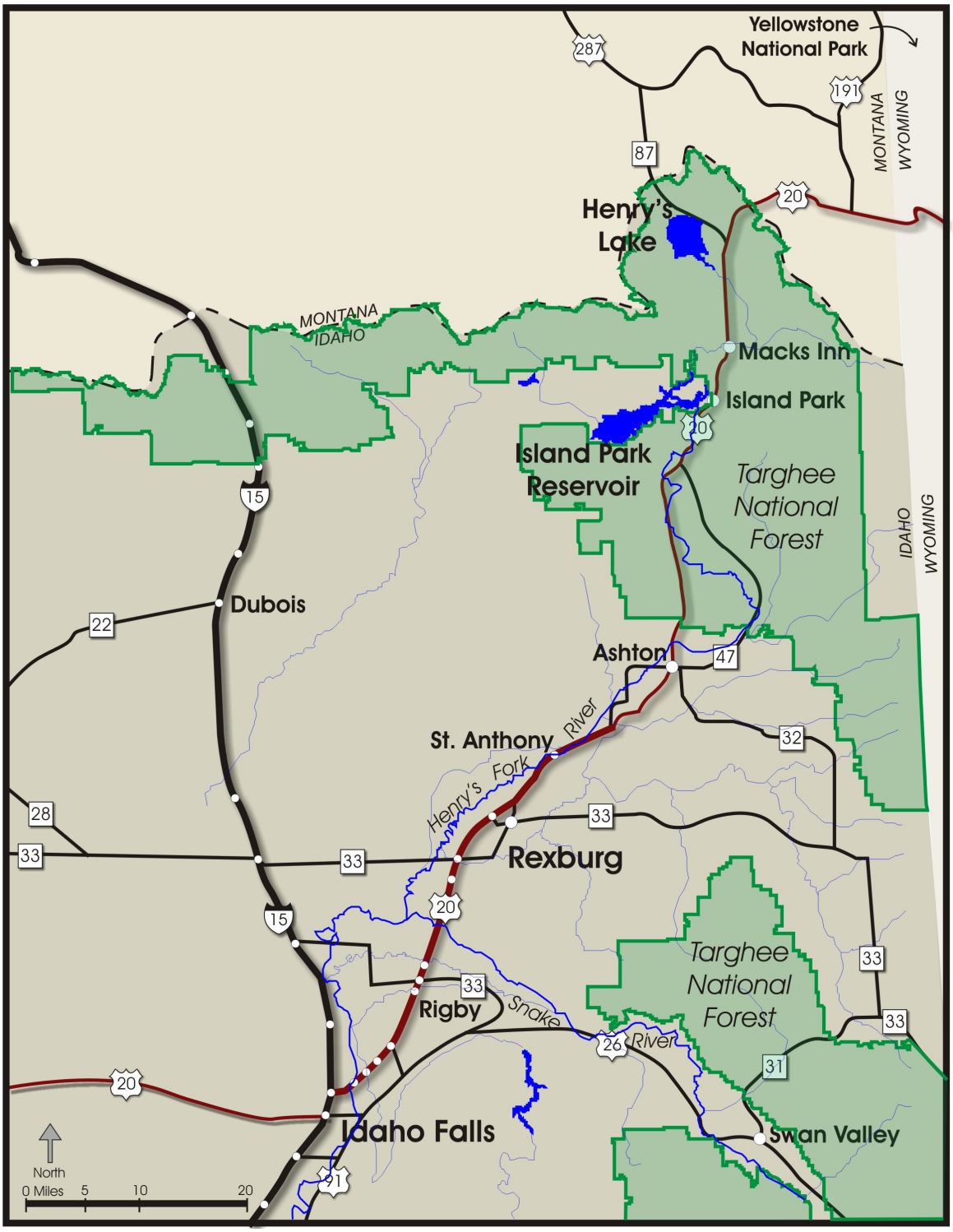


Figure 1-2 Environmentally Sensitive Areas

The 55-mile Northern Segment is a two-lane rural highway with primarily unrestricted access control. This segment is mostly rural, and serves the recreational areas of Island Park, Henry's Lake, and Yellowstone National Park. It is bordered by a mix of national forest and private land for much of its length. In several locations of long uphill stretches, passing lanes facilitate movement around slower moving vehicles. This segment experiences significantly less traffic than the Southern Segment. Much of the traffic is interstate travelers going to and from Idaho, Montana, and Wyoming.

Northern Segment
Two-Lane Rural Highway

Northern Segment
Two-Lane Highway with Passing Lane

1.3 Related Studies

ITD conducted a corridor planning study in 1999 for the southern portion of the corridor, Idaho Falls to Ashton, and is currently conducting a corridor planning study for the northern portion of the corridor, Ashton to the Montana State Line. These studies address traffic issues throughout the corridor and provide long-range (20-year) plans for improvements.

1.3.1 1999 US-20 Corridor Plan – Idaho Falls to Ashton

The goals of the 1999 *US-20 Corridor Plan – Idaho Falls to Ashton* were to:

- Reduce accidents on the corridor.
- Provide for efficient movement of goods and people passing through the corridor.
- Maintain a viable interrelationship between land use and the transportation system.
- Preserve and enhance environmental resources.

This plan is a 20-year plan that includes forecasts of traffic along the corridor and a recommended alternative for roadway improvements. The projected traffic growth was based on two growth factors: a 3.25 percent annual growth rate for urban areas and a 2.21 percent annual growth rate for rural segments of the highway.

The main focus of this study was improvement to the access control along the corridor. The recommended alternative includes the closure of a number of at-grade intersections and construction of 11 new grade-separated interchanges. Two of these interchanges are scheduled for construction in the year 2004 and two more by the year 2008.

1.3.2 Ongoing Corridor Study – Ashton to Montana State Line

The goals of the *Ongoing Corridor Study – Ashton to Montana State Line* are to:

- Accommodate safe mixed-use traffic.
- Provide roadway improvements that are context sensitive.
- Decrease congestion.
- Minimize corridor impact to the environment.
- Enhance recreation support facilities.
- Provide adequate and visible signage.
- Correct roadway deficiencies.
- Provide adequate low impact winter maintenance.

As part of this study, several public workshops have been held. There were two meetings held – the first meeting was in Island Park on October 1, 2003 and the second meeting was in Ashton on October 2, 2003. Specifically, at the second round of workshops held, public comments were taken. Mail-in comments were also accepted. There were numerous comments received from these public workshops, of which, several comments were made about trucks along the corridor. The most common comments received that related to trucking were:

- "Speeds are too high in the corridor and travelers are driving too fast, especially trucks."
- "There is more truck traffic on the corridor than area residents prefer."
- "Trucks are driving much too fast."
- "A port of entry and weigh station is needed somewhere in the corridor."

This corridor study is in the alternative development stage and is scheduled for completion by June 2004. Future phases of this POE study should address the recommendations of this ongoing corridor plan.

1.4 Overview of Commercial Vehicle Operations in Idaho

There are a number of Idaho agencies responsible for different elements of commercial vehicle compliance in the state. The two primary agencies that are involved with weight and safety compliance are the Idaho Transportation Department and the Idaho Department of Law Enforcement. In addition, ITD Division of Planning operates a Weigh-In-Motion (WIM) device in Rigby.

One of the primary means of checking for commercial vehicle compliance is through stationary Ports of Entry. ITD currently operates ten permanent port facilities throughout the state, including one joint port with Montana in Haugan. General information regarding the operation of stationary ports of entry include:

- All inbound and outbound vehicles over 26,000 pounds must stop.
- All vehicles over 10,000 pounds with livestock or hazardous materials must stop.
- Safety inspections are done by Idaho State Police.
- Pre-clearance systems (Pre-Pass) exist only at East Boise and Lewiston Ports.
- East Boise has facilities to conduct safety inspections.

Table 1-1 shows the agencies involved with commercial vehicle compliance in Idaho and their responsibilities.

Table 1-1 Overview of Idaho Commercial Vehicle Operator (CVO) Program

Agency	Primary Responsibility	Duties
Idaho Dept. of Law Enforcement (DLE) Idaho State Police	Public Safety	✓ Administers Motor Carrier Safety Assistance Program ✓ Performs compliance reviews of carrier safety ✓ Conducts safety inspections of interstate and intrastate carriers (Commercial Vehicle Safety Alliance certified inspectors) ✓ Investigates accidents ✓ Handles hazardous material safety issues
Idaho Public Utilities Commission (IPUC)	Regulatory	✓ Grants operating authority for commercial carriers ✓ Adopts commercial vehicle regulations ✓ Issues citations/warnings for violations of the Motor Carrier Act - safety inspections, hazardous materials inspections, in depth safety audits (CVSA certified inspectors) ✓ Safety Management
Idaho Transportation Department (ITD) Motor Carrier Services Ports of Entry Driver Services	Infrastructure Protection	✓ Vehicle Registrations ✓ Driver Licensing ✓ In-transit and over legal permits ✓ Field compliance ✓ Collection of use fees
Idaho State Tax Commission (ISTC) Revenue Operations Audit and Collections	Revenue Collection	✓ Administers International Fuel Tax Agreement (IFTA) licenses, records, voluntary collections, quarterly and annual returns ✓ Forced collections, fuel tax law enforcement and fuel tax audits ✓ Audits - IRP

2.0 COMMERCIAL VEHICLE OPERATIONS AND FACILITIES IN THE US-20 CORRIDOR

2.1 Operations

ITD currently utilizes roving inspections at various locations along the US-20 corridor to check for weight and safety compliance. **Figure 2-1** shows these pullout locations. At most of these locations, a large paved area on the side of the road serves as the site for inspections. The majority of these paved areas have multiple functions. Both the public and trucks use them for parking; they are also used as snowmobile unloading areas and snow plow turnarounds. Some of the pullout areas have historical markers.

Commercial Truck at a Vehicle Inspection Pullout Location

The roadside inspections are conducted using a portable scale by roving inspectors. Inspectors check the driver's information and the condition and weight of the truck.

2.2 Facilities

Each of the pullout locations provides an area for the inspection of commercial traffic traveling in one direction. Most of the pullouts lack acceleration and deceleration lanes. **Figure 2-2** shows the pullout locations on the corridor. Considering the speed limit for the majority of the Northern Segment of the corridor is posted at 65 miles-per-hour (mph) and 55 mph on the Southern Segment, trucks that need to pull off the highway for inspection must reduce their speed considerably before exiting the roadway. This creates a safety risk and inhibits mainline traffic flow. To address this issue, inspectors post mobile speed limit signs to reduce the speed limit near the pullout location to 35 mph during the period that inspections are being performed.

The ITD Division of Planning currently operates one Weigh-In-Motion (WIM) device along the US-20 corridor. The WIM is located approximately two-miles south of Rigby and provides detailed reports on heavy vehicle traffic on the highway. The WIM collects the following data:

1. Vehicle Classification
2. Overweight Vehicles
3. Commercial Vehicle Speeds
4. Commercial Vehicle Volumes

This data is continually collected. Reports summarizing the data were collected for the analysis in this study. The WIM is used for information only and is not used in POE compliance operations.

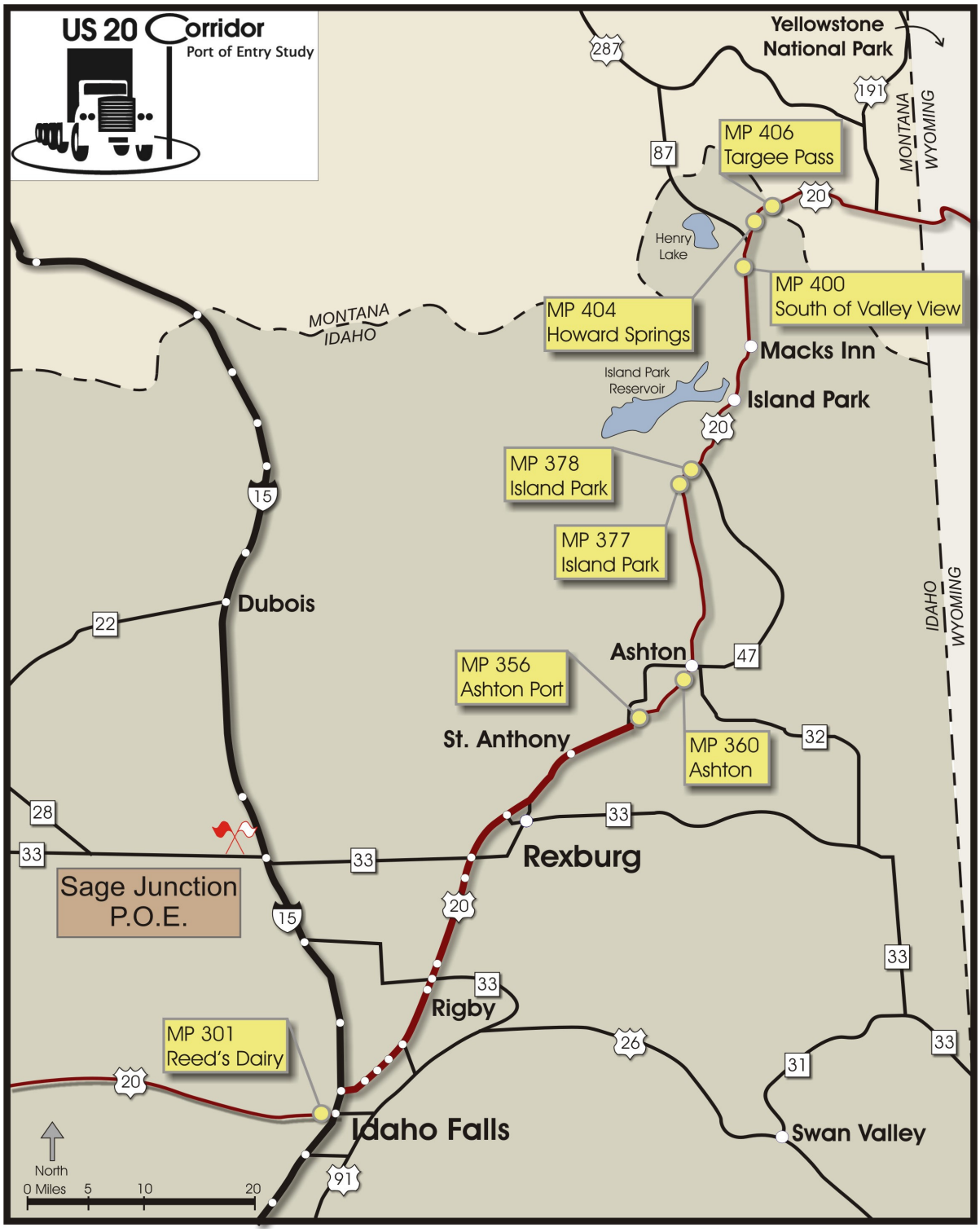


Figure 2-1 Commercial Vehicle Inspection Pullout Locations

MP 356
Ashton

MP 358.5

MP 370
Howard Springs

MP 372.5
South of Valley View

MP 378
Island Park

MP 406
Targhee Pass

Figure 2-2 Pullout Facilities

2.3 Issues and Opportunities

2.3.1 Interviews with Roving Inspectors

Interviews were conducted with both of ITD's roving inspectors and the District 6 Port of Entry Supervisor to gain an understanding of their needs and their perceptions of areas for potential improvement to the Port of Entry (POE) operations. The roving inspectors cited some major deficiencies with the way inspections are currently operated. Their opinions included:

- Pullout locations are too short to allow for proper acceleration and deceleration for trucks.
- The current speed limit on the corridor is too high.
- The lack of a permanent facility and consistent inspection schedule allows for too many violations to go unchecked.
- The locations of the pullouts allow many non-compliant trucks to take alternate routes when they hear that the inspectors are at a certain location.
- The inspectors are of the opinion that they need blue-light stopping authority.

The most important issue to the inspectors interviewed was their perceived need for blue-light stopping authority. Under the current system, inspectors are given red-light authority, or the authority to stop vehicles from a fixed location that present an observable safety hazard, such as a broken headlight or a blown tire. This system does not provide them the authority to stop trucks to weigh them or to check the driver's information.

As part of the study, consideration was given to whether the implementation of blue-light authority would improve the compliance of motor vehicles in the US-20 corridor. The results to this investigation are listed in Chapter 4 of this report.

The inspectors that were interviewed noted that over the last ten to fifteen years, trucks in general have been getting larger and are carrying more weight; however, over the same period, the inspectors have observed a decline in the percentage of violations. In general, the inspectors are of the opinion that far more violations are by local truck traffic than by interstate traffic, and that many of these violations occur during the local harvest season, July through October. Each inspector estimated that 70 percent of all non-compliant trucks are local farm to market haulers.

During the interviews with the roving inspectors, each was asked to suggest possible improvements to the POE operations on US-20. Their suggestions are listed below. It is important to note that these suggestions are the opinions only of the roving inspectors and are not included in the recommendations for this study without further investigation.

- Implement blue-light stopping authority.
- Build a permanent POE facility.
- Construct longer pullouts and acceleration/deceleration lanes.
- Construct a permanent platform weighing facility, manned randomly.
- Work with Montana and Wyoming to construct a joint POE.

2.3.2 Interviews with the Commercial Vehicle Industry Organizations

Interviews with industry representatives were conducted. These included the Idaho Trucking Association whose membership includes mostly large carriers and several local carriers. The commercial traffic on US-20 is composed of small local carriers and large regional and interstate carriers.

For the most part, both types of carriers are most concerned with the efficiency of operations and fiscal responsibility for POE operations. The Idaho Trucking Association was firmly against permanent port facilities and viewed them as both fiscally irresponsible and inefficient, citing both the additional cost to operate and maintain permanent facilities as well as the additional time and money spent by carriers undergoing these inspections. Also, they stressed the importance of the location of pullouts, stating that they need to be in spots not easily avoided through alternative routes.

The local carriers contacted stated that their primary concerns focused on the safety of the operations. They stressed that most of the pullout locations are inadequate to provide safe operations. Improvement of these facilities was stated as the most important improvement issue for operations on US-20. The local carriers also gave the opinion that they prefer roving inspections to the implementation of a permanent POE, stating that they are both more effective and efficient. They generally agreed that submitting to roving inspections is less costly to their operations.

3.0 CURRENT CONDITIONS AND FORECASTS

3.1 Existing Traffic

Traffic conditions on the corridor vary greatly depending on location, season, day of week, and time of day. Traffic volumes are recorded at three permanent counter locations on the corridor: Station 76 – Idaho Canal [3 miles north of Idaho Falls, Mile Post (MP) 310.4], Station 51 – Lorenzo (0.3 miles south of Snake River, MP 325.7), and Station 32 – Ashton (17 miles north of Ashton, MP 377.1). The Southern Segment of the corridor experiences higher traffic volumes than the Northern Segment. In the Southern Segment, weekday volumes are higher than weekend. Due to higher levels of tourist traffic and fewer commuters, weekend traffic is greater than weekday in the Northern Segment. **Figures 3-1, Figure 3-2 and Figure 3-3** show the average weekday traffic by month at each permanent counter. At each location, traffic volumes are generally higher in the summer months than at any other time during the year. As shown in the figures, the Northern Segment's traffic volumes average less than 500 vehicles-per-day (vpd) for most of the year while volumes in the Southern Segment range from approximately 15,000 to 20,000 vpd for the majority of the year.

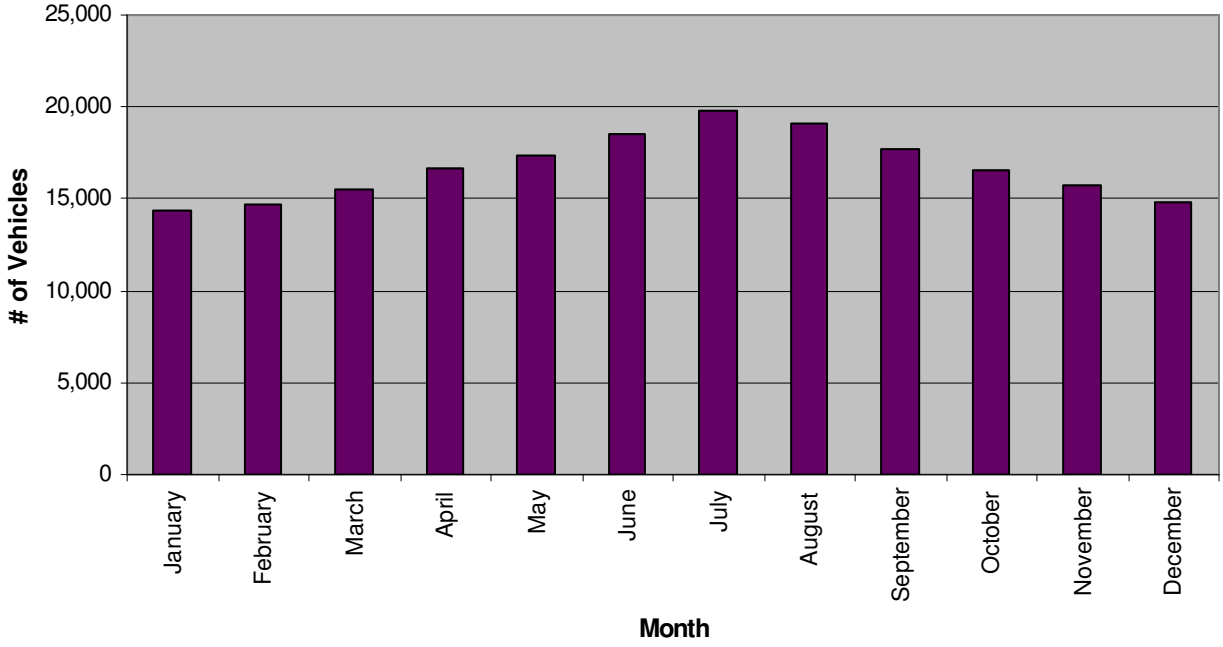


Figure 3-1 Year 2002 Average Weekday Traffic at Idaho Canal Automatic Traffic Recorder, US-20 Southern Segment

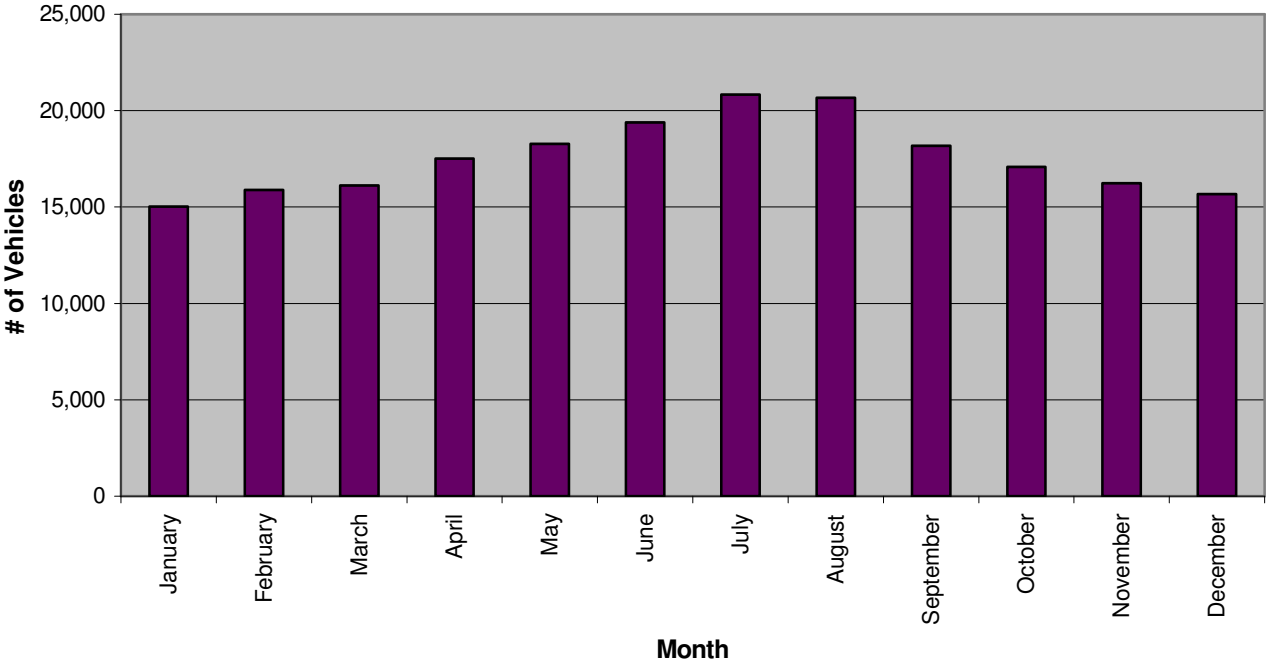


Figure 3-2 Year 2002 Average Weekday Traffic at Lorenzo Automatic Traffic Recorder, US-20 Southern Segment

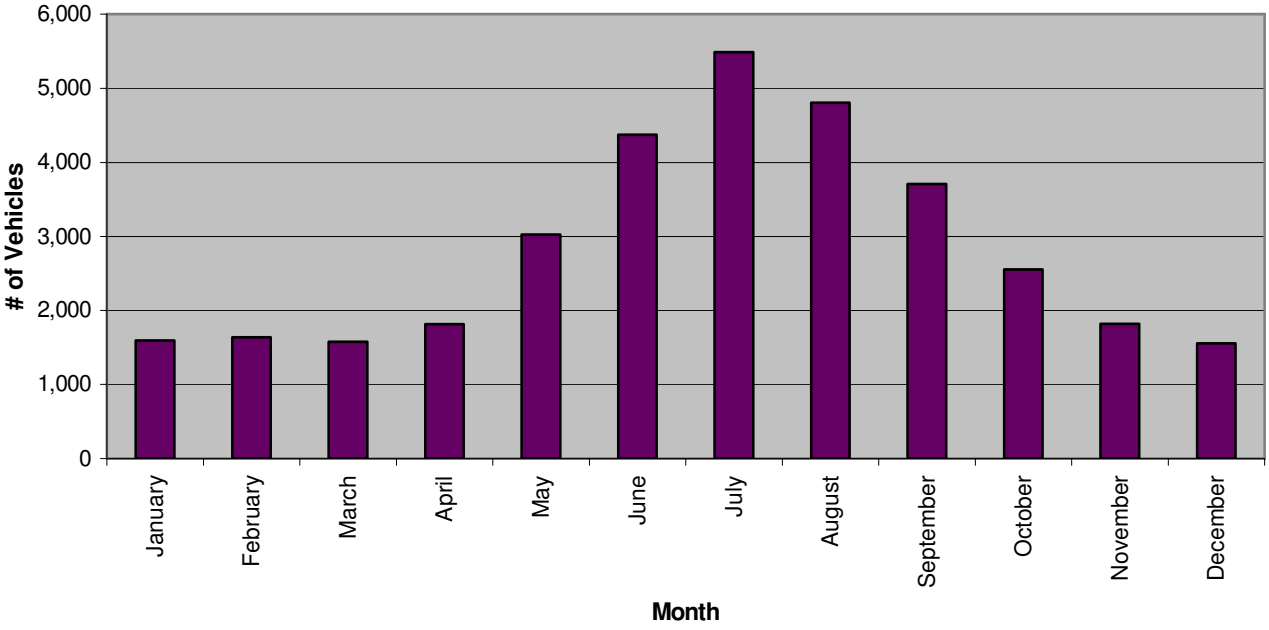


Figure 3-3 Year 2002 Average Weekday Traffic at Ashton Automatic Traffic Recorder, US-20 Northern Segment

As mentioned previously, ITD Division of Planning currently operates one WIM on the US-20 corridor. It is located approximately two miles south of Rigby in the Southern Segment. The WIM provides detailed reports on heavy vehicle traffic on the highway. According to the statistics compiled by ITD for this WIM location, heavy vehicles account for approximately seven percent of all traffic. **Figure 3-4** details the vehicle class percentages of traffic on US -20.

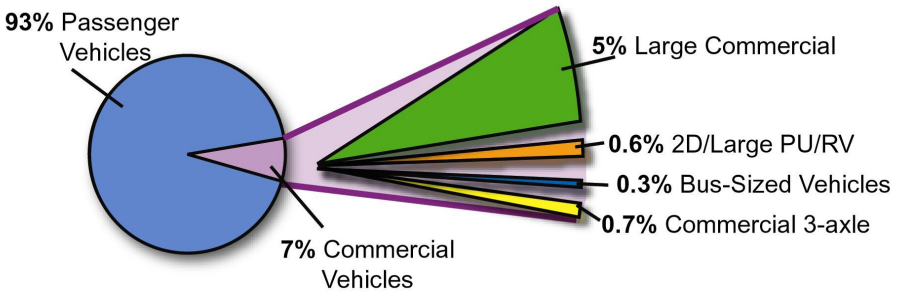


Figure 3-4 Three-Year Average Vehicle Classification Counts at WIM Station South of Rigby (1999-2001)

As shown in **Figure 3-4**, large commercial vehicles comprise the majority (71 percent) of the truck traffic at this location. The WIM data also includes Time-of-Day and Day-of-Week reports for truck traffic. **Figure 3-5** and **Figure 3-6** summarize these reports. These reports were only available for the year 2000.

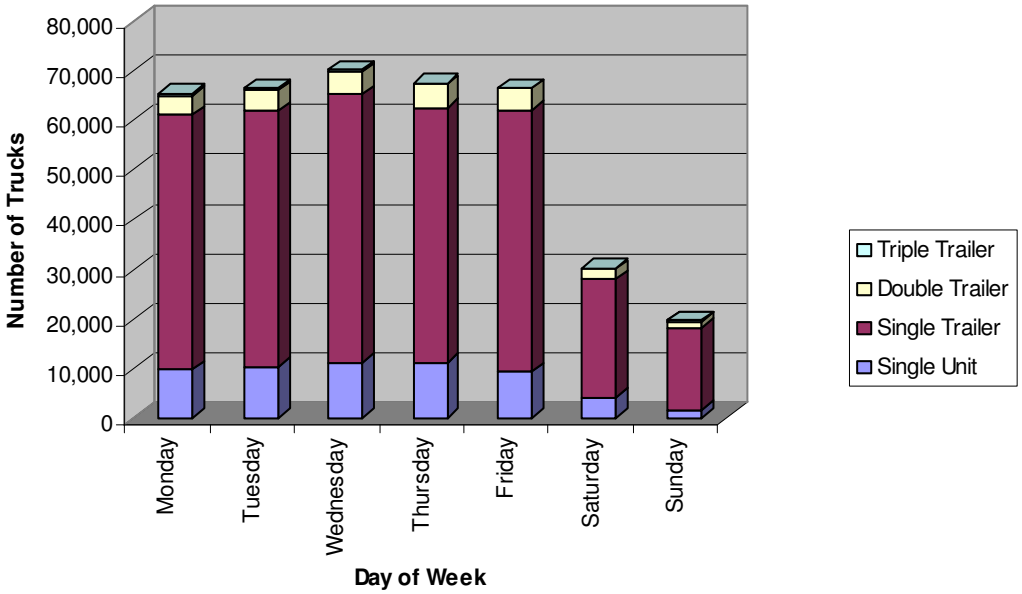


Figure 3-5 Year 2000 Annual Trucks by Type and Day of Week at Rigby WIM Station

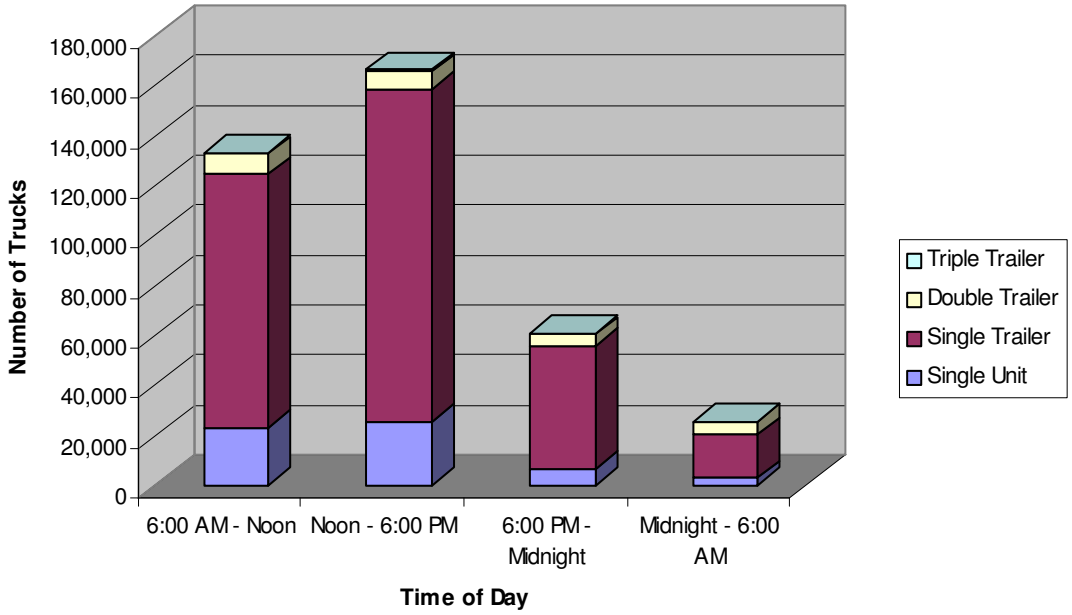


Figure 3-6 Year 2000 Annual Trucks by Type and Time of Day at Rigby WIM Station

These reports illustrate that weekday afternoons see the most commercial vehicle traffic, with approximately 43 percent of commercial traffic traveling between Noon and six-o-clock p.m. and 87 percent of commercial traffic occurring during the week.

3.2 Accidents

In general, US-20 has a very high accident rate. According to the *1999 Corridor Study – Idaho Falls to Ashton*, the high number of accidents on the Southern Segment of the corridor can be attributed to a number of factors. These include the high speeds that are traveled on the freeway (with 85 percent of measured traffic traveling in excess of 68 mph while the posted speed is 55 mph) combined with numerous at grade intersections. A large presence of tourist traffic combined with the unrestricted access to US-20 from intersecting roadways creates an environment that increases the risk of accidents in the Northern Segment.

To analyze the accident history in this corridor, accident data pertaining to commercial vehicles was obtained from ITD. Analysis of the data from 1998 to 2002 revealed several trends. In that period there were 82 accidents involving commercial vehicles on the study corridor, including 29 that resulted in injuries and two that resulted in fatalities. During the same time period (1998-2002) a total of 1,021 crashes occurred on the corridor, 377 of which resulted in injuries and 22 of which resulted in fatalities. **Figure 3-7** provides a summary of the accident data.

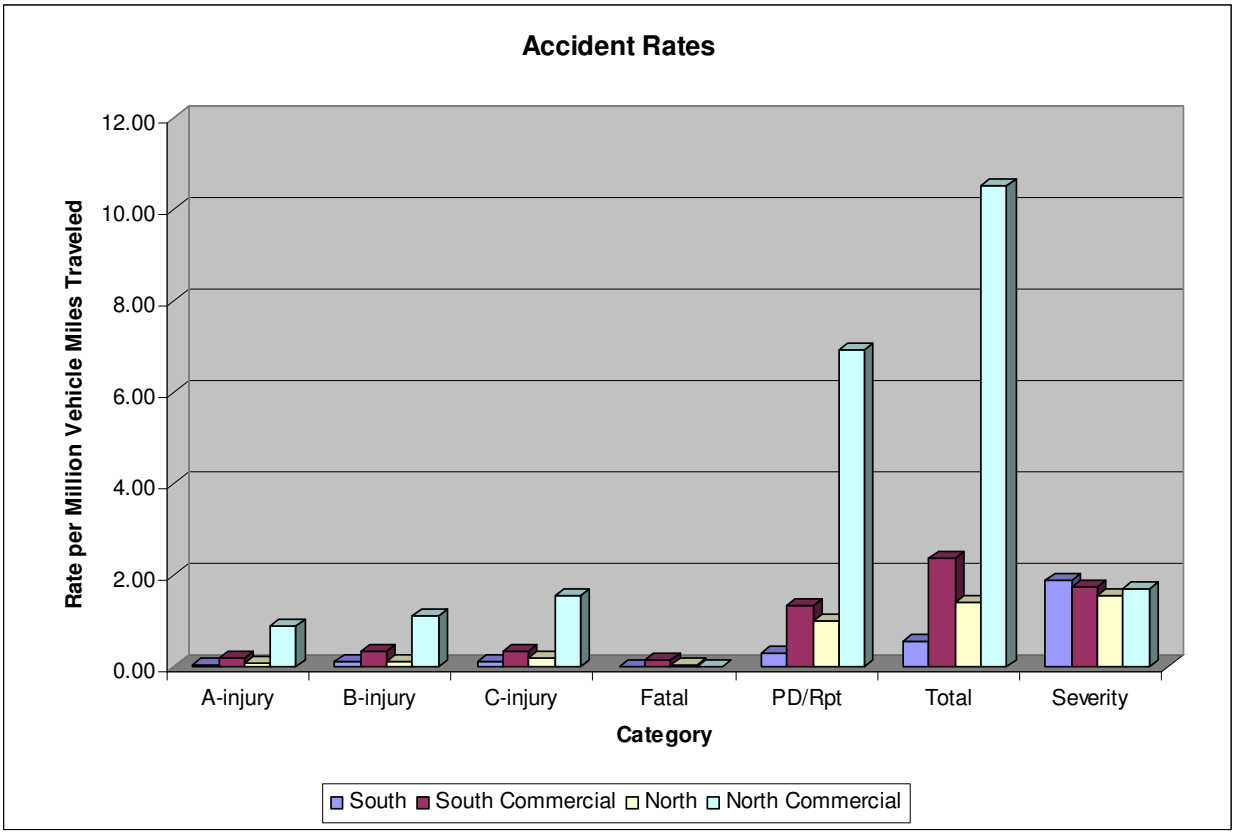


Figure 3-7 Accident Rates on US-20 Study Corridor

The accidents involving commercial vehicles can be attributed to two main factors: first, non-compliance to weight and safety standards, and second, engineering deficiencies of the highway facility within the corridor. The first factor is being addressed in this study. The second factor has been addressed by other studies and ongoing-programmed improvements. The crashes most relevant to this study, those caused by non-compliant vehicles or those that may have been the result of POE operations, are highlighted below in **Table 3-1**, along with the number of times they are listed in the crash reports.

Table 3-1
Reported Contributing Factors in Accidents
Involving Commercial Vehicles

Contributing Factors	No. Of Occurrences
Following Too Close	9
Improper Overtaking	5
Failure to Yield	10
Improper Lane Change	1
Moving Too Slow for Traffic	1
Vehicle Defects	2
Speeding	2
Driving too fast for the weather	30
Bad Visibility	6
Not paying attention	15
Drowsiness	1
Overcorrection	4
Improper Turn	1
Left-of-center	2
Driver Distraction	2
Running Stop Sign	2
Improper Backing	1

To determine if the accidents occurred at pullout locations, truck inspection pullout locations and crash locations were compared. A consistent correlation between inspections and the frequency of accidents was not found from the accident records. This analysis is shown graphically in **Figure 3-8**.

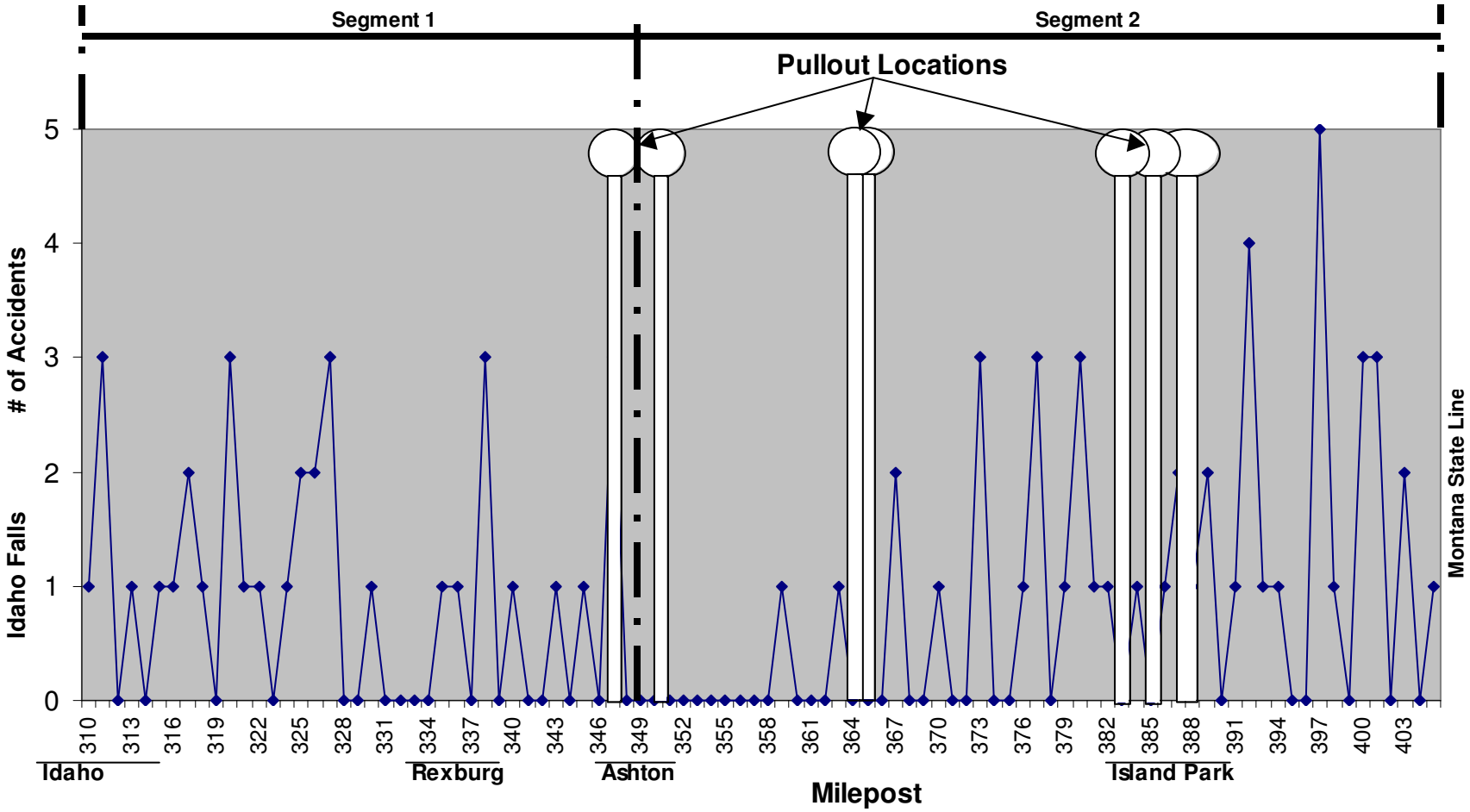


Figure 3-8 1998-2002 Accident Totals by Milepost

Figure 3-8 shows that the crash rates for trucks towards the north end of the corridor is five times higher than any other part of the corridor. On the 55-mile Northern Segment, 47 accidents involved commercial vehicles from 1998-2002. Assuming a constant seven percent of commercial traffic for the corridor, the Southern Segment carriers over three times the commercial traffic of the Northern Segment, 1,300 vehicles per day for the Southern and 400 vehicles per day for the Northern.

3.3 Commercial Vehicle Compliance

3.3.1 Overweight Commercial Vehicles

ITD utilizes the WIM to document commercial vehicle compliance along the US-20 corridor. The WIM records vehicles as they pass over the scale, producing statistics on overweight vehicles. **Figure 3-9** summarizes the total truck traffic by month. **Figure 3-10** shows the overweight vehicles and percent of total trucks-per-month.

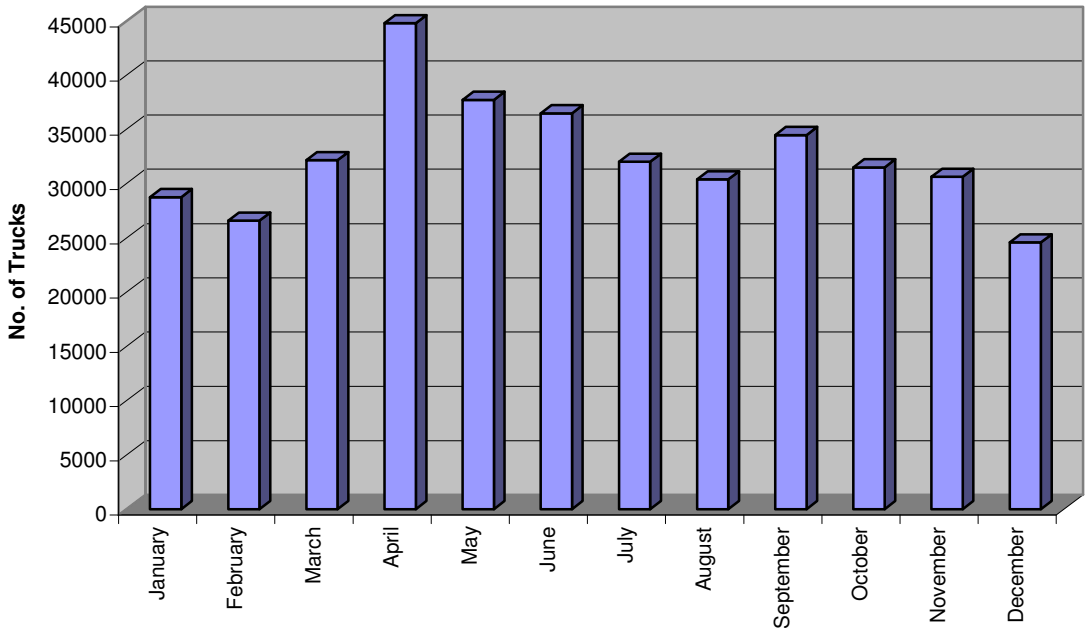


Figure 3-9 1998 – 2002 Average Total Truck Traffic at Rigby WIM Station

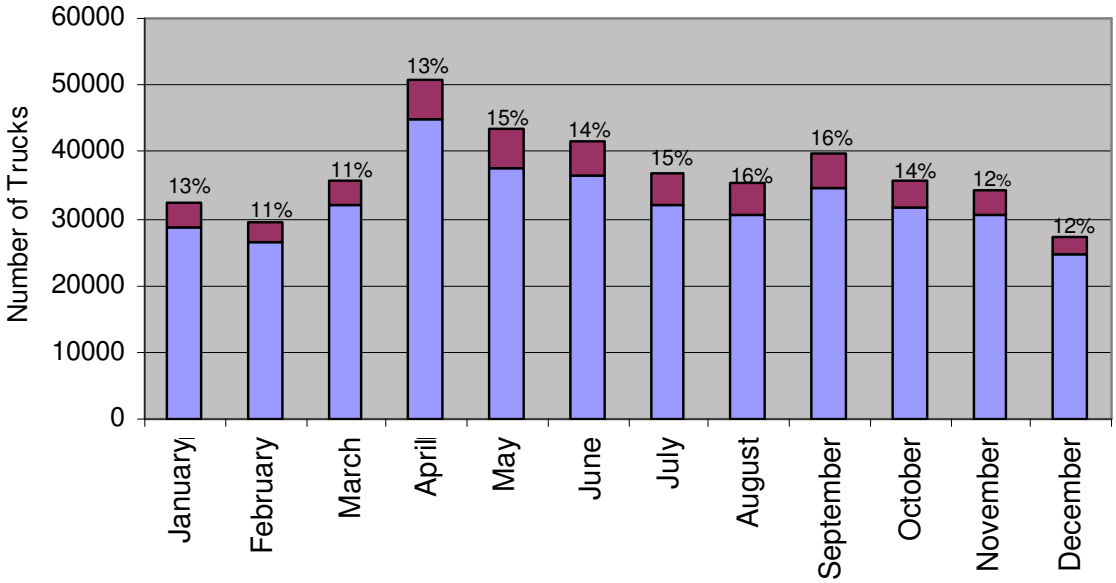
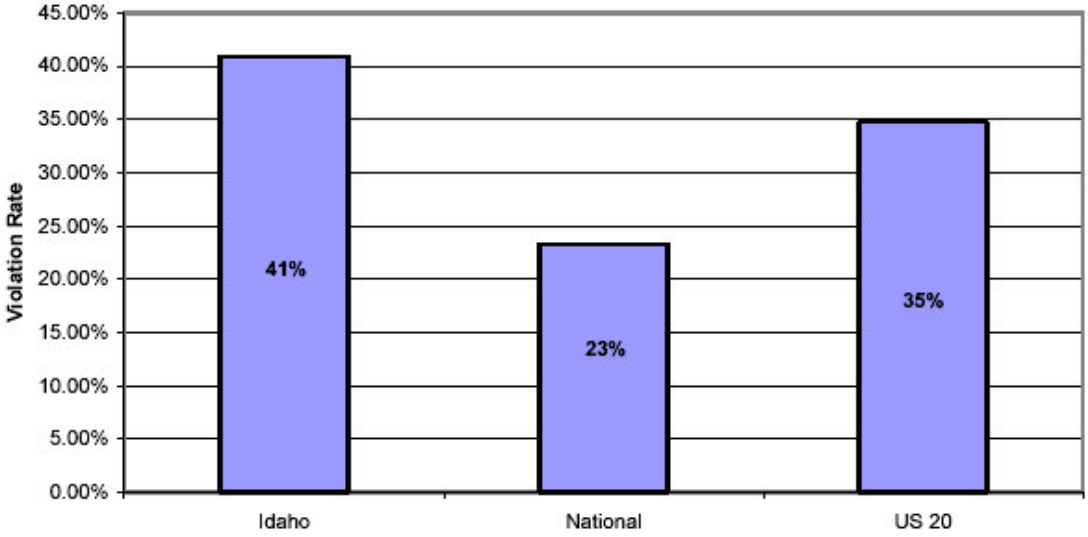


Figure 3-10 1998 – 2002 Overweight Truck Traffic With the Percentage of Total Truck Traffic at Rigby WIM Station

As shown in **Figure 3-9**, the greatest amount of commercial traffic occurs from April through September. **Figure 3-10** shows the highest rate of weight violations also occurs during these months.

3.3.2 Inspection – Violation Data

To determine how US-20 compared to other POE operations, the violation rates were compared to state and national averages. POE operations on US-20 are not currently ensuring a high compliance rate among commercial vehicles. Station logs for the Ashton POE pullout location illustrate violation data for the US-20 corridor. Information for roving inspections is also available in two other reports but these reports show violation data for roving inspections across the state. **Figure 3-11** shows a comparison of violation rates between data obtained from ITD for US-20 roving inspections and data obtained from the Federal Motor Carrier Safety Administration (FMCSA) for Idaho as compared to the national violation rate statistics. On a statewide basis, US-20 has a lower percentage of violations (35 percent) than the state overall (41 percent). On a national level, US-20 has a 12 percent higher rate of violations.

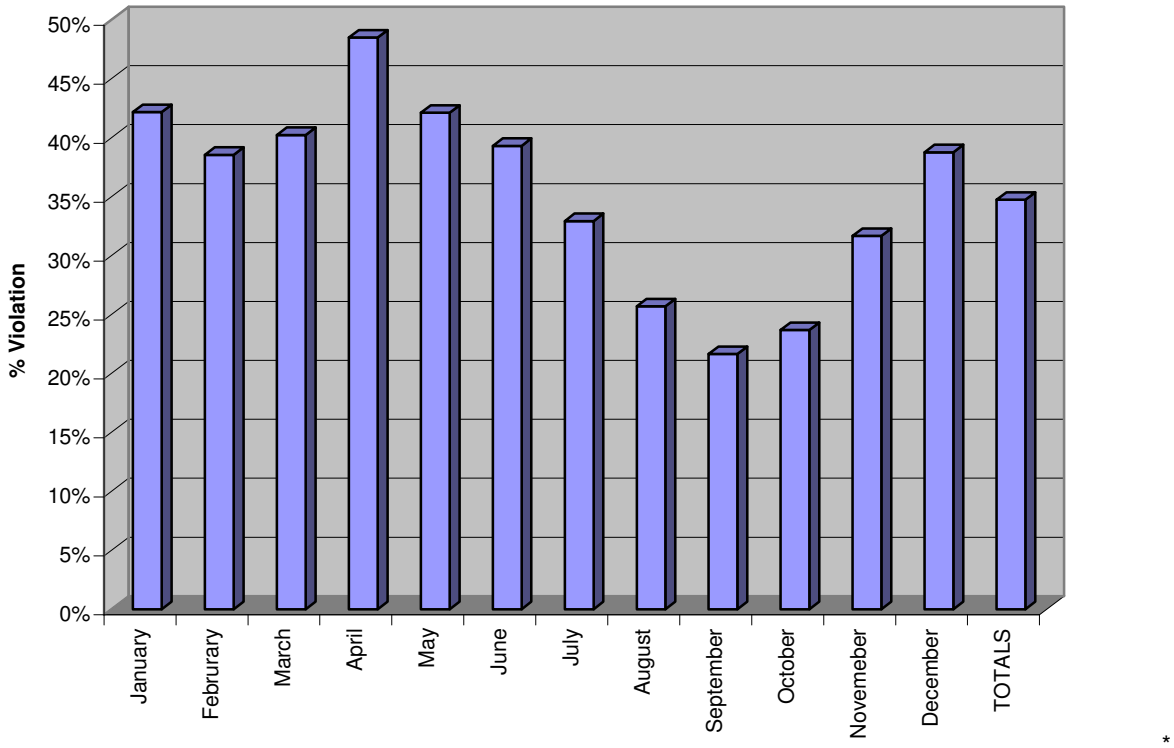


*Sources: FMCSA Motor Carrier Management Information System (MCMIS); ITD Station Log Summary Report for Ashton POE

Figure 3-11 Comparison of Violation Rates at Roadside Inspections (2001)

Station logs for the Ashton POE pullout location illustrate violation data for the US-20 corridor. **Figure 3-12** shows a summary of violation percentages by month as recorded at the Ashton location for the years 1998-2001. The station logs include the following violations:

1. Off-Load – Driver instructed to unload some or all of the load on the truck
2. Shifted – Driver instructed to shift the load to distribute the weight on the axles
3. Out of Service – Driver or vehicle put out of service until legal
4. Warning – Driver issued a warning
5. Intransit Permit – Driver required to purchase an Idaho trucking permit
6. Suspended – Driver's permit suspended until legal
7. Citation – Driver issued a citation
8. Over-legal Permit – Driver required to purchase an over-legal trip permit



Source: ITD Station Log Summary Report for Ashton POE

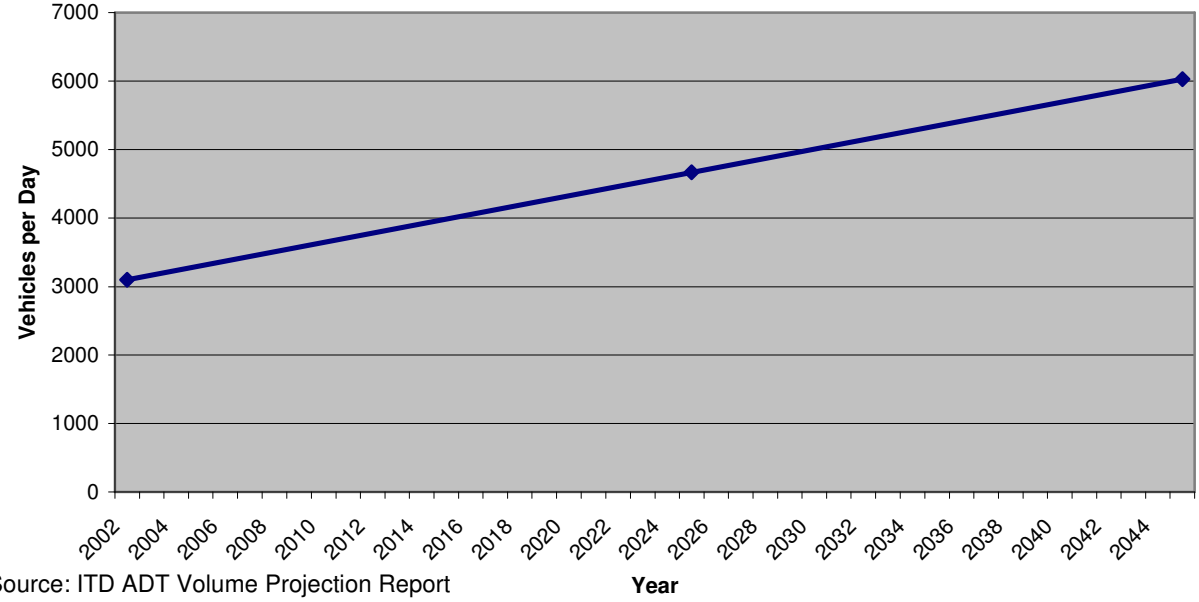
Figure 3-12 4-Year Average (1998-2001) Percentage of Commercial Vehicle Violations on US-20 at Ashton Pullout Location

3.4 Forecasts

Data was gathered from ITD to forecast both average daily traffic and commercial traffic on US-20.

3.4.1 Traffic Forecasts

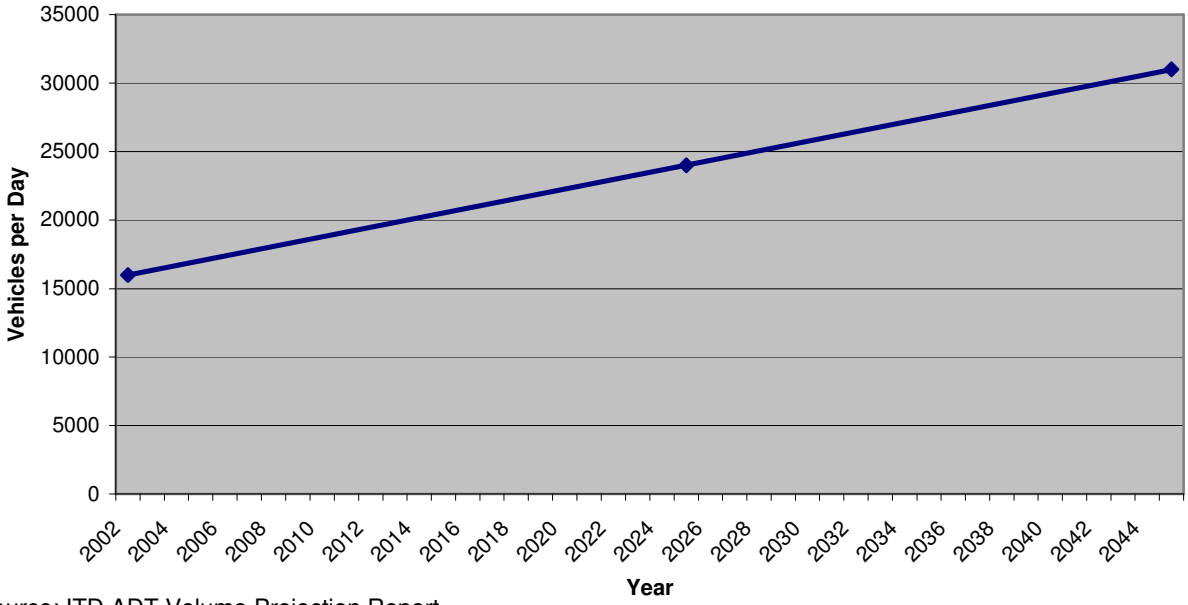
Traffic forecasts obtained from ITD shows growth rates for US-20 for mid-range (year 2025) and long-range (year 2045) scenarios for the segment of US-20 from milepost 363 to milepost 373. Using an ADT figure of 3,100 vehicles and growth rate of approximately two percent annually, ADTs of 4,670 vehicles per day (vpd) and 6,030 vpd are generated for the year 2025 and 2045 scenarios, respectively. Both the *1999 Corridor Plan* and the *Ongoing US-20 Plan* forecast approximately the same growth and corroborate these forecasts. **Figure 3-13** illustrates this growth.



*Source: ITD ADT Volume Projection Report

Figure 3-13 Average Daily Traffic Forecast – Northern Segment

Application of the same growth rate to the Southern Segment volumes results in ADTs of approximately 24,000 and 31,000 vpd in the year 2025 and 2045 scenarios, respectively. **Figure 3-14** illustrates this traffic growth.

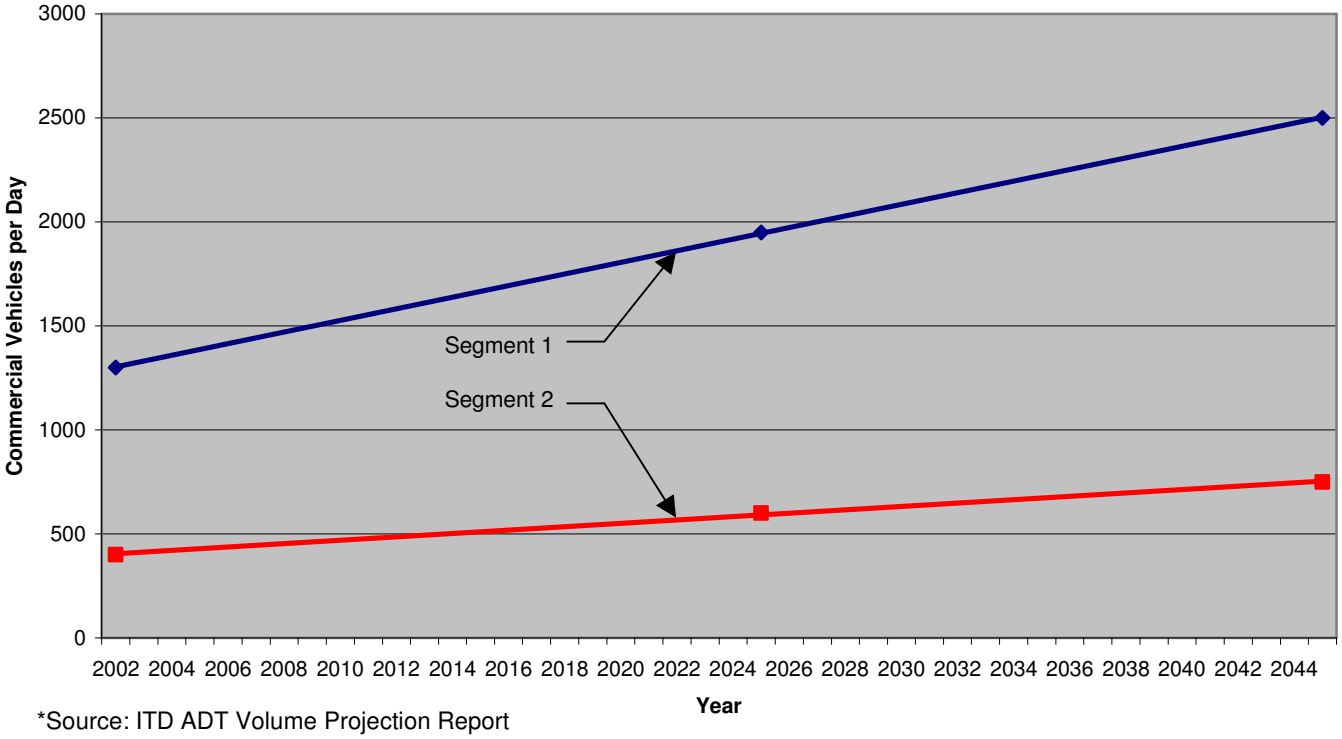


*Source: ITD ADT Volume Projection Report

Figure 3-14 Average Daily Traffic Forecast – Southern Segment

3.4.2 Commercial Vehicle Forecasts

ITD uses the same methodology to forecast growth in commercial vehicle traffic. **Figure 3-15** shows the commercial vehicle traffic on each segment.



*Source: ITD ADT Volume Projection Report

Figure 3-15 Commercial ADT Forecast by Segment

3.5 Needs Assessment

Based on the level of commercial traffic traveling the US-20 corridor, and the compliance statistics, updated POE operations are needed. As commercial vehicle traffic continues to escalate, it will become increasingly difficult to ensure compliance.

Projected volumes on the corridor – 24,000 vpd on the Southern Segment and 4,700 vpd on the Northern by the year 2025, in addition to over 50 percent increase in commercial vehicle traffic for the same period indicate that heavy vehicle compliance on US-20 will become progressively more important for ITD to maintain its infrastructure.

4.0 SUMMARY OF NEEDS AND RECOMMENDATIONS

Based on the data collected and subsequent analysis presented in Chapters 2 and 3 of this report, the following areas have been identified as needs for potential improvements.

1. Data Management
2. Overweight Vehicles
3. Enforcement

4.1 Data Management

The current data management system is cumbersome. There are various points of data entry that present numerous opportunities for human error. The reports are not readily available nor are they utilized to the extent possible in ongoing POE operations. Due to the nature of the data, decisions regarding large capital expenditures are difficult to substantiate and justify. For example, if the department were to consider building a permanent port of entry to increase weight compliance, it would be difficult to locate because of the lack of data indicating where the violations repeatedly occur. This could lead to locating an expensive port of entry in the wrong place where it would provide little or no benefit to increasing the effectiveness of compliance.

This study identified opportunities to better utilize the existing data that is available to port personnel. These opportunities also exist to expand and enhance data collection, storage and access. Additionally, improved access and use of the data can improve the efficiency and effectiveness of POE operations.

4.1.1 WIM Data

Real time information is currently available for all WIMs in the state. ITD has the capability to pick a WIM site and monitor the data as it is being collected from the WIM. Currently, the data is downloaded daily (in the evenings). The data must be converted from a binary code and formatted to produce the monthly reports. These monthly reports are not sent out to the Districts or ports of entry on a regular basis, but are sent out upon request. ITD's goal is to ultimately provide the WIM data on the ITD website, where it would be available to everyone. The varying levels of application for WIM devices make them an effective tool for traffic planning and enforcement. This same information can be used to benefit POE operations. The investment that ITD has already made in WIM technology is a first step to improving the capabilities of the department to maintain the safety and conditions of its roads.

Available Technologies

Portable WIM systems are designed for weighing at temporary sites. ITD currently has a portable WIM that is outdated and under utilized. Many of the newer WIM systems are capable of monitoring and recording vehicle wheel, axle, and gross vehicle weights and measure the distance between axles. Typically, set-up time takes only minutes and the systems are small and light weight enough to transport in the trunk of a car or the back of a truck. Because of these features, a new portable WIM system would be an ideal tool for data collection at remote locations along US-20 or for spot-checks at random locations. The main components of

portable WIM systems include the sensors, pads, ramps or leveling pads, cables, and a portable data collection system. The information collected from a portable WIM system could be instantly downloaded into a database located at ITD Headquarters and made available over the Internet. This information can also be used in collaboration with planning activities and for improvements to traffic safety measures. ITD's portable WIM is not being used to its full potential at this time because it is cumbersome to use for compliance activities by the roving inspectors. Instead, we recommend ITD purchase a new WIM model and the use this tool to enhance the current data analysis and understanding of motor carrier functions.

Message Boards and WIM

In addition to storing data, a fixed or portable WIM can be set up to return instant feedback. Immediate feedback will give officials notification of vehicles that are in violation. If desired, a notice can be displayed on a message board placed on the roads. This system has been used to warn drivers of speeding and height violations. It is usually most effective in cases where the truck is equipped with a transponder and the message can be displayed with the truck or driver information. Messages can also be manually entered for display on the message board. Accuracy is a concern for manual entries.

Photo Enforcement and WIM

Photographic technology is growing very rapidly and is now being used in a number of ways to patrol roads. Advanced applications integrate WIM devices and high-speed cameras with specialized programming that instructs the camera to take a picture when a reading indicating a violation has been registered. The image can be as large as the vehicle or as detailed as the PUC Placard. It can be transmitted to memory, or if the image is made digitally, immediately communicated to a receiving source such as a monitor. Enforcement personnel can then be deployed to intercept the offending vehicle or electronic signs can be turned on to pull vehicles off at fixed scale locations. **Figure 4-1** illustrates this process.

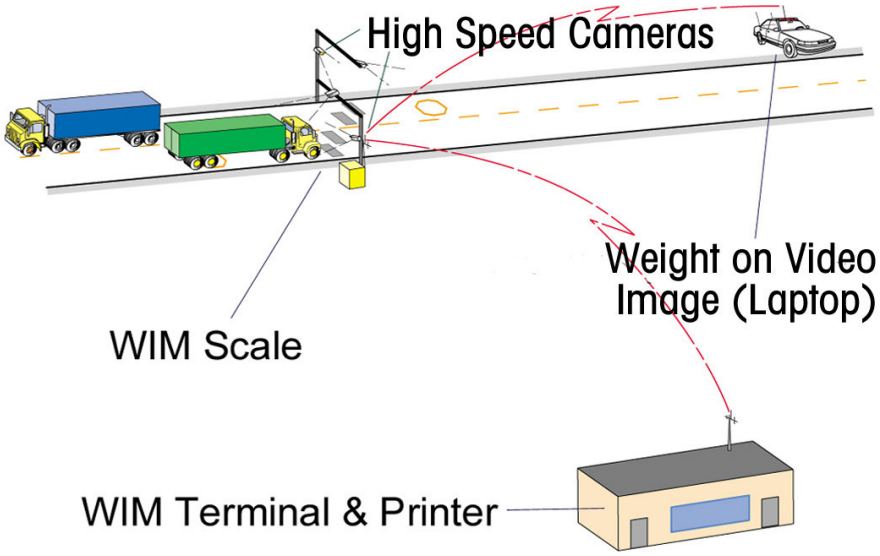


Figure 4-1 WIM Photo Enforcement

Additional programming capabilities will interpret the PUC Placard and compare them with an existing database to generate reports about information that is known about a vehicle. One concern for this technology is the potential for vandalism of the equipment. Special design consideration must be given to the implementation of this technology to safeguard it against vandalism.

4.1.2 Station Logs

For areas where no WIM exists, station logs are the primary source of information. The rovers record information manually in the field and enter the data into ITD's database at a later time. Rovers have up to 30 days to enter the data. The requirement to record the information manually, and later re-enter the data could be eliminated, thereby providing the rovers with more field time.

The data from the station logs are stored in a master database, which inspectors have access to. Currently, there is no consistent use of the information by POE's and the data is used primarily for statistical reporting. The reports that are currently available report all pullout locations along a particular corridor, such as US-20, as one location. In the case of US-20, data is recorded as the Ashton pullout location only. The station log information is available for individual pullout locations, but requires writing a special query to access it. Extracting information for the individual pullout locations can be done at headquarters; however, the information that is produced from the station log reports is not user-friendly and requires manual entry into spreadsheets. **Figure 4-2** is a screen capture from an actual station log.

12/04/03 IDAHO TRANSPORTATION DEPARTMENT PAGE: 76
STATION LOG SUMMARY REPORT

FOR PERIOD 01/01/2001 THRU 12/31/2001

TATION : SAGE JCT

MONTH:01 75 SHIFTS THIS MONTH

PLATFORM	PORTABL	WIM	TRV-ATH	OFF-LOD	SHIFTED	O-O-SRV	COUNT	MEASURE	INSPECT	WARNING	CONTACT	HAZ-INC
12,991	338			7	18	60	22,103	114	370	418		1

AZ-PRM	INTRANS	SUSPENS	BONDS	CITATN	STOCK	OVRLGLP	TRF-STP	REGISTR	VIN-INS	OBSERV	PUB-AST	OFFL-ASST
4	77	15	2	44	1	103	39	13		7,661	240	60

MONTH:02 74 SHIFTS THIS MONTH

PLATFORM	PORTABL	WIM	TRV-ATH	OFF-LOD	SHIFTED	O-O-SRV	COUNT	MEASURE	INSPECT	WARNING	CONTACT	HAZ-INC
14,995	334		2	5	22	50	23,850	96	329	476		

AZ-PRM	INTRANS	SUSPENS	BONDS	CITATN	STOCK	OVRLGLP	TRF-STP	REGISTR	VIN-INS	OBSERV	PUB-AST	OFFL-ASST
11	83	10		60		59	18	20		9,290	180	70

MONTH:03 72 SHIFTS THIS MONTH

PLATFORM	PORTABL	WIM	TRV-ATH	OFF-LOD	SHIFTED	O-O-SRV	COUNT	MEASURE	INSPECT	WARNING	CONTACT	HAZ-INC
13,519	378		1	7	32	85	22,475	115	422	499		

AZ-PRM	INTRANS	SUSPENS	BONDS	CITATN	STOCK	OVRLGLP	TRF-STP	REGISTR	VIN-INS	OBSERV	PUB-AST	OFFL-ASST
38	63	6	1	85	1	75	44	12	1	7,496	205	51

MONTH:04 64 SHIFTS THIS MONTH

PLATFORM	PORTABL	WIM	TRV-ATH	OFF-LOD	SHIFTED	O-O-SRV	COUNT	MEASURE	INSPECT	WARNING	CONTACT	HAZ-INC
13,217	211		2	18	26	79	23,830	169	401	521		

AZ-PRM	INTRANS	SUSPENS	BONDS	CITATN	STOCK	OVRLGLP	TRF-STP	REGISTR	VIN-INS	OBSERV	PUB-AST	OFFL-ASST
4	78	4	2	76	23	84	28	28		7,813	189	29

MONTH:05 70 SHIFTS THIS MONTH

PLATFORM	PORTABL	WIM	TRV-ATH	OFF-LOD	SHIFTED	O-O-SRV	COUNT	MEASURE	INSPECT	WARNING	CONTACT	HAZ-INC
12,432	339			12	16	67	20,949	122	408	405		

AZ-PRM	INTRANS	SUSPENS	BONDS	CITATN	STOCK	OVRLGLP	TRF-STP	REGISTR	VIN-INS	OBSERV	PUB-AST	OFFL-ASST
5	48	4	3	54	4	74	43	27		6,940	156	27

MONTH:06 58 SHIFTS THIS MONTH

PLATFORM	PORTABL	WIM	TRV-ATH	OFF-LOD	SHIFTED	O-O-SRV	COUNT	MEASURE	INSPECT	WARNING	CONTACT	HAZ-INC
10,821	956			10	24	64	20,322	136	415	372		

AZ-PRM	INTRANS	SUSPENS	BONDS	CITATN	STOCK	OVRLGLP	TRF-STP	REGISTR	VIN-INS	OBSERV	PUB-AST	OFFL-ASST
10	44	23		43	3	72	29	17	1	6,068	198	44

Figure 4-2 Station Log Report

4.1.3 Data Collection, Availability and Use Recommendations

To improve the availability and the utilization of data collection, we recommend the following steps for US-20 POE operations:

- Design "user-interfaces" which would allow port staff to more easily access the station log database and print out tailored and easily interpreted reports. The reports should allow for a detailed examination of variations in types, magnitude and frequency of compliance violations by location. **Figure 4-3** illustrates the current data process that ITD uses and the recommended data process.

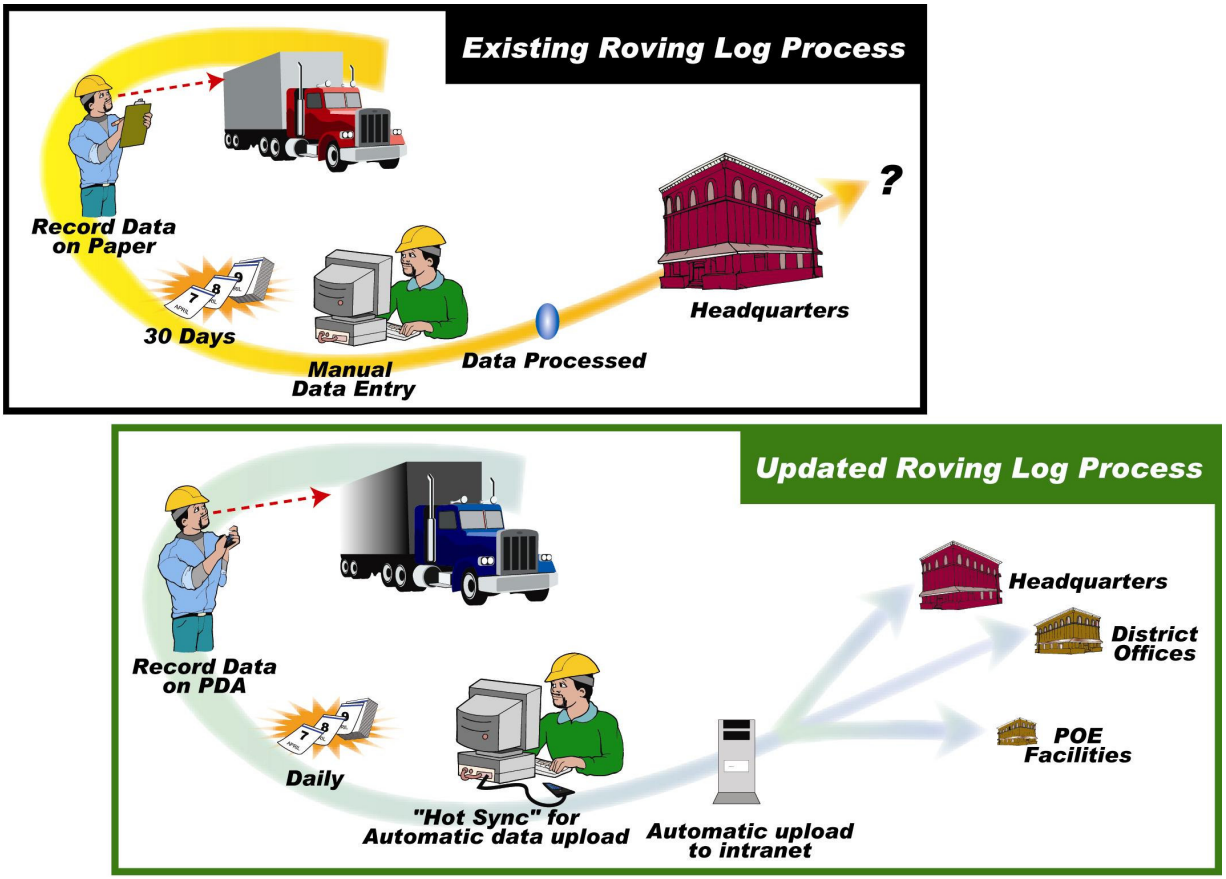


Figure 4-3 Data Processes, Current & Recommended

- Request regular monthly reports for the WIM location at Rigby (until available through web-based data management systems) and use the data to assist with targeting the roving inspectors time.

- Implement technology upgrades that would photo-identify overweight trucks as they pass over the WIM, providing the rovers a chance to inspect only vehicles they know are non-compliant.

- Implement electronic data entry by roving inspectors by using PDA systems or other portable computer devices during truck inspections to provide direct electronic data entry of inspection report data. Synchronizations between these portable computer devices and web-based data management systems daily would allow the data collected by the roving inspectors to be downloaded into a database and then made available for future reports and analysis. This would eliminate the manual entry of the inspection report and make the data available in a timelier manner. An example of a possible PDA or portable computer program is shown in **Figure 4-4.**

- Purchase a new portable WIM system and implement it to improve data collection activities. Identify data collection stations where data can be gathered on an annual basis, much as traffic data is currently gathered. This data collected from the portable WIM can be used to plan any future capital expenditures by POE operations.

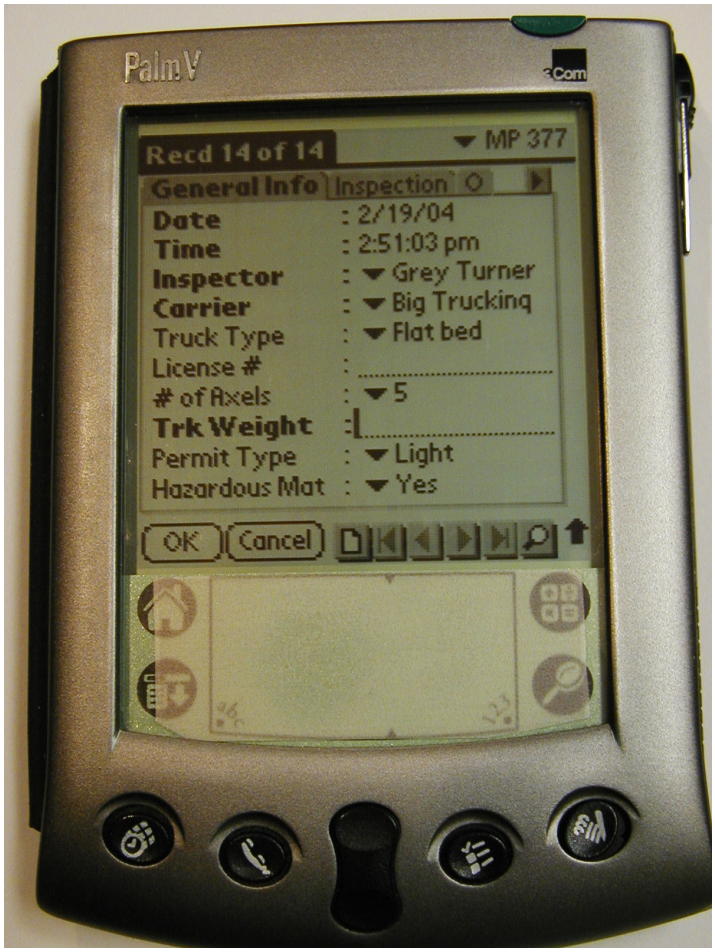


Figure 4-4 PDA Program

4.2 High Percentage of Overweight Commercial Vehicles

The analysis of both the WIM and Station Log information concluded that the US-20 Corridor has a high rate of overweight violations. In the Southern Segment, overweight violations range from 11 percent to 16 percent, while in the Northern Segment, violations range from 8 percent to 13 percent. This translates into between 115 to 225 overweight vehicles a day in the south, and approximately 17 to 30 overweight vehicles a day in the north. From April to September approximately 800 vehicles are violators per month at the WIM near Rigby. Actual numbers may be higher since not all overweight vehicles are identified. Looking at the traffic forecasts for the US-20 Corridor and applying the same violation rates, results in 185 to 270 overweight vehicles/day in the south and 25 to 45 overweight vehicles/day in the north by the year 2025. The perception of the roving inspectors is that the majority of violators are local farm to market haulers. This is a perception only as no real data exists to back up the claims. More detailed data is needed to help identify repeat offenders and to assist ITD in determining what solutions and/or capital expenditures are needed to reduce the percentage of overweight vehicles.

Options for addressing the high percentage of overweight violations include:

1. Permanent port facilities
2. Permanent platform weigh station
3. Portable WIM systems/pullout improvements

4.2.1 Weight Compliance Alternatives

<u>Permanent Port of Entry</u>

Even if the estimates were doubled to account for other types of violations and citations, the absolute numbers are not high enough to warrant a large capital investment, such as a fixed port of entry. Additionally, permanent port facilities are fast becoming obsolete due to the high costs to build and operate them. Permanent facilities require utilities and staffing. Such a facility would require at least one full time employee. Permanent port of entry facilities are also inflexible in targeting a range of problem areas. Drivers often seek out an alternate route to avoid inspection, additionally; a permanent port of entry would not be affective in targeting local haulers.

While construction of a permanent port facility on the US-20 corridor would simplify port of entry operations, the capital and operating costs would be significant. The overall cost of a new Port of Entry is estimated at $750,000 - $1,000,000.

Permanent Platform Weigh Station

Another option for permanent facilities is to install a permanent platform weigh station at one of the existing pullout locations to increase efficiency of the roving inspectors. This station would be permanent, but would only be manned at the times that are determined to be the most effective. In this manner, the station will be a more efficient use of manpower, opening only at peak times during peak seasons, as well as other random openings. Also, inspectors will not spend nearly as much time setting up for the day, thus increasing efficiency. Because the station would be inflexible to target specific areas, this station would be most effective when used in collaboration with portable WIM systems with vehicle identification technology. In addition, the scale must be located in an area where bypass is not possible.

An area of concern is the potential for the scale and it's housing to be subject to vandalism. In order to keep the scale safe, the structure built to house it must be vandalism resistant. A pre-cast concrete structure would be an option to place the scale equipment in a damage resistant housing. Capital costs for this type of facility would be in the range of $400,000 - $500,000, most of which would go towards upgrading the acceleration/deceleration lanes.

Portable Scale Systems at Pullout Locations with Improved Infrastructure

Use of portable scale systems at pullouts, combined with improvements to the infrastructure at selected pullouts would be a lower cost investment, and would tie into the recommendations for improved data collection and use. Portable scale systems can be equipped with the ability to electronically transmit data, which would increase the effectiveness of the data collected.

The pullouts on US-20 are generally inadequate for the amount of traffic traveling on the road and the speed at which it travels. The addition of acceleration and deceleration lanes for commercial vehicles would substantially increase the safety of the roving port operations. Depending on the locations of pullouts to be improved, the addition of these lanes may require right-of-way acquisition. Analysis of the station logs at individual pullout locations, combined with further interviews with the rovers, should be used to prioritize the pullout locations for improvements based on safety, violation rates and other factors.

4.2.2 Recommendations to Reduce High Percentage of Overweight Commercial Vehicles

To reduce the high percentage of overweight vehicles, the following improvements are recommended:

- Improve pullout facilities at key locations where bypass is difficult. **Figure 4-5** shows the pullout locations recommended for improvement.

- Provide a fixed scale at Thornton, near the crossing of the Snake River. Couple this improvement with the installation of a permanent WIM north of Thornton with photo

identification technology that is designed to be vandalism resistant. This equipment should be used so POE staff can be notified of an approaching overweight vehicle. Additionally, electronic signs indicating whether or not the scale is open should be installed to allow POE staff to open the scale just as an overweight vehicle is approaching. **Figure 4-6** illustrates the recommended location for a fixed scale.

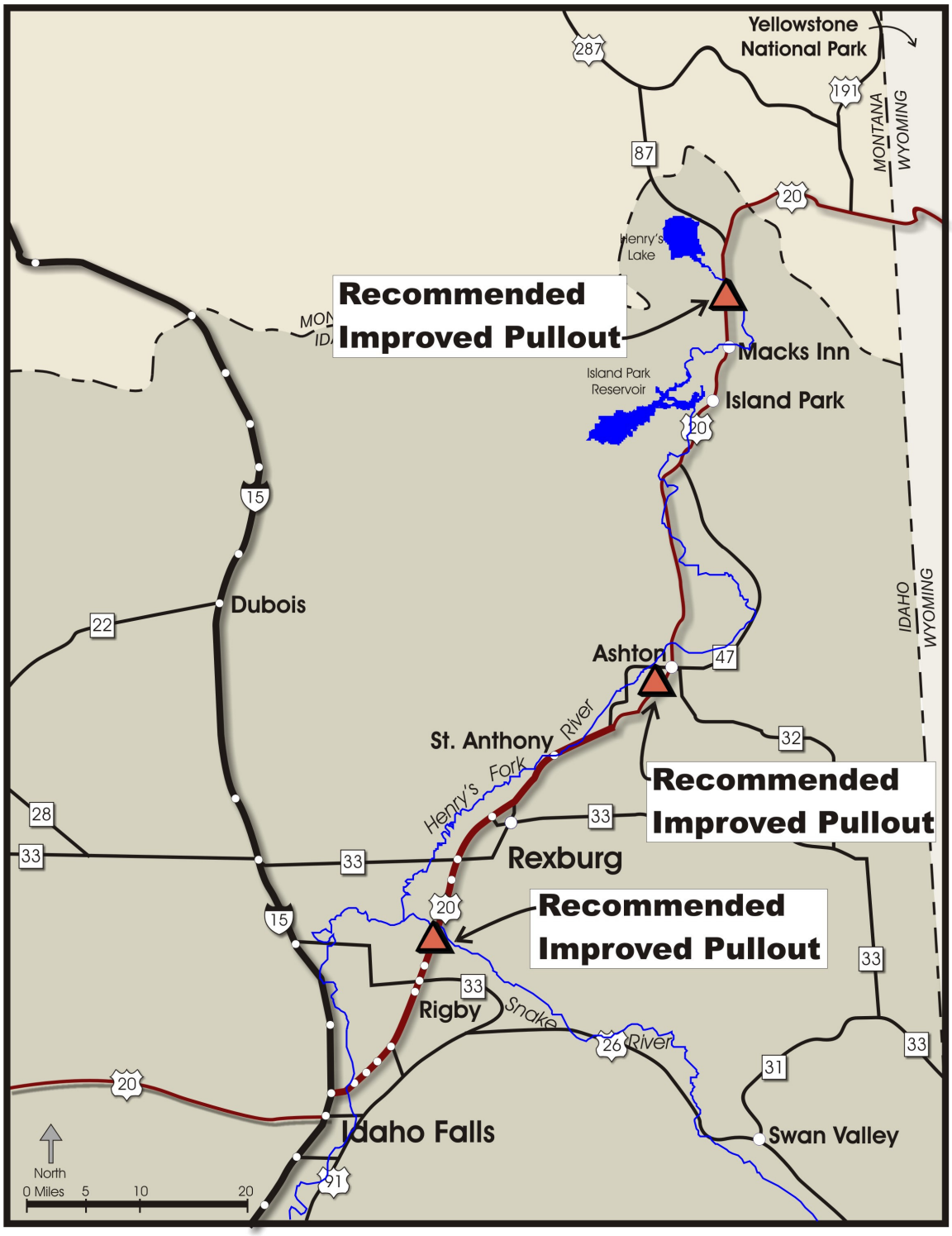


Figure 4-5 Pullout Locations Recommended for Improvement

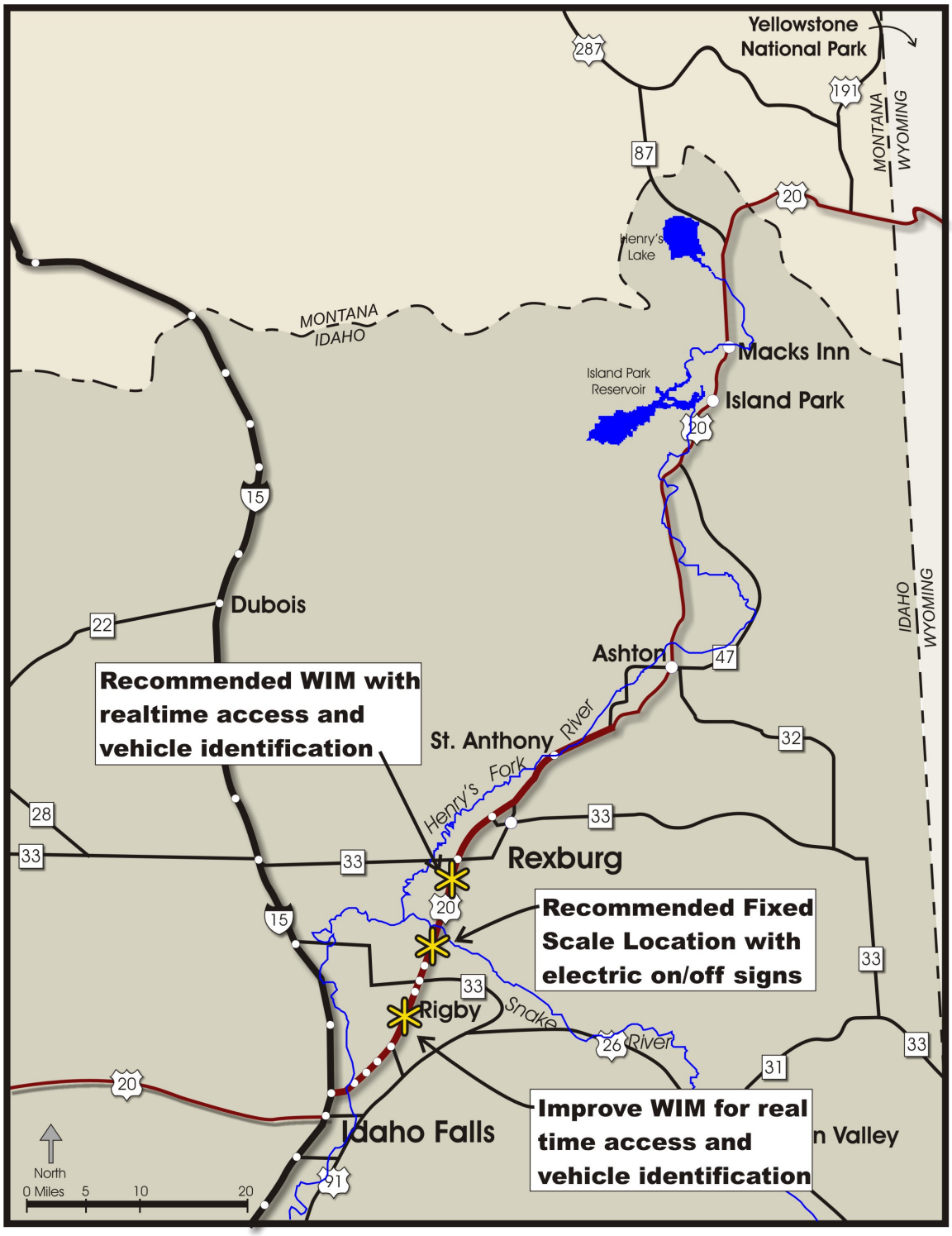


Figure 4-6 Recommended Locations for a Fixed Scale

4.3 Enforcement

The need to improve the effectiveness and efficiency of roving inspectors is the third issue that was identified for improvement. Roving inspectors are unable to spend enough time devoted to US-20. Currently neither Montana nor Wyoming's efforts are included in cooperation with ITD efforts to improve weight compliance for vehicles using US-20. The effectiveness and efficiency of the roving inspectors can be improved by focusing on scheduling the roving inspectors time and collaboration with MDT Motor Carrier Services (MDT MCS) and Wyoming State Patrol.

4.3.1 Alternatives for Enforcement

Speed Limit
A suggestion that arose during the study process was to lower the speed limits on the corridor to improve safety of motor carrier operations in the corridor. This study does acknowledge that safety in the corridor is an issue and safety is an issue with regards to motor carriers. We also recognize that speed is certainly a factor in a good portion of both the number of crashes, and in the severity of those crashes. We do not, however, recommend that speed limits be lowered for the corridor for the following reasons:

- Lowering the speed limit is not an effective method of controlling speed and, if applied inappropriately, can have the undesirable result of creating differential speeds between compliant and non-compliant vehicles.

- The function and the functional classification of US-20 are consistent, at a minimum, with the current speed limits.

- It is the opinion of this study that the existing roadway deficiencies are a contributing factor in the safety issues along US-20.

- There is a completed planning study for US-20 South of Ashton, and programmed improvements that are developed to addressed the current roadway deficiencies.

- There is an ongoing planning study for US-20 North of Ashton, which will identify recommended improvements to address the current roadway deficiencies.

If there are specific areas of concern where clusters of crashes or specific safety issues are identified, creating a reduced speed zone may be appropriate for a limited area. The identification of these speed zones should be based on an engineering and safety study of the conditions in a specific area. A wholesale lowering of the speed limit for the entire corridor is not considered to be an appropriate or effective solution.

To the extent that safety might be directly related to POE activities, this report does identify the need to improve some of the pullout locations by the addition of an acceleration and deceleration lane.

Scheduling
To allow rovers to effectively target areas that are experiencing weight violations, real time access to WIM data and station logs can be provided. This can be accomplished by providing

WIM data online and in real time, and incorporating it into the GIS system ITD currently has in place. This will provide an opportunity for roving inspectors to target specific areas that are manifested in the patterns created from the data. By scheduling their time more effectively to target areas that are frequently known to have offenders, the roving inspectors will be more cost effective in their operations.

Collaboration

Currently, ITD District 6 communicates with MDT MCS approximately two times a year. MDT MCS and the Wyoming State Patrol are interested in sharing information to make locating roving inspectors along US-20 more efficient. For example, if MDT MCS has inspectors located on US-20 on any given day, it is unnecessary for ITD to locate roving inspectors on US-20 on the same day. Collaboration of web-based information would also be effective for targeting the roving inspectors. Improving the communications to share information between ITD, MDT MCS and Wyoming State Patrol is one step that can be immediately taken by ITD and would not incur any further expense to the department.

Blue-Light Authority

As part of the study, consideration was given to whether the implementation of blue-light authority would improve the compliance of motor vehicles in the US-20 corridor. Idaho Code section 49-910A and 40-511 limits the stopping authority of the POE. Specifically, code 49-910A limits the color of lamps and globes to certain vehicle classes. The display of blue lights is intended to distinguish police vehicles from other emergency vehicles. ITD/POE vehicles are not designated as police vehicles nor should they be because the POE is not a law enforcement unit. The POE vehicles are properly designated as emergency vehicles, based on their function and mission.

The roving inspectors request for blue-light authority that would allow them to stop any vehicle for “probable cause” of a violation, such as a defective brake light, does not support the primary mission of the POE for size/weight compliance and enforcement.

Idaho code section 40-511 limits the stopping authority of the POE to those vehicles that have bypassed an open weigh-site or have violated a traffic signal to stop. This authority is consistent with the POE’s function and mission. As such, this report does not recommend any further consideration of blue-light stopping authority for the POE inspectors.

4.3.2 Recommendations to Improve Enforcement

To improve the enforcement of vehicle compliance activities and their effectiveness on US-20, the following steps are recommended:

- Pursue collaboration with Montana and Wyoming for information sharing and targeting of POE activities.

- Improve access to real-time WIM and station log data to provide more efficient and effective targeting of POE staff and resources.

4.4 Summary of Recommendations

The purpose of this report has been to provide the reader with an understanding of the current motor carrier and POE conditions on the US-20 study corridor, identify the needs, and communicate the reasoning process behind the recommendations identified. This report recommends a combination of improved data management, improved overweight vehicle compliance strategies, and improved methods of enforcement by enhancing the current roving inspection activities.

The construction of a large fixed Port of Entry facility was not recommended because of the following reasons:

- The data that currently exists regarding motor carrier use and POE operation does not support such a large capital expenditure.

- A fixed Port of Entry would not be effective in targeting the small local haulers that are believed to present the majority of violations.

A portion of the recommended improvements for the POE operations emphasizes the need for the improvement of data collection and management. After better data is gathered, these recommendations should be reviewed. The following is a concise list of the recommendations of this study:

1. **Upgrade the Existing WIM at Rigby.** Add vehicle identification technology to the existing WIM installation at Rigby and utilize this facility in POE enforcement activities. The vehicle identification technology will include camera installations that are susceptible to vandalism, so measures must be taken to make the improved facilities as vandal resistant as possible.

2. **Improve WIM Data Flow and Accessibility.** Improve information flow from the portable WIMs to make information readily accessible by WEB-based data management interfaces. Utilize WIM data in POE operations to more effectively target compliance and rover operations.

3. **Implement Electronic Station Log Data Entry.** Implement electronic data entry procedure for the roving inspectors to enter data directly into a laptop or PDA based system. Provide direct *syncing* ability so that station logs can directly "upload" to a WEB-based data management interface that allows for immediate availability and access.

4. **Purchase a New Portable WIM and Use It to Enhance Motor Carrier Data.** ITD has a portable WIM that is under utilized. It has been found to be cumbersome to use for compliance activities. We recommend the purchase of a new portable WIM system. The new portable WIM should be used to acquire data regarding motor carrier operation in the corridor, much like traffic volumes are counted. This improved data should be used to help guide future POE operations, and capital expenditures.

5. **Improve Pullout Facilities.** Specific pullout facilities should be improved to enhance the safety of inspection activities. These improvements are recommended where bypass of the facilities is difficult or impossible.

6. **Install A Fixed Scale Near Thornton.** Install a fixed scale at the Snake River crossing near Thornton. The fixed scale facility should be a combined use facility where other functions can be performed such as commercial vehicle safety inspections. The facility should include the ability to link electronically with other POE functions including the WEB, and WIM stations. Electronic signing should be provided to indicate whether commercial vehicles should pull off or not. The signing should allow for ease in turning the sign on or off, thus allowing for rapid opening of the facility.

7. **Develop Real-Time Access to WIM and Station Log Data.** Develop WEB-based data management for WIM and Station Log data. The data should be interfaced with ITD's GIS capabilities to provide user-friendly information regarding motor carrier issues. This information should be used for more efficient and effective targeting on roving inspection activities.

8. **Pursue Collaboration With Bordering States.** Pursue information sharing and POE operation collaboration with Montana and Wyoming to provide more efficient and effective use on resources and to improve overall compliance on US-20.

9. **Improve Collaboration Within ITD.** Improve information sharing and targeting of resources by increasing the collaboration between the Division of Highways - Traffic, Division of Transportation Planning, and Division of Motor Vehicles – Port of Entry. Increase the information and resource sharing for WIM information, compliance activities, safety, etc.