## Appendix D Diagnostic Team Report

## Richardson Highway/Steese Expressway Corridor Study



# RICHARDSON HIGHWAY/STEESE EXPRESSWAY CORRIDOR STUDY 

## DIAGNOSTIC TEAM REPORT

## Prepared for:

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Appendix A Crossing Inventory

## LIST OF ACRONYMS



### 1.0 OBJECTIVES

The State of Alaska Department of Transportation and Public Facilities (DOT\&PF) is performing a Planning and Environmental Linkage (PEL) Study for the corridor between Richardson Highway Milepoint 359.921 (Badger Road) to Steese Expressway Milepoint 5.216 (Chena Hot Springs Road).

A diagnostic team (DT) was assembled to evaluate railroad crossing deficiencies and develop consensus with regard to recommended improvements at three at-grade crossings in the project corridor. This report documents the analysis and findings that resulted from the DT meetings.

The evaluation of existing and proposed crossings was conducted in accordance with the Alaska Policy on Railroad/Highway Crossings (Policy) adopted by the Alaska Railroad Corporation (ARRC) and the DOT\&PF in 1988. Based on the Policy, an evaluation of existing conditions was completed, as well as a future-conditions assessment based on projected Annual Average Daily Traffic (AADT) volumes, to determine whether improvements to the crossings will be required based on the planned improvements in the project corridor.

The three existing crossings within the project area are detailed in Table 1.
Table 1: Crossing Inventory

| Crossing <br> ID Number | Crossing Name | Railroad <br> Milepost | Crossing <br> Type | Crossing Protection |
| :---: | :---: | :---: | :---: | :---: |
| 868296B | Steese Expressway | G1.92 | Active | Reflective cross bucks |
| 868406J | Old Steese Highway | G1.88 | Gated | Reflective cross bucks, gates |
| 868428J | Richardson Highway | H0.20 | Gated | Reflective cross bucks, gates |

Figures 1 through 4 depict the railroad/highway-grade crossings included in the DT review.


Figure 1: Location Vicinity Map


Figure 2: Steese Expressway


Figure 3: Old Steese Highway


Figure 4: Richardson Highway

### 2.0 ANALYSIS

The Policy recommends that a diagnostic team perform an on-site evaluation before any major improvement is planned for an existing crossing and/or before a new crossing is approved. The DT evaluated the crossings in accordance with the following excerpts from the Policy, which states:

- The Federal Highway Administration (FHWA) Accident Prevention Value (APV) should be used as one factor in classifying and prioritizing crossings for improvements.
- Diagnostic teams should consider an APV of 0.1 (one accident every 10 years) as an indicator of probable need to go from passive to active warning devices.
- Diagnostic teams should evaluate crossings which have an APV greater than 0.1 to determine the feasibility of providing grade separations (overpass/underpass) or of increasing the level of protection of the warning devices.

Table 2 depicts the APV for each crossing for existing Railroad/Highway-Grade Crossings using 2040 vehicle movements and no change in train movements.

Table 2: Accident Prevention Value Calculations (Using Existing Crossing Types)

| Crossing with Current Accident Prevention Value (APV) |  |  |  |  |  | Crossing with 2040 AADT with no increased train movements |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Crossing <br> ID <br> Number | Crossing <br> Name | Railroad Milepost | Crossing Type | APV <br> Validation <br> WBAPS* <br> 2013 <br> (actual) | APV <br> Validation <br> WBAPS* <br> 2013 <br> (calculated) | $\begin{gathered} \text { Current } \\ \text { APV } \\ (2015 \\ \text { AADT) } \\ \text { No } \\ \text { Crashes } \end{gathered}$ | $\begin{gathered} \text { Design } \\ \text { Year } \\ \text { APV } \\ (2040 \\ \text { AADT }) \\ \text { No } \\ \text { Crashes } \end{gathered}$ | Design Year APV (2040 <br> AADT) <br> 1 Crash <br> in <br> 5 years | Design Year APV (2040 AADT) 2 Crashes in 5 years |
| 868296B | Steese <br> Expressway | G1.92 | Active | 0.034052 | 0.034052 | 0.034784 | 0.036548 | 0.078210 | 0.119872 |
| 868406J | Old Steese Highway | G1.88 | Gated | 0.024607 | 0.024608 | 0.021974 | 0.022939 | 0.060674 | 0.098409 |
| 868428J | Richardson Highway | H0.20 | Gated | 0.013301 | 0.013301 | 0.013886 | 0.015301 | 0.046926 | 0.078551 |

*WBAPS = Web Accident Prediction System
All crossing type APVs are higher than 0.1 (one accident every 10 years)
Note: No documented crashes have occurred within the last 10 years at any crossing.

Based on the 2015 and 2040 projected traffic volumes and assuming 1 crash or less every 5 years, the calculated APV in Table 2 shows that none of the existing crossings warrant additional crossing protection beyond what is already in place. The threshold for mitigation is exceeded on the Steese Expressway when using 2040 AADT and 2 crashes in a 5-year period. Under these assumptions, the resulting APV is greater than 0.1, indicating that greater crossing protection should be provided. Since the Steese Expressway already has an active system, the next step would be adding gates. However, this scenario still has an APV that exceeds 0.1. Old Steese Highway is also very close to exceeding the 0.1 threshold under similar AADT and crash frequency assumptions.

### 3.0 DIAGNOSTIC TEAM REVIEW AND RECOMMENDATIONS

Two DT meetings were held to discuss the crossings and to make recommendations: one on November 25, 2013 and the second on December 17, 2013.

Attendees included:

## Name

Al Beck
Chris Cavallo
Pam Golden
Brian Lindamood
Chris Johnston
Steve Noble
Zaid Hussein
Brian Hanson
Rachel Steer
Lesley Lepley

## Agency

DOT\&PF
DOT\&PF
DOT\&PF
ARRC
DOT\&PF - attended the 12/17/13 meeting only
DOWL HKM
DOWL HKM
DOWL HKM - attended the 11/25/13 meeting only
DOWL HKM - attended the 12/17/13 meeting only
DOWL HKM - attended the 11/25/13 meeting only

Prior to discussion of alternatives, the team reviewed the inventory for each crossing (see Appendix A), which included:

- APVs for existing and future railroad/highway-grade crossings, using 2040 vehicle movements
- AADT for the Richardson Highway/Steese Expressway
- The 2013 Annual Web Accident Prediction System (WBAPS) Report for Public AtGrade Highway-Rail Crossings
- A ten-year collision history
- An abbreviated highway-rail crossing inventory profile


### 4.0 ALTERNATIVES

As part of the PEL Study, three corridor concepts were developed for the overall project, with varying treatments for each railroad/highway crossing. The following includes a brief description of the concepts and the improvements as they relate to railroad/highway crossings.

The PEL study concepts consist of motorized and non-motorized traffic improvements to resolve projected operational and safety deficiencies through the design year 2040; each concept places a different emphasis on mobility and access.

- Concept 1 - High Mobility/Low Access
- Concept 2 - Moderate Mobility/Moderate Access
- Concept 3 - Low Mobility/High Access


### 4.1 Concept 1 - High Mobility/Low Access

Concept 1 will construct grade separated intersections to develop a controlled access, freewaytype facility through the project corridor. The proposed improvements under this concept provide the greatest corridor safety and capacity for projected traffic growth through the design year, of the three concepts being considered. Concept 1 provides the greatest corridor safety and greatest capacity for projected traffic growth through 2040. (See Figure 5)

Railroad/highway crossing improvements include:

- Grade separation at Old Steese Highway
- Grade separation at Steese Expressway
- Grade separation at Richardson Highway

Federal Project No. NH-000S(781)
AKSAS Project No. 60799


Figure 5: Concepts 1 and 2 - Grade Separation

### 4.2 Concept 2 - Moderate Mobility/Moderate Access

Concept 2 will construct grade separated intersections to progress the corridor toward a controlled access, freeway-type facility through the project corridor. At-grade intersections would continue to exist at the intersections of Steese Expressway with College Road and 3rd Street. In comparison to the other concepts, Concept 2 provides greater overall safety benefits and greater capacity for projected traffic growth through the design year than Concept 3, but fewer than Concept 1. (See Figure 5)

Railroad/highway crossing improvements include:

- Grade separation at Old Steese Highway
- Grade separation at Steese Expressway
- Grade separation at Richardson Highway


### 4.3 Concept 3 - Low Mobility/High Access

Concept 3 will construct nine area intersection improvements and expand the collector level road network adjacent to the Steese Expressway corridor between Farmers Loop and Johansen Expressway. The proposed improvements will mitigate some of the anticipated traffic growth, but will not achieve the typical level of service performance metrics at all project area intersections. In comparison to the other concepts, Concept 3 provides the lowest overall safety benefits and lowest capacity for projected traffic growth through the design year.

Under Concept 3, all of the railroad/highway crossings remain at-grade. The crossing of Steese Expressway and Old Steese Highway remains as it exists, with the only modifications being those required for adding an additional southbound through lane on Steese Expressway and northbound and southbound through lanes on Old Steese Highway. Crossing modifications would include gates, new flashing lights, and sign relocations. The crossing of Richardson Highway remains as it now exists.

For Concept 3, the APV calculations were updated to determine the effect of the planned modifications. Table 3 depicts the APV for existing and future Railroad/Highway-Grade Crossings using 2040 vehicle movements, the planned modifications, and no change in train movements.

Table 3: Accident Prevention Value Calculations (Using Existing Crossing Types)

| Crossing <br> Number | Crossing Name | Railroad Milepost | Crossing Type | Design Year APV (2040 AADT) No Crashes | Design Year <br> APV <br> (2040 <br> AADT) <br> 1 Crash <br> in <br> 5 years | Design Year APV (2040 AADT) <br> 2 Crashes in 5 years |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 868296B | Steese Expressway | G1.92 | Active | 0.039244 | 0.083063 | 0.126882 |
| 868406J | Old Steese Highway | G1.88 | Gated | 0.028275 | 0.070279 | 0.112283 |

All crossing type APVs are higher than 0.1 (one accident every 10 years)
As shown in Table 3, adding additional through traffic lanes would warrant grade separation at both crossings, assuming 2040 AADT and 2 crashes in 5 years. All crossing types were analyzed and indicated a value of greater than 0.1 , indicating grade separation should be considered.

### 5.0 RECOMMENDATIONS

The APV is one factor in determining changes or improvements needed at a railroad/highway crossing. An APV of greater than 0.1 is an ARRC threshold for requiring consideration of grade separation; however, an APV of less than 0.1 could also support grade separation for a variety of other site-specific or corridor-specific reasons. In addition to the APV, other factors that should be considered to evaluate grade separation include: proximity of adjacent crossings, alternate routes, emergency response, and highway volumes.

### 5.1 Steese Expressway and Old Steese Highway

PEL Concepts 1 and 2 propose grade separation to maintain moderate to high mobility. Concept 3 does not propose grade separation, but the additional traffic lanes proposed at each crossing could render gates infeasible, renewing the consideration of grade separation. Traffic volumes in this area are expected to increase nearly $40 \%$ within the 20 -year planning horizon. The proximity of both crossings means that when a train passes, both crossings are closed for vehicular movement up to six times daily, cutting off the only north/south corridors in this area. This not only impedes traffic flow, but also requires different routing and lengthens response times for emergency responders. Close proximity of the two crossings will require grade separation of both crossings, since there is insufficient distance to separate one crossing and not the other. If grade separation does not occur as proposed in Concept 3, the additional lanes would
cause the APV to exceed 0.1, assuming 2040 AADT and 2 crashes in 5 years, which would further support grade separation.

### 5.2 Richardson Highway

Two options are considered for the Richardson Highway to achieve moderate to high mobility. PEL Concepts 1 and 2 both include either grade separation of the westbound off ramp or construction of a tight diamond interchange and grade separation of the highway. The off ramps would continue to be at grade with the railroad crossing. AADT for each crossing would go down significantly, reducing the APV and significantly improving traffic mobility. This also has an added safety benefit of elimination of westbound traffic having to cross the eastbound lanes on the Richardson Highway. Anecdotal information from local trucking companies indicates that they lengthen their routes to avoid this highway crossing. Concept 3 does not propose any changes at this crossing.

### 6.0 CONCLUSION

Based on the discussions of the DT at two meetings, analysis of the APV, and comparison of these crossings to similar crossings in Alaska, it was determined that grade separation of all three crossings should be considered. Grade separation is required to meet the mobility and access demands within the Richardson Highway/Steese Expressway Corridor. Future improvements within the corridor should be compatible with grade separation so that, when funding is available, grade separation projects at each crossing may be undertaken.

## APPENDIX A

## Crossing Inventory

| APV Calculations for existing and future Railroad/Highway Grade Crossings using 2040 vehicle movements with no change in movements. Using Existing Crossing types. |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Crossing and Current APV |  |  |  |  |  | Crossing with 2040 AADT with no increased train movements |  |  |  |
| Crossing ID Number | Crossing Name | Railroad Milepost | Crossing Type | APV Validation WBAPS 2013 (actual) | APV Validation WBAPS 2013 (calculated) | $\left\lvert\, \begin{gathered} \text { Current APV } \\ \text { (2015 ADT) No } \\ \text { Crashes } \end{gathered}\right.$ | Design Year <br> APV (2040 <br> ADT) No Crashes | Design Year APV (2040 ADT) 1 Crash in 5 years | Design Year APV (2040 ADT) 2 Crashes in 5 years |
| 868296B | Steese Expressway | G1.92 | Active | 0.034052 | 0.034052 | 0.034784 | 0.036548 | 0.078210 | 0.119872 |
| 868406J | Old Steese Hwy | G1.88 | Gated | 0.024607 | 0.024608 | 0.021974 | 0.022939 | 0.060674 | 0.098409 |
| 868428 J | Richardson Hwy | H0.20 | Gated | 0.013301 | 0.013301 | 0.013886 | 0.015301 | 0.046926 | 0.078551 |

Table 8A-100. Qualitative Procedure

| Existing Traffic <br> Control Device | Calculated Accident <br> Prediction Value, APV | Recommended Action for Improvement |
| :--- | :---: | :--- |
| Passive | 0.08 to $0.12^{*}$ | See note below. |
|  | 0.12 to 0.15 | Flashing lights |
|  |  |  |
|  | 0.15 to 0.23 | Gates and flashing lights |
|  | 0.23 to 12.4 | Gates and flashing lights or grade separation |
|  | 12.4 to 18.5 | Grade separation |
|  | Greater than 18.5 | See note below |
|  | 0.12 to $0.18^{*}$ |  |
|  | 0.18 to 3.7 | Gates and flashing lights |
| Gates | 3.7 to 5.6 | Gates and flashing lights or grade separation |
|  | Greater than 5.6 | Grade separation |

*When the calculated hazard index falls within this range, the decision may be to do nothing, improve the existing traffic control system, install a different type of traffic control system, or make some other improvement at the crossing.

Option:
03 The engineering study may include the Highway-Rail Intersection (HRI) components of the National Intelligent Transportation Systems (ITS) architecture, which is a USDOT accepted method for linking the highway, vehicles, and traffic management systems with rail operations and wayside equipment.
${ }^{03}$ A Consistent with the Alaska Policy on Railroad/Highway Crossings, other improvements that may be considered for enhancing crossing safety include:
A. Improving sight distance to increase the visibility of the crossing and the train
B. Closing the crossing
C. Improving the approach alignment and/or grade of the roadway
D. Instituting and enforcing railroad and/or highway operating regulations
E. Improving the crossing surface
F. Illuminating the crossing

Support:
04 More detail on Highway-Rail Intersection components is available from the USDOT's Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590, or www.fra.dot.gov.

## Standard:

${ }_{0}$ Traffic control devices, systems, and practices shall be consistent with the design and application of the Standards contained in this Manual.
${ }_{06}$ Before any new highway-rail grade crossing traffic control system is installed or before modifications are made to an existing system, approvalshall be obtained from the highway ageney with thejuristietional and/or statutory authority, and from the raihroatcompany. the Alaska Policy on Railroad/ Highway Crossings shall be implemented.


Figure A7: Annual Average Daily Traffic Volumes for 2010, 2015, 2030, and 2040 - Zone 5 and 6


Figure A5: Annual Average Daily Traffic Volumes for 2010, 2015, 2030, and 2040 - Zone 3

# Accident Prediction Report for Public at-Grade Highway-Rail Crossings 

## Including:

Disclaimer/Abbreviation Key
Accident Prediction List
Collision History
Abbreviated Inventory Profile

Provided by:

Federal Railroad Administration
Office of Safety Analysis
Highway-Rail Crossing Safety \& Trespass Prevention

Data Contained in this Report:
STATE: AK CITY: FAIRBANKS
RAILROAD: ARR
U.S. Department of Transportation
Federal Railroad
Administration

# USING DATA PRODUCED BY WBAPS 

(Web Accident Prediction System)

1200 New Jersey Avenue, SE
Third Floor West
Washington, DC 20590

WBAPS generates reports listing public highway-rail intersections for a State, County, City or railroad ranked by predicted collisions per year. These reports include brief lists of the Inventory record and the collisions over the last 10 years along with a list of contacts for further information. These data were produced by the Federal Railroad Administration's Web Accident Prediction System (WBAPS).

WBAPS is a computer model which provides the user an analytical tool, which combined with other site-specific information, can assist in determining where scarce highway-rail grade crossing resources can best be directed. This computer model does not rank crossings in terms of most to least dangerous. Use of WBAPS data in this manner is incorrect and misleading.

WBAPS provides the same reports as PCAPS, which is FRA's PC Accident Prediction System. PCAPS was originally developed as a tool to alert law enforcement and local officials of the important need to improve safety at public highway-rail intersections within their jurisdictions. It has since become an indispensable information resource which is helping the FRA, States, railroads, Operation Lifesaver and others, to raise the awareness of the potential dangers at public highway-rail intersections. The PCAPS/WBAPS output enables State and local highway and law enforcement agencies identify public highway-rail crossing locations which may require additional or specialized attention. It is also a tool which can be used by state highway authorities and railroads to nominate particular crossings which may require physical safety improvements or enhancements.

The WBAPS accident prediction formula is based upon two independent factors (variables) which includes (1) basic data about a crossing's physical and operating characteristics and (2) five years of accident history data at the crossing. These data are obtained from the FRA's inventory and accident/incident files which are subject to keypunch and submission errors. Although every attempt is made to find and correct errors, there is still a possibility that some errors still exist. Erroneous, inaccurate and non-current data will alter WBAPS accident prediction values. While approximately 100,000 inventory file changes and updates are voluntarily provided annually by States and railroads and processed by FRA into the National Inventory File, data records for specific crossings may not be completely current. Only the intended users (States and railroads) are really knowledgeable as to how current the inventory data is for a particular State, railroad, or location.

It is important to understand the type of information produced by WBAPS and the limitations on the application of the output data. WBAPS does not state that specific crossings are the most dangerous. Rather, the WBAPS data provides an indication that conditions are such that one crossing may possibly be more hazardous than another based on the specific data that is in the program. It is only one of many tools which can be used to assist individual States, railroads and local highway authorities in determining where and how to initially focus attention for improving safety at public highway-rail intersections. WBAPS is designed to nominate crossings for further evaluation based only upon the physical and operating characteristics of specific crossings as voluntarily reported and updated by States and railroads and five years of accident history data.

PCAPS and WBAPS software are not designed to single out specific crossings without considering the many other factors which may influence accident rates or probabilities. State highway planners may or may not use PCAPS/WBAPS accident prediction model. Some States utilize their own formula or model which may include other geographic and site-specific factors. At best, PCAPS and WBAPS software and data nominates crossings for further on-the-ground review by knowledgeable highway traffic engineers and specialists. The output information is not the end or final product and the WBAPS data should not be used for non-intended purposes.

It should also be noted that there are certain characteristics or factors which are not, nor can be, included in the WBAPS database. These include sight-distance, highway congestion, bus or hazardous material traffic, local topography, and passenger exposure (train or vehicle), etc. Be aware that PCAPS/WBAPS is only one model and that other accident prediction models which may be used by States may yield different, by just as valid, results for ranking crossings for safety improvements.

Finally, it should be noted that this database is not the sole indicator of the condition of a specific public highway-rail intersection. The WBAPS output must be considered as a supplement to the information needed to undertake specific actions aimed at enhancing highway-rail crossing safety at locations across the U.S. The authority and jurisdiction to appropriate resources towards the safety improvement or elimination of specific crossings lies with the individual States.

ABBREVIATION KEY
for use with WBAPS Reports

The lists produced are only for public at-grade highway-rail intersections for the entity listed at the top of the page. The parameters shown are those used in the collision prediction calculation.

| RANK: | Crossings are listed in order and ranked with the highest collision prediction value first. |
| :--- | :--- |
| PRED COLLS: | The accident prediction value is the probability that a collision between a train and a highway <br> vehicle will occur at the crossing in a year. |
| CROSSING: | The unique sight specific identifying DOT/AAR Crossing Inventory Number. |
| RR: | The alphabetic abbreviation for the railroad name. |

## PUBLIC HIGHWAY-RAIL CROSSINGS RANKED BY PREDICTED ACCIDENTS PER YEAR AS OF 12/31/2012*

| RANK | PRED COLLS. | CROSSING | RR | STATE | COUNTY | CITY | ROAD | NUM OF COLLISIONS |  |  |  |  | $\begin{aligned} & \hline \text { DATE } \\ & \text { CHG } \end{aligned}$ | $\begin{aligned} & \mathrm{W} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & \text { TOT } \\ & \text { TRN } \end{aligned}$ | $\begin{aligned} & \text { TOT } \\ & \text { TRK } \end{aligned}$ | $\begin{aligned} & \text { TTBL } \\ & \text { SPD } \end{aligned}$ | $\begin{aligned} & \mathrm{HWY} \\ & \mathrm{PVD} \end{aligned}$ | $\begin{aligned} & \text { HWY } \\ & \text { LNS } \end{aligned}$ | AADT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  | 12* | 11 |  | 09 | 08 |  |  |  |  |  |  |  |  |
| 1 | 0.057120 | 868407R | ARR | AK | FAIRBANKS N | FAIRBANKS | C STREET | 0 | 0 | 0 | 0 | 0 | 01/09 | SS | 10 | 1 | 15 | YES | 2 | 1,000 |
| 2 | 0.034052 | 868296B | ARR | AK | FAIRBANKS N | FAIRBANKS | STEESE EXPRESS | 0 | 0 | 0 | 0 | 0 |  | FL | 10 | 1 | 15 | YES | 5 | 14,536 |
| 3 | 0.031133 | 868402G | ARR | AK | FAIRBANKS N | FAIRBANKS | UNIVERSITY AVE | 0 | 0 | 0 | 0 | 0 |  | GT | 12 | 1 | 20 | YES | 4 | 21,450 |
| 4 | 0.030871 | 868422 T | ARR | AK | FAIRBANKS N | FAIRBANKS | GAFFNEY RD | 0 | 0 | 0 | 0 | 0 |  | FL | 10 | 1 | 10 | YES | 4 | 13,750 |
| 5 | 0.028563 | 868405C | ARR | AK | FAIRBANKS N | FAIRBANKS | COLLEGE ROAD | 0 | 0 | 0 | 0 | 0 |  | GT | 10 | 1 | 15 | YES | 4 | 21,345 |
| 6 | 0.024607 | 868406J | ARR | AK | FAIRBANKS N | FAIRBANKS | OLD STEESE HWY | 0 | 0 | 0 | 0 | 0 |  | GT | 10 | 1 | 15 | YES | 3 | 13,595 |
| 7 | 0.024227 | 910278R | ARR | AK | FAIRBANKS N | FAIRBANKS | NOME ST | 0 | 0 | 0 | 0 | 0 |  | XB | 10 | 1 | 5 | YES | 2 | 6,325 |
| 8 | 0.021230 | 868409 E | ARR | AK | FAIRBANKS N | FAIRBANKS | E STREET | 0 | 0 | 0 | 0 | 0 |  | XB | 10 | 1 | 15 | YES | 2 | 750 |
| 9 | 0.021230 | 868408X | ARR | AK | FAIRBANKS N | FAIRBANKS | D STREET | 0 | 0 | 0 | 0 | 0 |  | XB | 10 | 1 | 15 | YES | 2 | 750 |
| 10 | 0.020057 | 868427C | ARR | AK | FAIRBANKS N | FAIRBANKS | 3 MILE GATE | 0 | 0 | 0 | 0 | 0 |  | XB | 6 | 1 | 15 | YES | 2 | 1,175 |
| 11 | 0.016925 | 910315R | ARR | AK | FAIRBANKS N | FAIRBANKS | SHEEP CREEK <br> EXT | 0 | 0 | 0 | 0 | 0 |  | GT | 12 | 1 | 40 | YES | 2 | 3,650 |
| 12 | 0.016599 | 868373Y | ARR | AK | FAIRBANKS N | FAIRBANKS | SHEEP CREEK RO | 0 | 0 | 0 | 0 | 0 |  | GT | 12 | 1 | 30 | YES | 2 | 3,370 |
| 13 | 0.016266 | 868432Y | ARR | AK | FAIRBANKS N | FAIRBANKS | SOUTH CUSHMAN | N 0 | 0 | 0 | 0 | 0 |  | XB | 2 | 1 | 10 | YES | 2 | 7,455 |
| 14 | 0.015590 | 868372S | ARR | AK | FAIRBANKS N | FAIRBANKS | SHEEP CREEK RO | 0 | 0 | 0 | 0 | 0 |  | GT | 12 | 1 | 30 | YES | 2 | 2,610 |
| 15 | 0.015233 | 868410Y | ARR | AK | FAIRBANKS N | FAIRBANKS | FAREWELL STREET | 0 | 0 | 0 | 0 | 0 | 01/09 | GT | 10 | 1 | 15 | YES | 3 | 4,390 |
| 16 | 0.013301 | 868428J | ARR | AK | FAIRBANKS N | FAIRBANKS | RICHARDSON HWY | 0 | 0 | 0 | 0 | 0 |  | GT | 2 | 1 | 10 | YES | 4 | 25,290 |
| 17 | 0.010984 | 910364M | ARR | AK | FAIRBANKS N | FAIRBANKS | MERIDIAN ROAD | 0 | 0 | 0 | 0 | 0 |  | GT | 10 | 1 | 10 | YES | 2 | 1,000 |
| 18 | 0.010507 | 868394S | ARR | AK | FAIRBANKS N | FAIRBANKS | DRIVEWAY ST. | 0 | 0 | 0 | 0 | 0 |  | SS | 4 | 1 | 8 | YES | 2 | 1,000 |
| 19 | 0.010476 | 868425 N | ARR | AK | FAIRBANKS N | FAIRBANKS | NEELY ROAD | 0 | 0 | 0 | 0 | 0 | 01/09 | GT | 8 | 1 | 10 | YES | 2 | 3,000 |
| 20 | 0.009150 | 910371X | ARR | AK | FAIRBANKS N | FAIRBANKS | MONTGOMERY ROAD | 0 | 0 | 0 | 0 | 0 |  | GT | 10 | 1 | 10 | YES | 2 | 500 |
| 21 | 0.008620 | 910363 F | ARR | AK | FAIRBANKS N | FAIRBANKS | G STREET | 0 | 0 | 0 | 0 | 0 |  | GT | 10 | 1 | 15 | YES | 2 | 400 |
| 22 | 0.008458 | 868475S | ARR | AK | FAIRBANKS N | FAIRBANKS | SANDURI AVE | 0 | 0 | 0 | 0 | 0 |  | XB | 2 | 1 | 10 | YES | 2 | 1,005 |
| 23 | 0.008443 | 868431S | ARR | AK | FAIRBANKS N | FAIRBANKS | SANDARI RD | 0 | 0 | 0 | 0 | 0 |  | XB | 2 | 1 | 10 | YES | 2 | 1,000 |
| 24 | 0.008030 | 868417W | ARR | AK | FAIRBANKS N | FAIRBANKS | VEST RD | 0 | 0 | 0 | 0 | 0 |  | XB | 10 | 1 | 10 | NO | 2 | 200 |
| 25 | 0.008030 | 868419 K | ARR | AK | FAIRBANKS N | FAIRBANKS | VEST ROAD | 0 | 0 | 0 | 0 | 0 |  | XB | 10 | 1 | 10 | NO | 2 | 200 |
| 26 | 0.007679 | 868426 V | ARR | AK | FAIRBANKS N | FAIRBANKS | ALDER DR. | 0 | 0 | 0 | 0 | 0 |  | XB | 8 | 1 | 10 | NO | 2 | 250 |
| 27 | 0.005569 | 868386A | ARR | AK | FAIRBANKS N | FAIRBANKS | LIVENGOOD AVE. | . 0 | 0 | 0 | 0 | 0 |  | NO | 10 | 1 | 10 | NO | 2 | 300 |
| 28 | 0.004369 | 868467A | ARR | AK | FAIRBANKS N | FAIRBANKS | AIRPORT GATE 35 | 0 | 0 | 0 | 0 | 0 |  | SS | 2 | 1 | 10 | YES | 2 | 150 |
| 29 | 0.003820 | 868412M | ARR | AK | FAIRBANKS N | FAIRBANKS | RIVER RD | 0 | 0 | 0 | 0 | 0 | 01/09 | GT | 10 | 1 | 10 | YES | 2 | 500 |
| 30 | 0.003134 | 868396F | ARR | AK | FAIRBANKS N | FAIRBANKS | MINNIE | 0 | 0 | 0 | 0 | 0 |  | SP | 4 | 2 | 5 | NO | 2 | 250 |
| 31 | 0.002948 | 868473D | ARR | AK | FAIRBANKS N | FAIRBANKS | SANDURI AVE. | 0 | 0 | 0 | 0 | 0 |  | XB | 2 | 1 | 10 | NO | 2 | 250 |
| 32 | 0.002119 | 868388 N | ARR | AK | FAIRBANKS N | FAIRBANKS | OLNES ST. | 0 | 0 | 0 | 0 | 0 |  | XB | 1 | 1 | 10 | NO | 2 | 200 |
| 33 | 0.002119 | 868387G | ARR | AK | FAIRBANKS N | FAIRBANKS | OLNES ST. | 0 | 0 | 0 | 0 | 0 |  | XB | 1 | 2 | 10 | NO | 2 | 200 |
|  |  |  |  |  |  | App | ndix A - Page 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |


| 34 | 0.000304 | 910287P | ARR | AK | FAIRBANKS N | FAIRBANKS | VAN HORN EXTEN. | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 10 | YES | 2 | 3,815 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 35 | 0.000304 | 910284 U | ARR | AK | FAIRBANKS N | FAIRBANKS | PHILLIPS FIELD | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 10 | YES | 2 | 380 |
| 36 | 0.000304 | 910345H | ARR | AK | FAIRBANKS N | FAIRBANKS | SOUTH UNIVERSI | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 10 | YES | 2 | 2,025 |
| 37 | 0.000304 | 868468G | ARR | AK | FAIRBANKS N | FAIRBANKS | AIRPORT WAY | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 10 | YES | 2 | 1,100 |
| 38 | 0.000304 | 868466 T | ARR | AK | FAIRBANKS N | FAIRBANKS | WEST RD | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 10 | YES | 2 | 200 |
| 39 | 0.000300 | 868395Y | ARR | AK | FAIRBANKS N | FAIRBANKS | PHILLIPS FIELD | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 8 | YES | 2 | 3,690 |
| 40 | 0.000292 | 910286H | ARR | AK | FAIRBANKS N | FAIRBANKS | CHARLES ST | 0 | 0 | 0 | 0 | 0 | SS | 0 | 3 | 5 | YES | 2 | 1,200 |
| 41 | 0.000168 | 910294A | ARR | AK | FAIRBANKS N | FAIRBANKS | SANDARI RD | 0 | 0 | 0 | 0 | 0 | XB | 0 | 1 | 10 | NO | 2 | 1,200 |
| 42 | 0.000168 | 910280S | ARR | AK | FAIRBANKS N | FAIRBANKS | OLNES ST | 0 | 0 | 0 | 0 | 0 | XB | 0 | 2 | 10 | NO | 2 | 50 |
| 43 | 0.000161 | 868398U | ARR | AK | FAIRBANKS N | FAIRBANKS | BOROUGH DRIVEW | 0 | 0 | 0 | 0 | 0 | XB | 0 | 2 | 5 | NO | 2 | 250 |
| 44 | 0.000100 | 868397M | ARR | AK | FAIRBANKS N | FAIRBANKS | CHARLES | 0 | 0 | 0 | 0 | 0 | SP | 0 | 2 | 5 | NO | 2 | 250 |
| 45 | 0.000100 | 868379P | ARR | AK | FAIRBANKS N | FAIRBANKS | HANSON ROAD | 0 | 0 | 0 | 0 | 0 | SP | 0 | 1 | 10 | NO | 2 | 500 |
| 46 | 0.000100 | 868380J | ARR | AK | FAIRBANKS N | FAIRBANKS | HANSON RD. | 0 | 0 | 0 | 0 | 0 | SP | 0 | 2 | 10 | NO | 2 | 500 |

TTL: 0.504367999999999
$\begin{array}{lllll}0 & 0 & 0 & 0 & 0\end{array}$


Total accidents this report:

ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE


ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE




ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE




| Crossing State <br> $910364 M$ AK | FAIRBANKS NORTH STAR | City FAIRBANKS |  |  | Highway |  | Railroad <br> ARR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division ALASKA | Subdivision | Milepost G004.50 | Train Movements <br> 4 Day thru / 6 Day switch |  |  |  |  |
| Typical Train Speed <br> From 1 to 10 MPH |  | Type Development$5$ |  | $\begin{aligned} & \text { \# Traffic Lanes } \\ & 2 \end{aligned}$ |  | Highway Paved? <br> 1 / 4 |  |
| Passive Devices <br> 2 REFL XBUCK |  |  | Active Devices 2 R-W GATE |  |  |  |  |
| $\begin{aligned} & \hline \text { Tracks } \\ & 1 \text { MAIN } \end{aligned}$ |  | $\begin{aligned} & \text { Highway System } \\ & 08 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \text { Function Class } \\ & 17 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline \text { AADT } \\ & 1000 \\ & \hline \end{aligned}$ | $\begin{aligned} & \begin{array}{l} \% \text { Trucks } \\ 15 \end{array} \\ & \hline \end{aligned}$ |
| Crossing State <br> 868394S AK | County FAIRBANKS NORTH STAR | City FAIRBANKS |  |  | Highway |  | Railroad ARR |
| Division <br> ALASKA | Subdivision | Milepost Train Movements <br> 0470.10 <br> 4 Day switch  |  |  |  |  |  |
| Typical Train Speed From 1 to 8 MPH |  | Type Development 4 |  | $\|$\# Traffic Lanes <br> 2 |  | Highway Paved?$1 / 3$ |  |
| $\begin{aligned} & \text { Passive Devices } \\ & 2 \text { REFL XBUCK / } 1 \mathrm{~S} \end{aligned}$ | STOP SIGN |  | Active Devices |  |  |  |  |
| Tracks <br> 1 MAIN |  | Highway System <br> 08 |  | $\begin{aligned} & \text { Function Class } \\ & 19 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \text { AADT } \\ & 1000 \end{aligned}$ | $\|$$\%$ Trucks <br> 30 |

ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE


| Crossing State <br> 868475S AK | County FAIRBANKS NORTH STAR | City <br> FAIRBANKS |  |  | Highway | Railroad ARR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division ALASKA | Subdivision | $\begin{aligned} & \text { Milepost } \\ & 0004.99 \end{aligned}$ | $\begin{aligned} & \text { Train Movements } \\ & 2 \text { Day switch } \end{aligned}$ |  |  |  |
| Typical Train Speed From 5 to 10 MPH |  | Type Development 4 |  | $\begin{aligned} & \text { \# Traffic Lanes } \\ & 2 \end{aligned}$ | Highway Paved?$1 / 3$ |  |
| Passive Devices 2 REFL XBUCK |  |  | Active Devices |  |  |  |
| $\begin{aligned} & \text { Tracks } \\ & 1 \text { MAIN } \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \hline \text { Highway System } \\ & 08 \\ & \hline \end{aligned}$ |  | Function Class 09 |  | $\begin{aligned} & \text { \% Trucks } \\ & 13 \\ & \hline \end{aligned}$ |


| Crossing State <br> 868431S AK | FAIRBANKS NORTH STAR | FAIRBANKS |  | Highway | Railroad ARR |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Division | Subdivision ANCHORAGE | Milepost Train <br> 0002.70 2 Nigh | Train Movements2 Night thru |  |  |
| Typical Train Speed <br> From 5 to 10 MPH |  | Type Development \# Traffic Lanes <br> 4 |  | $\begin{aligned} & \text { Highway Paved? } \\ & 1 / 3 \end{aligned}$ |  |
| $\begin{aligned} & \text { Passive Devices } \\ & 2 \text { REFL XBUCK / } 2 \text { SKEW / } 2 \text { WALK BIKES } \end{aligned}$ |  |  | Active Devices |  |  |
| $\begin{array}{\|l\|} \hline \text { Tracks } \\ 1 \text { MAIN } \\ \hline \end{array}$ |  | $\begin{aligned} & \left\lvert\, \begin{array}{l} \text { Highway System } \\ 08 \end{array}\right. \\ & \hline \end{aligned}$ | Function Class 09 | $\begin{aligned} & \text { AADT } \\ & 1000 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { \% Trucks } \\ & 25 \\ & \hline \end{aligned}$ |
| Crossing State <br> 868417W AK | County FAIRBANKS NORTH STAR | City FAIRBANKS |  | Highway | Railroad ARR |
| Division ALASKA | Subdivision | Milepost Train Movements <br> 0003.67 4 Day thru / 6 Night thru <br> Type Development  \# Traffic Lanes |  |  |  |
| Typical Train Speed From 5 to 10 MPH |  |  |  | Highway Paved?$1 / 3$ |  |
| Passive Devices  <br> 2 REFL XBUCK / 2 WALKBIKE / 2 SKEW  |  |  | Active Devices |  |  |
| Tracks <br> 1 MAIN |  | $\begin{aligned} & \text { Highway System } \\ & 08 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Function Class } \\ & 09 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { AADT } \\ & 200 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { \% Trucks } \\ & 20 \\ & \hline \end{aligned}$ |

ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE


| Crossing State <br> 868386A AK | County <br> FAIRBANKS NORTH STAR | City  <br> FAIRBANKS $\mid$ |  |  |  | Highway | Railroad ARR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division ALASKA | Subdivision | $\begin{aligned} & \text { Milepost } \\ & 0469.40 \end{aligned}$ | Train Movements 10 Day switch |  |  |  |  |
| Typical Train Speed From 5 to 10 MPH |  | Type Development$4$ |  |  | $\begin{aligned} & \# \text { Traffic Lanes } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Highway Paved? } \\ & 1 / 3 \\ & \hline \end{aligned}$ |  |
| Passive Devices |  |  | Active Devices |  |  |  |  |
| Tracks 1 BALLOON |  | $\begin{aligned} & \hline \text { Highway System } \\ & 08 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \text { Function Class } \\ & 19 \\ & \hline \end{aligned}$ |  |  | $\begin{aligned} & \% \text { Trucks } \\ & 30 \end{aligned}$ |



ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE



| Crossing State <br> 910287P AK | County FAIRBANKS NORTH STAR | City <br> FAIRBANKS |  |  | Highway | Railroad ARR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division ALASKA | Subdivision | $\begin{aligned} & \text { Milepost } \\ & 0470.00 \end{aligned}$ | Train Movements |  |  |  |
| Typical Train Speed From 1 to 10 MPH |  | $\begin{aligned} & \text { Type Dev } \\ & 3 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \begin{array}{l} \# \text { Traffic Lanes } \\ 2 \end{array} \\ & \hline \end{aligned}$ | Highway Paved? $1 / 2$ |  |
| Passive Devices 2 REFL XBUCK |  |  |  |  |  |  |
| Tracks <br> 1 INDUSTRY | $\begin{aligned} & \text { Highw } \\ & 08 \end{aligned}$ |  |  | Class | $\begin{aligned} & \text { AADT } \\ & 3815 \end{aligned}$ | \% Trucks 12 |



ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE

| Crossing State <br> 868468G AK | County <br> FAIRBANKS NORTH STAR | $\begin{aligned} & \hline \text { City } \\ & \text { FAIRBAN } \end{aligned}$ |  |  | Highway |  | Railroad ARR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division ALASKA | Subdivision | $\begin{aligned} & \hline \text { Milepost } \\ & 0009.55 \end{aligned}$ | Train Movements |  |  |  |  |
| Typical Train Speed From 5 to 10 MPH |  | $\qquad$ |  | $\begin{aligned} & \# \text { Traffic Lanes } \\ & 2 \end{aligned}$ |  | $\begin{aligned} & \text { Highway Paved? } \\ & 1 / 3 \end{aligned}$ |  |
| Passive Devices 2 REFL XBUCK / 2 S | W / 2 WALKBIKES |  | Active Devices |  |  |  |  |
| Tracks 1 INDUSTRY |  | $\begin{aligned} & \text { Highway System } \\ & 08 \end{aligned}$ |  | Function Class 09 |  | $\begin{aligned} & \text { AADT } \\ & 1100 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { \% Trucks } \\ & 20 \end{aligned}$ |
| Crossing State <br> $868466 T$ AK | County <br> FAIRBANKS NORTH STAR Subdivision |  |  |  | Highway |  | Railroad ARR |
| Division ALASKA |  |  | Train Movements |  |  |  |  |
| Typical Train Speed From 5 to 10 MPH |  | Type Development 4 |  | $\begin{aligned} & \text { \# Traffic Lanes } \\ & 2 \end{aligned}$ |  | $\begin{aligned} & \text { Highway Paved? } \\ & 1 / 3 \end{aligned}$ |  |
| Passive Devices 1 REFL XBUCK |  |  | Active Devices |  |  |  |  |
| Tracks <br> 1 MAIN |  | $\begin{array}{\|l} \hline \text { Highway System } \\ 08 \\ \hline \end{array}$ |  | $\begin{aligned} & \text { Function Class } \\ & 09 \end{aligned}$ |  | $\begin{aligned} & \text { AADT } \\ & 200 \\ & \hline \end{aligned}$ | $\begin{aligned} & \% \text { Trucks } \\ & 20 \end{aligned}$ |



| Crossing State <br> 910286 H AK | County FAIRBANKS NORTH STAR | City <br> FAIRBANKS |  |  | Highway | Railroad ARR |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Division ALASKA | Subdivision | $\begin{aligned} & \text { Milepost } \\ & 0470.00 \end{aligned}$ | Train Movements |  |  |  |
| Typical Train Speed <br> From 1 to 5 MPH |  | Type Development 4 |  | $\begin{aligned} & \text { \# Traffic Lanes } \\ & 2 \end{aligned}$ | Highway Paved? $1 / 3$ |  |
| Passive Devices 2 REFL XBUCK / 2 S | STOP SIGN / 2 PROPERT | SPASS | Active Devices |  |  |  |
| Tracks 3 INDUSTRY | $\begin{array}{l\|l} \hline \text { Highw } \\ 08 \\ \hline \end{array}$ | Highway System Function Class <br> 08 19 |  |  | $\begin{aligned} & \text { AADT } \\ & 1200 \\ & \hline \end{aligned}$ | $\begin{aligned} & \% \text { Trucks } \\ & 08 \\ & \hline \end{aligned}$ |



ABBREVIATED HIGHWAY-RAIL CROSSING INVENTORY PROFILE





