VOLPE TRANSIT CENTER—RAIL NETWORK ASSESSMENT

Comparison of Volpe Rail Network and BNSF Emergency Response System Pilot Routes

Performed For the Volpe Transit Center by
URS
Information Technology/GIS Center
Austin, Texas

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Section 1

1 Introduction

This report presents the results of a project conducted by URS Corporation (URS) for the Volpe Transit Center (Volpe). Volpe is currently considering opportunities to utilize the Volpe-developed national Rail Network database in hazardous waste transport risk-minimization studies. The Volpe-developed database would be utilized as part of the Corridor Risk Assessment Model for that effort. As part of preparing for this opportunity, Volpe must assess the amount of database update, editing, and management that would be required.

Volpe contracted with URS to compare railway data stored in the Volpe Rail Network database to information maintained in the Burlington Northern Santa Fe (BNSF) Emergency Response System (ERS). The intent of the contract is to provide independent validation of the Volpe Rail Network Database. The BNSF Emergency Response System was originally developed by, and is being maintained by, URS in its Austin, Texas, Information Technology Center. The Volpe Rail Network database and BNSF ERS database include many common data elements suitable for comparison. The similarities between these two databases provides Volpe an opportunity to conduct an independent assessment of the effort that may be required to prepare its database for use in the risk-minimization studies. The common Volpe Rail Network and BNSF ERS railway features evaluated by URS in this project include:

- Rail lines;
- Railway stations;
- Department of Transportation (DOT) crossings;
- Industry-reported freight volumes; and
- Industry-reported freight and passenger train speed data.

1.1 The BNSF Emergency Response System

The BNSF ERS Geographic Information System (GIS) was developed and put into operation in December of 1998. It covers 34,000+ miles of track, 28 states, and approximately 1,000 counties. The system operates 24 hours per day, seven days per week at BNSF's Network Operations Center in Fort Worth, Texas. Our development approach was based on URS's methodology of building systems in a step-wise incremental manner. We remain under contract to maintain the system and expand its functionality. The BNSF ERS' geographic coverage area is shown in Figure 1-1.

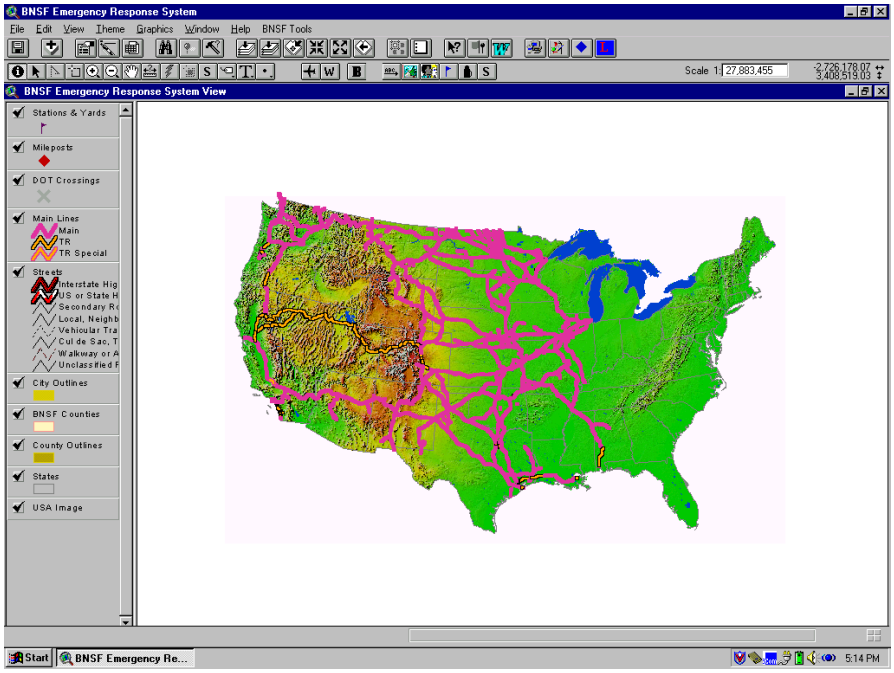


Figure 1-1. BNSF Emergency Response System

1.1.1 Data Layers

The amount of data delivered in the BNSF GIS is substantial and includes:

- BNSF track location
- Mileposts
- Divisions
- Sub-divisions
- Internal BNSF contacts
- DOT crossings
- Yard locations
- Bridges
- Flash flood prone bridges
- Aerial photos of key yards
- USGS 7 ½ min quad sheets with contours
- Rivers, streams, and lakes
- Soil maps
- Groundwater sensitivity maps
- Drainage basins
- Landuse
- Parks
- Wetlands
- Population density

- Streets and highways
- Public water supply intakes
- Law enforcement agency jurisdictions
- Location of hazmat response teams
- Location of sensitive receptors (hospitals, schools, prisons, and nursing homes)
- City and county boundaries
- Pipelines
- Airports

1.1.2 Architecture

The system is implemented using a client/server architecture with ESRI's ArcView GIS used on the client side and Spatial Data Engine (SDE)/Oracle on the server side. BNSF uses an IBM RS6000 running AIX as the server and Windows/NT workstations for the client side.

1.1.2.1 GIS Extensions

URS developed a Locator Extension to ArcView which allows users to quickly locate points of interest on the railroad. Provisions are made for finding locations and zooming the GIS display to a detailed map of that location by using external information such as city, county, or street address; or by using internal railroad information such as division, sub-division, engineering line segment number, milepost, DOT crossing number, or yard. Other dialog boxes simplify common tasks such as adding and removing data layers from view, labeling objects, composing custom maps for reports, incident reporting, and buffering features on a map.

Another example is a Weather Alert Tool to produce a list of flood prone bridges that need to be inspected before trains can move over them. This tool takes as input the definition of a severe weather alert area from the weather bureau, defines the corresponding polygon, locates all bridges (by milepost) within that area, and produces a printed list of the affected bridges.

1.1.2.2 Integration with Supporting Applications

URS also integrated other applications into the BNSF ERS including:

- CHARM—a model for predicting the location and concentration of chemicals released into the atmosphere as a function of time, weather, substance released, and the release scenario. This program can also calculate blast overpressure contours for explosive substances.
- CHEMTOX—a database that contains physical properties, spill response procedures, protective clothing, fire fighting, state & federal regulations, and other information for over 10,000 chemical substances.
- Microsoft WORD—the ERS can access a Microsoft WORD-based checklist and report generator to help ensure that proper emergency response procedures are followed and properly documented.

1.2 Organization of this Document

The remainder of this document reports the purpose and objectives, methods, and results of the rail network assessment comparing Volpe Rail Network Pilot Routes to corresponding BNSF ERS routes. The document is organized as follows:

- **Section 2.0—Purpose and Objectives.** Describes the general purpose of the rail assessment project, and the specific objectives of the contract performed by URS.
- **Section 3.0—Pilot Routes, Data Sources, and Study Limitations.** Defines the Volpe Pilot Routes selected for comparison with corresponding BNSF GIS routes, the specific Volpe Rail Network and BNSF ERS data sources utilized in the comparison, and the limitations of the URS comparison study.
- **Section 4.0—Methods for DOT Crossings and Stations Comparison.** Describes the data sources and analysis approach for comparison of Volpe Pilot Route and BNSF ERS DOT crossing and station data.
- **Section 5.0— Results of DOT Crossings and Stations Comparisons.** Summarizes comparison results of Volpe Pilot Route and BNSF ERS DOT crossing and station data.
- **Section 6.0— Methods for Freight Volume and Speed Comparisons.** Describes the data sources and analysis approach for comparison of Volpe Pilot Route and BNSF ERS freight volume and speed data.
- **Section 7.0— Results for Freight Volume and Speed Comparisons.** Summarizes comparison results of Volpe Pilot Route and BNSF ERS freight volume and speed data.
- **Section 8.0—Summary of Results.** Presents conclusions of the comparison analysis, and provides recommendations and next steps for Volpe GIS database update and maintenance.
- **Appendices**—The report appendices provide detailed reports of the comparison assessment, including (A) Glossary, (B) DOT Crossing Report, (C) Station Report, (D) Freight Volume Report, and (E) Speed Report.
- **Acronyms and Abbreviations**—A foldout of acronyms and abbreviations is located directly after Appendix E.

Section 2

2 Purpose and Objectives

This section presents general purpose of the Pilot Route comparison project, and the specific objectives of the contract performed by URS.

2.1 Background

The Volpe Transit Center has developed a large rail network database consisting of over 200,000 individual database records housed in an Environmental System Research Institute (ESRI) Arc/Info version 7.2 software platform. This database has been developed to support safety analyses for the Federal Railroad Administration (FRA), among other Department of Transportation (DOT) agencies. Accuracy in this database is of the utmost importance in ensuring its appropriate application to current safety issues, including its application to the Corridor Risk Assessment Model Database.

2.2 Purpose

Volpe and FRA are concerned that data validation is required to verify the accuracy of the Rail Network database. Few published data sources exist that are comparable to the Volpe Rail Network database. In the case of proprietary data provided by individual railroads to the Volpe Center for analysis, no published record exists for verification purposes.

Through its participation in the Railroad Safety Advisory Committee (RSAC), Volpe has established a mechanism for data interchange with several major railroads, including the BNSF. Mr. Ed Chapman, Director of Hazardous Materials and RSAC spokesperson, informed Volpe of a BNSF database comparable to the Volpe Rail Network. This Emergency Response System (ERS) database was developed by, and is maintained by, URS.

The purpose of the project is to compare a selected set of data elements common to both the BNSF ERS database and the Volpe Rail Network database for two Pilot Routes, for data validation and verification. The specific objectives of the Pilot Route comparison project are discussed below.

2.3 Objectives

As described in the statement of work, the objectives of the Pilot Route comparison project were to:

- Acquire Volpe Rail Network database records relevant to the BNSF ERS database, and format as needed for comparison purposes.
- Establish corresponding relative milepost values in the Volpe Rail Network and BNSF ERS, (i.e., calibrate the Volpe Rail Network using BNSF measures), jointly resolving problems with Volpe as needed.
- Identify common attributes, and develop quantitative standards for comparison jointly with the Volpe Center.
- Conduct a comparison study of concurrent Volpe Rail Network and BNSF ERS corridors from Houston, Texas, to Fort Worth, Texas, and Spokane, Washington, to Chicago, Illinois. The comparison study included assessment of the following common data elements:
  - Between-milepost and between-station values for freight volume, measured in million-gross-tons (MGT), based upon the Volpe Rail Network compared to the BNSF ERS;
  - Between-milepost and between-station rated maximum speed values, based upon the Volpe Rail Network compared to the BNSF ERS; and
  - Linear, or milepost, position information of DOT crossings and stations, based upon the Volpe Rail Network compared to the BNSF ERS.
- Determine degree of inconsistency among common data elements evaluated for the Volpe Rail Network and BNSF ERS databases.
- Prepare a draft report to the Volpe Center that summarizes the following:
  - Methods for establishing correspondence between the two databases;
  - Data comparison methods;
  - Definitions of attributes used in the comparisons and
  - Comparison results.

The report format is intended to provide the Volpe Center with information needed to ascertain the nature of identified inconsistencies, and a rough estimate of the effort that would be required to resolve the inconsistencies. Inconsistencies could be caused by geographical errors and omissions, attribute errors and omissions, or both geographical and attribute errors and omissions. A description of the Pilot Routes, a list of the Volpe Rail Network and BNSF ERS data sources, and a discussion of the comparison study limitations is provided in the next section.

Section 3

3 Pilot Routes, Data Sources, and Study Limitations

This section describes the location of the Pilot Routes, and the data sources and limitations of the Pilot Route Comparison Study.

3.1 Pilot Routes

The Volpe Rail Network databases and the BNSF ERS databases contain corresponding data for over 20,000 track miles. The geographic coverage of the Volpe Rail Network and BNSF ERS are shown in Figure 3-1. Due to scope, schedule, and budget limitations, the comparison analysis could not be performed for the entire area of overlapping coverage. Instead, in coordination with Volpe staff, two Pilot Routes were selected as representative cases. These routes were selected because they are representative of heavily trafficked routes.

3.1.1 Houston to Fort Worth Pilot Route

The Houston to Fort Worth route begins at Galveston Station, Texas, and ends in Fort Worth, Texas, at a location with Alvord Avenue to the west and Gunter Avenue to the east. This route consists of 353 track miles. This route is shown in Figure 3-2.

3.1.2 Spokane to Chicago Route

The Spokane to Chicago route begins in Spokane, Washington, at Latah Junction and ends in Chicago, Illinois, at Union Avenue Station. This route consists of 1855 track miles. This route is shown in Figure 3-3.

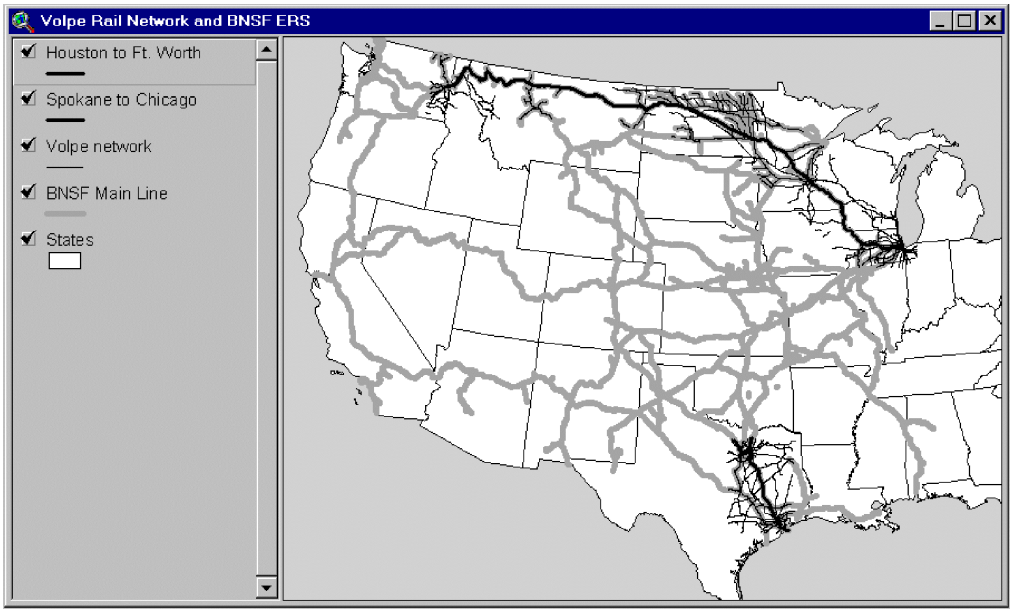


Figure 3-1. Volpe and BNSF Rail Networks

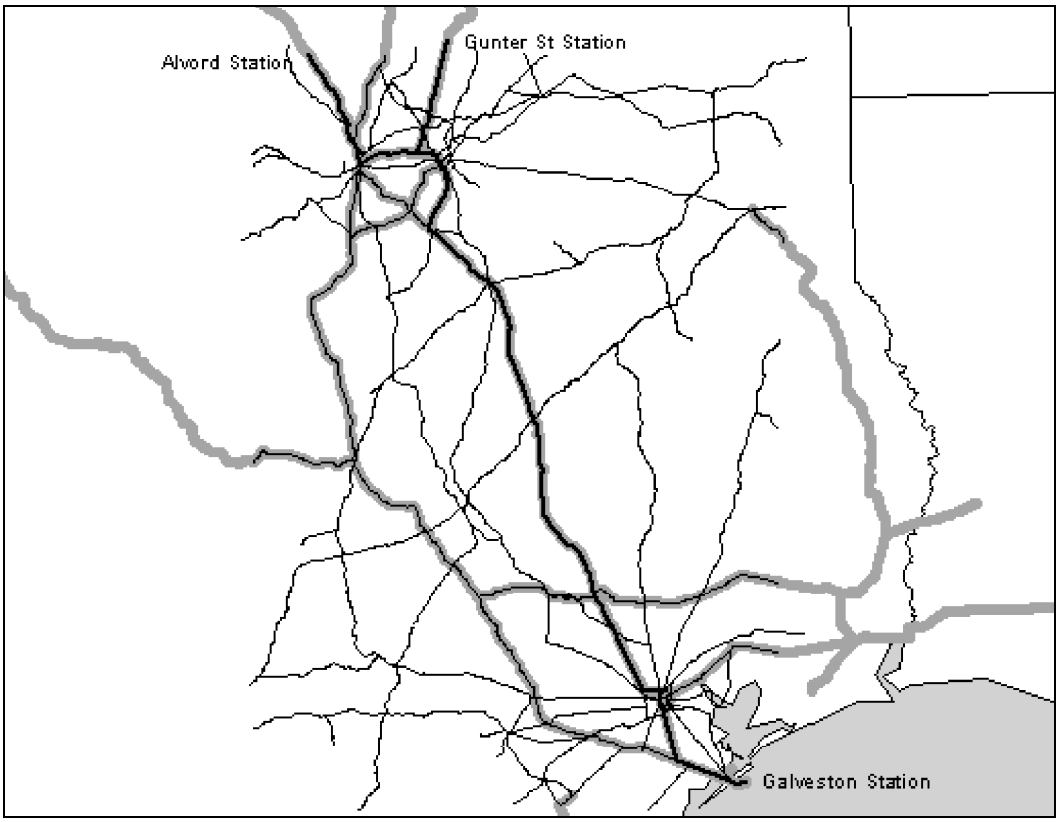


Figure 3-2. Houston to Fort Worth Pilot Route

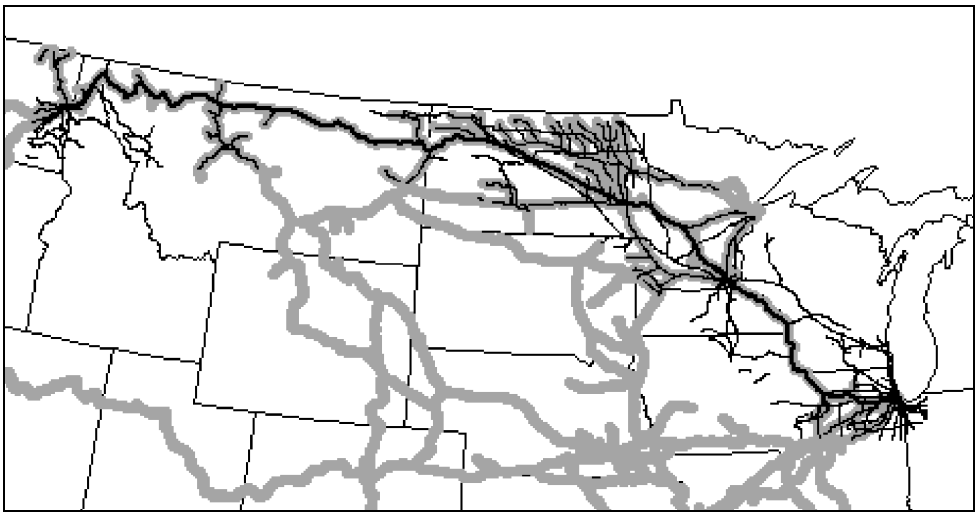


Figure 3-3. Spokane to Chicago Pilot Route

3.2 Data Sources

This section provides a discussion of each of the Volpe and BNSF data sources used in the project. Some of the data sources are common to both systems..

A number of data sources were utilized in the comparison analysis. The data were used for analysis of common railway features, including:

- Main routes (arcs, or linear features representing tracks);
- Stations (point features with common attributes);
- DOT crossings (point features with common attributes);
- Freight volumes (tabular station-to-station records); and
- Freight train rated maximum speed values (tabular station-to-station or begin/end milepost records).

3.2.1 Volpe Rail Network

Volpe provided source data for rail lines, stations, DOT crossings, and freight train rated maximum speed values. Each of these data sets is described below.

3.2.1.1 Pilot Routes

Linear features representing tracks in the Volpe Rail Network GIS are based upon the Rail Garrison 1:100,000-scale railroad database. Routes consist of one or more linear features with unique track identifier attributes. The rail network was provided by Volpe as an Arc/Info coverage called Vsub. Vsub is defined with a rail line dataset consisting of 31,622 linear features. The Volpe-defined main routes consist of 571 unique routes. The main routes were defined in the map network using railroad company nomenclature appended to the main track number, for example route BN03006A is a description of BNSF ownership ("BN"), with a Volpe route defined as "03006" and the alphabetical

character "A" denoting the main track. The attribute used in the comparison analysis is listed and described in Table 3-1.

Table 3-1
Volpe Main Route Attributes (from Vsub coverage)

Attribute	Description
Rt-name	Volpe defined owner, route, and main line

3.2.1.2 Stations

A total of 53 attributes characterizing the track and operations along the track were compiled on 15 data forms and uploaded into the Volpe Rail Network database. Of the 15 data forms, Form D contains point facility data such as stations, bridges, tunnels, crossings and safety detectors. The station points from the Form D table were located on the main routes using Rt-name and milepost values as links to the routes. The Volpe station attributes used in the comparison analysis are listed and described in Table 3-2.

Table 3-2
Volpe Station Attributes

Attribute	Description
Rt-name	VOLPE DEFINED OWNER, ROUTE, AND MAIN LINE
Mp	The milepost value for the Station
Sta/Jct	The Station or Junction Name

3.2.1.3 DOT Crossings

The Volpe DOT crossing data was not derived from the Volpe main routes. The crossing layer was independently submitted to Volpe and therefore may or may not intersect with the Pilot Routes. In order to capture as many crossings that intersect the Pilot Routes as possible, we selected all Volpe crossings within 100 meters of the Houston to Fort Worth and Spokane to Chicago Pilot Routes for analysis. The DOT crossing layer has one field of interest, [crossing], described in Table 3-3.

Table 3-3
Volpe DOT Crossing Attributes

Attribute	Description
Crossing	The DOT-assigned unique crossing id

3.2.1.4 Freight Volumes

A Volpe station-to-station route layer was created separately from the main routes layer described in 3.2.1.1. The Volpe station-to-station routes retain freight volume data in the Volpe Rail Network database. This layer consists of 936 unique routes, 337 of which are operated by BNSF. The routes depicting freight volume data were created by identifying each origin and destination station's location on the track charts or with external data

sources such as city or street location. These routes hold attribution related to the owner of the rail, the origin station defining the route, the destination station defining the route and a measure of gross tons in millions traversing the line. These attributes are described in Table 3-4.

Table 3-4
Volpe Freight Volume Attributes

Attribute	Description
Railroad	THE OWNER OF THE RAILROAD
Fr_Station	The origin station of the route
To_Station	The destination station of the route
Flowgtm	The Gross Tons traveling on the route

3.2.1.5 Freight Train Rated Maximum Speed Values

Rated maximum speed attribution within the Volpe Rail Network database is maintained for each arc in the route system. There were over 1,000 unique Pilot Route records with Volpe speed attribution. The attribute of interest was [VID], a unique key for each arc in the Volpe Rail Network database (Vsub) and [Mxspeed] the rated maximum speed of each arc. These attributes are described in Table 3-5.

Table 3-5
Volpe Rated Maximum Speed Attributes

Attribute	Description
VID	UNIQUE IDENTIFIER FOR EACH ARC
Mxspeed	The maximum allowable freight speed for the span of track represented by each arc

3.2.2 BNSF Emergency Response System

3.2.2.1 Pilot Routes

The BNSF system was derived from a number of data sources, including the 1990 TIGER Files, the Bureau of Transportation Statistics (BTS) rail lines, and BNSF's own data sets. The BNSF system was built on a 1:100,000 scale with some sections exhibiting more accuracy than others. The BNSF system is based on a set of simple routes known as measured polylines (polyline-m). Measured polylines are arc segments defined by an x-coordinate, a y-coordinate and a measure value. Each polyline-m in the BNSF system represents a contiguous piece of track that is assigned a line segment number. In the BNSF system a line segment is a unique identifier of a long section of track. The line segment has assigned milepost (MP) values indicating the origin measure (for example MP 0 or MP 1) and destination (for example MP 100). The attributes used in the comparison analysis are described in Table 3-6.

Table 3-6
BNSF Main Route Attributes

Attribute	Description
Line_Seg	Unique line segment number identifying each route
FMPC	From (origin) milepoint
TMPC	To (destination) milepoint

3.2.2.2 Stations

The BNSF stations are based upon a table from BNSF's Railroad Information System (RIS) database. This table has attribution for line segment, milepost, and station or junction name. The station features were located on the line based on their line segment and milepost value. The attributes used in the comparison analysis are described in Table 3-7.

Table 3-7
BNSF Station Attributes

Attribute	Description
Line Segment	BNSF ASSIGNED RAIL LINE NUMBER
Milepost	The milepost value for the Station
Station	The Station or Junction Name

3.2.2.3 DOT Crossings

The BNSF DOT crossings are based upon a table from BNSF's RIS database. This table has attribution for line segment, milepost, and the DOT assigned unique crossing number. The DOT crossings were located on the line based on their line segment and milepost value. The attributes used in the comparison analysis are described in Table 3-8.

Table 3-8
BNSF DOT Crossing Attributes

Attribute	Description
Line Segment	BNSF ASSIGNED RAIL LINE NUMBER
Milepost	The milepost value for the crossing
XNUM	The DOT-assigned unique crossing number

3.2.2.4 Freight Volumes

The BNSF freight volume data are based on the traffic flow table submitted by BNSF to the FRA in 1996, which reports freight volumes and from station-to-station. The traffic flow table was used to create a set of station-to-station linear events that could be compared to the rated maximum speed Volpe freight volume data. The original table did not include a line segment value. In order to perform a comparison analysis, the line segment had to be assigned to each station to station record. The line segment value was assigned to the BNSF traffic flow table based on a matching query to the RIS station table.

The traffic flow table was used to create comparison freight tonnage analysis layers. The attributes used in the comparison analysis are listed in Table 3-9.

Table 3-9
BNSF Freight Volume Attributes

Attribute	Description
LS	LINE SEGMENT
Station_beg2	The origin station of the route
Ending_Sta	The destination station of the route
Total Both	The Gross Tons traveling on the route
Mp_beg	The milepost value for the origin station
Mp_end	The milepost value for the destination station

3.2.2.5 Freight Train Rated Maximum Speed Values

The BNSF rated maximum speed data are based on the traffic flow table submitted by BNSF to the FRA in 1996, which reports freight volumes and rated maximum speed from station to station. The traffic flow table was used to create a set of station-to-station linear events that could be compared to Volpe's speed data. The original table did not include a line segment value. In order to perform a comparison analysis, the line segment had to be assigned to each station to station record. The line segment value was assigned to the BNSF traffic flow table based on a matching query to the RIS station table. The traffic flow table was used to create comparison rated maximum speed analysis layers. The attributes used in the comparison analysis are listed in Table 3-10.

Table 3-10
BNSF Rated Maximum Speed Attributes

Attribute	Description
LS	LINE SEGMENT
Station_beg2	The origin station of the route
Ending_Sta	The destination station of the route
F_speed	Freight Speed for each station to station record
Mp_beg	The milepost value for the origin station
Mp_end	The milepost value for the destination station

3.3 Study Limitations

The comparison study did not take multiple parallel main line, spurs, or sidings into account, since the BNSF network is not comprised of multiple main lines. In contrast, the Volpe network includes all the known mainline sections of the tracks, as well as sidings. Crossings, rated maximum speed, or freight data applicable to a siding or spur were therefore not captured in this analysis.

The study did not explicitly address the accuracy of calibrating the Volpe Pilot Routes with BNSF ERS-derived measures. The study only evaluated the origin, destination, and station offset distance. Intervening measure (milepost) values were not utilized.

Discrepancies in measure assignments for sections of track between stations were only caught where crossing location discrepancies were identified.

Volpe's Pilot Route corridors include 3-times the track miles included in the BNSF ERS for the same corridors. The analysis compared 2,208 track miles representing single mainline Volpe Pilot Routes. The Volpe Rail Network includes over 7,500 BNSF-owned track miles in the Pilot Route corridors, meaning that a little over ¼ of the Volpe Pilot Route Network was evaluated for accuracy.

Section 4

4 Methods for DOT Crossings and Stations Comparison

The Volpe Rail Network and BNSF ERS rail network are both route systems based on dynamic segmentation models. Among other things, dynamic segmentation models include systems for measuring location along a network independent of linear distance. Both the data structures and measurement systems of the Volpe Rail Network and BNSF ERS are substantially different. This posed a challenge, since the assessment required comparison of similar data. In order to conduct meaningful comparisons of DOT crossings and stations in the Volpe and BNSF systems, the Volpe Rail Network was converted to the BNSF data structure and calibrated to the BNSF measurement system.

This section describes the process used to convert and calibrate the Volpe Pilot Routes to conform to the BNSF route system. Background is first provided on dynamic segmentation and route calibration concepts, as well as the basic differences in the Volpe and BNSF data structures. A "General Approach" section then describes the conversion and calibration process that was used for analysis of both DOT crossings and stations. The portions of our methodology that were unique to either the DOT crossing or station analyses are discussed in sections following our general approach.

4.1 Background

4.1.1 Dynamic Segmentation

The Volpe Rail Network and BNSF rail system are based on dynamic segmentation models which associates rail network attributes (e.g., DOT crossing and station locations) to segments of linear features (e.g., arcs representing segments of track) based on milepost stationing. These attributes are stored, displayed, queried and analyzed without manipulating the linear data's x, y coordinates or node topology. Dynamic segmentation is a method that places linear and point *events* along pre-defined *routes*. In this case a route represents a segment of track, such as the length of track between two stations. Routes contain *measures,* which are points along a route with a defined distance (or measure) value. An event is any feature, characteristic, or occurrence along a route, such as a DOT crossing or a portion of track with a speed restriction. This data model is called *dynamic segmentation* because the system dynamically places linear and point events by interpolating their geographic location based on a route's known measure values. An example of routes, measures, and events is shown in Figure 4-1.

Point events

Event_id	Measure	Crossing
1	0.9	092970H
2	1.5	092995D
3	2.0	092979U
4	3.0	092983J
5	3.5	092955F

Linear events

Event_id	Mp_beg	Mp_end	Max_speed
1	0	2.0	40
2	2.0	3.0	35
3	3.0	3.5	10
4	3.5	4.8	5

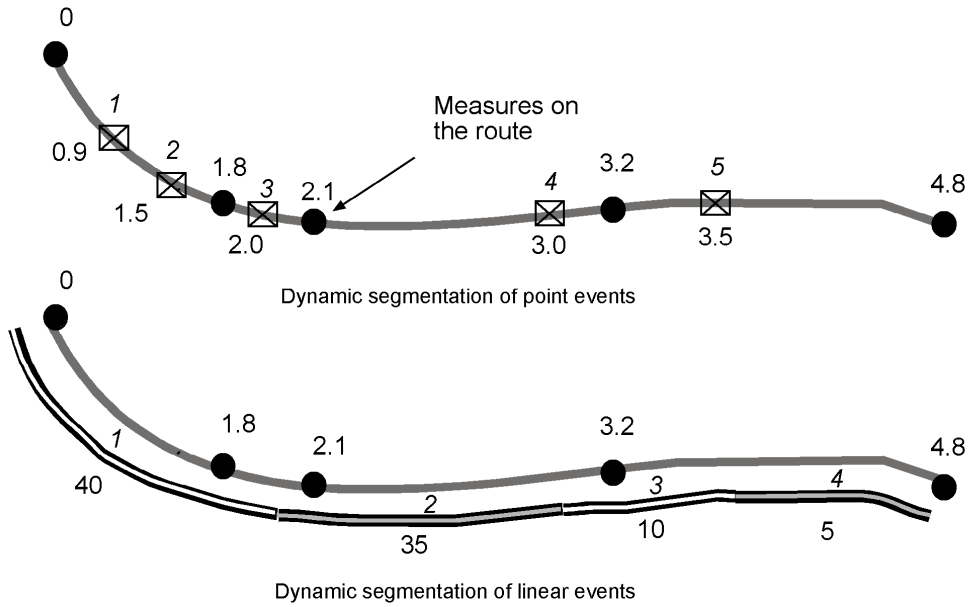
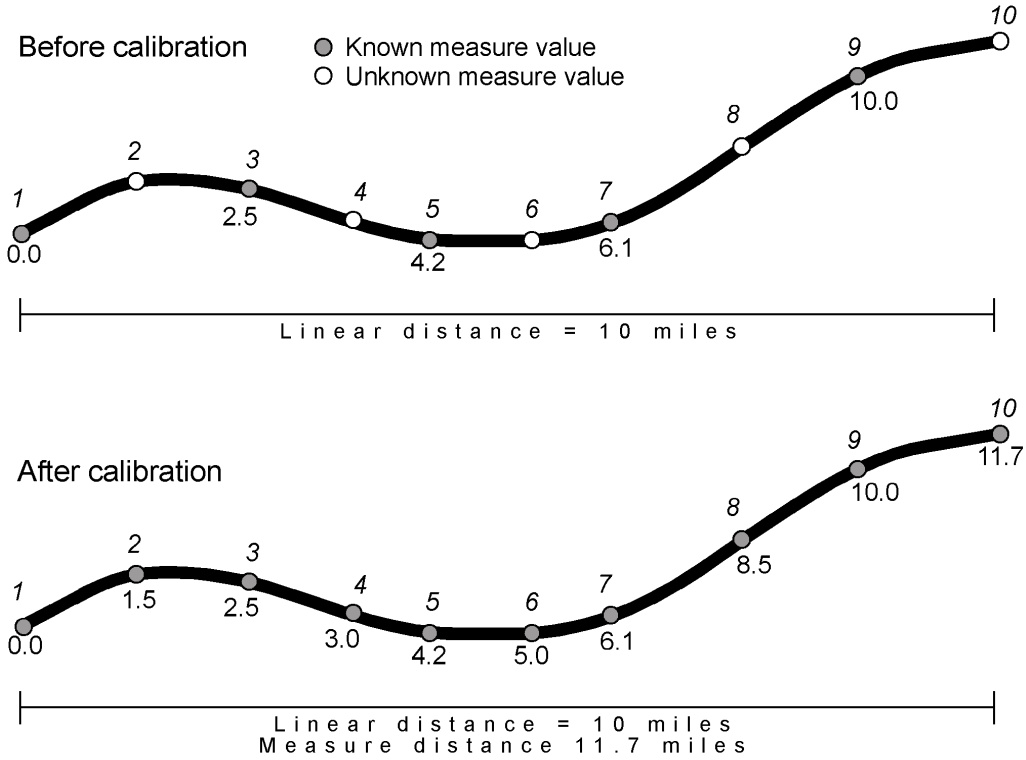


Figure 4-1. Rail Network Linear and Point Events

4.1.2 Calibrating Measured Route Systems

Each route in the Volpe Rail Network and BNSF ERS has associated measure values. *Calibration* is the method for assigning the start, end, and intermediate measures along a route. Typically, a calibration algorithm is used where known start/end measures and a subset of intermediate measures are used to interpolate the majority of intermediate measures with unknown values. For example, Figure 4-2 depicts the calibration of a route with a start measure of 0 (MP 0), an end measure of 11.7 (MP 11.7). The precise geographic location of two DOT crossings were fixed along this route, based on matching road name attributes in the DOT crossing database with road names in a TIGER street database. The remainder of DOT crossings can then be placed on the route based on the calibrated measures.



Measure table before calibration

Node_id	Measure
1	0.0
2	?
3	2.5
4	?
5	4.2
6	?
7	6.1
8	?
9	10.0
10	?

Measure table after calibration

Node_id	Measure
1	0.0
2	1.5
3	2.5
4	3.0
5	4.2
6	5.0
7	6.1
8	8.5
9	10.0
10	11.7

Figure 4-2. Route System Calibration

Calibrated dynamic segmentation models of large networks are preferred over alternative forms of data storage for a number of reasons. For example, the geographic precision of attribute placement can be continuously improved through iterative calibration routines without altering the route system's topology, which is often cost-prohibitive. Also, legacy milepost/stationing systems most often do not correspond to linear distances, so that (for example) the linear distance of track between mileposts 255.0 and 260.0 may be substantially more or less than 5.0 miles.

4.1.3 BNSF and Volpe Rail Network Models

The BNSF ERS rail network is represented by a set of simple routes known as measured polylines (polyline-m). Measured polylines are arc segments defined by an x-coordinate, a y-coordinate, and measure values. Each polyline-m in the BNSF system represents a contiguous piece of track that is a BNSF-defined line segment (LS or line_seg). In the BNSF system a line segment is a unique identifier of a long section of track. The line segment has assigned milepost values indicating the origin measure (for example MP 0 or 1) and destination measure (for example MP 100).

The Volpe rail network is built from a more complex routing structure based on the definition of the arcs, sections, and routes. Arcs are the smallest unique track segments near features (maintained in the AAT table), and consist of linear features with begin/end nodes and vertices. Sections are sets of arcs that define contiguous sections of routes (maintained in the SEC table). Routes can be made up of noncontiguous sections (maintained in the RAT table). The complexity of the Volpe rail network is also greater because two distinct route systems are maintained—the main route system depicting railroad ownership and routes for each owner, and the "flow" route system depicting freight volume "events" (contiguous track segments with equal freight volume) from station to station along the track. The first route system is used to place stations and the second route system is used to place freight volume "events". Figure 4-3 depicts the differences in the BNSF and Volpe data structures representing the same section of track.

4.2 General Approach

This section describes the methodology for converting the Volpe Pilot Routes to conform to the BNSF data structure, and for calibrating the Pilot Routes with BNSF measures. The Volpe Rail Network Pilot Routes had to be converted and calibrated in order to derive a meaningful comparison of Volpe and BNSF DOT crossings and stations. The Volpe route system had to be converted from its Arc/Info arc/section/route structure to the BNSF polyline-m structure. Once converted to a polyline-m data model, the Volpe route system then had to be calibrated to be consistent with BNSF measures.

As described above, The BNSF system is a single mainline representation of routes without spurs or sidings, and it was calibrated based on line segments that can encompass hundreds of miles of contiguous track. The challenge in creating a comparative Volpe data set was to define a common track system (i.e., a single mainline representation of Volpe Pilot Routes) and to transfer the BNSF measures onto that system. This process was carried out in the following steps.

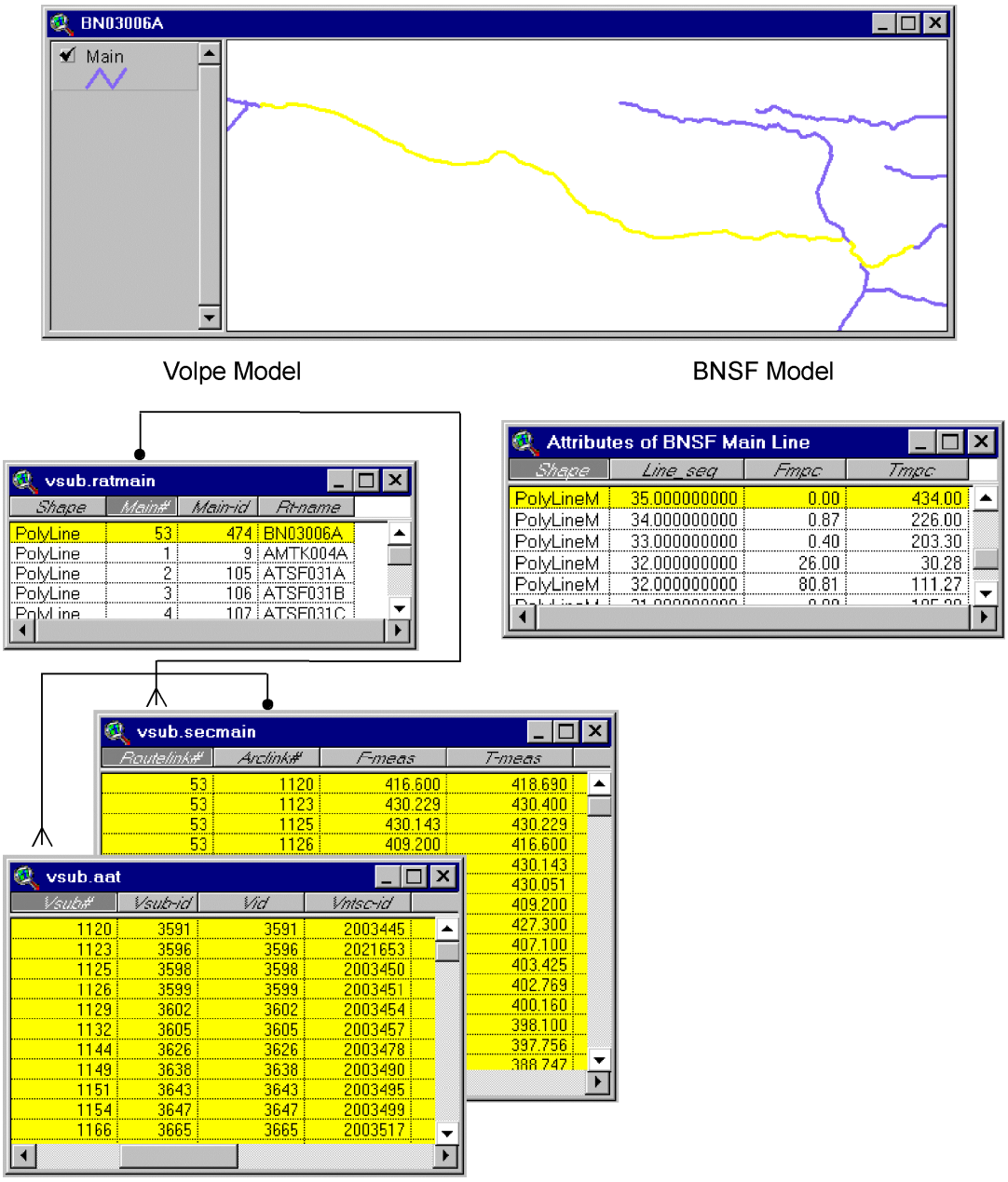


Figure 4-3. BNSF and Volpe Rail Network Models

Step 1—Extract BNSF-owned routes from Vsub coverage. Volpe provided URS with an Arc/Info coverage (titled **Vsub**) containing all tracks that fall within the Spokane to Chicago and Houston to Fort Worth corridor. The extracted routes were converted to ArcView shape file format. Each BNSF-owned main route in the Volpe dataset was identified by the unique [Main_route] numerical value within the [Rt-name] field. A [Track_no] field was created to identify the track numbers within each main route. The corridors and Pilot Routes are shown in Figure 4-4.

Vsub

Main_	Main_id	Rt_name	Owner	Track_no
31	327	BN01004A	BN	1004
32	328	BN01005A	BN	1005
33	329	BN01005B	BN	1005
34	330	BN01005C	BN	1005
35	331	BN01005D	BN	1005
36	332	BN01005E	BN	1005
37	333	BN01005F	BN	1005
38	334	BN01006A	BN	1006
39	335	BN01006B	BN	1006

Figure 4-4. Volpe Pilot Routes and Attribute Table

Step 2—Convert Volpe Main Lines to BNSF Routing Format. Each set of arcs in the Volpe dataset with an owner value of "BN" and distinct [Track-no] value was simplified from a multiple line feature to a single line feature. [Track_no] values were used as choice criteria. Each of the simplified lines was tagged to identify the corresponding line segments in the BNSF GIS. Figure 4-5 depicts the format conversion for an example mainline.

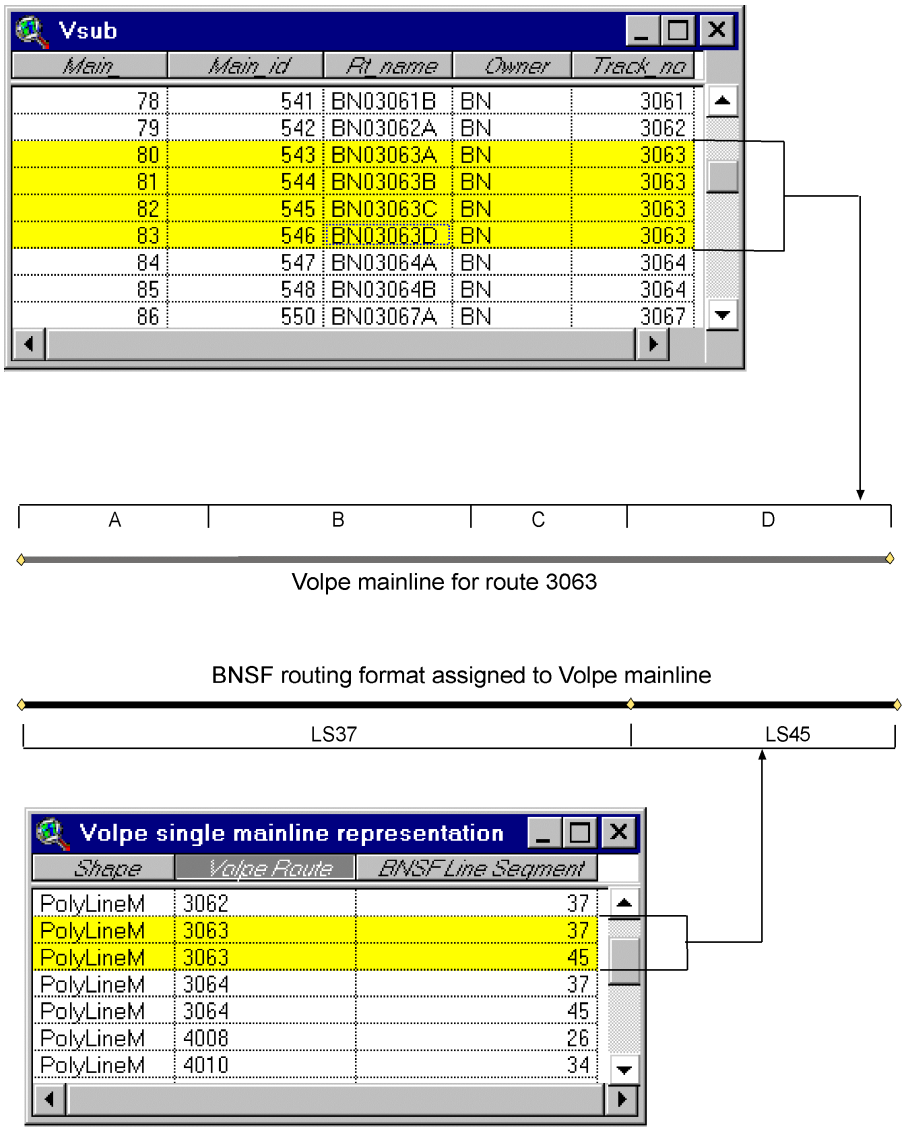


Figure 4-5. Conversion of Volpe Main Line

Step 3—Calibrate Volpe Pilot Routes Using Measures from Concurrent BNSF-Owned Track Segments. To conduct a meaningful comparison, both the Volpe and BNSF networks must be calibrated to the same measure system. We calibrated the Volpe main line routes created in Step 2, above, with measure values transferred from the corresponding BNSF mainlines. The BNSF and Volpe routes did not overlay exactly, due to variations in data format and precision. A 100 meter threshold was therefore used to transfer measures from the BNSF lines to the Volpe lines, as depicted in Figure 4-6.

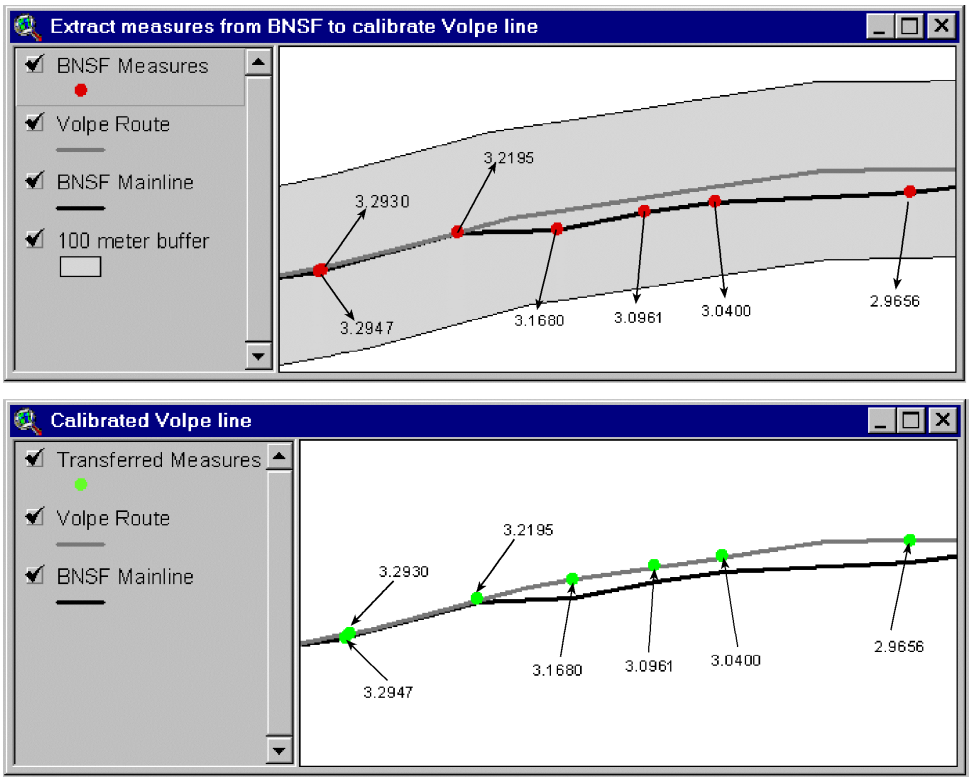


Figure 4-6. Transfer of BNSF Measure Values to Volpe Line

Step4—Create Interpolated Measure Values for Volpe Crossing and Station Data Sets. DOT crossings and stations were provided by Volpe as point layers. In order to assess a quantitative offset between the Volpe station/crossing and BNSF station/crossing data sets, we used the Volpe mainline routes (calibrated with BNSF measures in step 3) to generate interpolated measure (milepost) values for each Volpe crossing/station record. Once the measure values were interpolated, we could then calculate a distance offset between the "Volpe-derived" and "BNSF-derived" measures for each corresponding station or crossing record. The offset for each station record or crossing record was computed as the absolute value of the difference between the record's Volpe-derived measure and the record's BNSF-derived measure. An example of the interpolated measures for Volpe Crossings is shown in Figure 4-7.

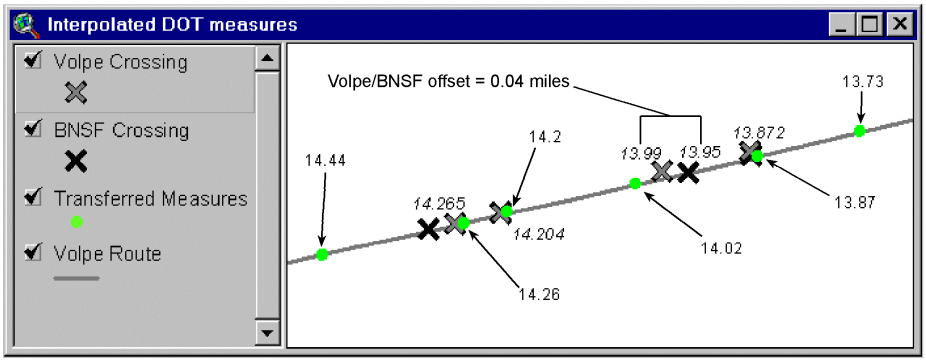


Figure 4-7. Interpolated Volpe Crossings

4.3 DOT Crossings

The Volpe DOT crossing data was not derived from the Volpe Rail Network. The crossing layer was provided to Volpe by an independent party, and crossings may not always intersect with the Pilot Routes. In order to identify Pilot Route crossings, we therefore selected all crossings in the Volpe dataset within 100 meters of the Houston to Fort Worth and Spokane to Chicago Pilot Routes. The comparison assessment was performed against all crossings in the BNSF ERS within 100 meters of the Pilot Routes. Each of the selected BNSF ERS crossings was matched to its corresponding Volpe crossing (*i.e.,* BNSF Crossing Number = Volpe Crossing Number).

A new record was created in a crossing analysis table for each Volpe crossing. Each record contained both the Volpe-derived measure values and the BNSF-derived measure values. Fields were also included to store the crossing-id and difference between the two measure values (the offset). In some cases there were no corresponding BNSF crossings. An offset of 0.2 miles or greater was established as a threshold that triggered further evaluation using track charts. The findings of the evaluation were posted in the comments field. Figure 4-8 provides an example of the DOT crossing analysis table.

DOT Crossing Analysis

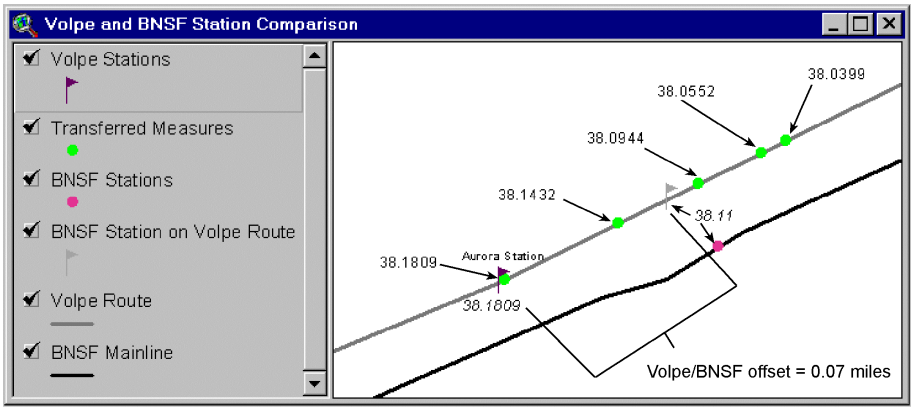
Xnum	Bn_measure	Volpe_meas	Comment	Offset
059194A	1297.56300	1299.61781	Both off, BN is off measured from Bridge, Volpe is	2.05481
059281D	1256.64700	1257.07721	Both off, BN off .11 miles measured from cnty line	0.43021
093401F	120.91000	121.10254	Both off, BN off appx. 0.15, Volpe off appx. 0.10	0.19254
093402M	121.19000	121.38993	Both off, BN off appx. 0.15, Volpe off appx. 0.10	0.19993
093400Y	120.93000	121.12304	Both off, BN off appx. 0.15, Volpe off appx. 0.10	0.19304
093399G	120.87000	121.06153	Both off, BN off appx. 0.15, Volpe off appx. 0.10	0.19153
093404B	121.21000	121.41044	Both off, BN off appx. 0.15, Volpe off appx. 0.10	0.20044
081546H	126.93600	126.67401	Both off, should be with bridge at Highway 85	0.26199
088114H	1138.41300	1138.15193	DOT Xing not in track chart – cannot compare, but	0.26107
088106R	1123.77000	1123.31355	Not in track chart	0.45645
093407W	121.48000	121.70028	Not in track chart	0.22028

Figure 4-8. DOT Crossing Analysis Table

4.4 Stations

Volpe Rail Network stations were selected using a spatial intersection of the Volpe Pilot Routes and the stations coverage provided by Volpe. The selected set of Volpe stations were used to iterate through the BNSF database to find corresponding stations (*i.e.,* [BNSF.Station_nm] = [Volpe.Sta_jct]). If the BNSF database did not include a matching station, the Volpe station name was written to the report and both the BNSF and Volpe measure values for that record were set to zero. In cases where a BNSF record did not have a corresponding Volpe counterpart, it was usually because the BNSF dataset includes both stations and yards. In some cases, however, the BNSF dataset was incomplete. Those records were recorded with a 0 or null value for both the BNSF and Volpe measure fields.

The distance offset between the interpolated measure values was calculated and a difference tolerance of 0.20 miles was used to compare validity. A two-tenths of a mile (~322 meters) target threshold between the two data sets was selected because the calibration of the BNSF line has been corrected to within two-tenths of a mile. Figure 4-9 shows the dynamic segmentation of the Volpe and BNSF stations on the Volpe Pilot Route and the table used to compare the two data sets.



Volpe and BNSF Station/Yard Comparison

Sta_jct	Bn_measure	Volpe_meas	Route_name	
ATHOL	31.49600000	31.77265112	BN03063D	V
AURORA	38.11000000	38.18090000	BN05001C	
AURORA	38.11000000	38.18090000	BN05003A	
AYLMER	177.04000000	176.98102311	BN04016A	
BAGLEY	228.40000000	228.61002333	BN05004A	V
BAGLEY	228.40000000	228.61002333	BN05004B	V
BAINVILLE	159.30000000	159.44830823	BN03014A	

Figure 4-9. Volpe and BNSF Station Comparison

Section 5

5 Results of DOT Crossings and Stations Comparison

This section presents the results of the DOT crossing and station comparison analyses. Differences between the Volpe and BNSF datasets are summarized, and comparison statistics are provided. The detailed report for DOT crossings is included as Appendix B. The complete report for stations is provided as Appendix C.

Calibrating the Volpe Pilot Routes with BNSF-derived measures allowed for a qualified comparison of measures (locations) for DOT crossings and stations. Matching Volpe and BNSF DOT crossing and station records were paired, and the differences in location (measures) were computed as absolute distance offsets. For further discussion of the comparison methods, refer to Section 4.

5.1 DOT Crossings

5.1.1 Houston to Fort Worth Pilot Route

The Volpe and BNSF datasets contained matching records for 367 DOT crossings. In total, the BNSF dataset contained 570 crossings, and the Volpe dataset contained 543 crossings. This means that approximately 2/3 of the records matched between the two datasets. Records were paired based on a query of Crossing IDs. The datasets were reviewed manually to identify partial matches. Of the 367 matching records, 70 (19%) exceeded the offset tolerance of 0.2 miles. Detailed analysis revealed that 40 of the 70 offset records were due to misplacement in the Volpe database. The remaining 30 offset records were due to misplacement in the BNSF ERS database. As described in Section 4, a 0.2-mile offset tolerance was used because the BNSF system measures were calibrated to this level of accuracy. An offset, or absolute difference in location, of greater than 0.2 miles therefore indicates possible misplacement of crossings in either the Volpe or BNSF datasets. Figure 5-1 shows the distribution of crossing records with offset values greater than 0.2 miles. The complete DOT crossings report is included in Appendix B.

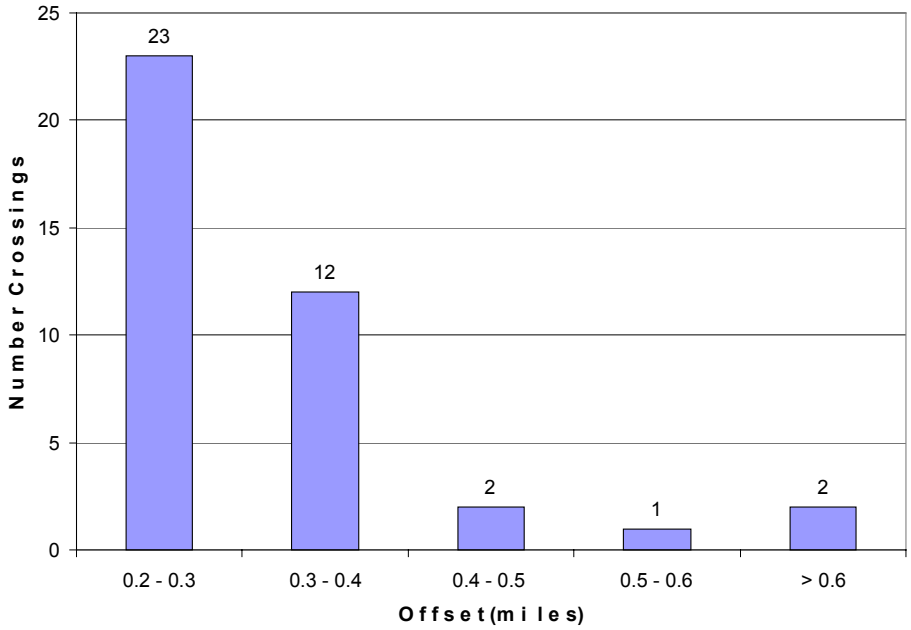


Figure 5-1. Offsets of Volpe Crossing Records—Houston to Fort Worth

Further analysis revealed that most of the Volpe location offsets were within 0.5 miles. Only 2 DOT crossings in the Volpe dataset were offset more than 0.5 miles from their location in the BNSF ERS. Those two crossings were placed in either the wrong city or on the wrong track. After removing these two outliers, analysis revealed that the average offset was 0.322 miles for the 38 Volpe crossings with offsets between 0.2 and 0.5 miles. 35 of the 38 records had an offset less than 0.4 miles.

These results are summarized below and in Table 5-1.

- 367 Volpe crossings had a matching BNSF crossing.
- 71 Volpe or BNSF records exceeded the offset tolerance of 0.2 miles.
- Of these 70 records, 40 Volpe crossings exceeded the offset tolerance of 0.2 miles.
- Simple analysis of the discrepancies indicates that 2 records accounted for most of the overall error.
- Removing the two outliers revealed an average offset difference of 0.12 miles, a maximum offset difference of about 0.5 miles, and a standard deviation of about 0.123 miles.
- The comment field of the Crossings Report (Appendix B) addresses the reason for each discrepancy.

Table 5-1
Results of DOT Crossings Comparison—Houston to Fort Worth

Number of BNSF Crossings	570
Number of Volpe Crossings	543
Number of Matching Crossings	367
Median Offset of Matching Crossings	0.04 miles
Maximum Deviation of All Matching Crossings	7.72 miles
Number of BNSF Crossings Exceeding 0.2 Mile Tolerance	31
Number of Volpe Crossings Exceeding 0.2 Mile Tolerance	40
Median Offset for Crossings Exceeding 0.2 Mile Tolerance	0.30 Miles
Number of BNSF Crossings Exceeding 1 Mile Offset	0
Number of Volpe Crossings Exceeding 1 Mile Offset	2

5.1.2 Spokane to Chicago Pilot Route

The Volpe and BNSF datasets contained matching records for 1,826 DOT crossings. In total, the BNSF dataset contained 2,164 crossings, and the Volpe dataset contained 1,889 crossings. This means that approximately 90% of the records matched between the two datasets. Of the 1,826 matching records, 198 (11%) of the Volpe records exceeded the offset tolerance of 0.2 miles. One hundred-eight, or 6%, of the BNSF records exceeded the offset tolerance of 0.2 miles. We determined whether the BNSF or Volpe crossing records exceeded the offset tolerance by reviewing BNSF track charts. As described in Section 4, a 0.2-mile offset tolerance was used because the BNSF system measures were calibrated to this level of accuracy. An offset, or absolute difference in location, of greater than 0.2 miles therefore indicates possible misplacement of crossings in the BNSF or Volpe datasets. Figure 5-2 shows the distribution of Volpe crossing records with offset values greater than 0.2 miles. The complete DOT crossings report is included in Appendix B.

The maximum offset between matching Volpe and BNSF crossing records was 6 miles. One BNSF record was offset by greater than 1 mile. In comparison, 65 of the Volpe crossing records were offset by more than 1 mile. The average offset distance for these records was 3.14 miles. For the 134 Volpe crossing records with offsets between 0.2 miles and 1 mile, the average offset was 0.368 miles.

These results are summarized below and in Table 5-2.

- 1,826 Volpe DOT crossings had a matching BNSF DOT crossing.
- 306 records exceeded the offset tolerance of 0.2 miles, as confirmed by a review of the track charts.
- Of these 306 records, 198 Volpe crossings and 108 BNSF crossings exceeded the offset tolerance of 0.2 miles.
- The comment field of the Crossings Report in Appendix B addresses the reason for each discrepancy.

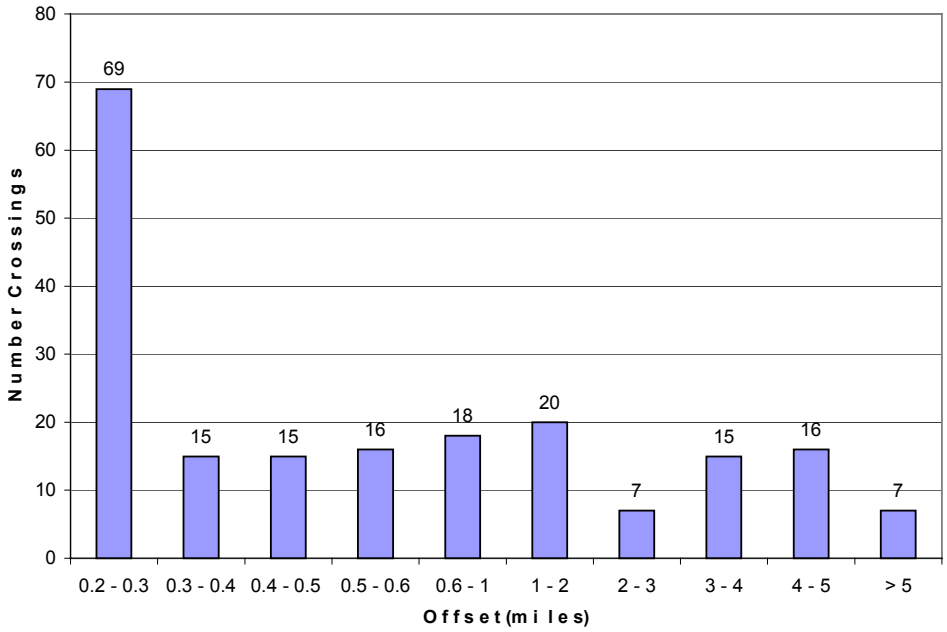


Figure 5-2. Offsets of Volpe Crossing Records—Spokane to Chicago

Table 5-2
Results of DOT Crossings Comparison—Spokane to Chicago

Number of BNSF Crossings	2,164
Number of Volpe Crossings	1,889
Number of Matching Crossings	1,826
Median Offset of Matching Crossings	0.03 Miles
Maximum Deviation	6 miles
Number of BNSF Crossings Exceeding 0.2 Mile Tolerance	108
Median Offset for BNSF Crossings Exceeding 0.2 mile Tolerance	0.29 miles
Number of Volpe Crossings Exceeding 0.2 Mile Tolerance	198
Median Offset for Volpe Crossings Exceeding 0.2 mile Tolerance	0.5 miles
Number of BNSF Crossings Exceeding 1 Mile Offset	1
Number of Volpe Crossings Exceeding 1 Mile Offset	65

5.2 Stations

5.2.1 Houston to Fort Worth Pilot Route

The Volpe and BNSF datasets contained matching records for 25 stations. The Volpe Rail Network thus contains 20% of the 125 stations in the BNSF ERS for the Houston to Fort Worth Pilot Route. In total, the Volpe dataset contained 42 stations. There are a number of possible reasons that 17 Volpe stations did not have matching BNSF records, including ownership by a differing rail, or misassignment of station to the general location of the Pilot Routes. Of the 25 matching records, 5 BNSF records and 5 Volpe records exceeded the 0.2 mile offset tolerance. As described in Section 4, a 0.2-mile offset tolerance was used because the BNSF system measures were calibrated to this level of accuracy. An offset, or absolute difference in location, of greater than 0.2 miles therefore indicates possible misplacement of crossings in the Volpe or BNSF datasets. Table 5-3 lists the offsets for the 5 Volpe stations with offsets greater than 0.2 miles. The complete Volpe stations report is included in Appendix C.

Table 5-3
Volpe Stations Exceeding 0.2 Mile Offset

Station	Offset
Gribble	0.644
Karen	0.73
Bardwell	0.20
Simmons	0.29
Waxahachie	1.04

These results are summarized below and in Table 5-4.

- 42 Volpe stations exist on the Houston to Fort Worth route versus 125 BNSF stations and yards.
- 25 Volpe records have a corresponding BNSF record.
- 10 of the 25 records exceeded the offset tolerance of 0.2 miles, where either BNSF or Volpe stations were miscalibrated.
- 5 of the 10 records with a tolerance exceeding 0.2 miles were a result of miscalibrated Volpe station locations.
- The comment field of the stations report in Appendix C addresses the reason for each discrepancy.

Table 5-4
Results of Stations Comparison—Houston to Fort Worth

Number of BNSF Stations	125
Number of Volpe Stations	42
Number of Matching Stations	25
Median Offset of Matching Stations	0.25 miles
Maximum Deviation of Matching Stations	1.04 miles
Number of BNSF Crossings Exceeding 0.2 Mile Tolerance	6
Median Offset of BNSF Stations Exceeding 0.2 Mile Tolerance	0.656 Miles
Number of Volpe Crossings Exceeding 0.2 Mile Tolerance	5
Median Offset of Volpe Station Exceeding 0.2 Mile Offset	0.644 Miles
Number of BNSF Stations Exceeding 1.0 Mile Offset	1
Number of Volpe Stations Exceeding 1.0 Mile Offset	1

5.2.2 Spokane to Chicago Pilot Route

The Volpe and BNSF datasets contained matching records for 221 stations. There were a total of 525 stations in the Volpe dataset, but only 286 unique station records. For example, there were two records for BISON station—one on route BN03012A and one on route BN03012B. The BNSF dataset contains 231 stations. There is therefore approximately 86% correspondence between Volpe and BNSF station records. Of the 221 matching records, 125, or 57%, exceeded the offset tolerance of 0.2 miles. As described in Section 4, a 0.2-mile offset tolerance was used because the BNSF system measures were calibrated to this level of accuracy. An offset, or absolute difference in location, of greater than 0.2 miles therefore indicates possible misplacement of crossings in the Volpe or BNSF datasets.

Further analysis indicated that 76 of the 125 records exceeding the offset tolerance (61%) were due to misplacement in the Volpe dataset. Offsets for the remaining 49 records were caused by misplacement in the BNSF dataset. The greatest offset encountered was 16 miles. Only 7 Volpe stations were misplaced by more than 1 mile, whereas 17 BNSF stations had offsets of 1 mile or more. The average misplacement for Volpe stations with offsets between 0.2 and 1.0 miles was 0.427 miles. Figure 5-3 shows the distribution of Volpe station records with offset values greater than 0.2 miles. The complete stations comparison report is included in Appendix C.

These results are summarized below and in Table 5-5.

- 525 Volpe stations exist on the Spokane to Chicago route versus 231 BNSF stations and yards. However, the Volpe stations were repeated across multiple routes so that there were actually 286 unique Volpe Station names for the 525 records. For example, BISON station is reflected on routes BN03012A and BN03012B.
- 221 Volpe records have a corresponding BNSF record.
- 125 of the 221 records exceeded the offset tolerance of 0.2 miles, where either BNSF or Volpe stations were miscalibrated.
- 76 of the 125 records with a tolerance exceeding 0.2 miles were a result of miscalibrated Volpe station locations.

- The comment field of the stations report in Appendix C addresses the reason for each discrepancy.

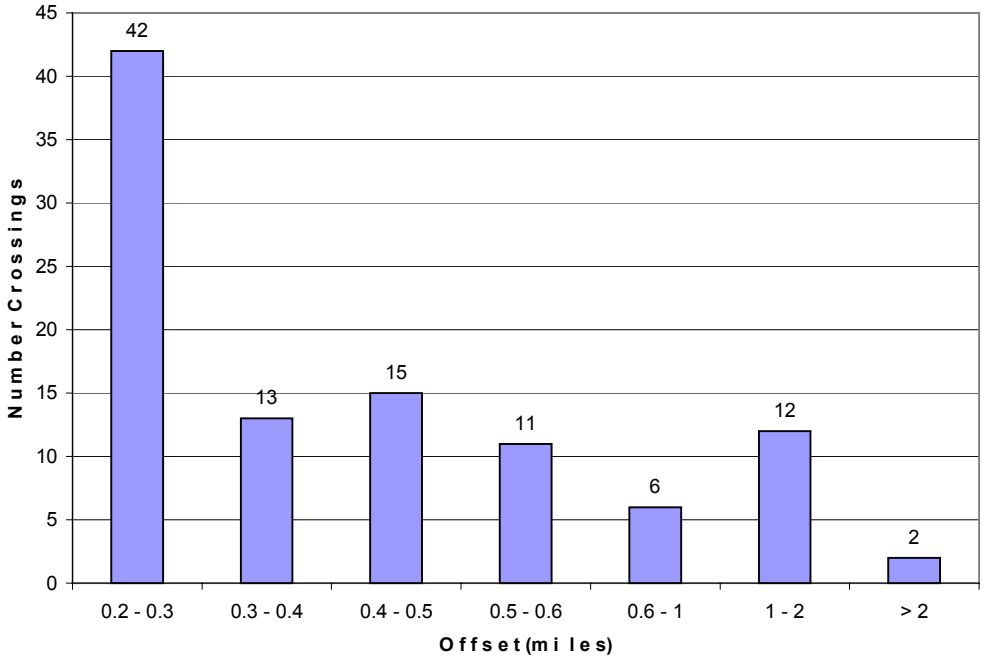


Figure 5-3. Offsets of Volpe Station Records—Spokane to Chicago

Table 5-5
Results of Stations Comparison—Spokane to Chicago

Number of BNSF Stations	231
Number of Volpe Stations	525 (286 Unique Records)
Number of Matching Stations	221
Median Offset of Matching Stations	1.16 miles
Maximum Deviation of Matching Stations	16 miles
Number of BNSF Stations Exceeding 0.2 Mile Tolerance	49
Median Offset of BNSF Stations Exceeding 0.2 Mile Tolerance	0.353 Miles
Number of Volpe Stations Exceeding 0.2 Mile Tolerance	76
Median Offset of Volpe Stations Exceeding 0.2 Mile Tolerance	0.427 Miles
Number of BNSF Stations Exceeding 1 Mile Offset	17
Number of Volpe Stations Exceeding 1 Mile Offset	7
Standard Deviation of Matching Stations Where all Deviations Exceeding 1 Mile Removed	0.18 miles

Section 6

6 Methods for Freight Volume and Speed Comparisons

This section describes the methods used to compare Volpe and BNSF freight volume data and Volpe and BNSF maximum rated speed (speed) data. As for comparison of DOT crossings and stations, assessment of freight volume and speed data required conversion and calibration of the Volpe Pilot Routes. This process is described in Section 4. Elements of our approach specific to the freight volume and speed data comparisons are described below.

6.1 Freight Volume

The freight volume data comparison was based on the following input data:

- Calibrated Volpe Pilot Routes;
- Traffic table submitted to FRA by BNSF in 1996, called BNSF_Orig; and
- Volpe freight volume routes, representing station-to-station track segments.

Calibrated Volpe Pilot Routes were created in Steps 1 through 4 as described in Section 4.2. The following steps, listed as Step 5 for consistency, was required to generate comparable freight volume linear data features.

Step 5—Generate Volpe and BNSF Freight Volume Linear Event Themes. We generated freight volume linear event themes from both Volpe data and BNSF data. The Volpe dataset was produced using Volpe routes and the Volpe freight volume data table with [milepost_begin] and [milepost_end] fields. The line segment field (the route identifier) was populated using a join query to the station table provided by BNSF. Each route had a unique [from_station] and [end_station] value, a corresponding set of routes in the BNSF_Orig table could be compared using these values.

6.2 Speed Data

The speed data comparison was based on the following input data:

- Calibrated Volpe Pilot Routes;
- Traffic table submitted to FRA by BNSF in 1996, called BNSF_Orig;
- Volpe Vsub coverage arcs corresponding to Pilot Routes. Maximum rated freight speed is an attribute of these arcs in the Volpe Rail Network.

Calibrated Volpe Pilot Routes were created in Steps 1 through 4 as described in Section 4.2. The following steps, listed as Steps 5 and 6 for consistency, were required to generate comparable speed data features.

Step 5—Generate Maximum Rated Freight Speed Linear Event Theme. A linear event theme was generated using the traffic table submitted to FRA by BNSF in 1996 (BNSF_Orig). This table reported both maximum rated freight and passenger speeds, and annual freight tonnage. The table's [milepost_begin] and [milepost_end] fields were used to locate the linear events along the calibrated Volpe Pilot routes. In some cases, adjoining linear events had identical freight and passenger speed attributes. In order to simplify the data set, we aggregated the linear events based on these common attributes. This step is depicted graphically in Figure 6-1.

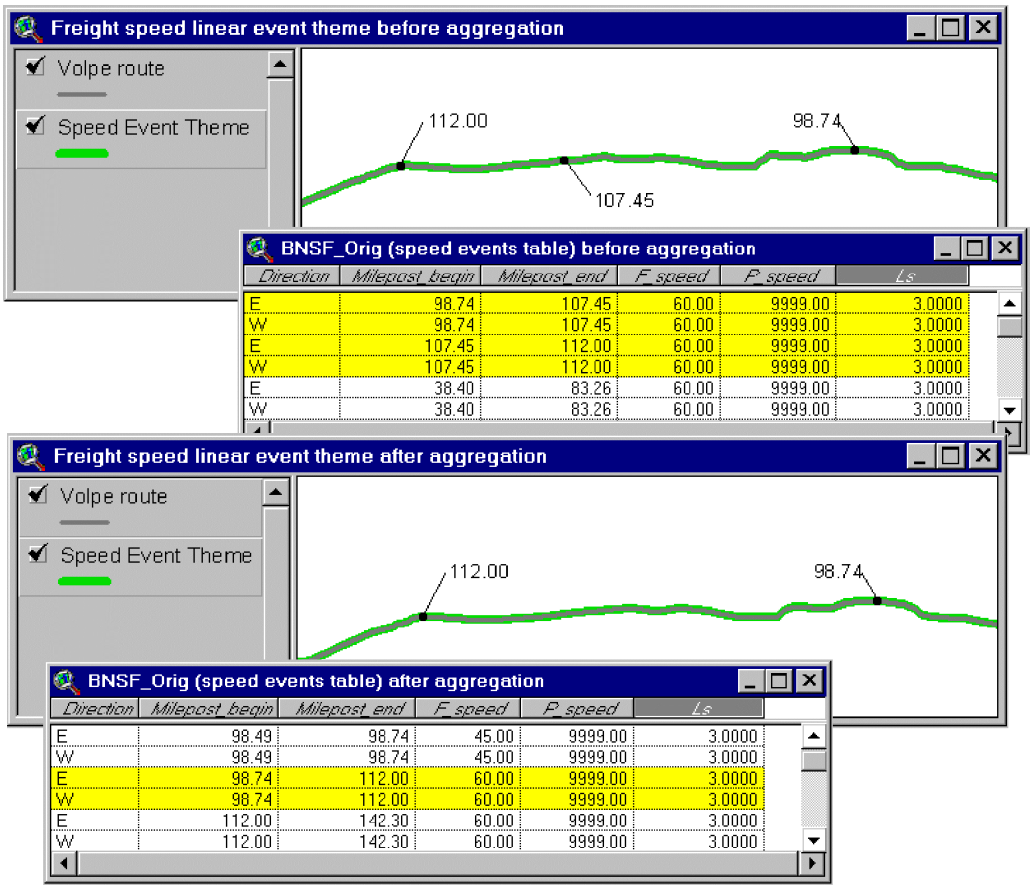


Figure 6-1. Aggregation of Speed Events

Step 6—Compute Geographic Intersection of BNSF-Derived Linear Speed Events and Volpe Rail Network Arcs. The Volpe Rail Network carries maximum allowable freight speed attributes at the arc level of the arc/section/route data structure (described in Section 4). Since these arcs were used as the basis for deriving the topology of the Volpe Pilot Routes, the Rail Network arcs and the Pilot Routes we built as described in Section

4.2, Steps 1 through 3, overlaid precisely. This allowed us to calculate the geographic intersection of the Pilot Route linear speed events and the Rail Network Arcs.

A mismatch in the maximum allowable freight speed data occurs anywhere that there is not exact correspondence between the BNSF-derived maximum allowable freight speed events and the Volpe Rail Network [mx_speed] arc attributes. This mismatch could result from the following types of mismatch:

- **Attribute mismatch.** In this case the maximum freight speed attribute values do not match. Fixing the discrepancy does not require edits to the arc topology.
- **Topological mismatch.** In this case features and attributes do not match. Volpe Rail Network Arcs span more than one linear speed event. Edits to both arc topology and attribution are required to fix the discrepancy.

Examples of attribute and topological errors are depicted in Figure 6-2.

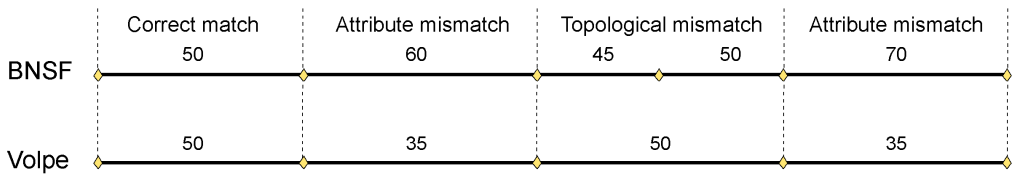


Figure 6-2. Example of Attribute and Topological Mismatches

In order to capture cases where attribute mismatch and topological mismatch occurred, a speed table and a values table were created. The speed table holds a record for each arc in the set of Volpe Rail Network arcs (from the **Vsub** coverage) that correspond to the BNSF mainline. The key for this table is [Vid], which can be joined to the **Vsub** arc attribute table. The speed table includes the following fields:

- Vid (the unique identifier for the **Vsub** layer);
- Mxspeed (the Vsub arc maximum speed value);
- Ls (line segment number);
- Mp_beg (interpolated milepost begin);
- Mp_end (interpolated milepost end).

In cases where mismatch was due to differences in topology, arcs in the Volpe Rail Network (Vsub) crossed, or spanned, more than one zone of maximum allowable freight speed in the BNSF-derived linear event theme. A values table was created in order to record those cases. The values table is composed of the following fields:

- Vid (the unique identifier for the Vsub arcs);
- F_Speed (freight speed value from the BNSF linear event theme);
- P_speed (passenger speed from the BNSF linear event theme)
- Mxspeed (the Volpe Rail Network (**Vsub**) maximum allowable freight speed value);
- Mp_beg (interpolated milepost begin for the section of the route the Volpe arc intersected);

- Mp_end (milepost end for the section of the route the Volpe arc intersected);
- Max (the Freight speed value from the linear event flow data); and
- Speeddiff (the difference between the maximum BNSF speed value and the maximum Volpe speed value).

The relationship between the speed table, the values table, and a geographic representation of the differences between the Volpe and BNSF speed data is presented in Figure 6-3.

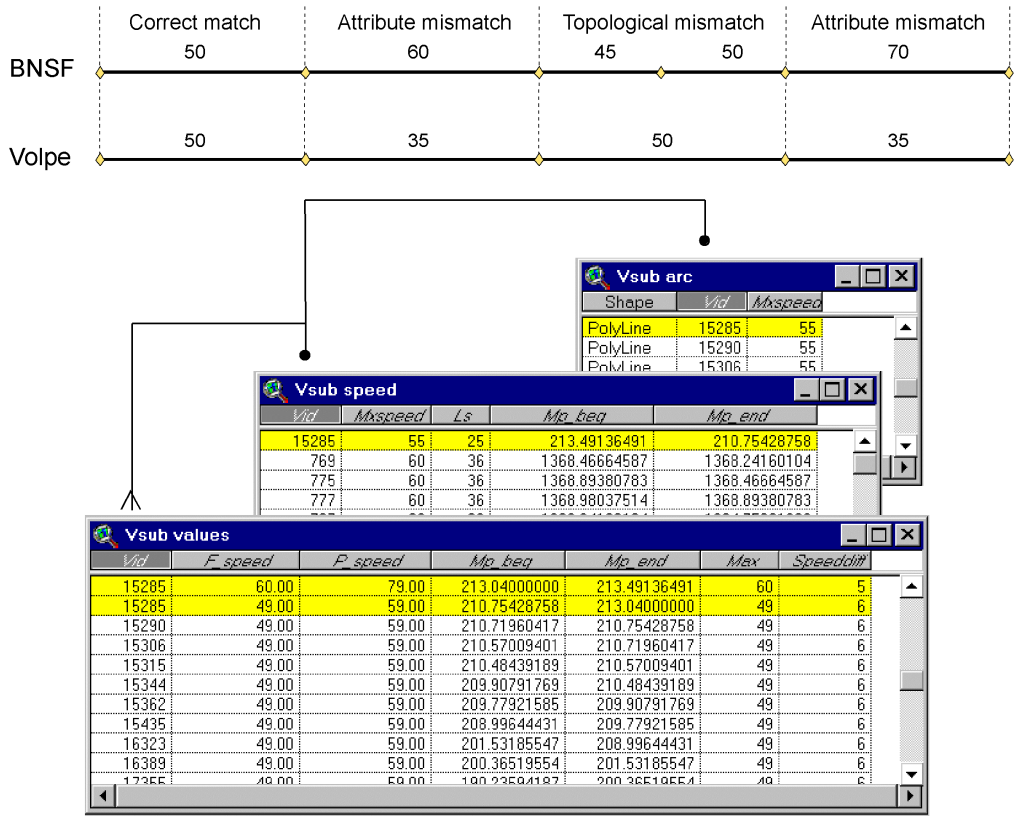


Figure 6-3. Example of Speed Event Mismatches

The analysis was performed on the Values table since it best reflected the geographic intersection of unique Volpe Rail Network speed attributes and BNSF-derived speed attributes. The results of the analysis are presented in the Section 7.

Section 7

7 Results of Freight Volume and Speed Comparisons

This section presents the results of the freight (computed through a station to station comparison) and speed comparison analyses. Differences between the Volpe and BNSF datasets are summarized, and comparison statistics are provided. The detailed report for freight is included as Appendix D. The complete report for speed is provided as Appendix E.

Calibrating the Volpe Pilot Routes with BNSF-derived measures allowed for a qualified comparison of measures (locations) for rated maximum speeds. For the freight volume data comparison, matching Volpe and BNSF station to station records were paired, and the differences in location (measures) were computed for origin and destination distance offsets. For further discussion of the comparison methods, refer to Section 6.

7.1 Freight Volume Comparison

Volpe and BNSF freight volume data were derived from the same source, the traffic flow data table provided to FRA by BNSF in 1996. This table reports freight volume data between stations. The only possible discrepancies are therefore based on differences in the geographic placement of freight volume "events" in the Volpe and BNSF systems. The discrepancies identified are summarized in Sections 7.1.1 and 7.1.2.

The Volpe "flow" routes are based on station to station points obtained from the BNSF 1996 traffic flow data table. The linear event routes were based on the line segment and milepost values within each flow table record. In many cases the linear event record with an assigned milepost/line segment value deviated from the track chart station line segment/ milepost value. For example, Stryker Station in the track chart exists at milepost 1,249.3 and in the flow data table as milepost 1249.4. As we corroborated the station to station data, we noted the disparate definitions of the line so that Volpe could choose to recalibrate based on either line segment/milepost or station location. Most of the gross miscalibrations summarized below were due to the close spellings of station names, for example, Texas City vs. Texas City Jct or because the wrong arc from the BTS data set was selected to represent the route.

The most likely reason for BNSF's tighter calibration is due to the number of fixed locations we were able to use, including county boundaries, state boundaries, river crossings, road crossings and track chart representations of multiple track occurrences.

We have attempted to report each miscalibration for both data sets, so that the routes can be recalibrated to more reasonably reflect information in the track charts.

7.1.1 Houston to Fort Worth Route

Results for the Houston to Fort Worth Route are summarized below and in Table 7-1.

- 36 unique station-to-station freight volume "events" exist on the Volpe Houston to Fort Worth Pilot Route.
- 28 Volpe freight volume events have a corresponding BNSF freight volume event.
- 18 of the 28 records exceeded the offset tolerance of 0.2 miles, where either BNSF or Volpe stations were miscalibrated, causing offsets in freight volume event begin/end locations.
- 10 of the 28 records with a tolerance exceeding 1 mile were a result of miscalibrated Volpe station locations.
- The comment field of the Freight Volume Report in Appendix D addresses the reason for each discrepancy.

Table 7-1
Results of Freight Volume Comparison—Houston to Fort Worth

Number of Volpe Freight Volume Events	36
Number of Matching Volpe/BNSF Events	28
NUMBER OF VOLPE EVENTS EXCEEDING 0.2 MILE TOLERANCE AT THE ORIGIN AND/OR DESTINATION	18
Number of Volpe Routes Exceeding 1.0 Mile Offset at the Origin and/or Destination	10

7.1.2 Spokane to Chicago Route

Results for the Spokane to Chicago Route are summarized below and in Table 7-2.

- 77 station-to-station freight volume "events" exist on the Spokane-Chicago Line.
- 68 Volpe events have a corresponding BNSF event.
- 44 of the 68 records exceeded the offset tolerance of 0.2 miles, where either BNSF or Volpe stations were miscalibrated.
- 76 of the 125 records with a tolerance exceeding 0.2 miles were a result of miscalibrated Volpe station locations.
- The comment field of the Freight Volume Report in Appendix D addresses the reason for each discrepancy.

Table 7-2
Results of Freight Volume Comparison—Spokane to Chicago

Number of Volpe Freight Volume Events	77
Number of Matching Volpe/BNSF Events	68
Number of Volpe Events Exceeding 0.2 Mile Tolerance at the Origin and/or Destination	44
Number of Volpe Events Exceeding 1 Mile Offset at the Origin and/or Destination	10

7.2 Speed Data Comparison

7.2.1 Houston to Fort Worth Route

There are 34 Volpe arcs (Vsub) that fall on miscalibrated BNSF track sections. Since the measures on these BNSF track sections may be inaccurate, the BNSF linear speed events may not be properly placed geographically. Because the BNSF data are in question, these Volpe arcs may have properly attributed speed values, but their accuracy could not be verified in the analysis. We therefore report results for all records, including the 34 records on miscalibrated BNSF track sections, and then only for records with valid calibration.

7.2.1.1 All Records

Table 7-3 shows results of the speed data comparison for the Houston to Fort Worth route. This route is represented by 269 Volpe arcs. Of this total, 63 (23%) had speed values that exactly match the BNSF linear event speed data. Only 8 of the 269 Vsub arcs had topological errors, spanning multiple BNSF linear event speed zones. Since these records span multiple arcs, the Vsub arcs would need to be "split" in order to accurately reflect the proper attribution.

Table 7-3
Results of Speed Data Comparison for All Records
Houston toFort Worth

Number of Volpe Arcs Intersecting the BNSF Pilot Routes	269
Number of Volpe Arcs with Speed Values that Match the BNSF Linear Event Speed Data	63
Number of Volpe Arcs Spanning More than One BNSF Speed Zone (Topological Error)	8
Number of Volpe Arcs with Incorrect Attribution (Attribute Error)	198

Simple statistical analysis of all the Vsub records that intersect the BNSF routes reveals that the minimum difference in maximum rated speed is 0 mph, and the maximum difference for any section of track on the Houston to Fort Worth Route is 35 mph. If the set is constricted (63 records with matching speed values expunged) so that only those records that deviate from one another are analyzed, the results are a minimum difference of 5 mph, and a maximum difference of 35 mph. These comparison statistics are shown in Table 7-4.

Table 7-4
Speed Data Comparison Statistics for All Records
Houston to Fort Worth

All 269 Records	
Minimum Difference in Speed	0 mph
Maximum Difference in Speed	35 mph
206 Unmatched Records (63 Matching Records Removed)	
Minimum Difference in Speed	5 mph
Maximum Difference in Speed	35 mph

The longest sections of the Houston to Fort Worth route with disparate speed values are listed in Table 7-5.

Table 7-5
Sections with Disparate Speed Values, All Records
Houston to Fort Worth

Alvord Station to Decatur Station	
BNSF-Reported Passenger Speed	--
BNSF-Reported Freight Speed	60 mph
Volpe Reported Maximum Speed	55 mph
Teague Station to Donie Station	
BNSF-Reported Passenger Speed	--
BNSF-Reported Freight Speed	40 mph
Volpe Reported Maximum Speed	50 mph
North Zulch Station to Iola Station	
BNSF-Reported Passenger Speed	--
BNSF-Reported Freight Speed	40 mph
Volpe Reported Maximum Speed	50 mph

7.2.1.2 Records with Valid Calibration

Of the 261 Volpe arcs in the Houston to Fort Worth route, 32 fall on miscalibrated BNSF track sections. Those 32 arcs were eliminated from the analysis, leaving a total of 229 Volpe arcs. Of this total, 52 have speed values that exactly match the BNSF linear event speed data. None of the 229 Volpe arcs spanned multiple BNSF linear event speed zones.

Table 7-6
Results of Speed Data Comparison
for Properly Calibrated Records—Houston to Fort Worth

Number of Volpe arcs Intersecting the BNSF Pilot Routes	261
Number of Volpe arcs on Miscalibrated BNSF Routes	32
Number of Volpe arcs included in analysis	229
Number of Volpe arcs with Speed Values that Match the BNSF Linear Event Speed Data	52
Number of Volpe arcs spanning more than one BNSF Speed Zone (Topological Error)	0
Number of Volpe arcs with Incorrect Attribution (Attribute Error)	177

Simple statistical analysis reveals that the minimum speed difference is 0 mph, and the maximum speed difference is 35. If the set is constricted (52 records with matching speed values and not on miscalibrated BNSF lines are expunged) so that only those records that deviate from one another are analyzed, the results are a minimum difference of 5 mph, and a maximum difference of 35. These comparison statistics are shown in Table 7-7.

Table 7-7
Speed Data Comparison Statistics for
Properly Calibrated Records—Houston to Fort Worth

All 229 Records	
Minimum Difference in Speed	0 MPH
Maximum Difference in Speed	35 mph
181 Unmatched Records (53 Matching Records Removed)	
Minimum Difference in Speed	5 mph
Maximum Difference in Speed	35 mph

The longest sections of the Houston to Fort Worth route with disparate speed values are listed in Table 7-5. Removing the miscalibrated records did not affect the results.

Another method of analyzing the disparity between the two data sets is through distance reports. The Volpe arcs that intersected properly calibrated routes on the Houston – Fort Worth Route were assigned begin and end milepost values derived from the BNSF route. The freight speed attribution for the Volpe arcs and the intersected routes were compared and the differences were categorized. Incorrect attribution refers to Volpe arcs that are attributed with a freight speed value different from the BNSF freight speed value for the same section of track. Incorrect attribution and topology refers to Volpe arcs that are

attributed with incorrect freight speed values, and splitting of the arc would be required to correct the discrepancy. Correct attribution refers to Volpe arcs that cleanly intersect a BNSF freight speed event and the freight speed attribution for the data sets match. The set of records in each category was queried for the absolute difference between milepost begin and end values. The absolute difference value for the record was summed and is reported in Table 7-8.

Table 7-8
Distance Report for Properly Calibrated Records
Houston to Fort Worth

57 Volpe arcs with Correct Attribution and Topology	39.49 Miles
196 Volpe arcs with Incorrect Attribution Only	303.621 Miles
8 Volpe arcs with Incorrect Attribution and Topology	6.38 Miles

7.2.2 Spokane to Chicago Route

There are 64 Volpe arcs that fall on miscalibrated BNSF track sections. Since the measures on these track sections may be inaccurate, the linear speed events may not be properly placed geographically. Because the BNSF data are in question, these Vsub arcs may have properly attributed speed values, but their accuracy could not be verified in the analysis. We therefore report results for all records, including the 64 records on miscalibrated BNSF flow routes, and for only records with valid calibration.

7.2.2.1 All Records

Table 7-9 shows results of the speed data comparison for the Spokane to Chicago route. This route is represented by 886 Volpe arcs. Of this total, 227 (26%) had speed values that exactly match the BNSF linear event speed data. Only 69 of the 886 Vsub arcs spanned multiple BNSF linear event speed zones.

Table 7-9
Results of Speed Data Comparison for All Records
Spokane to Chicago

Number of Volpe arcs intersecting BNSF Pilot Routes	886
Number of Volpe arcs with Speed Values that Match the BNSF Linear Event Speed Data (Topological Error)	227
Number of Volpe arcs Spanning More than One BNSF Speed Zone	69
Number of Volpe arcs with Incorrect Attribution (Attribute Error)	590

Simple statistical analysis reveals that the minimum speed difference is 0 mph, and the maximum speed difference is 60. If the set is constricted (227 records with matching speed values are expunged) so that only those records that deviate from one another are analyzed, the results indicate a minimum difference of 5 mph, and a maximum difference of 60 mph. These comparison statistics are shown in Table 7-10.

Table 7-10
Speed Data Comparison Statistics for All Records
Spokane to Chicago

All 886 Records	
Minimum Difference in Speed	0 mph
Maximum Difference in Speed	60 mph
636 Unmatched Records (227 Matching Records Removed)	
Minimum Difference in Speed	5 mph
Maximum Difference in Speed	60 mph

The longest sections of the Spokane to Chicago route with disparate speed values are listed in Table 7-11.

Table 7-11
Sections with Disparate Speed Values, Comparing All Records
Spokane to Chicago

Conkelly Station to Line Segment 35/36	
BNSF-Reported Passenger Speed	79 mph
BNSF-Reported Freight Speed	60 mph
Volpe Reported Maximum Speed	45 mph
East Dilworth Station to Staples Station	
BNSF-Reported Passenger Speed	75 & 79 mph
BNSF-Reported Freight Speed	60 mph
Volpe Reported Maximum Speed	55 mph
Prairie Du Chien Station to Cassville Station	
BNSF-Reported Passenger Speed	--
BNSF-Reported Freight Speed	50 and 60 mph
Volpe Reported Maximum Speed	35 and 40 mph

7.2.2.2 Records with Valid Calibration

Of the 886 Volpe arcs in the Spokane to Chicago route, 64 fall on miscalibrated BNSF track sections. Those 64 arcs were eliminated from the analysis, leaving a total of 822 Vsub arcs. Of this total, 205 have speed values that exactly match the BNSF linear event speed data. Only 29 of the 822 Volpe arcs spanned multiple BNSF linear event speed zones. These comparison statistics are summarized in Table 7-12.

Table 7-12
Results of Speed Data Comparison for
Properly Calibrated Records—Spokane to Chicago

Number of Volpe arcs Intersecting the Route	886
Number of Volpe arcs on Miscalibrated BNSF Routes	64
Number of Volpe arcs Included in Analysis	822
NUMBER OF VOLPE ARCS WITH SPEED VALUES THAT MATCH THE BNSF LINEAR EVENT SPEED DATA	205
Number of Volpe arcs Spanning More than One BNSF Speed Zone (Topological Error)	29
Number of Volpe arcs with Incorrect Attribution (Attribute Error)	588

Simple statistical analysis reveals that the minimum speed difference is 0 mph, the maximum speed difference is 60. If the set is constricted (227 records with matching speed values and not on miscalibrated BNSF lines are expunged) so that only those records that deviate from one another are analyzed, the results are a minimum difference of 5 mph, and a maximum difference of 60 mph. These comparison statistics are shown in Table 7-13.

Table 7-13
Speed Data Comparison Statistics for
Properly Calibrated Records—Spokane to Chicago

All 823 Records	
Minimum Difference in Speed	0 mph
Maximum Difference in Speed	60 mph
596 Unmatched Records (227 Matching Records Removed)	
Minimum Difference in Speed	5 mph
Maximum Difference in Speed	60 mph

The longest sections of the Spokane to Chicago route with disparate speed values are listed in Table 7-11. Removing the miscalibrated records did not affect the results.

Another method of analyzing the disparity between the two data sets is through distance reports. The Volpe arcs that intersected properly calibrated routes on the Spokane – Chicago Route were assigned begin and end milepost values derived from the BNSF routes. The freight speed attribution for the Volpe arcs and the intersected routes were compared and the differences were categorized. Incorrect attribution refers to Volpe arcs

that are attributed with a freight speed value different from the BNSF freight speed value for the same section of track. Incorrect attribution and topology refers to Volpe arcs that are attributed with incorrect freight speed values, and splitting the arc would be required to correct the discrepancy. Correct attribution refers to Volpe arcs that cleanly intersect a BNSF freight speed event and the freight speed attribution for the data sets match. The set of records in each category was queried for the absolute difference between milepost begin and end values. The absolute difference value for the record was summed and is reported in Table 7-14.

Table 7-14
Distance Report for Properly Calibrated Records
Spokane to Chicago

489 Volpe arcs with Correct Attribution	1,185.43 Miles
328 Volpe arcs with Incorrect Attribution Only	594.06 Miles
40 Volpe arcs with Incorrect Attribution and Topology	46.85 Miles

Section 8

8 Conclusions and Recommendations

This section summarizes results of the comparison assessment. We provide a general assessment of the accuracy of the Volpe Rail Network's data for stations, DOT crossings, rated maximum speed, and freight volumes, based on the methods and results discussed in previous sections of this report.

8.1 Accuracy of Volpe Rail Network Calibration

The study did not explicitly address the calibration accuracy of the Volpe Rail Network. The station to station route (flow route) definitions and the station event table provided by Volpe includes measure information for route origins and destinations. This study only noted origin, destination, and station event offset distances. Intervening calibration accuracy between these locations was not considered. Discrepancies in the measure assignments for sections of track between stations were only identified when a crossing offset occurred for that section of track. This means that other discrepancies could exist, but were not identified during the analysis because no crossing events exist for those sections.

Overall, the BNSF ERS network is more tightly calibrated than the Volpe Rail Network Pilot Routes. The most likely reason for BNSF's tighter calibration is due to the number of fixed locations we were able to use, including county boundaries, state boundaries, river crossings, road crossings and track chart representations of multiple track occurrences. We have attempted to report each miscalibration in stations, crossings, rated maximum speed, and freight volumes, for both data sets, so that Volpe and BNSF databases can be recalibrated to more reasonably reflect information in the track charts.

8.2 DOT Crossings

The Volpe and BNSF datasets contained matching records for 2,193 DOT crossings along the Pilot Routes. Approximately 84% of the BNSF records had matching records in the Volpe database, and nearly 90% of the matching records were within the offset tolerance of 0.2 miles. Of the 2,193 matching records, 268 exceeded the offset tolerance of 0.2 miles due to misplacement in the Volpe database, and 102 records exceeded an offset of 0.5 miles due to misplacement in the Volpe database. The greatest amount of offset error, both in terms of number of records and degree of offset mismatch, occurred in the Spoke to Chicago Pilot Route.

The study did not take multiple parallel main line representations, spurs or sidings into account, since the BNSF network is not comprised of multiple main lines. However, the Volpe Rail Network includes all the known mainline sections of the tracks as well as sidings. Crossing data that are applicable to a siding or spur were therefore not evaluated in this study.

8.3 Stations

The Volpe and BNSF datasets contained matching records for 246 stations along the Pilot Routes. The percentage of matching records between the BNSF and Volpe databases is inconsequential, since the BNSF database contains records for both stations and yards. Of the 246 matching records, 81, or nearly 33%, exceeded the 0.2 mile offset tolerance due to misplacement in the Volpe database. All but 5 of these identified misplacements are on the Spokane to Chicago Pilot Route.

8.4 Rated Maximum Speeds

The speed assignments are the most inconsistent of all the Volpe data surveyed to date. The majority of records for both Pilot Routes do not match the data provided by BNSF. The misattributed speed values vary significantly from BNSF's own reported speed values. The majority of Volpe track segments (arcs) with rated maximum speed attribution had reported speed values varying by as much as 70 mph from the BNSF traffic density report information. The reasons for the inconsistencies could be (a) that other freight lines provided the speed values for the Volpe track segments, (b) that the data sets used by Volpe to set the speed values differed significantly from the 1996 BNSF flow data, or (c) that error was introduced during the process of translating input BNSF rated maximum speed data to arc attributes in Volpe's database (Vsub coverage).

As with DOT crossings, rated maximum speed data applicable to sidings or spurs were not evaluated in this study, since the BNSF dataset includes only a single mainline for each Pilot Route.

8.5 Freight Volumes

The Volpe Rail Network freight volume routes are based on station to station points obtained from the BNSF traffic density report for 1996 and the Volpe linear rail network (Vsub coverage). The data evaluated in this comparison assessment were based on the line segment and origin/destination milepost values within traffic density report record. In many cases the traffic density report origin/destination values deviated from the track chart station location milepost values. As we corroborated the station to station traffic density report data we noted the disparities so that Volpe could revise the locations. Most of the gross miscalibrations we identified were due to the close spellings of multiple stations names—for example, Texas City vs. Texas City Jct. In other cases, the wrong arcs from the BTS data set were selected to represent the route.

As with DOT crossings and rated maximum speed data, freight volume data applicable to sidings or spurs were not evaluated in this study, since the BNSF dataset includes only a single mainline for each Pilot Route.

APPENDICES

APPENDIX A
GLOSSARY

Appendix A — Glossary

This glossary defines terms used in this report. The definitions in this glossary are derived from the following sources. In some cases, the definitions provided are slightly modified or simplified from the original version. Definitions without a citation are based on common usage or compiled from a combination of sources.

[1] Baker, W., and W. Blessing, 1974, "Highway Location Reference Methods", Synthesis of Highway Practice 21, TRB, National Academy of Sciences, National Cooperative Highway Research Program (NCHRP), Washington D.C.

[2] United States Geological Survey (USGS), 1992, *Spatial Data Transfer Standard: Part 1 Logical Specifications*, Reston VA.

[3] Vonderohe, A.P., Chih-Lin Chou, Forest Sun, Teresa Adams, 1997, "A Generic Data Model for Linear Referencing Systems", *NCHRP Research Results Digest 218*, September 1997.

Dynamic segmentation

The geographic overlay and display of attributes associated with traversals, describing events (features or characteristics) along a linearly referenced network.

Event

A feature, characteristic or phenomenon that occurs along a roadway (or traversal) and is described by attributes stored in a database, including its location specified by a linear referencing method. See **point event**, **linear event**.

Linear event

A 1-dimensional event with location specified by a two linear measures along a traversal. A linear event must reference one 'start' and one 'end' reference point along the same traversal. See **event**.

Linear measure

Another term commonly used for 'traversal measure'. See **traversal measure**.

Linear referencing method

A location referencing method in which a location is specified as occurring on a uniquely identified linear feature (i.e., a traversal or link), at a set distance and direction from another point with a known linear measure (often the beginning of the traversal or link). See **location referencing method**.

Linear referencing system

A location referencing system (defined below) comprised of one or more linear referencing methods. See **location referencing system**.

Location referencing method (LRM)

The technique used to identify a specific point or segment of a roadway, either in the field or in the office [1]. As cited in [2], a linear referencing method is composed of at least one traversal and at least one traversal reference point. See **traversal**, **traversal reference point**.

Location referencing system (LRS)

The total set of procedures for determining and retaining a record of specific points along a roadway. The system includes the location referencing method(s) together with the procedures for storing, maintaining, and retrieving location information about points and segments on the roadways [1].

Milepoint

The mileage displacement from a beginning of a linear feature to any location along the linear feature [1].

Milepost

A physical entity, ordinarily a sign, placed beside a roadway and containing a number that indicates the mileage to that point from some zero point on the roadway [1].

Node

A zero-dimensional object that is a topological junction between two or more links, or an end point of a link [3, simplified].

Offset

A distance along a traversal from a point with a known linear measure (a traversal reference point). The difference in milepoint values for a common reference point (see below) with two records can be expressed as an offset.

Point event

A zero-dimensional event with location specified by a single linear measure along a traversal. A point event must reference one and only one traversal reference point. See **event**.

Reference point

A fixed, identifiable feature, such as a signpost, intersection, or bridge end-point, from which a location can be measured or referenced [1]. Reference points with known linear measures (e.g., milepoints) can often be used to calibration the linear measures along traversals in a GIS, depending on the GIS software.

Route

An ambiguous term which is often used to mean (a) a numbered or named highway (or roadway) as signed in the field, (b) a traversal with associated linear measures, or (c) both of these. See traversal.

Section

An ambiguous term which generally refers to a section of roadway between major roadway features (e.g., intersections). In the context of dynamic segmentation in GIS, a traversal may be comprised of sections, each of which corresponds to one link or a portion of a link, directed along the link with specified from and to measures.

Segment

An ambiguous term referring to any portion of a roadway. In the context of dynamic segmentation, a segment is a length of roadway between two specified milepoints.

Traversal

An ordered and directed, but not necessarily connected, set of links. Coding conventions are required for establishing traversal directionality and for specifying non-connected traversals [2]. The original definition in [2] specified a "set of whole links", however the term is used slightly more generally here in that a traversal is not constrained to whole links (as is the case for common GIS software). Note that the direction of a traversal along any link may be concurrent or contrary to the direction of the link.

Traversal measure

See traversal reference point.

Traversal reference point

A zero-dimensional location along a single traversal that is used to reference events along the traversal. Each traversal reference point has a 'traversal measure' attribute which is used to locate it along the traversal. 'Traversal measure' is an offset measured from the initial node in the traversal to the traversal reference point [3, simplified]. See **reference point**.

APPENDIX B
DOT CROSSING REPORT

Houston to Fort Worth

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1	672148L	699.499	706.238	Volpe Points Caibrated to the DART line	6.739
2	597137U	139.760	140.271	Volpe off by 0.54 missed Co Rd 110	0.512
3	597136M	138.930	139.419	Volpe off by 0.5	0.489
4	597140C	141.710	142.184	BN and Volpe off Should be on Cty 107	0.475
5	598219E	145.630	146.040	Volpe on BN off should be .05 from cty line	0.410
6	597164R	174.920	174.535	Volpe off 0.3 miles should be on FM 39	0.384
7	597182N	198.090	197.727	Volpe is offset 0.32 miles	0.363
8	597163J	173.950	173.594	Volpe off 0.3 miles	0.356
9	597181G	197.840	197.487	Volpe is offset 0.24 miles	0.352
10	597180A	197.280	196.934	Shift volpe to public xng .56 away from fm 489	0.346
11	598238J	184.570	184.238	Volpe should be 1.15 miles from US 79	0.332
12	598235N	179.460	179.129	Volpe Offset	0.331
13	597179F	196.400	196.069	Volpe offset 0.35	0.330
14	598237C	180.510	180.182	Volpe Offset	0.328
15	597167L	178.300	177.986	Volpe off 0.21 miles	0.313
16	598234G	178.740	178.431	Volpe offset 0.3	0.309
17	598233A	177.600	177.291	Volpe off 0.18 miles	0.309
18	597178Y	193.510	193.205	Volpe should be .4 of a mile from ST HWY 164 and on other side	0.305
19	598245U	195.230	194.925	Volpe should meet at the Xng	0.305
20	597175D	192.250	191.954	Volpe should shift 0.3 miles north	0.296
21	598244M	192.110	191.814	Volpe shoulkd shift 0.3 miles up	0.296
22	597162C	171.900	171.606	Volpe off 0.2 miles on Cty Rd 417	0.294
23	597165X	176.200	175.909	Volpe off Crossing at Hwy 7	0.291
24	597166E	176.580	176.295	Volpe off 0.23 miles	0.285
25	597174W	191.060	190.775	Volpe offset 0.3	0.284
26	598236V	179.600	179.325	Volpe offset	0.275
27	597161V	170.900	170.636	Volpe off 0.2 miles	0.264
28	598243F	189.600	189.342	Volpe offset 0.23 must be closer to county line	0.258
29	598242Y	188.510	188.255	Volpe offset 0.24	0.255
30	597144E	149.820	150.070	Volpe off 0.16 miles	0.251
31	598241S	187.290	187.042	Volpe should shift 0.82 past corrected 598239R BN off	0.247
32	598232T	170.290	170.045	Volpe off 0.2 miles a pvt Xng	0.245
33	598239R	187.140	186.897	Volpe shiould shift to 0.62 past fm 39 BN off	0.242
34	598231L	169.690	169.462	Volpe off 0.2 miles	0.228
35	597173P	186.600	186.374	Volpe offset 0.24 should be on FM 39	0.226
36	597145L	150.900	151.123	Volpe off 0.16 mile	0.224
37	597172H	186.380	186.157	Volpe offset 0.17 miles	0.222
38	597177S	193.800	193.580	Volpe off should be on ST HWY 164	0.219
39	597171B	185.230	185.013	Volpe is off - should be on Jewett	0.217
40	597170U	184.230	184.018	Volpe is off 0.25 miles - should be on Xng	0.212
41	597146T	151.560	151.763	Volpe off 0.16 miles	0.204
42	597168T	181.950	181.746	Volpe offset 0.19	0.203
43	597169A	183.500	183.298	Volpe offset 0.17 US 79	0.201
44	597201R	214.500	222.223	Crossing is in Kirvin not Streetman	7.723
45	597142R	144.520	145.074	BN Off	0.554
46	598218X	144.100	144.653	BN off should be pvt xng 0.46 past fm 1696	0.553
47	597141J	143.700	144.221	BN Off	0.521
48	597139H	141.310	141.809	BN off should be on Cty Rd in Iola	0.499
49	597135F	138.390	138.886	BN off by .50	0.497
50	598220Y	146.400	146.893	BN off	0.493
51	597134Y	137.420	137.882	BN off by 0.45	0.462
52	597138B	140.410	140.858	BN is off - Volpe is on	0.449
53	598216J	140.970	141.417	BN is off should be ~ .43 from Cty Rd	0.447
54	597143X	147.160	147.587	BN off	0.427
55	598212G	135.200	135.618	BN off	0.418

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
56	598221F	148.400	148.813	BN off	0.413
57	598211A	133.500	133.906	BN is off should be 1 mile from Gibbons Cr	0.406
58	598214V	137.560	137.948	BN off	0.389
59	597132K	132.990	133.349	BN is off 0.35	0.359
60	597133S	136.500	136.849	BN is wrong	0.349
61	597217M	233.500	233.222	BNSF is wrong	0.277
62	598229K	165.940	165.687	not in track chart	0.253
63	598213N	135.660	135.908	BN off	0.248
64	597160N	168.640	168.419	BN off	0.220
65	598210T	122.230	122.020	BN is off should be .20 miles from cty rd	0.209
66	673964K	122.090	121.881	not in Track chart	0.209
67	597159U	168.460	168.256	BN off	0.204
68	598209Y	121.900	121.697	BN is off should be 0.51 miles from cty rd	0.203
69	673977L	113.640	113.438	BN off	0.202
70	597219B	235.020	234.817	BNSF is Wrong	0.202
71	597131D	131.000	131.197		0.197
72	597147A	151.800	151.993		0.193
73	597218U	234.160	233.967		0.193
74	597125A	122.410	122.219		0.191
75	597124T	121.360	121.171		0.188
76	673961P	124.410	124.222		0.187
77	598250R	213.740	213.923		0.184
78	598230E	167.310	167.130		0.179
79	597221C	236.349	236.171		0.178
80	597130W	130.500	130.678		0.178
81	597216F	232.999	232.825		0.174
82	274646X	10.240	10.413		0.173
83	598208S	120.940	120.773		0.167
84	597123L	119.420	119.253		0.167
85	274642V	14.790	14.952		0.162
86	672147E	698.999	699.158		0.160
87	597151P	155.150	155.309		0.160
88	597122E	119.200	119.042		0.158
89	597121X	118.970	118.815		0.154
90	598227W	164.890	164.737		0.153
91	597214S	231.260	231.109		0.150
92	597148G	152.840	152.988		0.149
93	597126G	125.150	125.002		0.148
94	598259C	255.620	255.475		0.145
95	597200J	214.360	214.500		0.140
96	672127T	683.069	683.208		0.140
97	598206D	115.700	115.561		0.139
98	598205W	111.110	110.972		0.138
99	598267U	265.969	265.831		0.138
100	597108J	88.600	88.734		0.134
101	598207K	116.030	115.897		0.133
102	672128A	683.669	683.802		0.133
103	274641N	15.920	16.052		0.132
104	598268B	266.209	266.078		0.132
105	598228D	165.630	165.498		0.131
106	673565Y	165.630	165.498		0.131
107	597276P	253.379	253.250		0.129
108	597149N	153.340	153.467		0.127
109	597093W	77.720	77.846		0.127
110	672129G	683.899	684.025		0.126
111	597199S	214.000	214.126		0.126
112	597272M	247.900	248.025		0.125
113	598225H	162.340	162.215		0.125
114	598270C	266.479	266.355		0.125

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
115	598265F	265.260	265.137		0.123
116	597127N	125.330	125.208		0.121
117	672123R	679.839	679.959		0.120
118	597155S	159.430	159.310		0.120
119	672124X	681.029	681.148		0.119
120	597157F	162.930	162.812		0.118
121	672122J	679.679	679.796		0.117
122	598271J	266.799	266.683		0.117
123	274819K	47.350	47.234		0.116
124	598257N	249.399	249.514		0.115
125	597220V	129.400	129.512		0.112
126	597156Y	159.650	159.538		0.112
127	672134D	686.569	686.678		0.110
128	598226P	163.910	163.803		0.106
129	597150H	153.840	153.946		0.106
130	597290K	268.229	268.124		0.106
131	274639M	17.590	17.695		0.106
132	022621G	11.429	11.324		0.105
133	274638F	18.240	18.345		0.105
134	597158M	164.640	164.536		0.104
135	597289R	267.359	267.255		0.104
136	672115Y	675.969	676.072		0.103
137	598272R	267.799	267.698		0.101
138	274624X	33.020	32.922		0.098
139	597094D	77.980	78.076		0.097
140	597223R	236.850	236.753		0.096
141	672098K	669.609	669.703		0.095
142	597202X	214.970	215.064		0.094
143	597273U	248.379	248.473		0.093
144	274647E	9.500	9.592		0.092
145	597092P	75.720	75.809		0.089
146	597285N	262.389	262.304		0.085
147	672120V	678.669	678.751		0.083
148	597288J	264.810	264.729		0.081
149	597091H	74.680	74.761		0.081
150	672132P	685.669	685.749		0.080
151	597112Y	95.060	95.138		0.079
152	672091M	665.639	665.716		0.078
153	672133W	685.799	685.876		0.077
154	598203H	108.400	108.324		0.075
155	597203E	215.540	215.614		0.074
156	597283A	259.980	259.910		0.070
157	597209V	222.510	222.441		0.069
158	597208N	222.460	222.391		0.068
159	597270Y	246.899	246.967		0.067
160	672145R	695.742	695.809		0.067
161	274818D	48.600	48.534		0.066
162	672160T	703.939	704.004		0.065
163	598197G	103.650	103.712		0.062
164	598251X	216.000	216.059		0.059
165	597271F	237.679	237.621		0.059
166	597280E	257.120	257.061		0.058
167	597207G	221.900	221.842		0.058
168	275040H	50.800	50.744		0.056
169	597089G	71.530	71.585		0.055
170	274631H	25.470	25.523		0.053
171	597154K	157.750	157.697		0.053
172	274626L	29.210	29.157		0.053
173	274645R	11.240	11.292		0.052

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
174	597293F	270.930	270.877		0.052
175	672094H	667.289	667.237		0.052
176	672154P	700.699	700.647		0.052
177	597206A	221.600	221.548		0.052
178	597292Y	270.870	270.818		0.051
179	597291S	270.770	270.719		0.051
180	274644J	11.930	11.980		0.050
181	598190J	96.010	96.060		0.050
182	598202B	107.800	107.750		0.050
183	274632P	24.580	24.629		0.049
184	597269E	245.820	245.869		0.049
185	274643C	13.320	13.367		0.047
186	274817W	50.430	50.383		0.047
187	597087T	68.700	68.747		0.047
188	597275H	251.360	251.314		0.046
189	274625E	30.300	30.255		0.045
190	672155W	700.739	700.694		0.045
191	598273X	270.090	270.047		0.042
192	674460N	49.120	49.081		0.039
193	598224B	158.230	158.269		0.039
194	597120R	111.710	111.671		0.038
195	598199V	105.300	105.337		0.037
196	274616F	39.850	39.886		0.036
197	597281L	258.600	258.564		0.036
198	597109R	91.780	91.816		0.036
199	274633W	23.830	23.865		0.035
200	597279K	256.259	256.293		0.034
201	598204P	109.750	109.716		0.034
202	598253L	244.630	244.663		0.034
203	597204L	216.850	216.883		0.034
204	597101L	83.540	83.572		0.033
205	597262G	240.320	240.352		0.032
206	597263N	240.470	240.502		0.032
207	020521V	2.139	2.171		0.032
208	020523J	2.860	2.889		0.029
209	274611W	43.600	43.629		0.029
210	274630B	26.470	26.499		0.029
211	274615Y	40.250	40.279		0.029
212	673496T	220.420	220.391		0.029
213	274612D	41.180	41.152		0.028
214	597116B	105.630	105.658		0.028
215	597278D	255.950	255.922		0.028
216	274617M	39.720	39.746		0.026
217	274621C	36.030	36.004		0.026
218	597274B	249.999	249.973		0.026
219	020498D	0.052	0.078		0.026
220	597117H	105.730	105.755		0.025
221	274618U	39.040	39.015		0.025
222	597129C	126.540	126.515		0.025
223	672099S	670.289	670.264		0.024
224	022632U	17.045	17.069		0.024
225	597152W	155.570	155.593		0.024
226	274635K	21.720	21.743		0.023
227	023211L	17.300	17.277		0.023
228	274613K	40.980	40.957		0.023
229	597225E	238.289	238.268		0.022
230	672095P	667.949	667.969		0.021
231	274821L	44.480	44.459		0.020
232	020522C	2.480	2.500		0.020

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
233	672096W	668.899	668.919		0.020
234	598195T	101.650	101.669		0.020
235	597227T	238.659	238.640		0.019
236	023210E	17.276	17.257		0.019
237	598196A	102.150	102.169		0.019
238	274636S	20.350	20.369		0.019
239	672113K	674.919	674.900		0.019
240	597226L	238.350	238.331		0.019
241	597113F	97.230	97.211		0.019
242	597118P	105.970	105.988		0.018
243	598194L	101.300	101.317		0.017
244	597119W	106.020	106.037		0.017
245	598191R	98.030	98.046		0.016
246	598192X	100.200	100.215		0.015
247	597260T	239.949	239.965		0.015
248	597268X	243.090	243.074		0.015
249	597205T	218.480	218.465		0.015
250	598201U	106.940	106.926		0.014
251	023199G	4.036	4.050		0.014
252	676327R	706.089	706.076		0.013
253	274820E	45.830	45.843		0.013
254	274610P	43.980	43.992		0.012
255	274622J	35.060	35.072		0.012
256	597103A	84.860	84.849		0.011
257	597258S	239.820	239.831		0.011
258	597261A	240.010	240.020		0.011
259	597070P	60.650	60.661		0.011
260	672141N	693.599	693.588		0.010
261	672103E	672.679	672.668		0.010
262	672097D	669.199	669.189		0.010
263	274619B	38.000	38.009		0.010
264	672158S	701.949	701.939		0.009
265	274634D	22.900	22.909		0.009
266	597083R	65.140	65.131		0.009
267	022645V	0.134	0.126		0.008
268	672136S	688.499	688.491		0.008
269	598223U	156.300	156.307		0.008
270	274637Y	21.360	21.368		0.008
271	672139M	690.909	690.916		0.008
272	597257K	239.690	239.697		0.008
273	274629G	27.540	27.547		0.007
274	597082J	65.010	65.003		0.007
275	672104L	673.349	673.342		0.007
276	598193E	100.370	100.377		0.007
277	672114S	675.639	675.632		0.007
278	023198A	0.630	0.623		0.007
279	597081C	64.690	64.684		0.006
280	672107G	673.569	673.563		0.006
281	597250M	239.240	239.245		0.006
282	672119B	677.899	677.893		0.005
283	022638K	20.665	20.660		0.005
284	022635P	18.655	18.660		0.005
285	022624C	13.931	13.926		0.005
286	672125E	681.499	681.503		0.005
287	022625J	14.099	14.094		0.005
288	022641T	24.167	24.172		0.005
289	274640G	16.710	16.714		0.005
290	672131H	684.869	684.873		0.005
291	597266J	241.830	241.834		0.005

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
292	672144J	694.809	694.804		0.004
293	022628E	15.480	15.476		0.004
294	672142V	693.869	693.873		0.004
295	023205H	10.385	10.389		0.004
296	022622N	12.070	12.066		0.004
297	597114M	98.430	98.434		0.004
298	022631M	16.806	16.810		0.004
299	597088A	69.530	69.533		0.004
300	022642A	25.317	25.321		0.003
301	597105N	85.430	85.426		0.003
302	023204B	9.995	9.998		0.003
303	597084X	65.840	65.837		0.003
304	597100E	82.550	82.553		0.003
305	022629L	15.764	15.761		0.003
306	022634H	18.151	18.148		0.003
307	598200M	106.510	106.513		0.003
308	672149T	700.369	700.366		0.003
309	597080V	64.350	64.347		0.003
310	022636W	19.204	19.207		0.003
311	672092U	666.169	666.171		0.003
312	597076F	62.340	62.337		0.003
313	023206P	11.928	11.926		0.002
314	597079B	63.080	63.082		0.002
315	672156D	701.169	701.167		0.002
316	672101R	671.199	671.197		0.002
317	022640L	23.091	23.093		0.002
318	023201F	5.572	5.574		0.002
319	597255W	239.559	239.558		0.002
320	597099M	81.600	81.601		0.002
321	672106A	673.469	673.467		0.002
322	672121C	678.899	678.897		0.001
323	022637D	19.760	19.762		0.001
324	597086L	68.400	68.401		0.001
325	672112D	673.779	673.777		0.001
326	672159Y	702.869	702.867		0.001
327	274628A	28.040	28.041		0.001
328	022623V	13.047	13.046		0.001
329	672126L	682.529	682.530		0.001
330	597098F	81.450	81.451		0.001
331	597252B	239.349	239.349		0.001
332	022627X	14.848	14.849		0.001
333	597077M	62.780	62.779		0.001
334	672093B	666.779	666.780		0.001
335	597096S	78.960	78.961		0.001
336	672157K	701.809	701.808		0.001
337	597265C	241.080	241.080		0.001
338	597256D	239.620	239.620		0.001
339	597106V	86.020	86.019		0.001
340	022630F	16.310	16.311		0.001
341	597259Y	239.870	239.869		0.001
342	274627T	28.560	28.560		0.001
343	023202M	8.710	8.710		0.000
344	597074S	61.670	61.670		0.000
345	274620V	37.400	37.400		0.000
346	597095K	78.330	78.330		0.000
347	672161A	704.689	704.688		0.000
348	022633B	17.542	17.543		0.000
349	022643G	27.619	27.619		0.000
350	022626R	14.269	14.269		0.000

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
351	597107C	87.980	87.980		0.000
352	597075Y	61.980	61.980		0.000
353	023227H	9.730	9.730		0.000
354	597073K	61.370	61.370		0.000
355	597253H	239.420	239.419		0.000
356	597097Y	80.080	80.080		0.000
357	023209K	16.068	16.068		0.000
358	022644N	27.899	27.899		0.000
359	597251U	239.289	239.289		0.000
360	023207W	14.063	14.063		0.000
361	672109V	673.689	673.689		0.000
362	597267R	242.400	242.399		0.000
363	276130K	77.360	77.360		0.000
364	597072D	61.100	61.100		0.000
365	672105T	673.399	673.399		0.000
366	022639S	21.820	21.820		0.000
367	672090F	665.002	665.002		0.000

Spokane to Chicago

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1	059625P	169.607	168.592	Volpe is off should be 1.01 from corrected 059626W	1.015
2	059626W	168.599	167.973	Volpe is off should be between washout bridge and clover creek	0.626
3	086345J	167.664	167.389	Both off should be 1.1 miles from Clover Creek Bridge	0.275
4	081574L	149.698	149.923	Volpe off should be 2.40 from Sidney/Glasgow Sub Intersect	0.225
5	081575T	150.207	150.409	Volpe off should be 2.91 from Sidney/Glasgow Sub Intersect	0.202
6	081551E	132.736	132.973	Volpe on, BN should be on street	0.237
7	081552L	133.174	133.443	Volpe on, BN should be on street	0.269
8	081546H	126.936	126.674	Both off, should be with bridge at Highway 85	0.262
9	093248S	121.520	121.747	Volpe off should be 0.01 miles from 4th Street Ave Intersect	0.227
10	093249Y	121.590	121.821	Volpe off should be 0.06 miles from 4th Street Ave Intersect	0.231
11	093250T	121.570	121.805	Volpe off should be 0.04 miles from 4th Street Ave Intersect	0.235
12	093251A	121.550	121.782	Volpe off should be 0.02 miles from 4th Street Ave Intersect	0.232
13	093397T	121.674	121.887	Volpe Off should be on 6th Ave West	0.213
14	093404B	121.210	121.410	Both off, BN off appx. 0.15, Volpe off appx. 0.10	0.200
15	058727E	1,401.012	1,401.583	Volpe off should be before Newport Sub Split on Mtn View Loop	0.571
16	066233F	51.690	46.711	Volpe on wrong track - should intersect BN track at Prairie Rd	4.979
17	058671M	1,335.662	1,335.895	Both off should be 1.12 miles from Lake Creek	0.233
18	059207Y	1,321.823	1,322.024	Both off as measured from Xing 059205K at Hwy37	0.201
19	059181Y	1,257.582	1,257.978	Volpe is off should be on road	0.396
20	059182F	1,258.172	1,258.475	Volpe is off should be on road	0.303
21	059184U	1,260.010	1,260.537	Volpe is off should be on road	0.527
22	059185B	1,261.070	1,261.768	Both off should be on road, BN off .22 miles, Volp	0.698
23	059186H	1,274.845	1,275.522	Both off should be 3.22 from tunnel portal	0.677
24	059187P	1,278.330	1,278.984	Both off should be 6.78 miles up from tunnel portal	0.654
25	059188W	1,282.292	1,283.022	Volpe is off should be on road	0.730
26	059189D	1,283.540	1,284.120	Both off should be on road, BN off .27 miles, Vol	0.580
27	059191E	1,288.471	1,289.540	Volpe is off 1.02 should be on road,	1.069
28	059192L	1,292.535	1,294.054	Volpe is off 1.56 miles	1.519
29	059193T	1,294.173	1,295.741	Volpe is off 1.4 miles	1.568
30	059195G	1,303.709	1,304.962	Volpe is off 1.24 miles	1.253
31	059196N	1,306.731	1,307.842	Volpe is off 1.3 miles	1.111
32	059197V	1,307.235	1,308.346	Volpe is off 1.24 miles	1.111
33	059276G	1,249.152	1,249.449	Volpe is off should be on road	0.297
34	059277N	1,251.583	1,251.919	Volpe is off should be on road	0.336
35	059278V	1,254.499	1,254.817	Volpe is off should be on road	0.318
36	059280W	1,255.962	1,256.354	Volpe off 0.32 miles, measured from cnty line	0.392
37	059281D	1,256.647	1,257.077	Both off, BN off .11 miles measured from cnty line	0.430
38	098737U	1,205.800	1,206.030	Volpe off should be on road	0.230
39	088089C	1,095.704	1,095.414	Volpe off should be on Henderson Rd	0.290
40	088090W	1,096.960	1,096.649	Volpe off use corrected Henderson Rd xng 088089C as reference	0.311

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
41	088092K	1,099.533	1,099.171	Volpe off use corrected Henderson Rd xng 088089C as reference	0.362
42	088093S	1,101.600	1,101.206	Volpe off should be 5.90 miles from Henderson Rd on Rd Xng	0.394
43	088094Y	1,104.794	1,104.334	Volpe off should be 1.71 miles from Piegan Station where Hwy 2 converges	0.460
44	088095F	1,106.349	1,105.874	Volpe off should be on rd at US 2 convergence	0.475
45	088096M	1,109.681	1,109.156	Volpe is off should be at Rd Xng	0.525
46	088097U	1,112.768	1,112.263	Volpe off should be at convergence of Hwy 2	0.505
47	088098B	1,113.563	1,112.952	Volpe off should be 2.45 miles from Willow Cr Bridge	0.611
48	088099H	1,115.440	1,114.966	Volpe off should be 0.2 miles from Y on track	0.474
49	088100A	1,116.301	1,115.790	Volpe off should be 0.16 before end of end two main tracks	0.511
50	088101G	1,118.667	1,117.998	Volpe off should be 0.81 from Willow Cr bridge	0.669
51	088102N	1,122.077	1,121.555	Volpe off should be on Hwy 2	0.522
52	088104C	1,123.770	1,123.314	Volpe is off should be0.8 from Heart Butte Rd	0.456
53	088103V	1,123.847	1,123.394	Volpe off should be on Heart Butte Rd	0.453
54	088108E	1,124.792	1,124.181	Volpe is off should be on Hwy 2	0.611
55	098924C	1,134.452	1,134.219	Volpe should be 3.86 from Midvale Cr Bridge	0.233
56	086232D	1,082.259	1,082.503	Both off should be before the Cty Line	0.244
57	088072Y	1,078.292	1,078.687	Volpe off should be 0.41 from Etheridge St	0.395
58	088073F	1,078.686	1,079.115	Volpe off should be on Ethridge Rd	0.429
59	088074M	1,080.027	1,080.404	Volpe off should be 2.25 from Toole/Glacier Cty Line	0.377
60	059752R	981.621	981.227	Volpe off should be at rd - a public xngs	0.394
61	059754E	983.623	983.216	Volpe off should be at rd - a public xngs	0.407
62	059755L	984.713	984.309	Volpe off should be at rd - a public xngs	0.404
63	059756T	985.763	985.357	Volpe off should be at rd - a public xngs	0.406
64	059757A	987.784	987.361	Volpe off should be at crossing	0.423
65	059751J	980.598	980.099	Volpe off should be 0.42 from 2nd ave Xng	0.499
66	059740W	969.069	968.845	Volpe off should be 2.07miles from Big Sandy Cr	0.224
67	059741D	970.051	969.823	Volpe off should be 3.05 miles from Big Sandy Cr	0.228
68	059742K	971.185	970.946	Volpe off should be 4.18 miles from Big Sandy Cr	0.239
69	059743S	972.054	971.813	Volpe off should be 5.05 miles from Big Sandy Cr	0.241
70	059744Y	973.613	973.366	Volpe off should be 6.61 miles from Big Sandy Cr	0.247
71	059745F	974.619	974.357	Volpe off should be 7.61 miles from Big Sandy Cr	0.262
72	059746M	975.637	975.375	Volpe off should be 8.61 miles from Big Sandy Cr	0.262
73	059747U	976.643	976.370	Volpe off should be 9.61 miles from Big Sandy Cr	0.273
74	059748B	977.399	977.107	Volpe off should be 0.78 from corrected 059747U	0.292
75	059749H	978.604	978.258	Volpe off should be 1.29 from corrected 059748B	0.346
76	059750C	980.178	979.729	Volpe off should be on 2nd Ave	0.449
77	059505Y	307.885	308.121	Volpe off BN measured from DOT 059508U	0.236
78	059508U	306.549	306.768	Volpe off BN measured from DOT 059509B	0.219
79	059509B	305.206	305.431	Volpe off BN measured from DOT 059510V	0.225
80	059510V	304.267	304.494	Volpe off BN measured from Virginia St Xing	0.227
81	059511C	303.450	303.694	Volpe off should be next to road	0.244
82	059518A	302.287	302.489	Volpe off should be on road	0.202
83	059521H	294.816	295.038	Volpe should be on road	0.222

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
84	059526S	287.885	288.086	Volpe off, BN on as measured from Xing 059525K at	0.201
85	059527Y	287.692	287.898	Volpe off, BN on as measured from Xing 059526S	0.206
86	059528F	287.382	287.591	Volpe off, BN on road and measured from Xing 05952	0.209
87	059529M	287.125	287.383	Volpe off, BN measured from Xing 059528F	0.258
88	059530G	286.432	286.632	Volpe off, BN on as measure from Xing 059531N at L	0.200
89	059547K	275.384	275.603	Both off	0.219
90	059549Y	274.437	274.641	Volpe on, BN should be on road	0.204
91	093393R	118.126	118.372	Volpe off, as measure from Xing 099086M at Hwy 180	0.246
92	093078A	200.980	202.704	Volpe on wrong line -	1.724
93	093639L	198.880	198.672	Volpe is off, as measured from Xing 093640F at Mai	0.208
94	093587W	176.998	175.980	Volpe is off, as measured from Xing 093588D at cnt	1.018
95	093588D	177.270	176.980	Volpe off, should be at cnty line -- BN slightly o	0.290
96	093542P	155.353	149.285	Volpe in wrong town - should be 4 miles from Wells/Pierce Co line	6.068
97	070829A	22.916	23.368	Volpe off should be 0.11 from Minn/ND State Line	0.452
98	070837S	23.425	24.329	Volpe off should be at Broadway Intersection	0.904
99	070839F	23.464	24.329	Volpe off should be on roberts street	0.865
100	070844C	23.717	24.329	Volpe is off should be on 10th St N	0.612
101	085966B	22.404	21.603	Volpe is off should be on 7th ST not 7th Ave	0.801
102	062913M	213.440	210.028	Volpe on wrong line should be on BTS rail labeled BN	3.412
103	062914U	213.450	210.030	Volpe on wrong line should be on BTS rail labeled BN	3.420
104	081025S	213.410	210.027	Volpe on wrong line should be on BTS rail labeled BN	3.383
105	081026Y	213.420	210.027	Volpe on wrong line should be on BTS rail labeled BN	3.393
106	085947W	148.020	148.537	Volpe off should be on 4th St crossing	0.517
107	097617A	147.868	148.415	Volpe is off should be on 6th St	0.547
108	097613X	137.770	132.367	Volpe off - should be 0.53 from corrected 097614E	5.403
109	097614E	138.300	132.797	Volpe off should be 0.84 from corrected 09615L	5.503
110	097615L	139.260	133.577	Volpe off should be 0.68 from Split in Main Line	5.683
111	097616T	147.799	148.359	Volpe is off should be on 7th St	0.560
112	097611J	136.880	131.646	Volpe should be 0.31 from corrected 097612R	5.234
113	097612R	137.190	131.895	Volpe off should be 0.65 from corrected 097513X	5.295
114	085945H	128.331	124.667	Volpe off should Fall 0.08 from Morrison/ToddCounty Line	3.664
115	097588S	116.420	114.700	Volpe should be 0.39 miles from corrected 097590T	1.720
116	097590T	116.810	115.018	Volpe should be 2.22 miles from corrected 097591A	1.792
117	097591A	118.500	116.399	Volpe should be 0.53 from corrected 097592G	2.101
118	097592G	119.030	116.835	Volpe is off should be 0.6 from West fork Little Elk River	2.195
119	097593N	120.290	117.890	Volpe should be 1.40 from corrected 097594V	2.400
120	097594V	121.690	119.033	Volpe should be 0.81 from corrected 097595C	2.657

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
121	097595C	122.500	119.852	Volpe should be 0.44 from corrected 097596J	2.648
122	097596J	122.940	120.273	Volpe should be offset 1.74 miles from corrected 097597R	2.667
123	097597R	124.680	121.760	Volpe off should be on US HWY 10	2.920
124	097598X	125.890	122.753	Volpe off should be 1.81 from corrected 097599E	3.137
125	097599E	127.700	124.154	Volpe off should fall 0.55 from corrected 097600W	3.546
126	097600W	128.250	124.597	Volpe off should Fall on Morrison/Todd County Line	3.653
127	097601D	129.940	125.885	Volpe off, as measured from Br Xing at Long Prairie River	4.055
128	097602K	130.060	125.973	Volpe off, should be on road after Br Xing at Long Prairie River	4.087
129	097603S	131.540	127.247	Volpe off, should be on road after Br Xing at Long Prairie River	4.293
130	097604Y	133.170	128.590	Volpe is off, should be on road after Br Xing at Long Prairie River	4.580
131	097605F	133.430	128.819	Volpe is off, should be on road after Br Xing at Long Prairie River	4.611
132	097606M	134.020	129.337	Volpe off, should be on road after Br Xing at Long Prairie River	4.683
133	097607U	134.420	129.688	Volpe off should be 0.06 from Long Prairie River	4.732
134	097608B	135.170	130.347	Volpe should be 0.36 miles from corrected 097609H	4.823
135	097609H	135.530	130.659	Volpe should be 0.88 from corrected 0976	4.871
136	097610C	136.410	131.304	Volpe should be 0.88 miles from corrected 097612R	5.106
137	075717T	115.696	114.089	Volpe off should be 0.48 miles from Little Elk River Bridge	1.607
138	097577E	110.050	109.228	Volpe is off Should be 0.7 from corrected 097578L	0.822
139	097578L	110.750	109.829	Volpe is off Should be 0.69 from corrected 097579T	0.921
140	097579T	111.440	110.454	Volpe is off Should be 0.72 from corrected 097580M	0.986
141	097580M	112.160	111.039	Volpe is off Should be 0.46 from corrected 097581U	1.121
142	097581U	112.620	111.435	Volpe is off Should be 0.17 from corrected 097582B	1.185
143	097582B	112.790	111.582	Volpe is off Should be 1.18 from corrected 097583H	1.208
144	097583H	113.970	112.599	Volpe is off Should be 1.02 from corrected 097584P	1.371
145	097584P	114.990	113.478	Volpe is off Should be 0.45 from corrected 097585W	1.512
146	097585W	115.440	113.897	Volpe is off Should be 0.25 from corrected 097587K	1.543
147	097587K	115.910	114.270	Volpe is off Should be 0.27 from little elk river	1.640
148	097673G	106.999	105.948	Volpe is off should be1.21 from 2nd ave	1.051
149	097674N	107.960	107.437	Volpe is off should be 0.96 from corrected 097673G	0.523
150	097675V	108.155	107.608	Volpe and BN off should fall on HWY 10	0.547
151	097676C	108.450	107.770	Volpe is off should be 0.16 from corrected 097675V	0.680
152	097677J	108.830	108.181	Volpe is off should be 0.38 from corrected 097676C	0.649
153	101674Y	28.337	28.544	Appears that Volpe is on wrong line	0.207

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
154	080030K	393.780	397.209	Volpe is off should be 0.15 from Trimbelle Creek Bridge	3.429
155	080020E	381.160	380.614	Both off should be 3.21 from Pierce/Pepin CtyLine	0.546
156	079910T	316.910	317.481	Volpe is off should be on Fremont St	0.571
157	069973V	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
158	069974C	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
159	079813J	300.002	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.272
160	079814R	300.000	296.467	Volpe on the wrong line	3.533
161	079820U	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
162	079821B	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
163	079826K	300.000	295.248	Volpe on the wrong line	4.752
164	079827S	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
165	079828Y	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
166	079829F	300.000	295.574	Volpe on the wrong line	4.426
167	079830A	300.000	295.770	Volpe on the wrong line	4.230
168	079831G	300.000	295.865	Volpe on the wrong line	4.135
169	079832N	300.000	295.960	Volpe on the wrong line	4.040
170	079833V	300.000	295.992	Volpe on the wrong line	4.008
171	079834C	300.000	296.007	Volpe on the wrong line	3.993
172	079836R	300.000	296.071	Volpe on the wrong line	3.929
173	079837X	300.000	296.047	Volpe on the wrong line	3.953
174	079838E	300.000	296.095	Volpe on the wrong line	3.905
175	079839L	300.000	296.135	Volpe on the wrong line	3.865
176	079840F	300.000	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.270
177	079869D	273.330	273.969	Both off should be 3.77 from Vernon/Crawford Co line	0.639
178	086442T	300.001	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.271
179	086477U	300.003	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.273
180	086478B	300.004	299.730	Volpe off should be 0.13 from After Gillette St Xng	0.274
181	069960U	238.310	238.665	Volpe off should be at 6th Avenue West	0.355
182	069924Y	185.090	185.594	Volpe off should be 0.23 from 2nd Street Xng	0.504
183	306927Y	184.817	185.380	Volpe off should be on Hwy 20	0.563
184	069915A	158.180	158.414	Both off should be 2.76 miles from Cty Line	0.234
185	069916G	163.530	163.871	Both off should be 8.12 miles from Galena River Bridge	0.341
186	069917N	164.650	164.915	Both off should be 7 miles from Galena River Bridge	0.265
187	069919C	165.160	165.380	Both off should be 5.49 Miles from Galena River Bridge	0.220
188	069921D	168.850	168.602	Volpe off should be 2.80 miles from Galena River Bridge	0.248
189	069922K	169.070	168.777	Volpe off should be 2.58 miles from Galena River Bridge	0.293
190	069899T	140.690	140.948	Volpe off should be 1.27 miles from Hickry Gr Rd	0.258
191	069900K	142.000	142.266	Both off should be 0.36 from Plum River	0.266
192	069902Y	143.386	143.682	Both off should be on Iris Str Crossing	0.296

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
193	069903F	143.653	143.904	Both off should be 0.26 from Iris St Crossing	0.251
194	069904M	145.060	145.502	Volpe off should be 1.67 from Iris Street Xng 069902Y	0.442
195	069907H	145.590	145.959	Volpe off should be on Division St	0.369
196	069909W	146.072	146.362	Both off should be 0.48 from Division St Xng	0.290
197	069829D	101.736	101.948	Volpe off should be on Burlington Rd	0.212
198	069827P	100.610	100.888	Volpe off should be on Devil's Backbone Rd	0.278
199	059194A	1,297.563	1,299.618	Both off, BN is off measured from Bridge, Volpe is	2.055
200	096405T	1,297.834	1,299.839	Not in trackchart	2.005
201	097589Y	116.560	114.814	Not in track chart	1.746
202	079899V	306.290	305.125	BN is off should be on Cty Rd Z	1.165
203	079900M	307.340	306.431	BN is off should be on Cty Hwy ZN	0.909
204	059624H	170.356	169.461	Volpe on	0.895
205	079865B	269.780	270.641	BN is off should be 0.22 after Cty line	0.861
206	079864U	267.316	268.073	BN is off should be on Hwy 9	0.757
207	059623B	170.991	170.246	BN off, as measured from correct Volpe Xing @ 0596	0.745
208	093089M	202.060	202.788	Not in track chart - should be on 3rd ave not 3rd st	0.728
209	086467N	378.745	378.094	BN is off calibrate from Pine Cr	0.651
210	079868W	273.180	273.816	Both off should be 3.62 from Vernon/Crawford Co line	0.636
211	080019K	380.870	380.289	BN is off	0.581
212	088117D	1,145.679	1,145.102	Not in track chart	0.577
213	079870X	274.320	274.809	BN is off use Bad Axe River as reference	0.489
214	079855V	248.710	248.232	BN is off use Ducharme Cr as reference	0.478
215	081567B	144.426	144.894	BN off should be on other side of Cty Line	0.468
216	086340A	144.955	145.420	BN off use 081567B as reference	0.465
217	093863W	249.270	248.806	BN off use Ducharm Cr as reference	0.464
218	062899U	236.420	235.957	BN is off should be 1.87 from MP 234.55	0.463
219	088106R	1,123.770	1,123.314	Not in track chart	0.456
220	088107X	1,123.770	1,123.314	Not in track chart	0.456
221	058840X	16.920	17.353	BN is off should be 0.06 from the coclalla creek	0.433
222	093864D	249.890	249.467	BN off use Ducharme Cr as reference	0.423
223	079854N	246.430	246.011	BN off use Ducharme Cr as reference	0.419
224	079871E	276.980	277.395	BN off use Bad Axe River as reference	0.415
225	081578N	153.049	153.457	BN off use Little Muddy Cr As Reference	0.408
226	062900L	237.284	236.879	BN is off should be on rd xng	0.405
227	079872L	278.360	278.759	BN off use Bad Axe River as Reference	0.399
228	088071S	1,076.637	1,077.025	Volpe offshouldbe 2.06 from Ethereidge Rd	0.388
229	081577G	152.323	152.711	BN is off should shift 0.38761 to road	0.388
230	079856C	250.310	249.932	BN off should be 2.63 from Du Charme Cr	0.378
231	079853G	245.650	245.275	BN off use Pickatee Cr As Reference	0.375
232	079874A	280.450	280.813	BN off use Bad Axe River as Reference	0.363
233	059622U	171.896	171.533	BN off use 1st Ave West As Reference	0.363
234	079875G	280.500	280.860	BN off use Bad Axe River as Reference	0.360
235	079876N	280.520	280.879	BN off use Bad Axe River as Reference	0.359
236	079857J	251.250	250.907	BN off use Du Charme Cr as reference	0.343
237	059275A	1,248.656	1,248.997	BN is off should be 0.45 miles from cty line	0.341
238	058705E	1,383.904	1,384.244	BN off should be 1.74 from Cty Line	0.340
239	093327D	69.117	69.454	BN is off	0.337
240	058841E	17.420	17.756	BN is off should be 0.52 miles from 058840X	0.336
241	069954R	232.040	232.375	BN off 0.37 miles	0.335
242	306912J	173.065	172.735	BN is off should fall on street	0.330
243	069955X	232.270	232.599	BN off 0.37 miles	0.329
244	079873T	279.750	280.071	BN off use Bad Axe River as Reference	0.321
245	086343V	151.489	151.794	BN off use Little Muddy River as refernce	0.305

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
246	088070K	1,075.610	1,075.915	BN off use Wiegand Rd Xng as Guide	0.305
247	079852A	244.450	244.146	BN off use Mill Cr Rd as reference	0.304
248	093326W	68.092	68.387	BN is off	0.295
249	079861Y	258.240	257.947	BN off use Copper Cr as reference	0.293
250	086282G	151.186	151.478	BN off use Little Muddy River as refernce	0.292
251	059258J	1,230.898	1,231.184	BN is off should be on road	0.286
252	062901T	240.480	240.194	BN off should be 4.80 from xng 062905V	0.286
253	059394J	417.329	417.608	BN off should be on road	0.279
254	058706L	1,384.720	1,384.998	BN off should be 0.92 from Cty Line	0.278
255	059395R	416.667	416.935	BN off should be on road	0.268
256	079851T	244.080	243.815	BN off use Mill Cr Rd as reference	0.265
257	059396X	416.288	416.552	BN off should be on road	0.264
258	081547P	127.967	127.703	BN off use Hwy Overpass xng 081546H as refernece	0.264
259	059786K	1,017.115	1,017.377	BN off should be on road	0.262
260	088114H	1,138.413	1,138.152	DOT Xing not in track chart -- cannot compare, but	0.261
261	059548S	274.959	275.216	BN off should be 2.48 from 4th St Xng	0.257
262	059787S	1,017.341	1,017.597	BN off should be on road	0.256
263	093324H	67.012	67.267	BN is off	0.255
264	085903W	299.477	299.223	BN off use Lacrosse River as Reference	0.254
265	081545B	126.870	126.621	BN off use Hwy Overpass xng 081546H as refernece	0.249
266	079914V	329.010	329.258	BN off use Mill St Xng As Reference	0.248
267	079912G	328.210	328.454	BN off use Mill St Xng As Reference	0.244
268	086471D	99.300	99.542	BN is off should be 1.17 off from 093370Já	0.242
269	088115P	1,140.758	1,140.519	BN off use Midvale Cr and Roosevelt Hwy as Reference	0.239
270	062854M	204.910	205.146	BN off should be 4.23 from 5th St Xng	0.236
271	079915C	329.690	329.926	BN off use Mill St Xng As Reference	0.236
272	058704X	1,383.676	1,383.908	BN off should be 1.97 from Cty Line	0.232
273	081572X	148.485	148.716	BN off use Cty line as reference	0.231
274	079850L	243.600	243.369	BN off use Mill Cr Rd as reference	0.231
275	071931J	7.469	7.239	BN off should be 4.6 miles from Hwy 2 Overpass Bridge	0.230
276	098931M	121.530	121.758	Not in track chart	0.228
277	058718F	1,395.041	1,395.269	BN off 0.23 measured from Schweitzer Basin Rd.	0.228
278	093328K	70.044	70.271	BN off use White Earth River as Ref	0.227
279	085909M	243.540	243.313	BN off use Mill Cr Rd as Reference	0.227
280	095170G	330.270	330.496	BN is off should be 3 miles from 079918X	0.226
281	079916J	330.320	330.543	BN off use Mill St Xng As Reference	0.223
282	079917R	330.330	330.553	BN off use Mill St Xng As Reference	0.223
283	061129U	415.240	415.461	BN off should be 2.33 from xng 061130N	0.221
284	093407W	121.480	121.700	Not in track chart	0.220
285	058717Y	1,394.876	1,395.093	BN off should be 3.81 from Samuels Rd Xng 58712P	0.217
286	069945S	218.000	218.216	BN off should be 0.77 from Big Muddy Cr	0.216
287	098942A	275.444	275.657	BN off should be 1.99 from 059544P	0.213
288	079848K	243.270	243.060	BN off should be 1.37 Miles from Limery Rd	0.210
289	058719M	1,395.614	1,395.822	BN is off shold be on road, as measured from Xing at 058713W at US2 & US95	0.208
290	058716S	1,394.162	1,394.368	BN off should be 3.09 from Samuels Rd Xng 58712P	0.206
291	059502D	313.212	313.417	BN off should be on road	0.205
292	069957L	234.140	234.345	BN off 0.20496 miles	0.205
293	059788Y	1,020.384	1,020.180	BN off should be 2.37 miles from Cottonwood Cr	0.204
294	071932R	8.260	8.060	Volpe is on BN should be on road	0.200

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
295	093402M	121.190	121.390		0.200
296	081553T	134.187	134.386		0.199
297	058707T	1,385.641	1,385.838		0.197
298	059739C	967.828	967.632		0.196
299	062852Y	203.940	204.136		0.196
300	067273G	85.610	85.414		0.196
301	059503K	311.675	311.868		0.193
302	093400Y	120.930	121.123		0.193
303	093401F	120.910	121.103		0.193
304	093399G	120.870	121.062		0.192
305	059610A	183.355	183.545		0.190
306	093323B	65.970	66.158		0.188
307	099086M	119.202	119.390		0.188
308	059550T	274.151	274.339		0.188
309	093403U	121.260	121.447		0.187
310	059525K	289.228	289.414		0.186
311	059531N	285.597	285.782		0.185
312	058670F	1,333.725	1,333.908		0.183
313	058720G	1,396.295	1,396.477		0.182
314	059785D	1,016.068	1,016.250		0.182
315	093252G	121.870	122.052		0.182
316	069911X	152.300	152.481		0.181
317	059504S	309.867	310.048		0.181
318	069830X	102.872	103.053		0.181
319	059520B	297.957	298.138		0.181
320	085904D	299.866	299.687		0.179
321	059532V	284.376	284.554		0.178
322	096046E	1,333.052	1,333.229		0.177
323	081571R	146.929	147.104		0.175
324	093396L	120.334	120.508		0.174
325	097628M	88.540	88.714		0.174
326	082514F	50.100	50.273		0.173
327	059533C	283.542	283.715		0.173
328	088035W	1,031.172	1,031.345		0.173
329	069914T	156.740	156.912		0.172
330	093395E	120.091	120.263		0.172
331	097629U	88.640	88.811		0.171
332	093398A	119.340	119.509		0.169
333	093683Y	30.850	31.017		0.167
334	062851S	202.270	202.436		0.166
335	082515M	50.540	50.706		0.166
336	080024G	388.910	389.076		0.166
337	088126C	1,188.248	1,188.083		0.165
338	058682A	1,367.188	1,367.023		0.165
339	067224K	59.590	59.425		0.165
340	058708A	1,386.954	1,387.118		0.164
341	058715K	1,393.981	1,394.145		0.164
342	059522P	292.932	293.096		0.164
343	059535R	281.987	282.151		0.164
344	082930H	30.690	30.854		0.164
345	088076B	1,086.890	1,087.050		0.160
346	059570E	246.395	246.555		0.160
347	059519G	299.425	299.582		0.157
348	069923S	169.440	169.284		0.156
349	067272A	84.580	84.424		0.156
350	101671D	229.400	229.244		0.156
351	082513Y	49.370	49.525		0.155
352	069831E	103.950	104.104		0.154
353	093253N	122.030	122.184		0.154

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
354	071933X	8.820	8.669		0.151
355	059591X	213.899	214.050		0.151
356	081554A	134.656	134.806		0.150
357	062788C	172.390	172.540		0.150
358	069898L	139.420	139.569		0.149
359	059609F	183.788	183.936		0.148
360	088113B	1,138.159	1,138.011		0.148
361	078997H	30.850	30.998		0.148
362	088127J	1,196.200	1,196.052		0.148
363	058721N	1,397.112	1,397.259		0.147
364	062787V	171.840	171.987		0.147
365	082516U	51.050	51.196		0.146
366	069913L	153.909	154.055		0.146
367	099098B	1,331.047	1,331.193		0.146
368	059397E	414.592	414.737		0.145
369	069832L	104.190	104.334		0.144
370	059616R	177.583	177.725		0.142
371	059534J	282.789	282.931		0.142
372	092981V	18.896	19.038		0.142
373	059385K	427.797	427.938		0.141
374	079858R	252.720	252.579		0.141
375	059784W	1,015.037	1,015.178		0.141
376	059416G	399.665	399.525		0.140
377	059387Y	426.844	426.984		0.140
378	087192L	45.175	45.314		0.139
379	059597N	206.208	206.347		0.139
380	067271T	84.130	83.991		0.139
381	059551A	272.634	272.772		0.138
382	062877U	224.990	224.852		0.138
383	059569K	247.159	247.297		0.138
384	099093X	1,338.700	1,338.563		0.137
385	085948D	150.034	150.171		0.137
386	059611G	182.357	182.494		0.137
387	088069R	1,073.613	1,073.749		0.136
388	059596G	206.172	206.308		0.136
389	081573E	149.092	149.228		0.136
390	059567W	249.957	250.092		0.135
391	059523W	292.265	292.399		0.134
392	092989A	21.957	22.091		0.134
393	059568D	247.202	247.336		0.134
394	061142H	428.700	428.834		0.134
395	097837V	58.580	58.448		0.132
396	059517T	303.380	303.511		0.131
397	093344U	77.944	78.075		0.131
398	097631V	90.200	90.330		0.130
399	069912E	153.620	153.750		0.130
400	059423S	394.102	393.973		0.129
401	059422K	395.642	395.513		0.129
402	059615J	178.033	178.162		0.129
403	069910R	148.950	148.822		0.128
404	088036D	1,032.281	1,032.409		0.128
405	059762W	995.125	995.252		0.127
406	061128M	410.280	410.153		0.127
407	059393C	419.263	419.389		0.126
408	059571L	245.173	245.299		0.126
409	092982C	19.130	19.256		0.126
410	306913R	177.012	176.887		0.125
411	079481S	6.850	6.725		0.125
412	059585U	225.056	225.181		0.125

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
413	058824N	3.140	3.015		0.125
414	059386S	427.333	427.457		0.124
415	062879H	226.750	226.626		0.124
416	088125V	1,187.670	1,187.547		0.123
417	088124N	1,186.352	1,186.229		0.123
418	080023A	388.240	388.363		0.123
419	093322U	64.949	65.071		0.122
420	088037K	1,033.534	1,033.655		0.121
421	086548N	428.629	428.749		0.120
422	058714D	1,393.278	1,393.398		0.120
423	059761P	994.125	994.245		0.120
424	081564F	142.078	142.198		0.120
425	059587H	223.872	223.991		0.119
426	082806C	19.460	19.579		0.119
427	059501W	315.333	315.452		0.119
428	059388F	426.062	426.181		0.119
429	067270L	83.570	83.452		0.118
430	069951V	229.000	229.117		0.117
431	071934E	10.459	10.342		0.117
432	082517B	51.870	51.987		0.117
433	067225S	60.390	60.273		0.117
434	059261S	1,242.368	1,242.485		0.117
435	058690S	1,371.684	1,371.568		0.116
436	059415A	400.246	400.130		0.116
437	092987L	21.121	21.236		0.115
438	093298V	46.216	46.331		0.115
439	062880C	227.250	227.136		0.114
440	059759N	991.922	992.036		0.114
441	069825B	98.354	98.467		0.113
442	067269S	83.450	83.338		0.112
443	059420W	397.080	396.968		0.112
444	086378W	12.481	12.369		0.112
445	069779C	73.340	73.228		0.112
446	059598V	203.319	203.431		0.112
447	080026V	391.060	391.171		0.111
448	059506F	307.591	307.701		0.110
449	092986E	20.803	20.913		0.110
450	088055H	1,059.369	1,059.479		0.110
451	059546D	275.784	275.893		0.109
452	088077H	1,088.087	1,088.196		0.109
453	069897E	138.690	138.799		0.109
454	099090C	413.355	413.464		0.109
455	062790D	174.110	174.218		0.108
456	093310A	55.698	55.590		0.108
457	069780W	73.920	73.812		0.108
458	079847D	241.900	241.793		0.107
459	069952C	229.030	229.137		0.107
460	087174N	26.464	26.569		0.105
461	092991B	22.818	22.923		0.105
462	093392J	117.389	117.494		0.105
463	093343M	75.977	76.082		0.105
464	079537J	22.613	22.717		0.104
465	059418V	397.941	397.837		0.104
466	082931P	31.340	31.443		0.103
467	059524D	291.330	291.433		0.103
468	059507M	307.083	307.185		0.102
469	093307S	54.400	54.298		0.102
470	093308Y	54.440	54.338		0.102
471	086382L	34.010	33.908		0.102

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
472	078996B	22.720	22.822		0.102
473	087190X	42.194	42.296		0.102
474	097829D	52.310	52.411		0.101
475	088066V	1,066.779	1,066.880		0.101
476	093306K	54.303	54.202		0.101
477	081582D	157.838	157.737		0.101
478	103807V	202.050	202.150		0.100
479	062915B	222.849	222.749		0.100
480	080025N	390.656	390.756		0.100
481	092983J	19.669	19.768		0.099
482	093077T	200.975	201.074		0.099
483	092980N	18.520	18.618		0.098
484	069824U	97.660	97.562		0.098
485	079846W	241.760	241.662		0.098
486	069781D	74.430	74.333		0.097
487	093090G	202.160	202.256		0.096
488	093311G	56.680	56.584		0.096
489	102436J	225.815	225.911		0.096
490	059421D	396.415	396.320		0.095
491	081559J	138.673	138.578		0.095
492	058722V	1,397.928	1,398.023		0.095
493	086560V	188.430	188.336		0.094
494	062878B	225.990	225.896		0.094
495	082512S	48.860	48.954		0.094
496	093321M	63.915	64.008		0.093
497	059399T	411.871	411.962		0.091
498	093506U	132.318	132.227		0.091
499	062882R	228.480	228.390		0.090
500	081581W	157.010	156.920		0.090
501	059443D	378.741	378.652		0.089
502	093309F	55.571	55.482		0.089
503	059499X	316.248	316.336		0.088
504	059500P	316.248	316.336		0.088
505	058865T	43.613	43.525		0.088
506	062786N	170.750	170.838		0.088
507	093514L	136.748	136.660		0.088
508	079953L	356.750	356.662		0.088
509	062885L	230.170	230.082		0.088
510	062830Y	191.270	191.358		0.088
511	059783P	1,014.000	1,014.087		0.087
512	080027C	391.690	391.777		0.087
513	093452R	123.885	123.798		0.087
514	088088V	1,091.804	1,091.718		0.086
515	079962K	366.120	366.206		0.086
516	093515T	137.878	137.792		0.086
517	069876L	126.350	126.436		0.086
518	093086S	202.366	202.452		0.086
519	059390G	423.455	423.540		0.085
520	093449H	121.927	121.842		0.085
521	093301B	48.296	48.381		0.085
522	093507B	133.160	133.075		0.085
523	059426M	391.634	391.549		0.085
524	093342F	75.298	75.383		0.085
525	093510J	134.461	134.377		0.084
526	080035U	402.200	402.116		0.084
527	067255J	76.510	76.593		0.083
528	062831F	192.660	192.743		0.083
529	062856B	206.190	206.273		0.083
530	079954T	357.700	357.617		0.083

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
531	079961D	365.950	366.032		0.082
532	059552G	270.817	270.899		0.082
533	069740Y	54.778	54.860		0.082
534	093312N	57.186	57.104		0.082
535	059632A	162.727	162.645		0.082
536	097830X	52.860	52.941		0.081
537	093513E	136.562	136.481		0.081
538	093448B	121.477	121.396		0.081
539	093508H	133.388	133.307		0.081
540	093313V	57.694	57.614		0.080
541	088123G	1,185.917	1,185.837		0.080
542	093450C	123.034	122.954		0.080
543	079564F	37.650	37.730		0.080
544	062857H	207.780	207.700		0.080
545	081560D	138.965	138.886		0.079
546	058723C	1,398.503	1,398.582		0.079
547	069893C	135.147	135.226		0.079
548	097836N	57.250	57.171		0.079
549	059540M	278.710	278.631		0.079
550	093445F	118.573	118.495		0.078
551	079860S	254.470	254.392		0.078
552	093505M	131.265	131.187		0.078
553	069931J	199.350	199.272		0.078
554	093511R	135.498	135.420		0.078
555	097633J	92.080	92.158		0.078
556	059476R	347.528	347.450		0.078
557	059631T	163.589	163.512		0.077
558	097627F	86.860	86.783		0.077
559	087188W	40.403	40.480		0.077
560	087175V	26.974	27.051		0.077
561	093537T	153.038	152.961		0.077
562	093443S	117.407	117.330		0.077
563	079566U	37.730	37.807		0.077
564	067226Y	60.980	60.904		0.076
565	087187P	39.969	40.045		0.076
566	093439C	115.170	115.094		0.076
567	093387M	112.675	112.750		0.075
568	093512X	136.165	136.090		0.075
569	069782K	75.000	74.925		0.075
570	092979U	17.974	18.049		0.075
571	079859X	254.360	254.286		0.074
572	093140H	70.132	70.058		0.074
573	093441D	116.330	116.256		0.074
574	086284V	185.500	185.574		0.074
575	059475J	348.922	348.848		0.074
576	062884E	229.090	229.017		0.073
577	093190L	93.799	93.726		0.073
578	093085K	202.500	202.573		0.073
579	069896X	137.910	137.983		0.073
580	087173G	25.467	25.539		0.072
581	059273L	1,219.384	1,219.312		0.072
582	093434T	112.651	112.579		0.072
583	093497X	127.933	127.861		0.072
584	093458G	124.587	124.515		0.072
585	093447U	120.814	120.743		0.071
586	061132C	418.510	418.581		0.071
587	059633G	161.725	161.654		0.071
588	059474C	349.760	349.689		0.071
589	062850K	201.380	201.451		0.071

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
590	059414T	400.970	400.899		0.071
591	082511K	48.610	48.681		0.071
592	093437N	114.005	113.934		0.071
593	093302H	49.341	49.412		0.071
594	093500D	129.040	128.970		0.071
595	079960W	364.910	364.980		0.070
596	062828X	190.600	190.670		0.070
597	079924B	336.400	336.330		0.070
598	082709T	14.000	14.070		0.070
599	082800L	14.000	14.070		0.070
600	082928G	29.610	29.680		0.070
601	062930D	22.071	22.141		0.070
602	062934F	22.176	22.246		0.070
603	059473V	349.849	349.779		0.070
604	059391N	421.922	421.991		0.069
605	062933Y	22.091	22.160		0.069
606	093503Y	130.657	130.588		0.069
607	059471G	351.773	351.704		0.069
608	086424V	170.360	170.429		0.069
609	093424M	107.418	107.349		0.069
610	093504F	131.076	131.007		0.069
611	067268K	82.520	82.451		0.069
612	059764K	996.800	996.868		0.068
613	059463P	359.714	359.646		0.068
614	093457A	124.350	124.282		0.068
615	059606K	189.989	190.057		0.068
616	102433N	224.769	224.836		0.067
617	061133J	418.670	418.737		0.067
618	059472N	351.076	351.009		0.067
619	088079W	1,089.420	1,089.487		0.067
620	087186H	39.384	39.451		0.067
621	093456T	124.300	124.233		0.067
622	071930C	4.868	4.802		0.066
623	087185B	39.091	39.157		0.066
624	093418J	104.254	104.188		0.066
625	088032B	1,026.152	1,026.086		0.066
626	093340S	73.511	73.577		0.066
627	093417C	103.563	103.497		0.066
628	093536L	152.444	152.378		0.066
629	102435C	225.313	225.379		0.066
630	093498E	128.106	128.041		0.065
631	093446M	119.162	119.097		0.065
632	062791K	175.300	175.365		0.065
633	069791J	78.510	78.575		0.065
634	069828W	98.870	98.935		0.065
635	079955A	358.090	358.026		0.064
636	059442W	380.246	380.182		0.064
637	081550X	131.208	131.144		0.064
638	093305D	53.556	53.492		0.064
639	062936U	22.328	22.392		0.064
640	069920W	166.980	166.917		0.063
641	306919G	182.808	182.871		0.063
642	093432E	111.310	111.247		0.063
643	059413L	402.148	402.086		0.062
644	093426B	108.811	108.749		0.062
645	058867G	44.483	44.421		0.062
646	079952E	355.380	355.318		0.062
647	088040T	1,036.940	1,036.878		0.062
648	093453X	124.112	124.051		0.061

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
649	093421S	106.280	106.219		0.061
650	093386F	111.801	111.740		0.061
651	093431X	110.522	110.461		0.061
652	102429Y	222.586	222.647		0.061
653	102434V	225.153	225.214		0.061
654	059578J	230.934	230.873		0.061
655	093420K	105.900	105.840		0.060
656	093416V	102.424	102.364		0.060
657	306921H	182.790	182.850		0.060
658	093433L	111.685	111.625		0.060
659	059255N	1,220.218	1,220.278		0.060
660	079959C	364.480	364.540		0.060
661	082932W	31.791	31.851		0.060
662	093687B	349.550	349.610		0.060
663	093329S	72.335	72.394		0.059
664	102428S	221.493	221.552		0.059
665	058866A	44.370	44.311		0.059
666	093427H	109.349	109.290		0.059
667	081558C	137.512	137.453		0.059
668	093525Y	145.850	145.791		0.059
669	079461F	3.293	3.234		0.059
670	069890G	133.150	133.209		0.059
671	093315J	58.700	58.642		0.058
672	059424Y	393.065	393.007		0.058
673	092978M	17.406	17.464		0.058
674	059434E	387.717	387.775		0.058
675	098939S	1,170.956	1,170.898		0.058
676	086283N	175.400	175.458		0.058
677	067256R	77.530	77.588		0.058
678	093527M	146.937	146.879		0.058
679	062873S	220.310	220.252		0.058
680	081563Y	141.321	141.378		0.057
681	093451J	123.449	123.392		0.057
682	093425U	108.235	108.178		0.057
683	093524S	145.260	145.203		0.057
684	306922P	183.340	183.397		0.057
685	059389M	423.929	423.986		0.057
686	093528U	148.029	147.972		0.057
687	069892V	134.369	134.426		0.057
688	093341Y	74.443	74.500		0.057
689	093428P	109.406	109.350		0.056
690	082960A	13.829	13.885		0.056
691	059789F	1,022.420	1,022.364		0.056
692	071939N	13.872	13.928		0.056
693	059412E	403.222	403.167		0.055
694	069792R	79.550	79.605		0.055
695	080032Y	395.950	395.895		0.055
696	067246K	73.210	73.265		0.055
697	059577C	232.657	232.602		0.055
698	059559E	264.434	264.489		0.055
699	081585Y	159.247	159.302		0.055
700	059558X	265.987	265.932		0.055
701	088119S	1,170.455	1,170.400		0.055
702	069880B	128.960	129.015		0.055
703	092947N	5.099	5.044		0.055
704	088057W	1,064.718	1,064.773		0.055
705	061141B	423.720	423.666		0.054
706	079568H	38.040	38.094		0.054
707	059383W	429.170	429.224		0.054

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
708	069879G	128.620	128.674		0.054
709	092993P	23.285	23.339		0.054
710	093412T	100.081	100.027		0.054
711	059469F	353.335	353.281		0.054
712	092950W	6.233	6.179		0.054
713	097634R	93.300	93.354		0.054
714	093442K	117.184	117.131		0.054
715	059604W	193.127	193.180		0.053
716	059445S	377.558	377.505		0.053
717	102426D	220.406	220.459		0.053
718	093523K	144.758	144.705		0.053
719	093409K	98.913	98.860		0.053
720	081010C	208.765	208.712		0.053
721	079845P	241.130	241.077		0.053
722	103792H	2.510	2.457		0.053
723	079567B	37.800	37.852		0.052
724	093619A	188.684	188.632		0.052
725	081583K	158.819	158.871		0.052
726	075708U	422.450	422.502		0.052
727	069790C	77.750	77.802		0.052
728	069793X	80.070	80.122		0.052
729	058857B	31.213	31.265		0.052
730	093519V	141.676	141.624		0.052
731	093517G	140.651	140.600		0.051
732	093533R	150.200	150.149		0.051
733	079463U	3.814	3.763		0.051
734	093001M	25.442	25.493		0.051
735	059557R	267.680	267.629		0.051
736	093413A	100.672	100.621		0.051
737	092952K	7.381	7.330		0.051
738	093436G	113.251	113.200		0.051
739	059767F	999.874	999.925		0.051
740	071928B	2.619	2.568		0.051
741	102431A	223.690	223.741		0.051
742	062847C	200.390	200.340		0.050
743	092992H	23.109	23.159		0.050
744	092955F	8.172	8.122		0.050
745	058712P	1,391.071	1,391.021		0.050
746	067264H	79.500	79.450		0.050
747	069735C	51.010	51.060		0.050
748	080125T	6.700	6.750		0.050
749	093522D	143.718	143.668		0.050
750	092954Y	7.931	7.881		0.050
751	062872K	219.470	219.421		0.049
752	069881H	129.410	129.459		0.049
753	306914X	179.970	179.921		0.049
754	093868F	2.020	1.971		0.049
755	071935L	11.462	11.413		0.049
756	093435A	112.830	112.781		0.049
757	093016C	32.114	32.065		0.049
758	079925H	337.130	337.081		0.049
759	093423F	107.061	107.012		0.049
760	059332L	1,217.981	1,217.933		0.048
761	081024K	210.573	210.525		0.048
762	092994W	23.691	23.739		0.048
763	059556J	268.076	268.028		0.048
764	079462M	3.800	3.752		0.048
765	059441P	382.313	382.266		0.048
766	058691Y	1,372.032	1,371.985		0.047

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
767	092996K	24.602	24.649		0.047
768	069878A	127.470	127.517		0.047
769	062858P	211.310	211.263		0.047
770	093157L	76.707	76.660		0.047
771	097835G	56.470	56.423		0.047
772	093532J	149.663	149.616		0.047
773	069823M	96.130	96.177		0.047
774	082711U	14.100	14.147		0.047
775	102427K	221.260	221.307		0.047
776	093520P	142.700	142.654		0.046
777	092962R	10.768	10.722		0.046
778	092998Y	25.314	25.360		0.046
779	079944M	346.920	346.966		0.046
780	071030L	3.954	3.908		0.046
781	069958T	236.740	236.786		0.046
782	092997S	24.854	24.900		0.046
783	093623P	190.034	189.988		0.046
784	088038S	1,034.593	1,034.638		0.045
785	093131J	66.549	66.504		0.045
786	093345B	79.775	79.820		0.045
787	092956M	8.457	8.412		0.045
788	081542F	123.156	123.111		0.045
789	069795L	81.350	81.395		0.045
790	098035Y	407.606	407.651		0.045
791	079559J	36.700	36.745		0.045
792	059433X	388.298	388.342		0.044
793	092995D	24.254	24.298		0.044
794	093130C	65.739	65.695		0.044
795	088131Y	1,202.248	1,202.204		0.044
796	062883X	228.720	228.676		0.044
797	069784Y	75.730	75.686		0.044
798	081561K	139.697	139.653		0.044
799	069730T	48.780	48.824		0.044
800	079464B	4.214	4.171		0.043
801	079957N	359.060	359.017		0.043
802	071031T	3.998	3.955		0.043
803	081543M	123.706	123.663		0.043
804	092976Y	16.794	16.837		0.043
805	093622H	189.827	189.784		0.043
806	102418L	214.984	215.027		0.043
807	069875E	126.200	126.243		0.043
808	058669L	1,326.226	1,326.269		0.043
809	088031U	1,025.228	1,025.271		0.043
810	069852X	117.100	117.058		0.042
811	062876M	222.849	222.807		0.042
812	059447F	375.871	375.913		0.042
813	097668K	105.962	105.920		0.042
814	059425F	392.304	392.262		0.042
815	069826H	98.706	98.748		0.042
816	079844H	240.980	240.938		0.042
817	098033K	293.560	293.518		0.042
818	069889M	132.800	132.842		0.042
819	067265P	81.040	80.998		0.042
820	093020S	35.318	35.276		0.042
821	093187D	92.493	92.451		0.042
822	093414G	101.246	101.204		0.042
823	102423H	218.278	218.320		0.042
824	391938P	236.810	236.852		0.042
825	079467W	4.740	4.699		0.041

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
826	093546S	156.767	156.726		0.041
827	069855T	118.406	118.365		0.041
828	093033T	40.690	40.731		0.041
829	069851R	116.890	116.849		0.041
830	093411L	99.843	99.802		0.041
831	093193G	95.742	95.702		0.040
832	059274T	1,216.843	1,216.803		0.040
833	093384S	110.621	110.661		0.040
834	093129H	65.417	65.377		0.040
835	069726D	46.690	46.730		0.040
836	069873R	125.200	125.240		0.040
837	093162H	78.331	78.291		0.040
838	062859W	211.800	211.760		0.040
839	069872J	124.970	125.010		0.040
840	102422B	217.180	217.220		0.040
841	093617L	187.624	187.585		0.039
842	093192A	95.412	95.373		0.039
843	093127U	64.372	64.333		0.039
844	059401S	409.556	409.595		0.039
845	093548F	157.808	157.769		0.039
846	082953P	43.760	43.799		0.039
847	092963X	11.321	11.282		0.039
848	093530V	149.103	149.064		0.039
849	102425W	219.318	219.357		0.039
850	093188K	93.075	93.036		0.039
851	093134E	67.863	67.824		0.039
852	093616E	187.554	187.515		0.039
853	085928S	24.792	24.830		0.038
854	082991Y	4.308	4.270		0.038
855	092975S	16.282	16.320		0.038
856	059431J	388.932	388.894		0.038
857	067267D	81.680	81.642		0.038
858	082510D	48.250	48.288		0.038
859	079468D	4.870	4.832		0.038
860	093415N	101.578	101.540		0.038
861	058709G	1,388.784	1,388.822		0.038
862	093189S	93.272	93.234		0.038
863	062793Y	176.490	176.527		0.037
864	092957U	8.501	8.464		0.037
865	093128B	64.748	64.711		0.037
866	079478J	6.090	6.053		0.037
867	093015V	31.935	31.898		0.037
868	079465H	4.350	4.313		0.037
869	093017J	32.670	32.633		0.037
870	088080R	1,089.850	1,089.887		0.037
871	101975U	1,212.960	1,212.997		0.037
872	092959H	9.622	9.585		0.037
873	079469K	5.000	4.963		0.037
874	059392V	421.069	421.106		0.037
875	087177J	29.804	29.841		0.037
876	067253V	75.620	75.657		0.037
877	093002U	25.885	25.922		0.037
878	102411N	208.858	208.895		0.037
879	069853E	117.890	117.853		0.037
880	093534X	151.041	151.005		0.036
881	093185P	90.741	90.705		0.036
882	071940H	14.604	14.640		0.036
883	062832M	193.580	193.616		0.036
884	069794E	81.100	81.136		0.036

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
885	086383T	61.838	61.874		0.036
886	062836P	196.100	196.065		0.035
887	093018R	33.216	33.181		0.035
888	093551N	158.854	158.819		0.035
889	092961J	10.593	10.558		0.035
890	062870W	218.310	218.275		0.035
891	093612C	185.478	185.443		0.035
892	102420M	216.085	216.120		0.035
893	082990S	4.640	4.605		0.035
894	062837W	196.220	196.185		0.035
895	080014B	372.590	372.555		0.035
896	087184U	37.683	37.718		0.035
897	081541Y	122.854	122.819		0.035
898	093194N	96.569	96.534		0.035
899	093186W	91.891	91.857		0.034
900	058678K	1,343.861	1,343.827		0.034
901	069778V	72.530	72.496		0.034
902	093531C	149.319	149.285		0.034
903	102424P	218.784	218.818		0.034
904	088086G	1,090.375	1,090.341		0.034
905	093541H	155.003	154.969		0.034
906	069854L	118.130	118.096		0.034
907	079943F	346.300	346.334		0.034
908	080031S	395.450	395.417		0.033
909	059542B	277.900	277.867		0.033
910	093553C	159.905	159.872		0.033
911	087276G	23.423	23.456		0.033
912	062866G	216.630	216.597		0.033
913	093529B	148.486	148.453		0.033
914	088087N	1,090.895	1,090.862		0.033
915	093133X	67.507	67.474		0.033
916	069849P	115.420	115.387		0.033
917	062869C	218.100	218.067		0.033
918	059538L	279.177	279.145		0.032
919	093137A	68.932	68.900		0.032
920	059793V	1,024.321	1,024.353		0.032
921	093316R	59.693	59.661		0.032
922	069789H	77.490	77.522		0.032
923	079470E	5.180	5.148		0.032
924	079923U	334.650	334.618		0.032
925	093572G	168.279	168.311		0.032
926	102417E	213.863	213.895		0.032
927	092958B	9.055	9.024		0.031
928	093540B	154.680	154.649		0.031
929	062863L	215.120	215.089		0.031
930	062839K	197.130	197.099		0.031
931	079472T	5.390	5.359		0.031
932	093390V	115.487	115.456		0.031
933	093091N	202.400	202.369		0.031
934	093159A	77.577	77.546		0.031
935	093556X	160.946	160.915		0.031
936	093160U	77.862	77.831		0.031
937	071938G	13.502	13.533		0.031
938	082809X	21.300	21.270		0.030
939	079474G	5.520	5.490		0.030
940	093032L	40.170	40.200		0.030
941	059621M	173.080	173.110		0.030
942	067252N	75.440	75.470		0.030
943	093627S	191.885	191.855		0.030

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
944	082942C	37.690	37.660		0.030
945	093304W	52.533	52.503		0.030
946	093153J	75.485	75.455		0.030
947	079471L	5.327	5.298		0.029
948	093178E	86.051	86.022		0.029
949	079877V	286.600	286.629		0.029
950	062794F	177.090	177.061		0.029
951	059617X	174.946	174.975		0.029
952	093539G	154.420	154.391		0.029
953	079473A	5.460	5.431		0.029
954	093163P	78.869	78.840		0.029
955	082917U	25.950	25.921		0.029
956	059446Y	376.375	376.404		0.029
957	058699D	1,379.403	1,379.432		0.029
958	069783S	75.150	75.121		0.029
959	079882S	293.870	293.842		0.028
960	069770R	69.970	69.998		0.028
961	079476V	5.650	5.622		0.028
962	059334A	1,214.575	1,214.603		0.028
963	069846U	112.916	112.944		0.028
964	059605D	192.286	192.314		0.028
965	093182U	88.393	88.365		0.028
966	093155X	76.277	76.249		0.028
967	080010Y	371.680	371.652		0.028
968	079475N	5.590	5.562		0.028
969	093184H	89.936	89.908		0.028
970	093320F	61.695	61.723		0.028
971	088034P	1,028.210	1,028.238		0.028
972	069821Y	94.690	94.662		0.028
973	093544D	156.055	156.027		0.028
974	085911N	198.990	198.963		0.027
975	059468Y	354.104	354.131		0.027
976	097647S	101.700	101.727		0.027
977	069891N	133.320	133.347		0.027
978	069769W	69.920	69.947		0.027
979	093543W	155.720	155.693		0.027
980	093625D	190.740	190.713		0.027
981	097646K	101.200	101.227		0.027
982	093535E	151.316	151.290		0.026
983	081580P	156.107	156.081		0.026
984	093408D	98.334	98.308		0.026
985	079922M	334.500	334.474		0.026
986	062842T	198.210	198.184		0.026
987	069883W	131.140	131.166		0.026
988	079891R	297.870	297.896		0.026
989	093626K	191.300	191.274		0.026
990	093538A	153.594	153.568		0.026
991	093191T	94.243	94.217		0.026
992	093014N	30.981	30.956		0.025
993	059435L	386.503	386.528		0.025
994	062867N	217.140	217.115		0.025
995	079890J	297.800	297.825		0.025
996	069835G	107.390	107.415		0.025
997	093558L	161.990	161.965		0.025
998	081021P	210.100	210.075		0.025
999	062812B	185.130	185.105		0.025
1000	069845M	112.780	112.805		0.025
1001	102414J	211.336	211.361		0.025
1002	093180F	87.228	87.203		0.025

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1003	093576J	171.119	171.094		0.025
1004	059206S	1,321.305	1,321.330		0.025
1005	102416X	212.800	212.824		0.024
1006	062843A	198.520	198.496		0.024
1007	062841L	197.920	197.896		0.024
1008	069847B	113.080	113.104		0.024
1009	079921F	334.220	334.196		0.024
1010	093607F	184.103	184.079		0.024
1011	082954W	44.663	44.687		0.024
1012	080029R	393.270	393.294		0.024
1013	093610N	184.913	184.889		0.024
1014	079919E	334.140	334.116		0.024
1015	087172A	24.489	24.513		0.024
1016	088081X	1,090.009	1,090.033		0.024
1017	088082E	1,090.009	1,090.033		0.024
1018	079880D	292.320	292.296		0.024
1019	059541U	277.935	277.912		0.023
1020	069844F	111.907	111.930		0.023
1021	092965L	11.886	11.863		0.023
1022	062844G	198.790	198.767		0.023
1023	093164W	79.016	78.993		0.023
1024	093604K	183.092	183.069		0.023
1025	069857G	118.880	118.857		0.023
1026	088056P	1,061.669	1,061.646		0.023
1027	093609U	184.582	184.559		0.023
1028	093117N	57.785	57.762		0.023
1029	059427U	391.314	391.291		0.023
1030	062753B	156.470	156.493		0.023
1031	093126M	62.501	62.478		0.023
1032	085876C	15.100	15.077		0.023
1033	102412V	209.505	209.527		0.022
1034	102413C	210.603	210.625		0.022
1035	079479R	6.180	6.158		0.022
1036	067251G	75.290	75.312		0.022
1037	059260K	1,236.459	1,236.481		0.022
1038	067247S	73.630	73.652		0.022
1039	088078P	1,088.796	1,088.818		0.022
1040	093606Y	183.811	183.789		0.022
1041	088053U	1,055.383	1,055.405		0.022
1042	085905K	48.080	48.102		0.022
1043	069858N	119.020	118.998		0.022
1044	093571A	167.731	167.753		0.022
1045	082918B	26.880	26.858		0.022
1046	079879J	291.640	291.662		0.022
1047	102415R	211.846	211.868		0.022
1048	093028W	38.534	38.556		0.022
1049	071937A	13.284	13.306		0.022
1050	059455X	367.489	367.467		0.022
1051	059553N	269.813	269.835		0.022
1052	093148M	72.882	72.860		0.022
1053	093195V	96.858	96.837		0.022
1054	093629F	192.711	192.690		0.021
1055	093013G	29.855	29.834		0.021
1056	059582Y	227.822	227.801		0.021
1057	093590E	178.411	178.390		0.021
1058	093580Y	172.778	172.757		0.021
1059	093605S	183.346	183.325		0.021
1060	069949U	227.930	227.909		0.021
1061	088068J	1,072.273	1,072.294		0.021

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1062	092974K	15.147	15.168		0.021
1063	093601P	181.827	181.806		0.021
1064	081557V	136.705	136.684		0.021
1065	062862E	214.870	214.849		0.021
1066	062808L	183.440	183.461		0.021
1067	093611V	185.240	185.219		0.021
1068	093031E	39.627	39.648		0.021
1069	093143D	71.192	71.171		0.021
1070	062838D	196.720	196.699		0.021
1071	088045C	1,047.651	1,047.672		0.021
1072	088046J	1,047.651	1,047.672		0.021
1073	093115A	55.892	55.871		0.021
1074	082915F	25.896	25.875		0.021
1075	093317X	60.200	60.179		0.021
1076	093602W	182.508	182.488		0.020
1077	085875V	15.200	15.180		0.020
1078	093557E	161.680	161.660		0.020
1079	102410G	208.416	208.436		0.020
1080	059539T	278.918	278.898		0.020
1081	093010L	28.736	28.716		0.020
1082	093142W	71.061	71.041		0.020
1083	093177X	85.358	85.338		0.020
1084	059482U	343.286	343.306		0.020
1085	097648Y	101.900	101.920		0.020
1086	093009S	28.083	28.063		0.020
1087	093600H	181.649	181.629		0.020
1088	093027P	38.127	38.147		0.020
1089	086458P	72.540	72.520		0.020
1090	097639A	95.980	96.000		0.020
1091	093373E	102.124	102.104		0.020
1092	059467S	354.989	355.009		0.020
1093	058695B	1,377.150	1,377.169		0.019
1094	059439N	384.367	384.386		0.019
1095	093146Y	72.600	72.581		0.019
1096	059454R	367.537	367.518		0.019
1097	069808K	87.350	87.369		0.019
1098	080012M	372.300	372.281		0.019
1099	093132R	66.794	66.775		0.019
1100	093319L	61.514	61.533		0.019
1101	093119C	58.711	58.692		0.019
1102	093139N	70.005	69.986		0.019
1103	093181M	87.998	87.979		0.019
1104	069812A	89.350	89.331		0.019
1105	058673B	1,337.450	1,337.431		0.019
1106	081018G	210.020	210.001		0.019
1107	069963P	238.870	238.889		0.019
1108	067236E	67.010	67.028		0.018
1109	088052M	1,054.404	1,054.386		0.018
1110	069861W	119.630	119.612		0.018
1111	069886S	132.040	132.058		0.018
1112	092972W	14.648	14.666		0.018
1113	062769X	163.220	163.202		0.018
1114	093569Y	167.171	167.153		0.018
1115	093560M	163.034	163.016		0.018
1116	058677D	1,341.919	1,341.901		0.018
1117	093586P	176.158	176.140		0.018
1118	097643P	98.740	98.758		0.018
1119	093591L	178.688	178.670		0.018
1120	101675F	20.426	20.408		0.018

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1121	093026H	37.786	37.804		0.018
1122	093380P	108.043	108.060		0.017
1123	093593A	179.549	179.532		0.017
1124	062840E	197.580	197.563		0.017
1125	069717E	39.409	39.392		0.017
1126	093603D	182.966	182.949		0.017
1127	079484M	7.490	7.473		0.017
1128	093104M	51.311	51.328		0.017
1129	079529S	18.320	18.303		0.017
1130	093144K	71.688	71.671		0.017
1131	058819S	1,401.527	1,401.510		0.017
1132	079942Y	345.680	345.697		0.017
1133	093614R	186.376	186.359		0.017
1134	069788B	77.410	77.427		0.017
1135	088050Y	1,052.378	1,052.361		0.017
1136	093365M	94.854	94.871		0.017
1137	093097E	48.287	48.270		0.017
1138	093438V	114.239	114.222		0.017
1139	093176R	84.859	84.842		0.017
1140	085874N	15.010	14.993		0.017
1141	062871D	219.050	219.033		0.017
1142	071944K	17.958	17.942		0.017
1143	086563R	78.196	78.212		0.016
1144	069964W	239.120	239.136		0.016
1145	093628Y	192.435	192.419		0.016
1146	093570T	167.361	167.377		0.016
1147	059438G	385.167	385.183		0.016
1148	086432M	18.230	18.214		0.016
1149	093379V	107.035	107.051		0.016
1150	093036N	42.871	42.887		0.016
1151	087181Y	33.996	34.012		0.016
1152	093582M	173.882	173.866		0.016
1153	093581F	173.423	173.407		0.016
1154	097834A	55.650	55.634		0.016
1155	093583U	174.181	174.165		0.016
1156	059384D	430.144	430.128		0.016
1157	059183M	1,259.252	1,259.268		0.016
1158	069894J	135.660	135.676		0.016
1159	079527D	17.804	17.788		0.016
1160	062874Y	220.560	220.544		0.016
1161	093118V	58.145	58.129		0.016
1162	093038C	43.379	43.395		0.016
1163	093584B	174.749	174.734		0.015
1164	093125F	61.749	61.734		0.015
1165	093167S	81.359	81.344		0.015
1166	062818S	188.010	187.995		0.015
1167	071947F	20.118	20.103		0.015
1168	093150N	73.824	73.809		0.015
1169	061138T	421.600	421.615		0.015
1170	093366U	95.248	95.263		0.015
1171	069837V	109.410	109.395		0.015
1172	071923S	1.030	1.045		0.015
1173	059554V	269.377	269.392		0.015
1174	059544P	277.431	277.446		0.015
1175	079989U	369.770	369.785		0.015
1176	069877T	127.270	127.285		0.015
1177	093562B	163.774	163.759		0.015
1178	093598J	181.222	181.207		0.015
1179	093113L	54.792	54.777		0.015

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1180	059583F	227.785	227.770		0.015
1181	069867M	122.410	122.425		0.015
1182	079878C	286.850	286.864		0.014
1183	079514C	15.290	15.276		0.014
1184	088049E	1,051.365	1,051.351		0.014
1185	069771X	71.190	71.204		0.014
1186	071929H	2.931	2.917		0.014
1187	062833U	194.480	194.466		0.014
1188	068445R	78.660	78.646		0.014
1189	082914Y	24.250	24.264		0.014
1190	306923W	184.099	184.113		0.014
1191	071948M	20.671	20.657		0.014
1192	079988M	369.740	369.754		0.014
1193	082811Y	22.820	22.806		0.014
1194	079551E	31.600	31.614		0.014
1195	062865A	216.120	216.134		0.014
1196	062845N	199.520	199.506		0.014
1197	059481M	343.380	343.394		0.014
1198	093641M	199.792	199.806		0.014
1199	062784A	169.380	169.394		0.014
1200	067229U	62.610	62.623		0.013
1201	080033F	396.400	396.413		0.013
1202	082916M	26.637	26.624		0.013
1203	059453J	368.808	368.795		0.013
1204	101673S	38.020	38.007		0.013
1205	093635J	195.260	195.247		0.013
1206	069746P	56.300	56.287		0.013
1207	079550X	30.520	30.533		0.013
1208	093170A	82.524	82.511		0.013
1209	062817K	187.380	187.367		0.013
1210	059404M	408.030	408.017		0.013
1211	059419C	397.447	397.434		0.013
1212	093578X	172.173	172.160		0.013
1213	059403F	408.050	408.037		0.013
1214	079480K	6.440	6.427		0.013
1215	093574V	169.577	169.564		0.013
1216	093149U	73.113	73.100		0.013
1217	093564P	165.087	165.074		0.013
1218	058701C	1,379.881	1,379.894		0.013
1219	059790A	1,022.767	1,022.754		0.013
1220	069947F	222.710	222.697		0.013
1221	079945U	349.970	349.983		0.013
1222	071936T	12.464	12.451		0.013
1223	093642U	200.398	200.411		0.013
1224	092966T	12.391	12.378		0.013
1225	069870V	123.540	123.553		0.013
1226	058703R	1,382.266	1,382.253		0.013
1227	097645D	99.360	99.373		0.013
1228	069940H	213.510	213.523		0.013
1229	306916L	181.623	181.610		0.013
1230	093122K	60.422	60.410		0.013
1231	071950N	22.294	22.282		0.012
1232	093643B	202.033	202.021		0.012
1233	093318E	60.700	60.688		0.012
1234	093116G	56.989	56.977		0.012
1235	082955D	45.060	45.048		0.012
1236	079503P	12.730	12.742		0.012
1237	069819X	93.640	93.652		0.012
1238	093559T	162.907	162.895		0.012

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1239	069836N	108.400	108.388		0.012
1240	059405U	407.532	407.520		0.012
1241	093638E	198.273	198.261		0.012
1242	081562S	140.425	140.413		0.012
1243	069966K	239.378	239.390		0.012
1244	079540S	24.536	24.548		0.012
1245	093008K	27.610	27.598		0.012
1246	087182F	34.569	34.581		0.012
1247	059537E	279.827	279.816		0.011
1248	069965D	239.291	239.302		0.011
1249	079538R	24.460	24.471		0.011
1250	069833T	105.151	105.162		0.011
1251	088122A	1,184.682	1,184.693		0.011
1252	075783F	44.500	44.489		0.011
1253	088133M	1,204.267	1,204.256		0.011
1254	079486B	8.920	8.909		0.011
1255	062760L	159.000	158.989		0.011
1256	093006W	27.125	27.114		0.011
1257	067230N	62.679	62.690		0.011
1258	079528K	17.878	17.867		0.011
1259	082801T	15.390	15.401		0.011
1260	079539X	24.470	24.481		0.011
1261	059774R	1,007.007	1,006.996		0.011
1262	093166K	80.204	80.193		0.011
1263	067228M	61.950	61.939		0.011
1264	085941F	25.654	25.665		0.011
1265	069941P	213.580	213.591		0.011
1266	079949W	350.992	350.981		0.011
1267	093565W	165.612	165.601		0.011
1268	058685V	1,368.270	1,368.259		0.011
1269	093007D	27.589	27.578		0.011
1270	062816D	187.050	187.040		0.011
1271	079477C	5.920	5.910		0.010
1272	093041K	44.883	44.873		0.010
1273	062758K	158.929	158.919		0.010
1274	061130N	417.570	417.580		0.010
1275	079950R	351.120	351.110		0.010
1276	058689X	1,370.328	1,370.338		0.010
1277	093646W	203.905	203.895		0.010
1278	092970H	14.108	14.118		0.010
1279	079515J	15.393	15.383		0.010
1280	069946Y	218.630	218.640		0.010
1281	086380X	350.814	350.804		0.010
1282	093575C	170.484	170.474		0.010
1283	093577R	171.771	171.761		0.010
1284	093630A	192.989	192.979		0.010
1285	093043Y	46.029	46.019		0.010
1286	080015H	373.550	373.540		0.010
1287	069882P	129.940	129.930		0.010
1288	069772E	71.500	71.510		0.010
1289	093644H	202.431	202.421		0.010
1290	093151V	74.116	74.106		0.010
1291	093025B	37.451	37.461		0.010
1292	097652N	104.660	104.670		0.010
1293	093567K	166.566	166.576		0.010
1294	062826J	189.520	189.510		0.010
1295	062822G	189.160	189.150		0.010
1296	069718L	40.240	40.250		0.010
1297	069719T	41.410	41.420		0.010

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1298	062782L	167.710	167.701		0.009
1299	059449U	373.616	373.625		0.009
1300	062747X	152.300	152.309		0.009
1301	093174C	84.108	84.099		0.009
1302	087183M	36.092	36.101		0.009
1303	062765V	159.930	159.921		0.009
1304	093568S	166.678	166.687		0.009
1305	059451V	370.641	370.650		0.009
1306	088121T	1,181.732	1,181.723		0.009
1307	086341G	431.990	431.981		0.009
1308	079504W	13.070	13.079		0.009
1309	062768R	162.100	162.091		0.009
1310	059428B	391.045	391.036		0.009
1311	097644W	98.960	98.969		0.009
1312	093385Y	111.064	111.073		0.009
1313	079505D	13.080	13.089		0.009
1314	058725R	1,400.749	1,400.740		0.009
1315	093346H	81.319	81.328		0.009
1316	093388U	113.744	113.735		0.009
1317	059205K	1,319.678	1,319.687		0.009
1318	080016P	373.600	373.591		0.009
1319	059792N	1,023.452	1,023.443		0.009
1320	059613V	179.556	179.565		0.009
1321	069773L	71.580	71.589		0.009
1322	088075U	1,085.870	1,085.861		0.009
1323	093573N	168.702	168.711		0.009
1324	093044F	46.140	46.149		0.009
1325	093171G	82.860	82.851		0.009
1326	067234R	66.010	66.019		0.009
1327	069895R	137.150	137.159		0.009
1328	062795M	177.700	177.708		0.008
1329	093156E	76.405	76.397		0.008
1330	093637X	197.542	197.534		0.008
1331	069774T	71.660	71.668		0.008
1332	088033H	1,027.186	1,027.194		0.008
1333	093173V	83.700	83.692		0.008
1334	079531T	19.460	19.468		0.008
1335	093169F	82.187	82.179		0.008
1336	058702J	1,380.795	1,380.787		0.008
1337	093102Y	50.459	50.467		0.008
1338	087179X	32.416	32.408		0.008
1339	062766C	160.980	160.972		0.008
1340	306915E	181.662	181.654		0.008
1341	093110R	53.923	53.915		0.008
1342	070848E	23.913	23.905		0.008
1343	093632N	194.026	194.018		0.008
1344	082951B	42.300	42.292		0.008
1345	059409W	405.227	405.235		0.008
1346	093035G	41.788	41.796		0.008
1347	059440H	383.576	383.584		0.008
1348	059589W	219.502	219.510		0.008
1349	093109W	53.692	53.684		0.008
1350	069775A	71.690	71.698		0.008
1351	062775B	165.560	165.568		0.008
1352	069800F	83.430	83.422		0.008
1353	093124Y	61.492	61.484		0.008
1354	062811U	184.570	184.562		0.008
1355	097642H	97.350	97.358		0.008
1356	070831B	23.287	23.295		0.008

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1357	082947L	40.420	40.412		0.008
1358	081586F	160.076	160.084		0.008
1359	081587M	160.076	160.084		0.008
1360	093563H	164.038	164.030		0.008
1361	069967S	239.480	239.488		0.008
1362	075713R	41.350	41.358		0.008
1363	059768M	1,001.039	1,001.047		0.008
1364	067244W	71.330	71.322		0.008
1365	093381W	109.261	109.268		0.007
1366	062814P	186.380	186.373		0.007
1367	082543R	47.750	47.743		0.007
1368	079487H	9.066	9.059		0.007
1369	092968G	13.016	13.009		0.007
1370	059497J	318.261	318.254		0.007
1371	062749L	153.680	153.673		0.007
1372	062770S	163.780	163.773		0.007
1373	082923X	27.260	27.253		0.007
1374	059782H	1,012.740	1,012.733		0.007
1375	059781B	1,012.740	1,012.733		0.007
1376	071951V	22.739	22.732		0.007
1377	071952C	22.739	22.732		0.007
1378	082959F	47.560	47.553		0.007
1379	093406P	121.440	121.447		0.007
1380	059758G	990.739	990.732		0.007
1381	093596V	180.683	180.676		0.007
1382	059603P	194.456	194.463		0.007
1383	088030M	1,023.460	1,023.453		0.007
1384	082946E	39.307	39.300		0.007
1385	059464W	358.272	358.279		0.007
1386	079947H	350.110	350.117		0.007
1387	062820T	189.090	189.083		0.007
1388	082944R	38.670	38.663		0.007
1389	093579E	172.496	172.489		0.007
1390	059780U	1,012.018	1,012.011		0.007
1391	059448M	374.157	374.164		0.007
1392	067238T	68.090	68.097		0.007
1393	082958Y	47.050	47.043		0.007
1394	079518E	16.010	16.003		0.007
1395	069864S	121.979	121.986		0.007
1396	082938M	35.660	35.653		0.007
1397	061134R	420.320	420.327		0.007
1398	069764M	66.970	66.976		0.006
1399	069885K	131.450	131.456		0.006
1400	082943J	38.460	38.454		0.006
1401	062748E	152.540	152.534		0.006
1402	088132F	1,203.145	1,203.151		0.006
1403	093389B	114.397	114.403		0.006
1404	058675P	1,339.521	1,339.515		0.006
1405	062754H	157.040	157.046		0.006
1406	059204D	1,319.262	1,319.256		0.006
1407	088048X	1,050.345	1,050.339		0.006
1408	069866F	122.410	122.416		0.006
1409	059765S	997.627	997.621		0.006
1410	062781E	166.440	166.434		0.006
1411	097641B	96.800	96.806		0.006
1412	069731A	48.970	48.976		0.006
1413	067250A	75.010	75.004		0.006
1414	079489W	9.589	9.595		0.006
1415	062860R	212.670	212.664		0.006

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1416	093370J	98.127	98.121		0.006
1417	093376A	104.024	104.030		0.006
1418	062746R	151.430	151.424		0.006
1419	093364F	93.690	93.696		0.006
1420	069805P	86.450	86.444		0.006
1421	070840A	23.533	23.527		0.006
1422	093648K	204.699	204.693		0.006
1423	097640U	96.270	96.276		0.006
1424	079499C	11.045	11.051		0.006
1425	093645P	202.849	202.843		0.006
1426	059776E	1,008.466	1,008.460		0.006
1427	067245D	72.700	72.695		0.005
1428	088059K	1,065.582	1,065.587		0.005
1429	088060E	1,065.582	1,065.587		0.005
1430	069806W	86.640	86.635		0.005
1431	062849R	200.680	200.675		0.005
1432	059602H	196.760	196.765		0.005
1433	069865Y	122.202	122.207		0.005
1434	093172N	83.117	83.112		0.005
1435	093303P	51.458	51.463		0.005
1436	093354A	88.736	88.741		0.005
1437	093100K	49.379	49.374		0.005
1438	067257X	78.320	78.325		0.005
1439	059607S	188.112	188.117		0.005
1440	059773J	1,005.721	1,005.726		0.005
1441	059459A	362.451	362.456		0.005
1442	058694U	1,376.343	1,376.338		0.005
1443	071949U	21.216	21.211		0.005
1444	067243P	70.550	70.545		0.005
1445	059629S	166.152	166.147		0.005
1446	062801N	178.830	178.825		0.005
1447	069970A	240.370	240.365		0.005
1448	093358C	92.058	92.063		0.005
1449	079530L	19.394	19.399		0.005
1450	059561F	262.256	262.251		0.005
1451	079512N	14.260	14.265		0.005
1452	069948M	226.940	226.935		0.005
1453	069763F	66.600	66.605		0.005
1454	061135X	420.710	420.715		0.005
1455	088061L	1,065.710	1,065.715		0.005
1456	065935X	1,379.993	1,379.998		0.005
1457	079948P	350.700	350.695		0.005
1458	069953J	229.410	229.415		0.005
1459	079483F	6.970	6.965		0.005
1460	079482Y	6.960	6.955		0.005
1461	087178R	31.911	31.906		0.005
1462	082936Y	34.510	34.505		0.005
1463	079535V	21.207	21.212		0.005
1464	069868U	122.490	122.495		0.005
1465	097618G	150.770	150.765		0.005
1466	082980L	8.810	8.805		0.005
1467	059628K	166.893	166.898		0.005
1468	093123S	60.776	60.771		0.005
1469	093005P	26.457	26.462		0.005
1470	079495A	10.470	10.475		0.005
1471	062802V	179.540	179.535		0.005
1472	093045M	47.227	47.232		0.005
1473	062805R	181.760	181.765		0.005
1474	069720M	42.000	42.005		0.005

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1475	071946Y	18.997	19.002		0.005
1476	062815W	186.950	186.945		0.005
1477	079542F	25.410	25.405		0.005
1478	088044V	1,043.115	1,043.120		0.005
1479	079533G	20.590	20.594		0.004
1480	088062T	1,065.760	1,065.764		0.004
1481	071943D	16.846	16.850		0.004
1482	079886U	296.480	296.476		0.004
1483	079511G	14.200	14.204		0.004
1484	069834A	105.660	105.656		0.004
1485	059630L	165.047	165.051		0.004
1486	059737N	433.362	433.366		0.004
1487	097650A	102.860	102.864		0.004
1488	093147F	72.734	72.730		0.004
1489	059760H	993.093	993.089		0.004
1490	093359J	93.258	93.262		0.004
1491	088063A	1,065.770	1,065.774		0.004
1492	093120W	59.290	59.286		0.004
1493	059470A	352.841	352.845		0.004
1494	079562S	37.480	37.484		0.004
1495	079497N	10.736	10.740		0.004
1496	093383K	110.315	110.319		0.004
1497	062779D	165.710	165.706		0.004
1498	082978K	9.000	8.996		0.004
1499	093196C	97.685	97.689		0.004
1500	062778W	165.640	165.636		0.004
1501	062773M	165.490	165.486		0.004
1502	069807D	87.020	87.016		0.004
1503	093355G	89.962	89.966		0.004
1504	069749K	57.438	57.442		0.004
1505	069943D	214.810	214.814		0.004
1506	079490R	9.650	9.654		0.004
1507	079488P	9.320	9.324		0.004
1508	059450N	372.169	372.173		0.004
1509	069968Y	239.630	239.634		0.004
1510	069741F	54.984	54.980		0.004
1511	082807J	20.500	20.496		0.004
1512	062861X	213.980	213.984		0.004
1513	103788T	183.714	183.718		0.004
1514	088054B	1,056.375	1,056.371		0.004
1515	093107H	52.600	52.604		0.004
1516	079525P	17.190	17.186		0.004
1517	059486W	338.521	338.525		0.004
1518	058684N	1,368.159	1,368.155		0.004
1519	059763D	996.136	996.132		0.004
1520	071942W	16.296	16.300		0.004
1521	059491T	330.558	330.562		0.004
1522	093349D	84.525	84.529		0.004
1523	079560D	37.300	37.304		0.004
1524	059478E	345.524	345.527		0.003
1525	062945T	5.610	5.613		0.003
1526	097638T	95.120	95.123		0.003
1527	093552V	159.355	159.352		0.003
1528	079556N	35.613	35.610		0.003
1529	059402Y	408.737	408.734		0.003
1530	059477X	346.985	346.988		0.003
1531	058710B	1,389.628	1,389.631		0.003
1532	088130S	1,200.950	1,200.947		0.003
1533	097637L	94.990	94.987		0.003

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1534	069733N	49.790	49.793		0.003
1535	059572T	244.211	244.208		0.003
1536	059430C	390.171	390.174		0.003
1537	059465D	356.992	356.995		0.003
1538	059769U	1,002.034	1,002.031		0.003
1539	088129X	1,199.029	1,199.032		0.003
1540	081556N	135.700	135.697		0.003
1541	059779A	1,010.539	1,010.536		0.003
1542	079522U	16.830	16.827		0.003
1543	093351E	86.547	86.550		0.003
1544	082981T	8.860	8.857		0.003
1545	082802A	16.580	16.577		0.003
1546	059406B	407.272	407.269		0.003
1547	093367B	95.491	95.488		0.003
1548	306926S	184.696	184.693		0.003
1549	059772C	1,004.073	1,004.070		0.003
1550	067248Y	73.870	73.867		0.003
1551	079526W	17.470	17.467		0.003
1552	093865K	41.160	41.157		0.003
1553	079884F	295.460	295.457		0.003
1554	059203W	1,318.471	1,318.474		0.003
1555	059202P	1,315.478	1,315.475		0.003
1556	093592T	179.127	179.130		0.003
1557	062798H	178.460	178.457		0.003
1558	097635X	93.880	93.877		0.003
1559	082956K	45.790	45.793		0.003
1560	093633V	194.121	194.118		0.003
1561	059579R	230.057	230.060		0.003
1562	079491X	9.850	9.853		0.003
1563	079544U	28.070	28.067		0.003
1564	059498R	317.723	317.726		0.003
1565	069939N	213.100	213.097		0.003
1566	079501B	11.829	11.832		0.003
1567	059494N	325.981	325.984		0.003
1568	079557V	36.090	36.087		0.003
1569	059484H	341.044	341.047		0.003
1570	058700V	1,379.746	1,379.743		0.003
1571	069820S	93.870	93.873		0.003
1572	079930E	339.800	339.803		0.003
1573	059485P	339.762	339.765		0.003
1574	079498V	11.033	11.030		0.003
1575	093012A	29.764	29.767		0.003
1576	079509F	13.870	13.873		0.003
1577	069798G	83.245	83.248		0.003
1578	059479L	344.533	344.536		0.003
1579	092969N	13.560	13.557		0.003
1580	069734V	50.230	50.227		0.003
1581	069725W	44.760	44.757		0.003
1582	059770N	1,002.707	1,002.704		0.003
1583	079507S	13.550	13.553		0.003
1584	058713W	1,392.767	1,392.764		0.003
1585	059487D	337.929	337.932		0.003
1586	059536X	280.639	280.642		0.003
1587	069724P	44.680	44.677		0.003
1588	062796U	178.390	178.387		0.003
1589	079929K	339.080	339.078		0.002
1590	069950N	228.320	228.318		0.002
1591	093092V	202.450	202.448		0.002
1592	059256V	1,221.066	1,221.064		0.002

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1593	067239A	68.310	68.312		0.002
1594	079883Y	294.550	294.548		0.002
1595	069737R	53.110	53.112		0.002
1596	069937A	212.820	212.822		0.002
1597	093640F	199.554	199.556		0.002
1598	086275W	1,165.264	1,165.262		0.002
1599	059259R	1,235.873	1,235.871		0.002
1600	097653V	105.220	105.218		0.002
1601	067249F	74.282	74.284		0.002
1602	079547P	28.590	28.592		0.002
1603	093566D	166.137	166.139		0.002
1604	059592E	207.830	207.832		0.002
1605	059791G	1,023.044	1,023.042		0.002
1606	059407H	406.826	406.824		0.002
1607	097649F	102.260	102.262		0.002
1608	058724J	1,399.713	1,399.711		0.002
1609	079524H	17.027	17.025		0.002
1610	059461B	360.695	360.693		0.002
1611	079536C	21.280	21.282		0.002
1612	059580K	228.012	228.014		0.002
1613	082940N	36.960	36.958		0.002
1614	059566P	251.338	251.336		0.002
1615	088039Y	1,035.875	1,035.873		0.002
1616	079932T	341.220	341.222		0.002
1617	079466P	4.540	4.538		0.002
1618	093023M	36.364	36.366		0.002
1619	059466K	356.622	356.624		0.002
1620	069862D	120.910	120.908		0.002
1621	067232C	64.150	64.152		0.002
1622	079516R	15.470	15.468		0.002
1623	079956G	358.690	358.688		0.002
1624	059341K	1,210.803	1,210.801		0.002
1625	079513V	14.770	14.768		0.002
1626	059495V	322.749	322.747		0.002
1627	093378N	106.580	106.578		0.002
1628	059590R	215.907	215.909		0.002
1629	088041A	1,038.910	1,038.908		0.002
1630	306928F	184.856	184.854		0.002
1631	088043N	1,041.611	1,041.609		0.002
1632	059490L	333.238	333.236		0.002
1633	058667X	1,323.689	1,323.691		0.002
1634	059775X	1,007.783	1,007.781		0.002
1635	079885M	296.210	296.208		0.002
1636	079517X	15.600	15.598		0.002
1637	067242H	69.610	69.608		0.002
1638	069944K	215.033	215.035		0.002
1639	088128R	1,197.438	1,197.440		0.002
1640	069762Y	66.241	66.243		0.002
1641	093374L	102.554	102.552		0.002
1642	093368H	96.730	96.728		0.002
1643	079563Y	37.560	37.558		0.002
1644	093356N	90.768	90.770		0.002
1645	059563U	257.816	257.818		0.002
1646	059496C	319.045	319.047		0.002
1647	079554A	35.197	35.195		0.002
1648	093357V	91.654	91.652		0.002
1649	079938J	344.029	344.027		0.002
1650	079561K	37.380	37.378		0.002
1651	059460U	361.440	361.442		0.002

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1652	088067C	1,071.435	1,071.433		0.002
1653	059480F	343.582	343.580		0.002
1654	079520F	16.440	16.442		0.002
1655	093372X	101.411	101.413		0.002
1656	092967A	12.690	12.692		0.002
1657	079928D	338.750	338.752		0.002
1658	061137L	421.216	421.218		0.002
1659	069797A	82.940	82.942		0.002
1660	088110F	1,132.054	1,132.055		0.001
1661	093348W	82.464	82.465		0.001
1662	062810M	184.230	184.229		0.001
1663	097651G	103.330	103.329		0.001
1664	079541Y	24.680	24.681		0.001
1665	079933A	341.870	341.871		0.001
1666	079549D	30.180	30.179		0.001
1667	079940K	345.360	345.359		0.001
1668	059488K	336.830	336.831		0.001
1669	079534N	21.030	21.031		0.001
1670	058697P	1,378.833	1,378.832		0.001
1671	069809S	87.950	87.949		0.001
1672	093350X	85.542	85.541		0.001
1673	080022T	386.351	386.350		0.001
1674	059458T	363.952	363.953		0.001
1675	079519L	16.370	16.371		0.001
1676	093108P	52.755	52.754		0.001
1677	059600U	201.559	201.558		0.001
1678	093681K	10.030	10.031		0.001
1679	058668E	1,324.328	1,324.329		0.001
1680	069815V	92.340	92.339		0.001
1681	059457L	366.305	366.304		0.001
1682	059778T	1,009.046	1,009.047		0.001
1683	069816C	92.410	92.409		0.001
1684	093105U	51.534	51.533		0.001
1685	069743U	55.538	55.539		0.001
1686	081014E	209.627	209.628		0.001
1687	069747W	56.520	56.521		0.001
1688	079558C	36.310	36.309		0.001
1689	069801M	83.560	83.559		0.001
1690	059576V	233.397	233.398		0.001
1691	062834B	195.020	195.021		0.001
1692	079500U	11.530	11.529		0.001
1693	079927W	338.180	338.179		0.001
1694	086286J	195.440	195.439		0.001
1695	079887B	297.220	297.219		0.001
1696	059588P	222.011	222.010		0.001
1697	079951X	352.270	352.269		0.001
1698	059766Y	999.147	999.146		0.001
1699	067240U	68.720	68.721		0.001
1700	069811T	89.180	89.179		0.001
1701	069750E	57.894	57.895		0.001
1702	086335D	239.611	239.610		0.001
1703	061136E	421.100	421.101		0.001
1704	093353T	88.630	88.631		0.001
1705	093382D	110.040	110.041		0.001
1706	093352L	87.440	87.441		0.001
1707	079986Y	369.360	369.359		0.001
1708	059452C	369.713	369.714		0.001
1709	079889P	297.420	297.421		0.001
1710	079548W	28.940	28.939		0.001

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1711	059436T	386.143	386.144		0.001
1712	069969F	239.800	239.799		0.001
1713	097667D	105.820	105.821		0.001
1714	082803G	17.840	17.839		0.001
1715	079485U	8.540	8.539		0.001
1716	079546H	28.460	28.461		0.001
1717	059543H	277.589	277.588		0.001
1718	069776G	72.270	72.269		0.001
1719	062944L	4.983	4.984		0.001
1720	093375T	103.517	103.518		0.001
1721	069751L	58.290	58.289		0.001
1722	062752U	155.490	155.491		0.001
1723	079939R	344.970	344.969		0.001
1724	079918X	333.270	333.269		0.001
1725	069799N	83.310	83.309		0.001
1726	088064G	1,065.744	1,065.745		0.001
1727	093651T	206.674	206.673		0.001
1728	069748D	57.133	57.132		0.001
1729	079545B	28.310	28.311		0.001
1730	079926P	337.480	337.479		0.001
1731	079521M	16.710	16.709		0.001
1732	059564B	256.002	256.003		0.001
1733	069942W	214.100	214.099		0.001
1734	069818R	93.290	93.289		0.001
1735	061140U	423.370	423.369		0.001
1736	306924D	184.537	184.536		0.001
1737	069761S	65.840	65.839		0.001
1738	071924Y	1.378	1.379		0.001
1739	079510A	13.990	13.991		0.001
1740	082810S	21.860	21.859		0.001
1741	069745H	56.150	56.151		0.001
1742	070851M	24.082	24.083		0.001
1743	062783T	168.790	168.789		0.001
1744	059612N	180.618	180.617		0.001
1745	062807E	182.780	182.781		0.001
1746	069742M	55.122	55.121		0.001
1747	098019P	26.810	26.810		0.001
1748	069839J	110.400	110.400		0.000
1749	069765U	67.110	67.110		0.000
1750	058696H	1,378.356	1,378.356		0.000
1751	088109L	1,130.509	1,130.509		0.000
1752	067241B	69.200	69.200		0.000
1753	069869B	122.989	122.989		0.000
1754	069843Y	111.400	111.400		0.000
1755	082804N	18.100	18.100		0.000
1756	069814N	91.560	91.560		0.000
1757	070830U	23.149	23.149		0.000
1758	079862F	262.420	262.420		0.000
1759	069785F	76.340	76.340		0.000
1760	059560Y	263.070	263.070		0.000
1761	069760K	64.510	64.510		0.000
1762	079931L	340.420	340.420		0.000
1763	069787U	77.330	77.330		0.000
1764	071941P	15.739	15.739		0.000
1765	059608Y	185.905	185.905		0.000
1766	069758J	63.750	63.750		0.000
1767	079493L	10.130	10.130		0.000
1768	069759R	63.900	63.900		0.000
1769	069796T	81.850	81.850		0.000

RECORD	XNUM	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1770	059429H	390.233	390.233		0.000
1771	093363Y	93.645	93.645		0.000
1772	079935N	343.040	343.040		0.000
1773	069887Y	132.290	132.290		0.000
1774	069757C	62.170	62.170		0.000
1775	069753A	60.000	60.000		0.000
1776	069721U	42.910	42.910		0.000
1777	082808R	20.902	20.902		0.000
1778	059618E	173.613	173.613		0.000
1779	059339J	1,211.725	1,211.725		0.000
1780	059492A	328.615	328.615		0.000
1781	069936T	211.390	211.390		0.000
1782	069739E	54.630	54.630		0.000
1783	079532A	20.390	20.390		0.000
1784	093377G	104.533	104.533		0.000
1785	093098L	48.700	48.700		0.000
1786	069738X	53.650	53.650		0.000
1787	079494T	10.292	10.292		0.000
1788	059483B	342.278	342.278		0.000
1789	093369P	96.775	96.775		0.000
1790	069728S	47.190	47.190		0.000
1791	069754G	61.010	61.010		0.000
1792	059456E	366.611	366.611		0.000
1793	059489S	335.782	335.782		0.000
1794	093039J	43.965	43.965		0.000
1795	069755N	62.020	62.020		0.000
1796	097665P	105.610	105.610		0.000
1797	069822F	95.540	95.540		0.000
1798	069766B	67.250	67.250		0.000
1799	069767H	67.360	67.360		0.000
1800	093347P	81.869	81.869		0.000
1801	069838C	109.980	109.980		0.000
1802	069752T	58.993	58.993		0.000
1803	059562M	261.097	261.097		0.000
1804	059601B	199.570	199.570		0.000
1805	069813G	90.840	90.840		0.000
1806	306925K	184.609	184.609		0.000
1807	069768P	68.890	68.890		0.000
1808	079934G	342.630	342.630		0.000
1809	079523B	16.940	16.940		0.000
1810	059462H	360.387	360.387		0.000
1811	069842S	111.210	111.210		0.000
1812	079508Y	13.730	13.730		0.000
1813	088047R	1,049.326	1,049.326		0.000
1814	069840D	110.650	110.650		0.000
1815	069756V	62.120	62.120		0.000
1816	079502H	12.350	12.350		0.000
1817	062943E	3.554	3.554		0.000
1818	093647D	204.185	204.185		0.000
1819	069848H	114.750	114.750		0.000
1820	069744B	55.710	55.710		0.000
1821	069841K	110.900	110.900		0.000
1822	088065N	1,065.823	1,065.823		0.000
1823	069803B	83.951	83.951		0.000
1824	069736J	52.450	52.450		0.000
1825	093650L	205.436	205.436		0.000
1826	069810L	88.440	88.440		0.000

APPENDIX C
STATION REPORT

Houston to Fort Worth

Volpe/BNSF Station Comparison - Houston to Ft.Worth

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1	WAXAHACHIE	270.64000000	269.59819823	Both off, should be .10 miles after Xing 598273X	1.04180
2	KAREN	96.79000000	96.05987019	Volpe Should be 1.8 from FM 1488	0.73013
3	GRIBBLE	704.20000000	704.84478072	Volpe should be after Xing 672161A at Royal Lane	0.64478
4	SIMMONS	110.54000000	110.24960732	Volpe should be 1.21 miles from Dacus Rd	0.29039
5	BARDWELL	258.63000000	258.42205358	Volpe should be at Commerce St.	0.20795
6	SAGINAW	9.98000000	9.11339784	BN should be at Southern Avenue Xing 274648L	0.86660
7	CASEY	71.47000000	70.65996395	BN Should be 1.1 miles from Fairbanks Rd	0.81004
8	SINGLETON	130.32000000	130.82218957	BN should be 0.57 from Hwy 90 xng	0.50219
9	STREETMAN	222.54000000	222.12465916	BN should be before Cnty Line before Main St	0.41534
10	FLYNN	168.22000000	168.53261042	BN should be after Xing 897159U	0.31261
11	SHIRO	125.33000000	125.16539031		0.16461
12	CORSICANA	239.69000000	239.83839657		0.14840
13	AVONDALE	18.96000000	19.07396915		0.11397
14	ORR	81.17000000	81.06539649		0.10460
15	TEAGUE	204.31000000	204.39519771		0.08520
16	FRISCO	685.60000000	685.51778025		0.08222
17	DECATUR	40.29000000	40.36171821		0.07172
18	HERMAN	34.58000000	34.64688237		0.06688
19	BLISS	699.90000000	699.84031549		0.05968
20	NEWBY	184.59000000	184.63476797		0.04477
21	PROSPER	679.70000000	679.66023268		0.03977
22	IRVING	709.26000000	709.23988699		0.02011
23	IRVING	709.26000000	709.23988699		0.02011
24	TOMBALL	84.80000000	84.81972015		0.01972
25	CARROLLTON	700.50000000	700.48444385		0.01556
26	T & P JCT	0.00000000	0.00000000		0.00000
27	S.S.W	0.00000000	0.00000000		0.00000
28	S.L. SW	0.00000000	0.00000000		0.00000
29	RIO	0.00000000	0.00000000		0.00000
30	O.K.T.	0.00000000	0.00000000		0.00000
31	NORTH ZULCH	0.00000000	0.00000000		0.00000
32	NORTH YARD	0.00000000	0.00000000		0.00000
33	NORTH YARD	0.00000000	0.00000000		0.00000
34	NORTH CORSICANA	0.00000000	0.00000000		0.00000
35	NINTH STREET	0.00000000	0.00000000		0.00000
36	MP 2	0.00000000	0.00000000		0.00000
37	MP 12.1	0.00000000	0.00000000		0.00000
38	MKT SSW	0.00000000	0.00000000		0.00000
39	JTD JCT	0.00000000	0.00000000		0.00000
40	HAMPTON	0.00000000	0.00000000		0.00000
41	BELT JCT	0.00000000	0.00000000		0.00000
42	ATSF	0.00000000	0.00000000		0.00000

Spokane to Chicago

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
1	UNIVERSITY	11.70000000	0.00100000	Volpe off, should be 0.35 from Lowry Ave Xing 082962N	11.69900
2	NYACK	1187.99700000	1186.01852192	Both off, Bridge should be at Moccasin Creek and Xing should be on road	1.97848
3	STANLEY	54.25000000	52.28865352	Volpe off, Station right before SDIV split	1.96135
4	HEIMDAL	149.29000000	150.50553360	Both off, should be .18 miles after Xing 093531C, RIS/Track chart value differ	1.21553
5	SUMMIT	1150.75300000	1149.68163547	Both off, should be 1.0 mile before Cnty line, RIS and track chart differ	1.07136
6	SUMMIT	1150.75300000	1149.68163547	Both off, should be 1.0 mile before Cnty line, RIS and track chart differ	1.07136
7	RADNOR	1242.41000000	1243.47823562	Both off, should be 1.1 miles after Stillwater River	1.06824
8	BLACKTAIL	1157.66800000	1156.91977901	Volpe off, measured from Signals	0.74822
9	BLACKTAIL	1157.66800000	1156.91977901	Volpe off, measured from Signals	0.74822
10	RATHDRUM	44.53300000	45.27035593	Volpe off, should be right after Mill St	0.73736
11	RATHDRUM	44.53300000	45.27035593	Volpe off, should be right after Mill St	0.73736
12	UNIVERSITY	11.70000000	11.00347729	Volpe off, should be 0.35 from Lowry Ave Xing 082962N	0.69652
13	LAKE PARK	222.00000000	222.69547056	Volpe off, should be 0.85 miles before 2nd St.	0.69547
14	LAKE PARK	222.00000000	222.69547056	Volpe off, should be 0.85 miles before 2nd St.	0.69547
15	BIG LAKE	47.00000000	47.69334192	Volpe off, should be 0.05 miles before Cnty Hwy 43	0.69334
16	BIG LAKE	47.00000000	47.69334192	Volpe off, should be 0.05 miles before Cnty Hwy 43	0.69334
17	HAUSER	47.04400000	46.38374906	Volpe off, should be 1.44 miles after Green Ferry Rd.	0.66025
18	HAUSER	47.04400000	46.38374906	Volpe off, should be 1.44 miles after Green Ferry Rd.	0.66025
19	RAMSEY	37.59400000	38.23068854	Volpe off, should be 1.34 miles before Ramsey Rd.	0.63669
20	RAMSEY	37.59400000	38.23068854	Volpe off, should be 1.34 miles before Ramsey Rd.	0.63669
21	NEW YORK MILLS	178.48000000	177.86088394	Volpe off, should be just after Walker Ave	0.61912
22	NEW YORK MILLS	178.48000000	177.86088394	Volpe off, should be just after Walker Ave	0.61912
23	TREMPEALEAU	317.40000000	318.01745378	Volpe off, should be 0.59 mile from Fremont St (Xing 079910T)	0.61745
24	TREMPEALEAU	317.40000000	318.01745378	Volpe off, should be 0.59 mile from Fremont St (Xing 079910T)	0.61745
25	GALENA	171.53400000	170.97179661	Both off, should be 0.05 before Galena River	0.56220
26	GALENA	171.53400000	170.97179661	Both off, should be 0.05 before Galena River	0.56220
27	PORTAGE	172.20000000	171.66131789	Both off, should be .55 miles after Galena River	0.53868
28	PORTAGE	172.20000000	171.66131789	Both off, should be .55 miles after Galena River	0.53868
29	OTIS ORCHARDS	57.33000000	57.84281161	Volpe off, should be 0.59 miles after Harvard Road	0.51281
30	OTIS ORCHARDS	57.33000000	57.84281161	Volpe off, should be 0.59 miles after Harvard Road	0.51281
31	BELTON	1196.07600000	1195.56764341	Volpe off, should be 0.10 miles from Xing 088127J at Hwy	0.50836
32	WYALUSING	232.00000000	232.48503748	Both off, should be 4 miles from Cnty Line	0.48504
33	WYALUSING	232.00000000	232.48503748	Both off, should be 4 miles from Cnty Line	0.48504
34	SUNSET JCT	1480.88700000	1481.36720000	Volpe off, should be before Xing 065961M at 4th Ave	0.48020
35	SUNSET JCT	1480.88700000	1481.36720000	Volpe off, should be before Xing 065961M at 4th Ave	0.48020
36	ALGOMA	10.14400000	9.66586414	Both off, should be 1.42 miles before Heath Lake Rd.	0.47814
37	ALGOMA	10.14400000	9.66586414	Both off, should be 1.42 miles before Heath Lake Rd.	0.47814
38	KARLSRUHE	199.59000000	199.13106543	Volpe off, should be .04 miles after Main St.	0.45893
39	WHEELOCK	98.97000000	98.53578482	Volpe off, should be 0.3 miles before Xing 086471D	0.43422
40	WHEELOCK	98.97000000	98.53578482	Volpe off, should be 0.3 miles before Xing 086471D	0.43422

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
41	MARIAS	1152.25700000	1151.82992666	Both off, should be 1.4 miles from Cnty line	0.42707
42	MARIAS	1152.25700000	1151.82992666	Both off, should be 1.4 miles from Cnty line	0.42707
43	NORTHTOWN	13.56000000	13.96097463	Volpe off, should be 0.51 miles after Cnty Line	0.40097
44	TROY	1337.48000000	1337.84015245	Volpe off, Depot is at Yaak Ave.	0.36015
45	WILLISTON	121.09400000	121.44700000	Both off, measured from Dike Rd., BN Xings/Bridges are off between Muddy River & Red Bank Crk	0.35300
46	WILLISTON	121.09400000	121.44700000	Both off, measured from Dike Rd., BN Xings/Bridges are off between Muddy River & Red Bank Crk	0.35300
47	WILLISTON	121.09400000	121.44700000	Both off, measured from Dike Rd., BN Xings/Bridges are off between Muddy River & Red Bank Crk	0.35300
48	CHADWICK	129.40000000	129.74914497	Volpe off, should be at Main St.	0.34914
49	COCHRANE	343.10000000	343.42134067	Volpe off, should be 0.06 miles after 5th St.	0.32134
50	WOLF POINT	227.84000000	227.53021693	Both off, should be 0.48 miles before Xing 059583F, BN RIS and track chart values differ	0.30978
51	RED EAGLE	1185.09000000	1184.79170144	Volpe off or Duplicate record?	0.29830
52	PORTS	235.60000000	235.88520673	Both off, should be 0.4 miles before Cnty Line	0.28521
53	PORTS	235.60000000	235.88520673	Both off, should be 0.4 miles before Cnty Line	0.28521
54	NYACK	1187.99700000	1188.27616840	Both off, Bridge should be at Moccasin Creek and Xing should be on road	0.27917
55	ATHOL	31.49600000	31.77265112	Volpe off, should be 0.29 miles after State Highway 54	0.27665
56	ATHOL	31.49600000	31.77265112	Volpe off, should be 0.29 miles after State Highway 54	0.27665
57	ELMIRA	1387.36700000	1387.10773399	Volpe off, should be 1.76 miles from Cnty Line	0.25927
58	RIVERVIEW	1306.90000000	1307.15580973	Volpe off, should be .34 miles from Fisher River/Fisher River Rd	0.25581
59	PAOLA	1177.49400000	1177.73876882	Both off, should be 1.17 miles from Tunnel Creek	0.24477
60	PAOLA	1177.49400000	1177.73876882	Both off, should be 1.17 miles from Tunnel Creek	0.24477
61	MILLEDGEVILLE	122.50000000	122.73938057	Volpe off, should be just after Main St.	0.23938
62	EPPING	104.18000000	103.94140149	Both off, should be .47 miles after Xing at Lawrence Ave., RIS/track chart values differ	0.23860
63	EPPING	104.18000000	103.94140149	Both off, should be .47 miles after Xing at Lawrence Ave., RIS/track chart values differ	0.23860
64	ELK RIVER	38.62000000	38.38469967	Volpe off, should be 0.07 miles before Jackson Ave	0.23530
65	ELK RIVER	38.62000000	38.38469967	Volpe off, should be 0.07 miles before Jackson Ave	0.23530
66	DES LACS	14.07800000	13.85005417	Both off, Yard is after Xing at Main St., RIS/Track chart values differ	0.22795
67	DES LACS	14.07800000	13.85005417	Both off, Yard is after Xing at Main St., RIS/Track chart values differ	0.22795
68	KREMLIN	980.14000000	979.92049829	Both off, should be 0.08 miles before 2nd Ave. BN Xing 059750C is off	0.21950
69	KREMLIN	980.14000000	979.92049829	Both off, should be 0.08 miles before 2nd Ave. BN Xing 059750C is off	0.21950
70	SARTELL	78.40000000	78.61625903	Volpe off, should be 0.08 miles after Sartell St.	0.21626
71	SARTELL	78.40000000	78.61625903	Volpe off, should be 0.08 miles after Sartell St.	0.21626
72	BAGLEY	228.40000000	228.61002333	Volpe off, should be 0.08 miles after Bagley Ave 069950N	0.21002
73	BAGLEY	228.40000000	228.61002333	Volpe off, should be 0.08 miles after Bagley Ave 069950N	0.21002
74	SACO	316.19700000	316.39988371	Volpe off, should be .05 miles before Xing at Banks St.	0.20288
75	ALMA	351.30000000	351.50255855	Volpe off, should be 0.97 miles before Xing 079951X	0.20256
76	ALMA	351.30000000	351.50255855	Volpe off, should be 0.97 miles before Xing 079951X	0.20256
77	GENOA	218.29000000	281.09892727	BN off, Bridge should be at stream and Xing 079876N should be on road	62.80893

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
78	GENOA	218.29000000	281.09892727	BN off, Bridge should be at stream and Xing 079876N should be on road	62.80893
79	MOORHEAD JCT	5.50000000	21.60280000	BN off, should be 0.13 miles after 1st Ave	16.10280
80	MOORHEAD JCT	5.50000000	21.60280000	BN off, should be 0.13 miles after 1st Ave	16.10280
81	SUNSET JCT	1480.88700000	1476.79210000	Duplicate record	4.09490
82	SULLIVAN	303.10000000	301.64222158	BN off, Xing 079895T should be at I-90, Xing 079896A should be at Hwy 53	1.45778
83	SULLIVAN	303.10000000	301.64222158	BN off, Xing 079895T should be at I-90, Xing 079896A should be at Hwy 53	1.45778
84	FISHER RIVER	1297.85400000	1299.15280671	BN off, crossing 059194A on wrong road one mile from Ariana Creek	1.29881
85	ESSEX	1169.10800000	1170.27691276	BN off, should be just before Dickey Creek, RIS and track chart differ	1.16891
86	ESSEX	1169.10800000	1170.27691276	BN off, should be just before Dickey Creek, RIS and track chart differ	1.16891
87	COCOLALLA	16.87500000	17.97239905	BN off, should be 0.18 miles after Loop Rd.	1.09740
88	COCOLALLA	16.87500000	17.97239905	BN off, should be 0.18 miles after Loop Rd.	1.09740
89	CORAM	1204.33100000	1205.16649605	BN off should be before Flathead River, RIS data and track chart differ	0.83550
90	BISON	1143.99400000	1143.19418335	BN off	0.79982
91	BISON	1143.99400000	1143.19418335	BN off	0.79982
92	WOLF PRAIRIE	1282.95600000	1282.20202390	BN off, yard should be before Xing 059188W	0.75398
93	MAIDEN ROCK	378.70000000	377.97623977	BN off, should be 1.23 miles before Rush River, DOTs and Bridges are off	0.72376
94	MAIDEN ROCK	378.70000000	377.97623977	BN off, should be 1.23 miles before Rush River, DOTs and Bridges are off	0.72376
95	STRYKER	1248.63500000	1249.22906805	BN off, should be after Eureka SDiv and after Sunday Crk Rd	0.59407
96	KOOTENAI FALLS	1330.67700000	1331.26952114	BN off, should be 1.51 miles from Williams Creek	0.59252
97	MOORHEAD	22.28000000	21.71637461	BN off, should be at beginning of SDiv	0.56363
98	RIPLEY	1313.04400000	1312.55127912	BN off, should be 4.96 after Fisher River/Fisher Rd.	0.49272
99	YAKT	1343.72000000	1343.23198926	BN off, should be 1.67 miles from Star Creek	0.48801
100	SHELBY	1065.73000000	1065.27350457	No BN yard in RIS for Shelby at MP 1065.4	0.45650
101	SHELBY	1065.73000000	1065.27350457	No BN yard in RIS for Shelby at MP 1065.4	0.45650
102	J D SWITCH	199.37300000	199.82398329	BN off, should be 0.71 miles after Xing 093080B, RIS/Track chart values differ	0.45098
103	VISTA	1224.65000000	1224.26941199	BN off, measured from Xing 059256V	0.38059
104	LUPFER	1231.06200000	1231.41510541	BN off, measured from Xing at Hwy 93, Xing 059258J should be on Lupfer Rd	0.35311
105	SIMCOE	211.54000000	211.87763116	BN off, should be 0.05 miles after Xing 102415R, RIS/Track chart values differ	0.33763
106	TRENTON	133.16000000	133.45701441	BN Should be 0.68 from beginning of BTS siding	0.29701
107	IRVIN	63.20000000	63.49505508	BN should be 0.35 miles after Pines Road	0.29506
108	IRVIN	63.20000000	63.49505508	BN should be 0.35 miles after Pines Road	0.29506
109	LEONIA	1350.50100000	1350.24063621	BN off, should be 0.35 miles from Cnty/State Line	0.26036
110	GLACIER PARK	1138.09400000	1137.84836068	BN off, measured from Two Medicine Creek, should be after Hwy 49 and Xing 088113B is off	0.24564
111	GLACIER PARK	1138.09400000	1137.84836068	BN off, measured from Two Medicine Creek, should be after Hwy 49 and Xing 088113B is off	0.24564
112	TETON	1068.42000000	1068.18002517	BN off, should be 1.61 miles from Xing at I-15	0.23997
113	TETON	1068.42000000	1068.18002517	BN off, should be 1.61 miles from Xing at I-15	0.23997
114	BRIMSTONE	1253.08400000	1252.86745989	BN off, should be 1.22 miles from Cripple Crk Rd.	0.21654
115	STRYKER	1248.63500000	1248.85001814	BN off, should be at beginning of LS 389, before Xing 059262Y	0.21502
116	DAYTONS BLUFF	428.55500000	428.34400325	BN off, should be 0.40 miles before Warner Rd., RIS/Track chart values differ	0.21100
117	LUVERNE	60.00000000	60.20718516	BN off, should be 0.22 miles before Xing 093122K	0.20719

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
118	SAVANNA	143.70000000	143.90360000	BN off, should be 1.34 miles after Plum River, DOTs and Bridges are off	0.20360
119	SAVANNA	143.70000000	143.90360000	BN off, should be 1.34 miles after Plum River, DOTs and Bridges are off	0.20360
120	SAVANNA	143.70000000	143.90360000	BN off, should be 1.34 miles after Plum River, DOTs and Bridges are off	0.20360
121	SAVANNA	143.70000000	143.90360000	BN off, should be 1.34 miles after Plum River, DOTs and Bridges are off	0.20360
122	BUELOW	1015.75000000	1015.95339994	BN off, measured from Cnty Line, Xings off after 1st Ave West	0.20340
123	BUELOW	1015.75000000	1015.95339994	BN off, measured from Cnty Line, Xings off after 1st Ave West	0.20340
124	WINONA JCT	328.20000000	328.40205549	BN off, Xing 078912G should be at Hwy 43/54, Xnum in RIS has typo	0.20206
125	WINONA JCT	328.20000000	328.40205549	BN off, Xing 078912G should be at Hwy 43/54, Xnum in RIS has typo	0.20206
126	BURNS	407.80000000	407.60228159		0.19772
127	BURNS	407.80000000	407.60228159		0.19772
128	NEWPORT	422.34000000	422.14733871		0.19266
129	PRESCOTT	407.60000000	407.40736391		0.19264
130	PRESCOTT	407.60000000	407.40736391		0.19264
131	CONKELLEY	1208.80000000	1208.61000000		0.19000
132	CONKELLEY	1208.80000000	1208.61000000		0.19000
133	CONKELLEY	1208.80000000	1208.61000000		0.19000
134	PINNACLE	1173.23300000	1173.04340698		0.18959
135	PINNACLE	1173.23300000	1173.04340698		0.18959
136	COON CREEK	21.04000000	21.22939495		0.18939
137	COON CREEK	21.04000000	21.22939495		0.18939
138	CUT BANK	1090.09100000	1090.27985666		0.18886
139	CUT BANK	1090.09100000	1090.27985666		0.18886
140	DARLING	110.77000000	110.58493823		0.18506
141	DARLING	110.77000000	110.58493823		0.18506
142	BLACKFOOT	1116.46300000	1116.27879943		0.18420
143	BLACKFOOT	1116.46300000	1116.27879943		0.18420
144	OAKLAND	426.70000000	426.51601265		0.18399
145	SHELBY	1065.73000000	1065.55159308		0.17841
146	PHILBROOK	133.99000000	133.81407813		0.17592
147	PHILBROOK	133.99000000	133.81407813		0.17592
148	SAVOY	375.93900000	376.11480063		0.17580
149	TWIN MEADOWS	1263.49500000	1263.67028737		0.17529
150	GAVIN YARD	197.90000000	197.73474932		0.16525
151	EOLA	33.40000000	33.56399932		0.16400
152	EOLA	33.40000000	33.56399932		0.16400
153	EOLA	33.40000000	33.56399932		0.16400
154	COLBURN	1394.19600000	1394.35961810		0.16362
155	BECKER	57.50000000	57.33712708		0.16287
156	BECKER	57.50000000	57.33712708		0.16287
157	BREMEN	136.77000000	136.61130971		0.15869
158	STEWARD	77.30000000	77.14184890		0.15815
159	JAVA WEST	1166.06800000	1165.91194588		0.15605
160	JAVA WEST	1166.06800000	1165.91194588		0.15605
161	VANCE	22.87000000	23.02414008		0.15414
162	CHESTER	1022.86700000	1023.02100653		0.15401
163	CHESTER	1022.86700000	1023.02100653		0.15401
164	GUTHRIE	186.77000000	186.92255958		0.15256
165	BAINVILLE	159.30000000	159.44830823		0.14831
166	CROSSPORT	1364.12000000	1363.97388556		0.14611
167	LOHMAN	416.75700000	416.90053965		0.14354
168	NOLAN	40.70000000	40.83980000		0.13980
169	NOLAN	40.70000000	40.83980000		0.13980
170	NOLAN	40.70000000	40.83980000		0.13980
171	SNOWDEN	147.13500000	147.27429440		0.13929
172	PEPIN	366.20000000	366.33627101		0.13627
173	PEPIN	366.20000000	366.33627101		0.13627

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
174	STRATFORD	107.40000000	107.26498594		0.13501
175	WAGNER	352.79700000	352.66592860		0.13107
176	BAINVILLE	159.30000000	159.16902274		0.13098
177	FRAZEE	200.40000000	200.52819968		0.12820
178	FRAZEE	200.40000000	200.52819968		0.12820
179	OREGON	98.40000000	98.52310178		0.12310
180	MOORHEAD JCT	5.50000000	5.62299786		0.12300
181	MOORHEAD JCT	5.50000000	5.62299786		0.12300
182	LYNXVILLE	254.40000000	254.27769739		0.12230
183	LYNXVILLE	254.40000000	254.27769739		0.12230
184	TIOGA	81.81000000	81.68908441		0.12092
185	TIOGA	81.81000000	81.68908441		0.12092
186	COLUMBIA FALLS	1211.60900000	1211.72612430		0.11712
187	COLUMBIA FALLS	1211.60900000	1211.72612430		0.11712
188	WHITEFISH	1219.24600000	1219.13059324		0.11541
189	SNOWDEN	147.13500000	147.25013576		0.11514
190	35TH AVE	12.50000000	12.61420531		0.11421
191	35TH AVE	12.50000000	12.61420531		0.11421
192	HERRINGTON	294.67000000	294.78360333		0.11360
193	HERRINGTON	294.67000000	294.78360333		0.11360
194	CULBERTSON	173.55000000	173.43644716		0.11355
195	HINGHAM	996.76000000	996.87323835		0.11324
196	HINGHAM	996.76000000	996.87323835		0.11324
197	HINSDALE	303.50100000	303.61367362		0.11267
198	UNION	6.76000000	6.64773315		0.11227
199	UNION	6.76000000	6.64773315		0.11227
200	FERRYVILLE	262.20000000	262.08870237		0.11130
201	FERRYVILLE	262.20000000	262.08870237		0.11130
202	DIAMOND BLUFF	396.30000000	396.18948157		0.11052
203	DIAMOND BLUFF	396.30000000	396.18948157		0.11052
204	LOTHAIR	1035.70000000	1035.59102749		0.10897
205	LOTHAIR	1035.70000000	1035.59102749		0.10897
206	BONNERS FERRY	1368.39000000	1368.49456205		0.10456
207	BROOKFIELD	12.30000000	12.19621768		0.10378
208	BROOKFIELD	12.30000000	12.19621768		0.10378
209	BROOKFIELD	12.30000000	12.19621768		0.10378
210	JUANITA	99.87000000	99.76728894		0.10271
211	MANITOBA JCT	230.65000000	230.54976917		0.10023
212	MANITOBA JCT	230.65000000	230.54976917		0.10023
213	YARDLEY	68.02000000	68.11749198		0.09749
214	YARDLEY	68.02000000	68.11749198		0.09749
215	NAPLES	1379.81000000	1379.71522184		0.09478
216	HAVRE	430.44200000	430.34800000		0.09400
217	HAVRE	430.44200000	430.34800000		0.09400
218	HAVRE	430.44200000	430.34800000		0.09400
219	CICERO	7.00000000	6.90621523		0.09378
220	CICERO	7.00000000	6.90621523		0.09378
221	CICERO	7.00000000	6.90621523		0.09378
222	INVERNESS	1009.00700000	1009.09871989		0.09172
223	INVERNESS	1009.00700000	1009.09871989		0.09172
224	CHINOOK	408.80100000	408.88749034		0.08649
225	SUTTON	86.34000000	86.42482343		0.08482
226	BURKE	138.50000000	138.41746602		0.08253
227	SHABBONA	67.10000000	67.01769309		0.08231
228	MOORHEAD	22.28000000	22.36139541		0.08140
229	BELMONT	22.80000000	22.71872826		0.08127
230	BELMONT	22.80000000	22.71872826		0.08127
231	BELMONT	22.80000000	22.71872826		0.08127
232	MALTA	343.28000000	343.19880457		0.08120
233	ETHRIDGE	1078.74000000	1078.65925233		0.08075
234	ETHRIDGE	1078.74000000	1078.65925233		0.08075
235	FOUNTAIN CITY	333.90000000	333.98040939		0.08041
236	FOUNTAIN CITY	333.90000000	333.98040939		0.08041
237	ROSS	61.55000000	61.46974703		0.08025

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
238	ROSS	61.55000000	61.46974703		0.08025
239	POPLAR	206.83000000	206.90988776		0.07989
240	WADENA	165.60000000	165.67697414		0.07697
241	WADENA	165.60000000	165.67697414		0.07697
242	GLASGOW	277.51000000	277.43310430		0.07690
243	HARLEM	387.75400000	387.67746067		0.07654
244	BOWDOIN	330.58300000	330.50880239		0.07420
245	GLEN HAVEN	222.80000000	222.87377751		0.07378
246	NELSON	358.70000000	358.77375960		0.07376
247	NELSON	358.70000000	358.77375960		0.07376
248	RIVERSIDE	11.00000000	10.92868739		0.07131
249	RIVERSIDE	11.00000000	10.92868739		0.07131
250	RIVERSIDE	11.00000000	10.92868739		0.07131
251	AURORA	38.11000000	38.18090000		0.07090
252	AURORA	38.11000000	38.18090000		0.07090
253	BLAISDELL	39.42000000	39.49056244		0.07056
254	BLAISDELL	39.42000000	39.49056244		0.07056
255	RICHARDS SPUR	213.04000000	213.11002535		0.07003
256	RICHARDS SPUR	213.04000000	213.11002535		0.07003
257	BROWNING	1123.88300000	1123.94907054		0.06607
258	BROWNING	1123.88300000	1123.94907054		0.06607
259	RANDALL	116.58000000	116.51535288		0.06465
260	RANDALL	116.58000000	116.51535288		0.06465
261	LATAH JCT	1481.65200000	1481.71530000		0.06330
262	LATAH JCT	1481.65200000	1481.71530000		0.06330
263	LATAH JCT	1481.65200000	1481.71530000		0.06330
264	SELZ	161.72000000	161.78073468		0.06073
265	GRAF	296.30000000	296.36014394		0.06014
266	AYLMER	177.04000000	176.98102311		0.05898
267	PROVING GROUND	153.65000000	153.70869619		0.05870
268	PROVING GROUND	153.65000000	153.70869619		0.05870
269	BAY CITY	386.30000000	386.24132798		0.05867
270	BAY CITY	386.30000000	386.24132798		0.05867
271	HAGER	391.00000000	391.05744719		0.05745
272	HAGER	391.00000000	391.05744719		0.05745
273	NOLAN	40.70000000	40.75649794		0.05650
274	COON CREEK	21.04000000	21.09325222		0.05325
275	MASON	28.94000000	28.88676748		0.05323
276	WESTMONT	19.40000000	19.34690805		0.05309
277	WESTMONT	19.40000000	19.34690805		0.05309
278	WESTMONT	19.40000000	19.34690805		0.05309
279	PIEGAN	1106.44900000	1106.50162267		0.05262
280	PIEGAN	1106.44900000	1106.50162267		0.05262
281	STANLEY	54.25000000	54.19800381		0.05200
282	STANLEY	54.25000000	54.19800381		0.05200
283	PILLSBURY	52.79000000	52.84179691		0.05180
284	VERNDALE	158.95000000	159.00175748		0.05176
285	VERNDALE	158.95000000	159.00175748		0.05176
286	LIBBY	1319.61000000	1319.55865554		0.05134
287	OSWEGO	238.80000000	238.85123741		0.05124
288	TAMPICO	289.43900000	289.38799872		0.05100
289	HINCKLEY	55.10000000	55.05048710		0.04951
290	TEMPLE	87.40000000	87.35446941		0.04553
291	TEMPLE	87.40000000	87.35446941		0.04553
292	BRANTFORD	112.69000000	112.64510126		0.04490
293	NAPERVILLE	28.40000000	28.44458181		0.04458
294	NAPERVILLE	28.40000000	28.44458181		0.04458
295	NAPERVILLE	28.40000000	28.44458181		0.04458
296	PERHAM	189.26000000	189.30413687		0.04414
297	PERHAM	189.26000000	189.30413687		0.04414
298	SPOTTED ROBE	1131.91000000	1131.86758299		0.04242
299	SPOTTED ROBE	1131.91000000	1131.86758299		0.04242
300	INTERSTATE	15.50000000	15.45760029		0.04240
301	INTERSTATE	15.50000000	15.45760029		0.04240

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
302	RED EAGLE	1185.09000000	1185.13092844		0.04093
303	CARTER	116.00000000	116.03758842		0.03759
304	MORED	58.00000000	57.96351557		0.03648
305	HAWLEY	234.39000000	234.42548836		0.03549
306	HAWLEY	234.39000000	234.42548836		0.03549
307	LITTLE FALLS	106.00000000	106.03529034		0.03529
308	LITTLE FALLS	106.00000000	106.03529034		0.03529
309	PARKWATER	66.68000000	66.64644724		0.03355
310	PARKWATER	66.68000000	66.64644724		0.03355
311	WHITE EARTH	73.59000000	73.55654531		0.03345
312	WHITE EARTH	73.59000000	73.55654531		0.03345
313	DUNKIRK	1056.41100000	1056.44368746		0.03269
314	DUNKIRK	1056.41100000	1056.44368746		0.03269
315	BERTHOLD	22.79000000	22.82197790		0.03198
316	BERTHOLD	22.79000000	22.82197790		0.03198
317	BERWYN	9.60000000	9.56802419		0.03198
318	BERWYN	9.60000000	9.56802419		0.03198
319	BERWYN	9.60000000	9.56802419		0.03198
320	WATERMAN	62.10000000	62.06966985		0.03033
321	ROYALTON	95.24000000	95.21064341		0.02936
322	ROYALTON	95.24000000	95.21064341		0.02936
323	MISSISSIPPI ST	1.30000000	1.32926308		0.02926
324	MISSISSIPPI ST	1.30000000	1.32926308		0.02926
325	FAIRVIEW AVE	20.30000000	20.27083033		0.02917
326	FAIRVIEW AVE	20.30000000	20.27083033		0.02917
327	FAIRVIEW AVE	20.30000000	20.27083033		0.02917
328	ROCK CREEK	1273.16000000	1273.13328040		0.02672
329	LINCOLN	127.76000000	127.78630510		0.02631
330	LINCOLN	127.76000000	127.78630510		0.02631
331	ANOKA	26.79000000	26.76438649		0.02561
332	ANOKA	26.79000000	26.76438649		0.02561
333	SUGAR GROVE	44.70000000	44.67759955		0.02240
334	CHANA	92.40000000	92.37765688		0.02234
335	CASSVILLE	213.00000000	213.02094319		0.02094
336	CASSVILLE	213.00000000	213.02094319		0.02094
337	RUDYARD	1002.73900000	1002.75810054		0.01910
338	BURNHAM	970.92700000	970.94546078		0.01846
339	BURNHAM	970.92700000	970.94546078		0.01846
340	CLYDE	8.50000000	8.48299439		0.01701
341	CLYDE	8.50000000	8.48299439		0.01701
342	CLYDE	8.50000000	8.48299439		0.01701
343	NEW ROCKFORD	124.28000000	124.29658683		0.01659
344	DETROIT LAKES	210.05000000	210.06602589		0.01603
345	DETROIT LAKES	210.05000000	210.06602589		0.01603
346	GREGORY	103.30000000	103.31555948		0.01556
347	GREGORY	103.30000000	103.31555948		0.01556
348	DEVON	1047.68900000	1047.70436470		0.01536
349	DEVON	1047.68900000	1047.70436470		0.01536
350	RICE	88.70000000	88.68541207		0.01459
351	RICE	88.70000000	88.68541207		0.01459
352	DODSON	360.65000000	360.66450741		0.01451
353	BROCKTON	192.77000000	192.75588253		0.01412
354	JOPLIN	1012.77400000	1012.76075112		0.01325
355	JOPLIN	1012.77400000	1012.76075112		0.01325
356	SOO LINE JCT	2.26000000	2.27278775		0.01279
357	SOO LINE JCT	2.26000000	2.27278775		0.01279
358	GLYNDON	248.94000000	248.95023640		0.01024
359	GLYNDON	248.94000000	248.95023640		0.01024
360	MEARS	362.90000000	362.89037392		0.00963
361	MEARS	362.90000000	362.89037392		0.00963
362	JAVA EAST	1165.19900000	1165.18997272		0.00903
363	JAVA EAST	1165.19900000	1165.18997272		0.00903
364	LISLE	24.40000000	24.39141462		0.00859
365	LISLE	24.40000000	24.39141462		0.00859

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
366	LISLE	24.40000000	24.39141462		0.00859
367	FLAG CENTER	86.30000000	86.29300843		0.00699
368	FLAG CENTER	86.30000000	86.29300843		0.00699
369	PROSPER	12.42000000	12.41326428		0.00674
370	RUDYARD	1002.73900000	1002.73267291		0.00633
371	TREVINO	362.10000000	362.09551811		0.00448
372	TREVINO	362.10000000	362.09551811		0.00448
373	HAUSER JCT	51.53500000	51.53904080		0.00404
374	HAUSER JCT	51.53500000	51.53904080		0.00404
375	HAUSER JCT	51.53500000	51.53904080		0.00404
376	NASHUA	263.16000000	263.15685448		0.00315
377	ZURICH	399.58700000	399.58990544		0.00291
378	BIG ROCK	50.20000000	50.20264589		0.00265
379	SANDPOINT	2.96800000	2.96974001		0.00174
380	HANNAFORD	72.87000000	72.86900088		0.00100
381	BLAIR	179.08000000	179.07961191		0.00039
382	DOWNERS GROVE	21.10000000	21.09995915		0.00004
383	DOWNERS GROVE	21.10000000	21.09995915		0.00004
384	DOWNERS GROVE	21.10000000	21.09995915		0.00004
385	7TH STREET	0.00000000	0.00000000		0.00000
386	7TH STREET	0.00000000	0.00000000		0.00000
387	7TH STREET	0.00000000	0.00000000		0.00000
388	7TH STREET	0.00000000	0.00000000		0.00000
389	BELTHOLD	0.00000000	0.00000000		0.00000
390	BOYER	0.00000000	0.00000000		0.00000
391	BOYER	0.00000000	0.00000000		0.00000
392	CLARENDON HILLS	0.00000000	0.00000000		0.00000
393	CLARENDON HILLS	0.00000000	0.00000000		0.00000
394	CLARENDON HILLS	0.00000000	0.00000000		0.00000
395	CLEARLAKE	0.00000000	0.00000000		0.00000
396	CLEARLAKE	0.00000000	0.00000000		0.00000
397	CONGRESS PARK	0.00000000	0.00000000		0.00000
398	CONGRESS PARK	0.00000000	0.00000000		0.00000
399	CONGRESS PARK	0.00000000	0.00000000		0.00000
400	DALE ST	0.00000000	0.00000000		0.00000
401	DALE ST	0.00000000	0.00000000		0.00000
402	DESOTO	0.00000000	0.00000000		0.00000
403	DESOTO	0.00000000	0.00000000		0.00000
404	DIVISION STREET	0.00000000	0.00000000		0.00000
405	E WINONA	0.00000000	0.00000000		0.00000
406	E WINONA	0.00000000	0.00000000		0.00000
407	EAST CABIN	0.00000000	0.00000000		0.00000
408	EAST CABIN	0.00000000	0.00000000		0.00000
409	EAST DUBUQUE	0.00000000	0.00000000		0.00000
410	EAST DUBUQUE	0.00000000	0.00000000		0.00000
411	EAST MPLS	0.00000000	0.00000000		0.00000
412	EAST MPLS	0.00000000	0.00000000		0.00000
413	ERIE JCT	0.00000000	0.00000000		0.00000
414	ERIE JCT	0.00000000	0.00000000		0.00000
415	FARGO PSGR STATION	0.00000000	0.00000000		0.00000
416	FARGO YARD OFFICE	0.00000000	0.00000000		0.00000
417	FARGO YARD OFFICE	0.00000000	0.00000000		0.00000
418	GASSMAN SWITCH	0.00000000	0.00000000		0.00000
419	GASSMAN SWITCH	0.00000000	0.00000000		0.00000
420	GILFORD	0.00000000	0.00000000		0.00000
421	GILFORD	0.00000000	0.00000000		0.00000
422	GLENHAVEN	0.00000000	0.00000000		0.00000
423	GRIZZLEY	0.00000000	0.00000000		0.00000
424	GRIZZLEY	0.00000000	0.00000000		0.00000
425	HALSTED STREET	0.00000000	0.00000000		0.00000
426	HALSTED STREET	0.00000000	0.00000000		0.00000
427	HALSTED STREET	0.00000000	0.00000000		0.00000
428	HARLEM AVE	0.00000000	0.00000000		0.00000
429	HARLEM AVE	0.00000000	0.00000000		0.00000

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
430	HARLEM AVE	0.00000000	0.00000000		0.00000
431	HIGHLANDS	0.00000000	0.00000000		0.00000
432	HIGHLANDS	0.00000000	0.00000000		0.00000
433	HIGHLANDS	0.00000000	0.00000000		0.00000
434	HOFFMAN AVENUE	0.00000000	0.00000000		0.00000
435	HOLLYWOOD	0.00000000	0.00000000		0.00000
436	HOLLYWOOD	0.00000000	0.00000000		0.00000
437	HOLLYWOOD	0.00000000	0.00000000		0.00000
438	JY JCT	0.00000000	0.00000000		0.00000
439	KINTURE	0.00000000	0.00000000		0.00000
440	LA VERGNE	0.00000000	0.00000000		0.00000
441	LA VERGNE	0.00000000	0.00000000		0.00000
442	LA VERGNE	0.00000000	0.00000000		0.00000
443	LAGRANGE	0.00000000	0.00000000		0.00000
444	LAGRANGE	0.00000000	0.00000000		0.00000
445	LAGRANGE	0.00000000	0.00000000		0.00000
446	LOCHRANE	0.00000000	0.00000000		0.00000
447	MIDWAY	0.00000000	0.00000000		0.00000
448	MIDWAY	0.00000000	0.00000000		0.00000
449	MPLS JCT	0.00000000	0.00000000		0.00000
450	MPLS JCT	0.00000000	0.00000000		0.00000
451	MPLS JCT	0.00000000	0.00000000		0.00000
452	NORTH TOWN	0.00000000	0.00000000		0.00000
453	PACIFIC JCT	0.00000000	0.00000000		0.00000
454	PACIFIC JCT	0.00000000	0.00000000		0.00000
455	PACIFIC JCT	0.00000000	0.00000000		0.00000
456	PARK JCT	0.00000000	0.00000000		0.00000
457	PARK JCT	0.00000000	0.00000000		0.00000
458	PLUM RIVER	0.00000000	0.00000000		0.00000
459	PLUM RIVER	0.00000000	0.00000000		0.00000
460	PRARIE DU CHIEN	0.00000000	0.00000000		0.00000
461	ROBINSONS SPUR	0.00000000	0.00000000		0.00000
462	ROBINSONS SPUR	0.00000000	0.00000000		0.00000
463	ROCHELE	0.00000000	0.00000000		0.00000
464	ROCHELE	0.00000000	0.00000000		0.00000
465	ROOSEVELT ROAD	0.00000000	0.00000000		0.00000
466	ROOSEVELT ROAD	0.00000000	0.00000000		0.00000
467	SANDPOINT JCT	0.00000000	0.00000000		0.00000
468	SANDPOINT JCT	0.00000000	0.00000000		0.00000
469	SOO TOWER	0.00000000	0.00000000		0.00000
470	SOO TOWER	0.00000000	0.00000000		0.00000
471	SPOKANE	0.00000000	0.00000000		0.00000
472	SPOKANE	0.00000000	0.00000000		0.00000
473	SPOKANE	0.00000000	0.00000000		0.00000
474	SPOKANE	0.00000000	0.00000000		0.00000
475	ST ANTHONY	0.00000000	0.00000000		0.00000
476	ST ANTHONY	0.00000000	0.00000000		0.00000
477	ST ANTHONY	0.00000000	0.00000000		0.00000
478	ST ANTHONY	0.00000000	0.00000000		0.00000
479	ST CLOUD JCT	0.00000000	0.00000000		0.00000
480	ST CLOUD JCT	0.00000000	0.00000000		0.00000
481	ST CROIX	0.00000000	0.00000000		0.00000
482	ST CROIX TOWER	0.00000000	0.00000000		0.00000
483	ST CROIX TOWER	0.00000000	0.00000000		0.00000
484	STONE AVENUE	0.00000000	0.00000000		0.00000
485	STONE AVENUE	0.00000000	0.00000000		0.00000
486	STONE AVENUE	0.00000000	0.00000000		0.00000
487	SURREY	0.00000000	0.00000000		0.00000
488	TAMARACK	0.00000000	0.00000000		0.00000
489	UNION AVE	0.00000000	0.00000000		0.00000
490	UNION AVE	0.00000000	0.00000000		0.00000
491	UNION YARD	0.00000000	0.00000000		0.00000
492	UNION YARD	0.00000000	0.00000000		0.00000
493	UP TOWER	0.00000000	0.00000000		0.00000

RECORD	STATION	BN_MEASURE	VOLPE_MEASURE	COMMENT	OFFSET
494	UP TOWER	0.00000000	0.00000000		0.00000
495	UP TOWER	0.00000000	0.00000000		0.00000
496	VAN BUREN ST	0.00000000	0.00000000		0.00000
497	VAN BUREN ST	0.00000000	0.00000000		0.00000
498	VANGE	0.00000000	0.00000000		0.00000
499	W L SWITCH	0.00000000	0.00000000		0.00000
500	W L SWITCH	0.00000000	0.00000000		0.00000
501	WEST EOLA	0.00000000	0.00000000		0.00000
502	WEST EOLA	0.00000000	0.00000000		0.00000
503	WEST HINSDALE	0.00000000	0.00000000		0.00000
504	WEST HINSDALE	0.00000000	0.00000000		0.00000
505	WEST HINSDALE	0.00000000	0.00000000		0.00000
506	WESTERN AVE	0.00000000	0.00000000		0.00000
507	WESTERN AVE	0.00000000	0.00000000		0.00000
508	WESTERN AVE	0.00000000	0.00000000		0.00000
509	WESTERN AVE	0.00000000	0.00000000		0.00000
510	WESTERN SPRINGS	0.00000000	0.00000000		0.00000
511	WESTERN SPRINGS	0.00000000	0.00000000		0.00000
512	WESTERN SPRINGS	0.00000000	0.00000000		0.00000
513	WESTMINSTER ST	0.00000000	0.00000000		0.00000
514	WESTMINSTER ST	0.00000000	0.00000000		0.00000
515	WITHEROW	0.00000000	0.00000000		0.00000
516	WITHEROW	0.00000000	0.00000000		0.00000
517	CRAWFORD	237.00000000			
518	CRAWFORD	237.00000000			
519	DILWORTH	3.18000000			
520	DILWORTH	3.18000000			
521	DILWORTH	3.18000000			
522	DILWORTH	3.18000000			
523	MINOT	0.47000000			
524	MINOT	0.47000000			
525	MINOT	0.47000000			

APPENDIX D
FREIGHT VOLUME REPORT

Houston to Fort Worth

Volpe/BNSF Freight Volume Comparison - Houston to Ft.Worth

RECORD	FR_STATION	TO_STATION	VOLPE_DIST	BN_DIST	DIFFERENCE	COMMENT
1	GALVESTON	TEXAS CITY JCT	10.6778	8.8631	1.8147	Origin - ok - Dest - Volpe Error Used Texas City not Texas City Jct - truncate Volpe 2.17 - then extend to Jct
2	TEXAS CITY JCT	ALGOA	15.6137	13.2734	2.3404	Origin - truncate Volpe 2.40 miles Dest - ok
3	ALGOA	ALVIN	4.3038	4.2066	0.0972	Origin - Volpe ok - Dest Volpe ok
4	CASEY	TOMBALL	14.0892	13.4109	0.6783	Origin - Volpe ok - Dest -Volpe ok
5	TOMBALL	DOBBIN	21.4457	20.8731	0.5726	Origin Volpe ok - DEST - truncate Volpe 0.47 miles
6	DOBBIN	SIMMONS	4.3385	5.0994	0.7609	Origin - Extend Volpe 0.37 Miles - Dest -Extend Volpe 0.23
7	SIMMONS	IOLA	30.9514	30.1621	0.7894	Origin - truncate Volpe 0.31 miles Dest - Volpe ok - BN miscalibrated
8	IOLA	NEWBY	43.4543	44.1571	0.7029	BN miscalibrated origin - Origin Volpe ok - Dest extend Volpe 0.20 miles - Newby Stn at MP 184.84 not 184.59
9	NEWBY	DONIE	9.2052	8.4478	0.7574	Origin truncate Volpe 0.25 miles - does not start on yard track Dest Volpe ok
10	DONIE	TEAGUE	11.2274	11.1005	0.1269	Okay
11	TEAGUE	WAXAHACHIE	65.3798	66.6189	1.2392	Origin - Volpe ok - Dest extend Volpe 1 mile
12	ALVIN	PEARLAND	9.8704	9.9741	0.1037	Okay
13	PEARLAND	MYKAWA	4.1315	4.0085	0.1230	Okay
14	WAXAHACHIE	JTD JCT	0.7717	0.7552	0.0164	Okay
15	MADILL	PROSPER	63.6643	14.8866	48.7777	Origin truncated at state line Dest Volpe ok
16	PROSPER	FRISCO	5.7680	5.9110	0.1430	Okay
17	CAMEY	CARROLLTON	9.6669	11.5955	1.9286	Origin Volpe ok - Dest - Volpe ok
18	CARROLLTON	IRVING	10.4710	8.6551	1.8159	Volpe at wrong Irving Stn - should be at Irving Stn by Airport Frwy
19	SAGINAW	WICHITA FALLS	62.2545	41.2178	21.0367	Origin - Volpe ok - Dest Volpe's line truncated ~ 32 miles too short
20	HUDSON	CASEY	0.8676	1.8044	0.9367	Origin - Volpe ok - Dest - extend Volpe 1 mile
21	MYKAWA	HOUSTON	10.8950	5.3625	5.5324	Origin Volpe ok - Dest -truncate Volpe ~ 6.37 miles
22	FRISCO	CAMEY	5.4863	3.4258	2.0605	Origin Volpe ok - Dest - truncate Volpe 0.6 miles
23	FT WORTH	SAGINAW	14.1726	3.8635	10.3092	Volpe line too long - should be ~ 4 miles - on Wrong Line Origin -mp 6.1 is N. Yard Stn. _- Dest Right Point Wrong line
24	BELT JCT	OAK FOREST	95.6188	1.8287	93.7901	Volpe Error - Segment is totally misplaced near Ft. Worth instead of N. Houston
25	N HOUSTON	HUDSON	0.2968	3.2549	2.9581	Volpe Error - Segment should be ~3miles long origin Not at N Houston - Dest Missed Hudson Stn
26	OAK FOREST	N HOUSTON	36.0210	3.7909	32.2301	Volpe Error - Segment is totally misplaced near Ft. Worth instead of N. Houston
27	FORT WORTH AT	FT WORTH PEAC	2.7989	2.0695	0.7295	BN on wrong route - Origin Volpe ok - Dest truncate Volpe 0.57 miles
28	FT WORTH PEAC	N FT WORTH	8.6426	0.9637	7.6789	Volpe on wrong route Should begin at end of Ft Worth AT/Ft Worth Peac Rt and run for 0.89 miles

Spokane to Chicago

Volpe/BNSF Freight Volume Comparison - Spokane to Chicago

RECORD	FR_STATION	TO_STATION	VOLPE_DIST	BN_DIST	DIFFERENCE	COMMENT
1	CRAWFORD	LA CROSSE	63.7903	59.7229	4.0673	Lacrosse Stn at Mp300. Traffic Table value 297.54
2	DILWORTH	MOORHEAD JCT	2.1880	5.4632	3.2752	Dilworth Stn at MP 3.5. Traffic Table Value at MP 0
3	RICHARDS	WATTS	41.1898	38.1942	2.9956	Rt ends at MP 251(E Dilworth)-LS 25 MP 252 no exist-Origin offset b/c Stn MP/TrckCht MP vals differ
4	IRVIN	SPOKANE	7.8294	5.0750	2.7545	Origin Volpe ok - Dest MP 68 at Yardley. Spokane Stn at MP 71.5. Definition of track Problem
5	AURORA	ROCHELLE	46.0856	44.2703	1.8153	Volpe wrong (tagged CNW track as BN track at Rochelle Stn) Diff at Aurora 0.16 miles.
6	SURREY JCT	MINOT	7.1277	5.8685	1.2593	Origin MP not in trck chrt-diff between origins 0.14 mil-Dest off 1 mil b/c Minot Stn MP/Trk cht dif
7	ST PAUL	UNIVERSITY	12.5261	11.3471	1.1790	Volpe off 0.8 mi at dest Use University Ave. Volpe off 2.12 mi at Origin. Use Lafayette Rd
8	LA CROSSE	EAST WINONA	25.4832	26.6312	1.1480	Origin @ wrong trk Lacrosse Stn 0.33 miles from Gillette St on other trk - Stn Mp/TrkCht dif -Dest is off - Use Buffalo Cty Line extend 1.72 miles
9	UNIVERSITY	NORTHTOWN	2.8840	1.8179	1.0662	BN on wrong line, Origin - truncate Volpe 0.74 miles Dest - trunc Volpe 0.32 miles
10	BONNERS FERRY	BOYER	33.4502	32.5155	0.9347	Origin ok - Dest on wrong trck - should turn eastward toward Hwy 2.
11	STRYKER	BONNERS FERRY	122.2164	121.3117	0.9047	Origin ok - BN Line miscalibrated - Dest off < 0.1 mile.
12	POLO	PLUM RIVER	30.8400	29.9749	0.8651	Origin Volpe should terminate at US Hwy 52. 0.68 mile downturn not in trck cht. Dest off 0.1 miles b/c Plum River Stn MP/Trck Cht diff -
13	WHITEFISH	STRYKER	29.4352	30.1570	0.7218	Origin 0.1 mi off - origin MP/stn MP inconsistent - Dest Stm Stryker 1.09 mil from Lincoln Cty line
14	HAUSER	HAUSER JCT	5.1402	4.5092	0.6310	Dest less than 0.1 mile off - Origin off - should begin 1.44 mi from Greens Ferry Rd OR truncate line 0.62 miles
15	STAPLES	PERHAM	41.5387	42.1691	0.6304	Origin Staples at MP 148 - line defined at MP 140. Stn (mp 148) at 4th St Xng - Dest should be 0.14 miles from 1st Ave Xng
16	BOYER	SANDPOINT JCT	1.3113	1.9409	0.6296	Volpe on wrong track - should be on BN track North of displayed line.
17	SHELBY	CUT BANK	25.0659	24.4672	0.5987	Origin Shelby Stn at Division St crossing or Volpe truncate route 0.5 mi - Dest Cutbank - truncate route 0.11 miles
18	ST CROIX JCT	DAYTONS BLUFF	18.8326	18.2433	0.5894	Dest -BN on wrong track-Volpe extends too far- truncate 0.26 miles Origin Volpe on zig zag on wrong track. Use Inman Dr as reference.
19	TIOGA	WILLISTON	39.6682	39.1052	0.5630	Origin Volpe should truncate 0.2 miles - Dest off truncate 0.36 miles
20	JOPLIN	SHELBY	53.0116	53.5613	0.5497	Origin - extend Volpe 0.10 miles - Dest extend volpe 0.5 miles
21	EAST DUBUQUE	CRAWFORD	51.6652	52.2060	0.5408	Origin - Stn is at CCP RR crossing - extend Volpe 0.26 mi Dest - ok
22	PERHAM	RICHARDS	24.2581	23.7543	0.5038	Origin - truncate Volpe 0.6 miles Dest -Volpe OK
23	SANDPOINT	HAUSER	43.0800	43.5713	0.4913	Origin truncate Volpe 0.1 miles Dest extend Volpe 0.65
24	STRATFORD	POLO	4.9539	4.4915	0.4624	Origin - truncate Volpe 0.13 miles. Dest Volpe switched to wrong line at last 0.5 miles. Truncate Volpe at turn and extend 0.23 miles
25	VELOX	IRVIN	3.0407	2.6542	0.3865	Origin Volpe ok - Dest OK - BN miscalibrated
26	GALENA JCT	EAST DUBUQUE	14.0474	13.6647	0.3827	Origin Volpe ok - Dest trunc Volpe 0.2 miles
27	CONKELLEY	COLUMBIA FALL	3.2310	2.8782	0.3528	Origin truncate Volpe 0.18 miles - Dest truncate Volpe 0.17 Miles
28	BROOKFIELD	DOWNERS GROVE	8.4602	8.8067	0.3465	Origin Volpe extend 0.38 miles Dest - ok
29	BECKER	ST CLOUD	16.6396	16.3077	0.3319	Origin Volpe OK - Dest truncate Volpe 0.17 miles
30	SARTELL	STAPLES	60.4066	60.0935	0.3131	BN on wrong line Origin - extend Volpe 0.27 miles Dest - Volpe ok - BN miscalibrated
31	CUT BANK	CONKELLEY	115.4785	115.7802	0.3018	Origin extend Volpe 0.12 miles Dest Volpe OK
32	BAINVILLE	WOLF POINT	69.0370	69.3310	0.2940	Origin - truncate Volpe 0.13 miles Dest extend Volpe 0.33 miles
33	COLUMBIA FALL	WHITEFISH	7.4416	7.7281	0.2865	Origin - Volpe ok Dest ok
34	ALMA	ST CROIX JCT	58.6830	58.9689	0.2859	Origin - Dest Volpe ok at MP 407 BN on wrong track - Dest - Volpe ok
35	NORTHTOWN	FRIDLEY	2.7608	3.0461	0.2853	BN on wrong track Origin - Extend Volpe 0.3 miles Dest Volpe ok
36	MOORHEAD JCT	MOORHEAD	0.4124	0.6923	0.2799	Origin Volpe ok Dest ok BN miscalibrated track - look at Moorhead Jct
37	VANCE	ERIE JCT	8.9971	9.2719	0.2749	Origin Volpe ok - Dest Volpe OK
38	SANDPOINT JCT	SANDPOINT	0.3779	0.1050	0.2729	Origin truncate Volpe 0.38 mile Dest - extend Volpe 0.1 mile
39	WOLF POINT	TAMPICO	61.9110	61.6393	0.2717	Origin Volpe Truncate 0.2 miles Dest Volpe ok
40	SNOWDEN	BAINVILLE	11.9426	12.2041	0.2615	Origin Volpe ok - Dest Volpe ok
41	KREMLIN	RUDYARD	22.3455	22.1137	0.2317	Origin Volpe Dest extend Volpe 0.13 miles
42	COON CREEK	BECKER	36.3368	36.5661	0.2293	Origin Volpe ok - Dest Volpe ok
43	WINONA JCT	ALMA	23.3686	23.5380	0.1694	Origin Volpe ok - Dest Volpe ok
44	JY JCT	VANCE	19.0143	18.8453	0.1690	Origin Volpe ok - Dest Volpe ok

RECORD	FR_STATION	TO_STATION	VOLPE_DIST	BN_DIST	DIFFERENCE	COMMENT
45	STANLEY	TIOGA	27.1804	27.3242	0.1438	Origin Volpe ok - Dest extend Volpe 0.20 miles
46	PACIFIC JCT	KREMLIN	15.8032	15.6631	0.1401	Origin Volpe ok - Dest Volpe ok
47	PROVING GROUND	WHITTON	4.5158	4.3854	0.1304	Origin Volpe ok - Dest truncate Volpe 0.18
48	ERIE JCT	NOLAN	8.8462	8.7346	0.1116	Origin Volpe ok - Dest Volpe ok
49	WHITTON	GALENA JCT	13.2441	13.3526	0.1084	Origin Volpe extend 0.2 miles Dest Volpe ok
50	HAVRE	PACIFIC JCT	3.6159	3.5084	0.1075	Origin - Volpe ok Dest ok
51	DOWNERS GROVE	NAPERVILLE	7.3863	7.2811	0.1052	Origin - Volpe ok Dest ok
52	EOLA	WEST EOLA	1.6405	1.7440	0.1036	Origin Volpe ok - Dest Volpe ok
53	ST CLOUD	SARTELL	4.5504	4.4480	0.1024	Origin - Volpe extend 0.17 miles. Dest truncate Volpe 0.26 miles
54	SUTTON	SURREY JCT	140.2402	140.3254	0.0852	Origin - Volpe ok Dest ok
55	RUDYARD	JOPLIN	10.2289	10.1555	0.0733	Origin - Volpe ok Dest ok
56	PLUM RIVER	PROVING GROUND	11.4052	11.4724	0.0672	Origin Volpe ok - Dest Volpe ok
57	ROCHELLE	FLAG CENTER	3.0108	3.0777	0.0669	Origin Volpe on wrong track for 1 mile - should begin at the junction Dest Volpe on wrong track - truncate 0.86 miles
58	CICERO	BROOKFIELD	5.2365	5.2964	0.0599	BN on wrong track. Origin - Extend Volpe 0.42 Dest truncate Volpe 0.34
59	FLAG CENTER	OREGON	11.9405	11.8907	0.0498	Origin Volpe ok - Dest Volpe ok
60	NAPERVILLE	EOLA	4.9768	5.0186	0.0418	Origin Extend Volpe 0.13 Dest Volpe ok
61	HAUSER JCT	VELOX	8.8144	8.8512	0.0369	Origin - Volpe ok Dest ok
62	HARLEM	HAVRE	43.1375	43.1713	0.0338	Origin - Volpe ok Dest ok
63	NOLAN	SUTTON	45.8893	45.8629	0.0264	Origin Volpe ok - Dest Volpe ok
64	FRIDLEY	COON CREEK	4.5097	4.4879	0.0218	Origin Volpe ok - Dest Volpe ok
65	MINOT	MINOT PASSENG	0.2761	0.2969	0.0209	Origin - Volpe ok Dest ok - BN miscalibrated
66	TAMPICO	HARLEM	98.9404	98.9582	0.0178	Origin - Volpe ok Dest ok
67	MT MORRIS	STRATFORD	8.3635	8.3460	0.0175	Origin Volpe ok - Dest ok
68	EAST WINONA	WINONA JCT	2.4336	2.4466	0.0130	Origin Volpe ok -Dest Volpe ok

APPENDIX E
SPEED DATA REPORT

Houston to Fort Worth

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
218702	20	55.00		7501	19.16020254	19.39990000	55	35
218716	20	55.00		7501	19.06725344	19.16020254	55	35
218744	20	55.00		7501	18.83256363	19.06725344	55	35
218754	20	55.00		7501	18.63371058	18.83256363	55	35
218760	20	55.00		7501	18.52269449	18.63371058	55	35
218791	20	55.00		7501	18.14008774	18.52269449	55	35
194583	25	55.00		1046	673.35755569	673.75545565	55	30
219155	25	55.00		7501	12.35636922	14.01898450	55	30
219209	25	55.00		7501	10.73144207	12.35636922	55	30
219236	25	55.00		7501	10.14325271	10.73144207	55	30
219247	25	55.00		7501	9.89658805	10.14325271	55	30
219273	25	55.00		7501	9.56816578	9.89658805	55	30
219294	25	55.00		7501	8.92722195	9.56816578	55	30
219299	25	55.00		7501	8.65123613	8.92722195	55	30
219393	25	55.00		7501	5.83867242	8.65123613	55	30
219411	25	55.00		7501	5.49024757	5.83867242	55	30
219453	25	55.00		7501	4.43930458	5.49024757	55	30
219553	25	55.00		7501	3.10316536	4.43930458	55	30
219753	25	55.00		7501	0.53905131	3.10316536	55	30
219782	25	55.00		7501	0.39114964	0.53905131	55	30
219817	25	55.00		7501	0.29639049	0.39114964	55	30
219831	25	55.00		7501	0.00100000	0.29639049	55	30
197264	55	30.00		1046	703.94799814	704.04981231	30	25
197275	55	30.00		1046	704.04981231	704.13651133	30	25
197350	55	30.00		1046	704.13651133	704.64578636	30	25
197490	55	30.00		1046	704.64578636	706.06817501	30	25
197515	55	30.00		1046	706.06817501	706.36944655	30	25
197542	55	30.00		1046	706.36944655	706.59008492	30	25
197553	55	30.00		1046	706.59008492	706.70565666	30	25
197796	55	30.00		1046	706.70565666	709.04242376	30	25
197578	50	30.00		485	9.54235129	9.99000000	30	20
197592	50	30.00		485	9.37707636	9.54235129	30	20
202820	40	20.00		492	271.03042202	271.04100000	20	20
202844	40	20.00		492	270.94890617	271.03042202	20	20
202851	40	20.00		492	270.93490000	270.93490000	20	20
202853	0	20.00		492			20	20
202855	40	20.00		492			20	20
202887	20	40.00		492	270.37614141	270.65000000	40	20
202895	20	40.00		492	270.29288869	270.37614141	40	20
202910	20	40.00		492	270.08106525	270.29288869	40	20
203696	20	40.00		492	269.59819823	270.08106525	40	20
215629	50	30.00		492	71.23645160	71.45000000	30	20
215670	50	30.00		492	70.25359831	70.65997171	30	20
215692	50	30.00		492	69.99437412	70.25359831	30	20
215700	50	30.00		492	69.82266073	69.99437412	30	20
215708	50	30.00		492	69.76368980	69.82266073	30	20
215731	50	30.00		492	69.46879276	69.76368980	30	20
215954	50	30.00		492	66.85498964	69.46879276	30	20
220198	20	40.00		7500	6.04903236	6.26071395	40	20
220326	20	40.00		7500	4.69869712	6.04903236	40	20
220328	20	40.00		7500	2.20000000	2.50904503	40	20

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
220329	20	40.00		7500	2.50904503	2.66569984	40	20
220346	20	40.00		7500	2.66569984	4.69869712	40	20
224640	50	30.00		492	70.65997171	71.23645160	30	20
196473	30	49.00		1046	694.39076540	694.62795418	49	19
196507	30	49.00		1046	694.62795418	694.85058670	49	19
196700	30	49.00		1046	694.85058670	696.56977877	49	19
196888	30	49.00		1046	696.56977877	699.18951649	49	19
196933	30	49.00		1046	699.18951649	700.08224253	49	19
196958	30	49.00		1046	700.08224253	700.46891858	49	19
196970	30	49.00		1046	700.46891858	700.49788887	49	19
196978	30	49.00		1046	700.49788887	700.50000000	49	19
197827	15	30.00		1046	709.04242376	709.23988699	30	15
197865	15	30.00		1046	709.23988699	709.26000000	30	15
219874	55	40.00		7500	24.30334093	24.40000000	40	15
194932	50	60.00		485	40.46987720	40.51153694	60	10
194940	50	60.00		485	40.42328905	40.46987720	60	10
194952	50	60.00		485	40.19681332	40.42328905	60	10
194971	50	60.00		485	39.86193102	40.19681332	60	10
195005	50	60.00		485	39.05291031	39.86193102	60	10
195329	50	60.00		485	35.16920667	39.05291031	60	10
197432	50	60.00		485	11.19482074	17.62680643	60	10
197479	50	60.00		485	10.72853191	11.19482074	60	10
197506	50	60.00		485	10.44180891	10.72853191	60	10
197528	50	60.00		485	10.22816485	10.44180891	60	10
197578	50	60.00		485	9.99000000	10.22816485	60	10
197892	20	30.00		485	6.81506461	6.90675795	30	10
197904	20	30.00		485	6.74070207	6.81506461	30	10
197923	20	30.00		485	6.57322569	6.74070207	30	10
198013	20	30.00		485	6.10000000	6.57322569	30	10
203708	50	40.00		492	253.11523179	253.60057094	40	10
203820	50	40.00		492	251.33616691	253.11523179	40	10
203827	50	40.00		492	251.29854324	251.33616691	40	10
203982	50	40.00		492	248.85066555	251.29854324	40	10
204017	50	40.00		492	248.31754322	248.85066555	40	10
204186	50	40.00		492	242.24247228	248.31754322	40	10
204208	30	40.00		492	241.12220488	242.24247228	40	10
204219	30	40.00		492	240.66520509	241.12220488	40	10
204221	30	40.00		492	240.62803076	240.66520509	40	10
204222	30	40.00		492	240.58860000	240.62803076	40	10
204226	30	40.00		492	240.29613191	240.58860000	40	10
204230	30	40.00		492	240.26298412	240.29613191	40	10
204255	30	40.00		492	239.83839657	240.26298412	40	10
204265	30	40.00		492	239.75089589	239.83839657	40	10
204286	30	40.00		492	239.38376427	239.75089589	40	10
204319	30	40.00		492	238.31112116	239.38376427	40	10
204320	30	40.00		492	238.20673399	238.31112116	40	10
204609	50	40.00		492	231.31509050	238.20673399	40	10
205108	50	40.00		492	222.33416535	231.31509050	40	10
205117	50	40.00		492	222.24470140	222.33416535	40	10
205147	50	40.00		492	221.44985617	222.24470140	40	10
205155	50	40.00		492	221.33099701	221.44985617	40	10

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
206204	50	40.00		492	206.16628803	221.33099701	40	10
206210	50	40.00		492	206.05164527	206.16628803	40	10
206283	50	40.00		492	204.92523562	206.05164527	40	10
206286	50	40.00		492	204.90806778	204.92523562	40	10
206318	50	40.00		492	204.41012650	204.90806778	40	10
206328	50	40.00		492	204.34955499	204.41012650	40	10
206331	50	40.00		492	204.32753502	204.34955499	40	10
206337	50	40.00		492	204.29897458	204.32753502	40	10
206350	50	40.00		492	204.08701017	204.29897458	40	10
206885	50	40.00		492	195.00202779	204.08701017	40	10
206993	50	40.00		492	193.46824204	195.00202779	40	10
207030	50	40.00		492	192.91441773	193.25589597	40	10
207330	50	40.00		492	186.67614114	192.91441773	40	10
207338	50	40.00		492	186.57451482	186.67614114	40	10
207457	50	40.00		492	185.46347083	186.57451482	40	10
207593	50	40.00		492	184.38780920	184.63478277	40	10
207617	50	40.00		492	184.25194729	184.38780920	40	10
207737	50	40.00		492	183.42314328	184.25194729	40	10
208500	50	40.00		492	176.18544476	183.42314328	40	10
208526	30	40.00		492	176.08889835	176.18544476	40	10
208608	50	40.00		492	174.89207020	176.08889835	40	10
208613	50	40.00		492	174.82124640	174.89207020	40	10
208658	50	40.00		492	173.88856799	174.82124640	40	10
208676	50	40.00		492	173.39567040	173.88856799	40	10
208984	50	40.00		492	168.88895070	173.39567040	40	10
209043	50	40.00		492	167.61570592	168.88895070	40	10
209482	50	40.00		492	159.78882409	167.61570592	40	10
209531	50	40.00		492	159.23809631	159.78882409	40	10
209658	50	40.00		492	157.62032431	159.23809631	40	10
209969	50	40.00		492	153.31682460	157.62032431	40	10
210039	50	40.00		492	152.12107635	153.31682460	40	10
210047	50	40.00		492	151.97689422	152.12107635	40	10
210051	50	40.00		492	151.86484111	151.97689422	40	10
210751	50	40.00		492	134.56151774	141.80654249	40	10
210894	50	40.00		492	131.62086879	134.56151774	40	10
210926	50	40.00		492	131.25643778	131.62086879	40	10
211009	50	40.00		492	129.95343103	131.25643778	40	10
211075	50	40.00		492	128.95938545	129.95343103	40	10
211227	50	40.00		492	125.49386402	128.95938545	40	10
211243	50	40.00		492	125.36833644	125.49386402	40	10
211262	50	40.00		492	125.03100537	125.36833644	40	10
211278	50	40.00		492	124.84332044	125.03100537	40	10
211783	50	40.00		492	120.32703907	124.84332044	40	10
211875	50	40.00		492	119.25860276	120.32703907	40	10
211888	50	40.00		492	119.11886406	119.25860276	40	10
211940	50	40.00		492	118.69685363	119.11886406	40	10
212060	50	40.00		492	116.02135546	118.69685363	40	10
212452	50	40.00		492	110.24960732	116.02135546	40	10
212467	50	40.00		492	106.18316077	106.43910867	40	10
212471	50	40.00		492	106.05568142	106.18316077	40	10
212505	50	40.00		492	105.81107405	106.05568142	40	10

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
212518	50	40.00		492	105.69403160	105.81107405	40	10
212533	50	40.00		492	105.56301293	105.69403160	40	10
213204	50	40.00		492	97.26692971	105.56301293	40	10
213249	50	40.00		492	96.07939400	97.26692971	40	10
213504	50	40.00		492	91.72496685	96.07939400	40	10
213506	50	40.00		492	91.68661736	91.72496685	40	10
213807	50	40.00		492	88.33563442	91.68661736	40	10
214495	50	40.00		492	84.72115071	88.33563442	40	10
214504	50	40.00		492	84.70772262	84.72115071	40	10
214712	50	40.00		492	84.20694644	84.70772262	40	10
215154	50	40.00		492	81.46212648	84.20694644	40	10
215322	50	40.00		492	78.32204884	81.46212648	40	10
215345	50	40.00		492	77.85889449	78.32204884	40	10
215412	50	40.00		492	77.22950892	77.85889449	40	10
215486	50	40.00		492	74.95434321	77.22950892	40	10
215497	50	40.00		492	74.72713159	74.95434321	40	10
215555	50	40.00		492	73.26989773	74.72713159	40	10
215574	50	40.00		492	72.72266212	73.26989773	40	10
215617	50	40.00		492	71.53571504	72.72266212	40	10
215629	50	40.00		492	71.45000000	71.53571504	40	10
216014	20	30.00		492	66.39000000	66.85498964	30	10
218935	45	55.00		7501	15.68583261	18.14008774	55	10
218943	45	55.00		7501	15.58961826	15.68583261	55	10
219881	50	40.00		7500	24.04659090	24.30334093	40	10
219891	50	40.00		7500	23.94830322	24.04659090	40	10
220033	50	40.00		7500	15.62392995	23.94830322	40	10
220095	50	40.00		7500	12.85570594	15.62392995	40	10
220102	50	40.00		7500	10.72301918	12.85570594	40	10
220107	50	40.00		7500	10.48089513	10.72301918	40	10
220179	50	40.00		7500	6.26071395	10.48089513	40	10
224584	50	40.00		492	253.60057094	269.59819823	40	10
224598	50	40.00		492	193.25589597	193.46824204	40	10
224599	50	40.00		492	184.63478277	185.46347083	40	10
224616	50	40.00		492	141.80654249	151.86484111	40	10
224626	50	40.00		492	106.43910867	110.24960732	40	10
224649	45	55.00		7501	14.01898450	15.58961826	55	10
194992	55	49.00		1046	679.70000000	680.17561298	49	6
195037	55	49.00		1046	680.17561298	680.88343444	49	6
195040	55	49.00		1046	680.88343444	680.99739055	49	6
195224	55	49.00		1046	680.99739055	682.40322503	49	6
195455	55	49.00		1046	682.40322503	685.30753538	49	6
195470	55	49.00		1046	685.30753538	685.42124951	49	6
195494	55	49.00		1046	685.42124951	685.83158622	49	6
195523	55	49.00		1046	685.83158622	686.22746758	49	6
195535	55	49.00		1046	686.22746758	686.30650869	49	6
195946	55	49.00		1046	686.30650869	690.84673557	49	6
195964	55	49.00		1046	690.84673557	690.93485616	49	6
196437	55	49.00		1046	690.93485616	694.33823462	49	6
196439	55	49.00		1046	694.33823462	694.36719265	49	6
196447	55	49.00		1046	694.36719265	694.39076540	49	6
194929	55	60.00		485	40.51153694	51.02361938	60	5

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
196129	55	60.00		485	25.61587978	33.84965962	60	5
196214	55	60.00		485	25.24385242	25.61587978	60	5
194561	55	55.00		1046	665.00204972	673.31440765	55	0
194563	55	55.00		1046	673.31440765	673.35755569	55	0
194607	55	55.00		1046	673.75545565	673.99361990	55	0
194956	55	55.00		1046	673.99361990	679.41805553	55	0
194992	55	55.00		1046	679.66023268	679.70000000	55	0
195401	60	60.00		485	33.84965962	35.16920667	60	0
196292	60	60.00		485	24.70673612	25.24385242	60	0
196301	60	60.00		485	24.55406676	24.70673612	60	0
196634	60	60.00		485	20.55824461	24.55406676	60	0
196894	60	60.00		485	17.71167829	20.55824461	60	0
196898	60	60.00		485	17.62680643	17.71167829	60	0
196978	30	30.00		1046	700.50000000	700.55122560	30	0
197008	30	30.00		1046	700.55122560	700.84776194	30	0
197030	30	30.00		1046	700.84776194	701.11627042	30	0
197246	30	30.00		1046	701.11627042	703.94799814	30	0
197599	30	30.00		485	9.32719924	9.37707636	30	0
197659	30	30.00		485	8.75534698	9.32719924	30	0
197704	30	30.00		485	8.24040462	8.75534698	30	0
197723	30	30.00		485	8.00766236	8.24040462	30	0
197727	30	30.00		485	7.92455832	8.00766236	30	0
197799	30	30.00		485	7.48851394	7.92455832	30	0
197887	30	30.00		485	6.90675795	7.48851394	30	0
198013	20	20.00		485	5.96721616	6.10000000	20	0
198030	20	20.00		485	5.87183264	5.96721616	20	0
198055	20	20.00		485	5.59134557	5.87183264	20	0
198081	20	20.00		485	5.44731841	5.59134557	20	0
198205	20	20.00		485	5.06299183	5.44731841	20	0
198243	20	20.00		485	4.68137807	5.06299183	20	0
198247	20	20.00		485	4.63072495	4.68137807	20	0
198257	20	20.00		485	4.54671430	4.63072495	20	0
198406	20	20.00		485	3.56873310	4.54671430	20	0
198434	20	20.00		485	3.47507642	3.56873310	20	0
198479	20	20.00		485	3.21488191	3.47507642	20	0
198503	20	20.00		485	3.14198271	3.21488191	20	0
198520	20	20.00		485	3.11933207	3.14198271	20	0
198575	20	20.00		485	2.83568476	3.11933207	20	0
198637	20	20.00		485	2.59199842	2.83568476	20	0
198653	20	20.00		485	2.52442753	2.59199842	20	0
198670	20	20.00		485	2.46416640	2.52442753	20	0
198744	20	20.00		485	2.09272529	2.46416640	20	0
199113	20	20.00		485	1.08534081	2.09272529	20	0
199131	20	20.00		485	1.03483251	1.08534081	20	0
199138	20	20.00		485	1.01663106	1.03483251	20	0
199151	20	20.00		485	0.96405343	1.01663106	20	0
199224	20	20.00		485	0.66744220	0.96405343	20	0
199252	20	20.00		485	0.51107808	0.66744220	20	0
199286	20	20.00		485		0.51107808	20	0
199320	20	20.00		485	0.14000086	0.28000173	20	0
199395	20	20.00		485	0.15040629	0.05000164	20	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
199441	20	20.00		485	0.00100041	0.15040629	20	0
202852	20	20.00		492	270.93139794	270.93490000	20	0
202854	20	20.00		492	270.91820763	270.93139794	20	0
202887	20	20.00		492	270.65000000	270.91820763	20	0
216014	20	20.00		492	66.16920414	66.39000000	20	0
216065	20	20.00		492	65.25840313	66.16920414	20	0
216080	20	20.00		492	64.97443813	65.25840313	20	0
216100	20	20.00		492	64.50250752	64.97443813	20	0
216224	20	20.00		492	62.68537531	64.50250752	20	0
216228	20	20.00		492	62.46204692	62.68537531	20	0
216236	20	20.00		0	61.27407141	62.46204692	20	0
219841	55	55.00		7500	27.29882994	28.54874289	55	0
219874	55	55.00		7500	24.40000000	27.29882994	55	0
224555	55	55.00		1046	679.41805553	679.66023268	55	0

Spokane to Chicago

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
1569	0	60.00	70.00	36	1401.27649376	1401.29300549	60	60
1613	0	60.00	70.00	36	1401.29300549	1401.33000000	60	60
40560	10	60.00		3	299.73766112	300.69211217	60	50
6932	30	70.00	79.00	35			70	40
6954	30	70.00	79.00	35			70	40
58180	20	60.00		3	185.41132154	186.65620414	60	40
1613	0	35.00	35.00	36	1401.33000000	1401.87055383	35	35
27932	25	60.00		3	410.39130000	410.48620655	60	35
223620	25	60.00	79.00	35	52.71320000	54.19800381	60	35
2437	30	60.00	79.00	36	1089.87373345	1090.19091994	60	30
2441	30	60.00	79.00	36	1089.51815018	1089.87373345	60	30
2443	30	60.00	79.00	36	1089.48542481	1089.51815018	60	30
2447	30	60.00	79.00	36	1089.41359349	1089.48542481	60	30
2663	30	60.00	79.00	36	1089.06313353	1089.41359349	60	30
3274	60	30.00	30.00	37	1481.36750000	1481.65000000	30	30
6954	30	60.00	79.00	35	0.47000000	0.58273211	60	30
7018	30	60.00		34			60	30
7073	30	60.00	79.00	35	0.58273211	2.04830597	60	30
20545	30	60.00	75.00	25	105.98767741	106.36957937	60	30
20548	30	60.00	75.00	25	105.87650000	105.98767741	60	30
20722	30	60.00	75.00	25	102.79002899	105.87650000	60	30
68307	30	60.00		3	137.88800000	142.30000000	60	30
2482	35	60.00	79.00	36	1123.27250000	1124.10603855	60	25
2486	35	60.00	79.00	36	1121.90048450	1121.97520000	60	25
2488	35	60.00	79.00	36	1121.97520000	1122.12294282	60	25
2495	35	60.00	79.00	36	1122.12294282	1123.27250000	60	25
2743	35	60.00	79.00	36	1142.10686065	1144.01139246	60	25
3012	35	60.00	79.00	36	1056.21938465	1057.99869128	60	25
3150	35	60.00	79.00	36	1046.30254778	1048.07497067	60	25
3176	60	35.00	35.00	45	63.20000000	63.26344899	35	25
3197	60	35.00	35.00	45	63.26344899	63.49506684	35	25
14947	35	60.00	75.00	26	5.11549774	5.50000000	60	25
14953	35	60.00	75.00	26	3.68631645	5.11549774	60	25
14959	35	60.00	75.00	26	3.45018000	3.68631645	60	25
23659	35	60.00	79.00	25	28.52381186	37.80323059	60	25
23681	35	60.00	79.00	25	27.03084798	28.52381186	60	25
23683	35	60.00	79.00	25	26.86431236	27.03084798	60	25
23686	35	60.00	79.00	25	26.67286887	26.86431236	60	25
23695	35	60.00	79.00	25	26.52793375	26.67286887	60	25
23734	35	60.00	79.00	25	25.48494417	26.52793375	60	25
23985	35	60.00	79.00	25	21.09325222	25.48494417	60	25
24005	35	60.00	79.00	25	20.95624079	21.09325222	60	25
24012	35	60.00	79.00	25	20.88461402	20.95624079	60	25
24396	35	60.00	79.00	25	16.32422080	16.59769319	60	25
24506	35	60.00	79.00	25	15.54502343	16.32422080	60	25
24702	35	60.00	79.00	25	13.82866376	13.88482046	60	25
24934	35	60.00	79.00	25	13.56000000	13.82866376	60	25
26042	25	50.00	70.00	3	429.77539099	429.88359029	50	25
30290	35	60.00		3	391.21753964	408.49685906	60	25
32190	35	60.00		3	362.63164304	362.89037392	60	25
32196	35	60.00		3	362.06468232	362.63164304	60	25

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
36449	35	60.00		3	326.71105436	328.07000000	60	25
36657	35	60.00		3	324.79810340	326.08158099	60	25
37198	35	60.00		3	316.49922386	324.79810340	60	25
49663	35	60.00		3	235.97015474	236.91619598	60	25
53715	35	60.00		3	213.84254793	235.97015474	60	25
223712	35	60.00	79.00	25	16.59769319	20.88461402	60	25
6803	50	70.00	79.00	35	121.10000000	121.44700000	70	20
6803	50	70.00	79.00	35			70	20
6921	30	50.00	60.00	33	201.72199389	202.10000000	50	20
6951	30	50.00	60.00	33	201.25873881	201.72199389	50	20
6961	30	50.00	60.00	33	201.14299372	201.25873881	50	20
6991	30	50.00	60.00	33	200.87425548	201.14299372	50	20
6999	30	50.00	60.00	33	200.76027793	200.87425548	50	20
7001	30	50.00	60.00	33	200.30651841	200.76027793	50	20
7004	30	50.00	60.00	33	200.17849050	200.30651841	50	20
7009	30	50.00	60.00	33	199.01596577	200.17849050	50	20
7012	30	50.00	60.00	33	198.13456207	199.01596577	50	20
7016	30	50.00	60.00	33	196.44151592	198.13456207	50	20
7018	30	50.00	60.00	34	196.23000000	196.44151592	50	20
13550	40	60.00		34	40.83980000	40.83980000	60	20
13596	40	60.00		34	40.70000000	40.75649794	60	20
26072	30	50.00	70.00	3	429.36173624	429.77539099	50	20
26161	30	50.00	70.00	3	428.87027971	429.36173624	50	20
26170	30	50.00	70.00	3	428.71477788	428.87027971	50	20
26178	30	50.00	70.00	3	428.65487399	428.71477788	50	20
26181	30	50.00	70.00	3	428.57354898	428.65487399	50	20
26205	30	50.00	70.00	3	428.40141090	428.57354898	50	20
26210	30	50.00	70.00	3	428.35728624	428.40141090	50	20
27933	40	60.00		3	410.48620655	410.50000000	60	20
32113	40	60.00		3	366.18574703	374.33021586	60	20
32121	40	60.00		3	365.81812903	366.18574703	60	20
32183	40	60.00		3	362.89037392	365.81812903	60	20
49437	40	60.00		3	236.99227818		60	20
49437	40	60.00		3	237.04000000	237.04000000	60	20
49465	40	60.00		3	236.91619598	236.99227818	60	20
73470	40	60.00		3	76.31982073	77.85570578	60	20
75297	40	60.00		3	38.63226177	38.72560000	60	20
75395	40	60.00		3	38.72560000	44.27941313	60	20
75561	40	60.00		3	64.89393297	66.17196052	60	20
68307	30	49.00		3	142.30000000	142.41098502	49	19
2286	45	60.00	79.00	36	1193.12512601	1194.09049868	60	15
2288	45	60.00	79.00	36	1195.44148821	1196.77418209	60	15
2290	45	60.00	79.00	36	1196.77418209	1197.29424111	60	15
2291	45	60.00	79.00	36	1194.09049868	1195.44148821	60	15
2294	45	60.00	79.00	36	1192.86762910	1193.12512601	60	15
2298	45	60.00	79.00	36	1192.41002226	1192.86762910	60	15
2332	45	60.00	79.00	36	1188.27616840	1192.41002226	60	15
2373	45	60.00	79.00	36	1110.12812069	1110.46187533	60	15
2417	45	60.00	79.00	36	1110.46187533	1115.26543372	60	15
2425	45	60.00	79.00	36	1090.19091994	1110.12812069	60	15
2426	45	60.00	79.00	36	1115.26543372	1116.38653534	60	15

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
2428	45	60.00	79.00	36	1116.38653534	1116.60070516	60	15
2429	45	60.00	79.00	36	1116.60070516	1117.20250629	60	15
2431	45	60.00	79.00	36	1117.20250629	1117.27992998	60	15
2439	45	60.00	79.00	36	1186.01852192	1188.27616840	60	15
2449	45	60.00	79.00	36	1185.83954625	1186.01852192	60	15
2460	45	60.00	79.00	36	1185.12846134	1185.83954625	60	15
2477	45	60.00	79.00	36	1184.76999332	1185.12846134	60	15
2485	45	60.00	79.00	36	1117.27992998	1121.90048450	60	15
2503	45	60.00	79.00	36	1184.58750759	1184.76999332	60	15
2521	45	60.00	79.00	36	1197.29424111	1208.61000000	60	15
2557	45	60.00	79.00	36	1124.10603855	1131.96052055	60	15
2563	45	60.00	79.00	36	1181.64374915	1181.81503907	60	15
2566	45	60.00	79.00	36	1181.81503907	1184.58750759	60	15
2576	45	60.00	79.00	36	1131.96052055	1133.14343216	60	15
2579	45	60.00	79.00	36	1133.14343216	1133.32224450	60	15
2585	45	60.00	79.00	36	1133.32224450	1133.51758088	60	15
2589	45	60.00	79.00	36	1133.51758088	1133.79624321	60	15
2594	45	60.00	79.00	36	1133.79624321	1134.05288384	60	15
2596	45	60.00	79.00	36	1134.05288384	1134.09851443	60	15
2597	45	60.00	79.00	36	1134.09851443	1134.13912820	60	15
2639	45	60.00	79.00	36	1134.13912820	1137.28504193	60	15
2645	45	60.00	79.00	36	1177.63993562	1181.64374915	60	15
2648	45	60.00	79.00	36	1137.28504193	1137.97570000	60	15
2666	45	60.00	79.00	36	1078.75834598	1078.99378422	60	15
2674	45	60.00	79.00	36	1176.19856573	1177.63993562	60	15
2683	45	60.00	79.00	36	1175.78100000	1176.19856573	60	15
2724	45	60.00	79.00	36	1137.97570000	1142.10686065	60	15
2733	45	60.00	79.00	36	1072.29885772	1078.75834598	60	15
2742	45	60.00	79.00	36	1173.06857225	1175.78100000	60	15
2765	45	60.00	79.00	36	1172.13326710	1173.06857225	60	15
2790	45	60.00	79.00	36	1067.43148278	1072.29885772	60	15
2806	45	60.00	79.00	36	1066.82260000	1067.43148278	60	15
2808	45	60.00	79.00	36	1066.72144407	1066.82260000	60	15
2825	45	60.00	79.00	36	1170.45856355	1172.13326710	60	15
2829	45	60.00	79.00	36	1065.88353609	1066.72144407	60	15
2830	45	60.00	79.00	36	1170.18277753	1170.45856355	60	15
2837	45	60.00	79.00	36	1144.01139246	1149.13397401	60	15
2861	45	60.00	79.00	36	1149.13397401	1149.68163547	60	15
2863	45	60.00	79.00	36	1064.95848383	1065.27350457	60	15
2869	45	60.00	79.00	36	1149.68163547	1150.15373627	60	15
2880	45	60.00	79.00	36	1169.20229340	1170.18277753	60	15
2887	45	60.00	79.00	36	1150.15373627	1150.54540000	60	15
2895	45	60.00	79.00	36	1169.05180181	1169.20229340	60	15
2920	45	60.00	79.00	36	1168.55476984	1169.05180181	60	15
2936	45	60.00	79.00	36	1168.29569388	1168.55476984	60	15
2967	45	60.00	79.00	36	1150.54540000	1156.81727471	60	15
2986	45	60.00	79.00	36	1156.81727471	1157.54216748	60	15
3007	45	60.00	79.00	36	1064.62340446	1064.95848383	60	15
3018	45	60.00	79.00	36	1165.91194588	1168.29569388	60	15
3019	45	60.00	79.00	36	1157.54216748	1158.75770000	60	15
3022	45	60.00	79.00	36	1158.75770000	1158.95078210	60	15

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
3026	45	60.00	79.00	36	1158.95078210	1159.00749597	60	15
3035	45	60.00	79.00	36	1159.00749597	1159.21599677	60	15
3039	45	60.00	79.00	36	1159.21599677	1159.23776721	60	15
3043	45	60.00	79.00	36	1159.23776721	1159.43105616	60	15
3051	45	60.00	79.00	36	1165.18997272	1165.91194588	60	15
3057	45	60.00	79.00	36	1159.43105616	1159.71320398	60	15
3058	45	60.00	79.00	36	1014.80182730	1016.46429833	60	15
3060	45	60.00	79.00	36	1159.71320398	1159.98285379	60	15
3062	45	60.00	79.00	36	1164.53079565	1165.18997272	60	15
3070	45	60.00	79.00	36	1012.84172621	1014.80182730	60	15
3071	45	60.00	79.00	36	1159.98285379	1164.53079565	60	15
3075	45	60.00	79.00	36	1012.54039021	1012.84172621	60	15
3119	45	60.00	79.00	36	1048.07497067	1056.21938465	60	15
3152	45	60.00	79.00	36	1024.63705249	1032.36466948	60	15
3153	45	60.00	79.00	36	1003.10746421	1012.54039021	60	15
3162	45	60.00	79.00	36	1041.27923236	1041.99981770	60	15
3179	45	60.00	79.00	36	1041.99981770	1046.30254778	60	15
3196	45	60.00	79.00	36	1016.46429833	1024.63705249	60	15
3200	45	60.00	79.00	36	1002.73267291	1003.10746421	60	15
3258	15	30.00	30.00	37	1481.36750000	1481.36750000	30	15
3269	45	60.00	79.00	36	1032.36466948	1034.78056792	60	15
3336	45	60.00	79.00	36	1036.41764478	1041.27923236	60	15
3342	45	60.00	79.00	36	1034.78056792	1036.41764478	60	15
3470	45	60.00	79.00	36	976.31746131	979.92049829	60	15
3474	45	60.00	79.00	36	975.89471151	976.31746131	60	15
3508	45	60.00	79.00	36	971.51774390	975.89471151	60	15
3522	45	60.00	79.00	36	969.57408252	971.51774390	60	15
3554	45	60.00	79.00	36	965.30405474	969.57408252	60	15
3560	45	60.00	79.00	36	964.73929138	965.30405474	60	15
3561	45	60.00	79.00	36	964.67641080	964.73929138	60	15
3568	45	60.00	79.00	36			60	15
24521	45	60.00	79.00	25	15.35780807	15.54502343	60	15
24692	45	60.00	79.00	25	13.88482046	15.35780807	60	15
25439	30	45.00		25	2.71987331	2.75697329	45	15
25441	30	45.00		25	2.39208860	2.71987331	45	15
25449	30	45.00		25	2.27301604	2.39208860	45	15
25453	30	45.00		25	2.20613897	2.27301604	45	15
25504	30	45.00		25	1.94137644	2.20613897	45	15
25514	30	45.00		25	1.90314459	1.94137644	45	15
25521	30	45.00		25	1.88221418	1.90314459	45	15
25607	30	45.00		25	2.75697329	5.51389664	45	15
25626	30	45.00		25	1.53985180	1.88221418	45	15
25637	30	45.00		25	1.49307180	1.53985180	45	15
25662	30	45.00		25	1.41002308	1.49307180	45	15
25690	30	45.00		25	1.34217709	1.41002308	45	15
25706	30	45.00		25	1.31103331	1.34217709	45	15
25720	30	45.00		25	1.27912824	1.31103331	45	15
25832	30	45.00		25	0.95017275	1.27912824	45	15
25873	30	45.00		22	1.60000000	1.66541958	45	15
25873	30	45.00		22			45	15
25874	30	45.00		22			45	15

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
25874	30	45.00		22			45	15
25878	30	45.00		22	1.60000000	1.60000000	45	15
25878	30	45.00		22	1.60000000	1.60000000	45	15
25902	30	45.00		25	0.69220813	0.90474884	45	15
25902	30	45.00		25	0.67611021	0.90474884	45	15
25905	30	45.00		25	0.64000000	0.67611021	45	15
40916	45	60.00		3	298.29929197	299.66544983	60	15
40931	45	60.00		3	298.20769801	298.29929197	60	15
41162	45	60.00		3	297.54000000	298.20769801	60	15
68628	45	60.00		3	98.74000000	98.80047512	60	15
68639	45	60.00		3	98.80047512	98.90898199	60	15
68641	45	60.00		3	98.90898199	98.93286402	60	15
68642	45	60.00		3	98.93286402	99.03790814	60	15
68651	45	60.00		3	97.85650000	98.49000000	60	15
68681	45	60.00		3	99.03790814	99.98710325	60	15
69102	45	60.00		3	99.98710325	107.26499361	60	15
70278	25	40.00	70.00	71	3.83000000	3.84076530	40	15
70354	45	60.00		3	86.29300843	97.85650000	60	15
70898	45	60.00		3	83.72266754	83.78408126	60	15
70899	45	60.00		3	83.78408126	86.29300843	60	15
71464	45	60.00		3	81.47572760	83.72266754	60	15
71512	45	60.00		3	81.38297220	81.47572760	60	15
74744	35	50.00	70.00	71	34.62844684	35.30000000	50	15
223576	45	60.00	79.00	36	1078.99378422	1089.06313353	60	15
223579	45	60.00	79.00	36	1065.27350457	1065.55159308	60	15
223580	45	60.00	79.00	36	1057.99869128	1064.62340446	60	15
223586	45	60.00	79.00	36	1001.27220000	1002.73267291	60	15
223587	45	60.00	79.00	36	979.92049829	1001.27220000	60	15
36449	35	49.00		3	328.07000000	328.16804222	49	14
67412	35	49.00		3	144.99553467	145.17078518	49	14
67428	35	49.00		3	144.92493688	144.99553467	49	14
67445	35	49.00		3	143.90360000	144.35733832	49	14
67448	35	49.00		3	144.35733832	144.92493688	49	14
2833	49	60.00	79.00	36	1065.55159308	1065.88353609	60	11
22010	60	49.00	59.00	25	74.04110108	74.06575050	49	11
22013	60	49.00	59.00	25	73.97457822	74.04110108	49	11
22032	60	49.00	59.00	25	73.90000000	73.97457822	49	11
36222	60	49.00		3	328.16804222	328.40205549	49	11
63816	49	60.00		3	171.00000000	171.07108276	60	11
223697	49	60.00	75.00	25	78.36000000	78.61629860	60	11
223780	49	60.00		3	351.33000000	351.50255855	60	11
3244	35	25.00	25.00	37			25	10
3258	15	25.00	25.00	37	1478.67090000	1478.67090000	25	10
5851	50	60.00	70.00	35	81.81000000	82.02476935	60	10
5851	50	60.00	79.00	35	81.60653255	81.81000000	60	10
6079	50	60.00	70.00	35	92.86403967	94.01914688	60	10
6803	50	60.00	70.00	35	120.90779572	121.10000000	60	10
6814	50	60.00	70.00	35	98.86594993	120.69867120	60	10
7049	50	60.00		34	225.26486758	225.99960000	60	10
7070	50	60.00	79.00	35	3.94456618	17.78820192	60	10
7079	50	60.00	79.00	35	2.04830597	2.50358963	60	10

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
7080	50	60.00	79.00	35	2.50358963	2.64119984	60	10
7082	50	60.00	79.00	35	2.64119984	3.94456618	60	10
9009	50	60.00		34	182.16565561	182.54022309	60	10
10838	50	60.00		34	124.54974115	125.72056875	60	10
10842	50	60.00		34	124.02534614	124.54974115	60	10
10847	50	60.00		34	123.43018137	124.02534614	60	10
13226	50	60.00		34	64.16734206	66.33166010	60	10
13241	50	60.00		34	63.64194651	64.16734206	60	10
13246	50	60.00		34	63.38907021	63.64194651	60	10
13256	50	60.00		34	61.28115514	63.38907021	60	10
14937	20	30.00	50.00	220	22.28000000	23.36800000	30	10
14945	35	25.00		26	5.89460000	5.89460000	25	10
20506	50	60.00	75.00	25	106.53729072	107.66683849	60	10
20512	50	60.00	75.00	25	106.43717870	106.53729072	60	10
20519	50	60.00	75.00	25	106.36957937	106.43717870	60	10
22896	50	60.00	79.00	25	57.33717523	57.50000000	60	10
22896	50	60.00	75.00	25	57.50000000	62.52454920	60	10
22937	50	60.00	79.00	25	55.62758227	56.98296237	60	10
23156	50	60.00	79.00	25	47.88677406	55.62758227	60	10
23158	50	60.00	79.00	25	47.69334192	47.88677406	60	10
23162	50	60.00	79.00	25	47.60233847	47.69334192	60	10
23169	50	60.00	79.00	25	46.39734943	47.60233847	60	10
23178	50	60.00	79.00	25	44.73042974	46.39734943	60	10
23179	50	60.00	79.00	25	44.61836862	44.73042974	60	10
23210	50	60.00	79.00	25	40.30250119	44.61836862	60	10
23228	50	60.00	79.00	25	39.46763830	40.30250119	60	10
23232	50	60.00	79.00	25	39.38284279	39.46763830	60	10
23233	50	60.00	79.00	25	39.31247395	39.38284279	60	10
23234	50	60.00	79.00	25	39.27951570	39.31247395	60	10
23272	50	60.00	79.00	25	38.12970979	39.27951570	60	10
23292	50	60.00	79.00	25	37.80323059	38.12970979	60	10
24934	35	45.00	60.00	25	12.67639172	13.56000000	45	10
24945	35	45.00	60.00	25	12.63419464	12.67639172	45	10
24953	35	45.00	60.00	25	12.61420531	12.63419464	45	10
24971	35	45.00	60.00	25	12.56199361	12.61420531	45	10
24995	35	45.00	60.00	25	12.43698161	12.56199361	45	10
25079	35	45.00	60.00	25	11.90531660	12.43698161	45	10
25109	35	45.00	60.00	25	11.82713865	11.90531660	45	10
25133	35	45.00	60.00	25	11.74612921	11.82713865	45	10
25150	35	45.00	60.00	25	11.70000000	11.74612921	45	10
25150	35	45.00		25	11.65128083	11.70000000	45	10
25641	20	30.00		22	6.85650000	7.06000000	30	10
27931	40	50.00	70.00	3	410.67007054	422.18756985	50	10
27933	40	50.00	70.00	3	410.50000000	410.67007054	50	10
48973	40	50.00		3		241.06522028	50	10
49437	40	50.00		3		237.04000000	50	10
49437	40	50.00		3	237.04000000	237.04000000	50	10
49437	40	50.00		3			50	10
70059	15	25.00	60.00	71	1.80000000	1.96150848	25	10
70105	35	25.00	60.00	71	1.96150848	2.90974818	25	10
70107	35	25.00	60.00	71	2.90974818	2.93386315	25	10

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
70110	35	25.00	60.00	71	2.93386315	2.94760169	25	10
70118	35	25.00	60.00	71	2.94760169	2.99819724	25	10
70146	35	25.00	60.00	71	2.99819724	3.18897468	25	10
75275	50	60.00		3	38.59990000	38.63226177	60	10
223607	60	70.00	79.00	35	289.38805510	289.44000000	70	10
223624	50	60.00	70.00	35	120.69867120	120.90779572	60	10
223664	35	25.00		26			25	10
223704	50	60.00	79.00	25	56.98296237	57.33717523	60	10
13596	40	49.00		34	37.79756543	40.70000000	49	9
13672	40	49.00		34	31.89765527	37.79756543	49	9
13767	40	49.00		34	29.48848947	31.89765527	49	9
13785	40	49.00		34	28.74867251	29.48848947	49	9
13899	40	49.00		34	23.31174784	28.74867251	49	9
13905	40	49.00		34	23.10197139	23.31174784	49	9
13909	40	49.00		34	23.03982702	23.10197139	49	9
13931	40	49.00		34	22.87000000	23.03982702	49	9
15285	55	49.00	59.00	25	210.75428758	213.04000000	49	6
15290	55	49.00	59.00	25	210.71960417	210.75428758	49	6
15306	55	49.00	59.00	25	210.57009401	210.71960417	49	6
15315	55	49.00	59.00	25	210.48439189	210.57009401	49	6
15344	55	49.00	59.00	25	209.90791769	210.48439189	49	6
15362	55	49.00	59.00	25	209.77921585	209.90791769	49	6
15435	55	49.00	59.00	25	208.99644431	209.77921585	49	6
16323	55	49.00	59.00	25	201.53185547	208.99644431	49	6
16389	55	49.00	59.00	25	200.36519554	201.53185547	49	6
17355	55	49.00	59.00	25	190.23594187	200.36519554	49	6
17434	55	49.00	59.00	25	189.54177493	190.23594187	49	6
17457	55	49.00	59.00	25	189.26000000	189.54177493	49	6
3260	40	35.00	35.00	45			35	5
6921	30	35.00		33	202.10000000	202.40000000	35	5
14640	55	60.00	79.00	25	230.31639415	230.59200422	60	5
14641	55	60.00	79.00	25	230.59200422	230.71358574	60	5
14647	55	60.00	79.00	25	229.34966895	230.31639415	60	5
14826	55	60.00	79.00	25	230.71358574	233.98962893	60	5
14827	55	60.00	79.00	25	222.81231936	229.34966895	60	5
14831	55	60.00	79.00	25	222.59528781	222.81231936	60	5
14832	55	60.00	79.00	25	221.84702640	222.59528781	60	5
14937	20	25.00		220	21.71637461	22.28000000	25	5
15016	55	60.00	79.00	25	248.92969998	248.95023640	60	5
15020	55	60.00	79.00	25	248.81229500	248.92969998	60	5
15021	55	60.00	79.00	25	248.58607814	248.81229500	60	5
15050	55	60.00	79.00	25	242.11288764	248.58607814	60	5
15071	55	60.00	79.00	25	233.98962893	235.16605083	60	5
15089	55	60.00	79.00	25	240.74228687	242.11288764	60	5
15091	55	60.00	79.00	25	218.05829099	221.84702640	60	5
15108	55	60.00	79.00	25	217.41720771	218.05829099	60	5
15187	55	60.00	79.00	25	235.16605083	240.74228687	60	5
15214	55	60.00	79.00	25	213.49136491	217.41720771	60	5
15285	55	60.00	79.00	25	213.04000000	213.49136491	60	5
17457	55	60.00	75.00	25	189.20736853	189.26000000	60	5
17534	55	60.00	75.00	25	187.71246927	189.20736853	60	5

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
17709	55	60.00	75.00	25	183.79142290	187.71246927	60	5
17719	55	60.00	75.00	25	183.66597932	183.79142290	60	5
17918	55	60.00	75.00	25	178.67760708	183.66597932	60	5
17986	55	60.00	75.00	25	177.19030997	178.67760708	60	5
18037	55	60.00	75.00	25	176.11881400	177.19030997	60	5
18276	55	60.00	75.00	25	167.73214688	176.11881400	60	5
18385	55	60.00	75.00	25	165.23360383	167.73214688	60	5
18390	55	60.00	75.00	25	165.15485774	165.23360383	60	5
18551	55	60.00	75.00	25	159.13564211	165.15485774	60	5
18560	55	60.00	75.00	25	158.77176897	159.13564211	60	5
18582	55	60.00	75.00	25	158.23654331	158.77176897	60	5
18783	55	60.00	75.00	25	150.25574072	158.23654331	60	5
18837	55	60.00	75.00	25	146.50977085	150.25574072	60	5
41162	45	50.00		3	296.26958513	297.54000000	50	5
41166	45	50.00		3	296.17720564	296.26958513	50	5
70284	35	40.00	70.00	71	3.84076530	3.88789307	40	5
70292	35	40.00	70.00	71	3.88789307	3.92760282	40	5
70297	35	40.00	70.00	71	3.92760282	3.95086212	40	5
70317	35	40.00	70.00	71	3.95086212	4.04080087	40	5
70331	35	40.00	70.00	71	4.04080087	4.09322156	40	5
70411	35	40.00	70.00	71	4.09322156	4.54555829	40	5
70417	35	40.00	70.00	71	4.54555829	4.60104362	40	5
70425	35	40.00	70.00	71	4.60104362	4.65717433	40	5
70728	35	40.00	70.00	71	4.65717433	6.52520462	40	5
71818	45	40.00	70.00	71	11.69397731	12.32000000	40	5
73185	45	50.00	70.00	71	21.17000000	21.19585405	50	5
74744	35	40.00	55.00	71	35.30000000	36.06230947	40	5
74752	35	40.00	55.00	71	36.06230947	36.12409102	40	5
74780	35	40.00	55.00	71	36.12409102	36.28652513	40	5
74787	35	40.00	55.00	71	36.28652513	36.34095515	40	5
74823	35	40.00	55.00	71	36.34095515	36.48807486	40	5
74871	35	40.00	55.00	71	36.48807486	36.67103545	40	5
74884	35	40.00	55.00	71	36.67103545	36.73566232	40	5
74909	35	40.00	55.00	71	36.73566232	36.83644476	40	5
74963	35	40.00	55.00	71	36.83644476	37.05272493	40	5
75106	35	40.00	55.00	71	37.05272493	37.82000000	40	5
224735	45	40.00	70.00	71	11.03610093	11.69397731	40	5
224803	45	40.00	70.00	71	9.02548130	10.11670570	40	5
224907	45	40.00	70.00	71	10.11670570	11.03610093	40	5
769	60	60.00	70.00	36	1368.39000000	1368.46664587	60	0
769	60	60.00	79.00	36	1368.24160104	1368.39000000	60	0
775	60	60.00	70.00	36	1368.46664587	1368.89380783	60	0
777	60	60.00	70.00	36	1368.89380783	1368.98037514	60	0
797	60	60.00	79.00	36	1364.75881322	1368.24160104	60	0
815	60	60.00	79.00	36	1362.95550000	1364.75881322	60	0
820	60	60.00	79.00	36	1361.61818956	1362.95550000	60	0
860	60	60.00	79.00	36	1357.22391717	1361.61818956	60	0
864	60	60.00	79.00	36	1357.01862986	1357.22391717	60	0
955	60	60.00	70.00	36	1368.98037514	1375.91384035	60	0
1155	60	60.00	70.00	36	1375.91384035	1379.82882163	60	0
1169	60	60.00	70.00	36	1379.82882163	1380.07914504	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
1220	60	60.00	79.00	36	1347.07294744	1357.01862986	60	0
1242	60	60.00	70.00	36	1380.07914504	1385.94013240	60	0
1259	60	60.00	70.00	36	1385.94013240	1386.31088294	60	0
1320	60	60.00	79.00	36	1343.87680000	1347.07294744	60	0
1322	60	60.00	70.00	36	1386.31088294	1387.87471038	60	0
1383	60	60.00	79.00	36	1342.48579108	1343.87680000	60	0
1426	60	60.00	65.00	36	1248.88383163	1249.14399153	60	0
1428	60	60.00	65.00	36	1248.85001814	1248.88383163	60	0
1429	60	60.00	79.00	36	1340.38776860	1342.48579108	60	0
1430	60	60.00	70.00	36	1387.87471038	1392.69572689	60	0
1431	60	60.00	65.00	36	1248.77842011	1248.85001814	60	0
1433	60	60.00	70.00	36	1392.69572689	1392.85577373	60	0
1437	60	60.00	70.00	36	1392.85577373	1393.67174369	60	0
1439	60	60.00	79.00	36	1339.59672123	1340.38776860	60	0
1440	60	60.00	70.00	36	1393.67174369	1393.81103461	60	0
1441	60	60.00	79.00	36	1339.47355857	1339.59672123	60	0
1451	60	60.00	70.00	36	1393.81103461	1395.21339563	60	0
1464	60	60.00	79.00	36	1249.40000000	1260.24941477	60	0
1464	60	60.00	65.00	36	1249.14399153	1249.40000000	60	0
1465	60	60.00	79.00	36	1260.24941477	1261.44803491	60	0
1472	60	60.00	79.00	36	1337.38367980	1339.47355857	60	0
1475	60	60.00	79.00	36	1337.27294885	1337.38367980	60	0
1507	60	60.00	79.00	36	1336.43466102	1337.27294885	60	0
1515	60	60.00	79.00	36	1336.16652806	1336.43466102	60	0
1538	60	60.00	79.00	36	1261.44803491	1264.75134491	60	0
1556	60	60.00	70.00	36	1395.21339563	1400.64215532	60	0
1567	60	60.00	70.00	36	1400.64215532	1401.27649376	60	0
1616	35	35.00	35.00	36	1401.87055383	1401.99694885	35	0
1627	35	35.00	35.00	36	1401.99694885	1402.63166835	35	0
1633	35	35.00	35.00	36	1402.63166835	1402.69084744	35	0
1642	35	35.00	35.00	36	1402.69084744	1402.86640361	35	0
1654	35	35.00	35.00	36	1402.86640361	1402.95560000	35	0
1757	60	60.00	79.00	36	1264.75134491	1268.06411904	60	0
1822	60	60.00	79.00	45	3.00000000	3.05028154	60	0
1984	60	60.00	79.00	36	1319.73762441	1336.16652806	60	0
1987	60	60.00	79.00	45	3.89677194	4.90833579	60	0
1999	60	60.00	79.00	36	1319.63605108	1319.73762441	60	0
2003	60	60.00	79.00	36	1319.44818680	1319.63605108	60	0
2008	60	60.00	79.00	36	1319.32716132	1319.44818680	60	0
2009	60	60.00	79.00	36	1319.29770000	1319.32716132	60	0
2015	60	60.00	79.00	36	1319.21822872	1319.29770000	60	0
2111	60	60.00	79.00	36	1268.06411904	1271.47789812	60	0
2114	60	60.00	65.00	36	1233.03831599	1248.77842011	60	0
2118	60	60.00	65.00	36	1232.66175423	1233.03831599	60	0
2147	60	60.00	79.00	45	4.90833579	9.66586414	60	0
2152	60	60.00	65.00	36	1231.52037837	1232.66175423	60	0
2159	60	60.00	65.00	36	1231.30552054	1231.52037837	60	0
2173	60	60.00	79.00	36	1307.44499355	1319.21822872	60	0
2174	60	60.00	79.00	36	1307.39081453	1307.44499355	60	0
2178	60	60.00	79.00	45	9.66586414	12.00408804	60	0
2188	60	60.00	79.00	36	1271.47789812	1274.81054374	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
2189	60	60.00	79.00	36	1274.81054374	1274.90185757	60	0
2190	60	60.00	65.00	36	1226.83212629	1227.02168331	60	0
2202	60	60.00	65.00	36	1227.02168331	1231.30552054	60	0
2204	60	60.00	79.00	45	12.00408804	13.09412307	60	0
2208	60	60.00	79.00	45	13.09412307	13.22740000	60	0
2276	60	60.00	79.00	36	1274.90185757	1280.36444257	60	0
2304	60	60.00	79.00	45	13.22740000	16.93047809	60	0
2325	60	60.00	65.00	36	1219.94795312	1226.83212629	60	0
2326	60	60.00	65.00	36	1219.88042139	1219.94795312	60	0
2333	60	60.00	65.00	36	1219.43495193	1219.88042139	60	0
2336	60	60.00	65.00	36	1219.33199947	1219.43495193	60	0
2343	60	60.00	70.00	36	1218.67796275	1219.13059324	60	0
2346	60	60.00	70.00	36	1218.57365590	1218.67796275	60	0
2365	60	60.00	70.00	36	1217.95254621	1218.57365590	60	0
2378	60	60.00	79.00	45	16.93047809	19.03481832	60	0
2491	60	60.00	70.00	36	1209.40600000	1209.71181247	60	0
2494	60	60.00	70.00	36	1209.71181247	1210.83745920	60	0
2500	60	60.00	79.00	36	1280.36444257	1307.39081453	60	0
2506	60	60.00	70.00	36	1208.98860000	1209.40600000	60	0
2508	60	60.00	70.00	36	1212.40048724	1217.95254621	60	0
2509	60	60.00	70.00	36	1210.83745920	1211.78150000	60	0
2511	60	60.00	70.00	36	1211.78150000	1211.82560773	60	0
2513	60	60.00	70.00	36	1211.82560773	1212.40048724	60	0
2514	60	60.00	70.00	36	1208.80000000	1208.98860000	60	0
2514	60	60.00	79.00	36			60	0
2575	60	60.00	79.00	45	19.03481832	25.18148217	60	0
2678	60	60.00	79.00	45	25.18148217	31.40111265	60	0
2709	60	60.00	79.00	45	31.40111265	32.33467171	60	0
2770	60	60.00	79.00	45	32.33467171	37.57486084	60	0
2798	60	60.00	79.00	45	37.57486084	38.88714242	60	0
2896	60	60.00	79.00	45	38.88714242	43.56092760	60	0
2897	60	60.00	79.00	45	43.56092760	43.62726007	60	0
2915	60	60.00	79.00	45	43.62726007	44.44112299	60	0
2933	60	60.00	79.00	45	44.44112299	45.02239886	60	0
2946	60	60.00	79.00	45	45.02239886	45.81870315	60	0
3061	60	60.00	79.00	45	45.81870315	46.38373615	60	0
3068	60	60.00	79.00	45	50.72966802	51.22685760	60	0
3073	60	60.00	79.00	45	51.22685760	51.53904080	60	0
3176	60	60.00	79.00	45	61.07163558	63.20000000	60	0
3199	60	60.00	79.00	45	60.27219057	61.07163558	60	0
3216	60	60.00	79.00	45	51.53904080	60.27219057	60	0
3217	35	35.00	35.00	45	64.53138542	66.51650523	35	0
3218	35	35.00	35.00	45	66.51650523	66.58028833	35	0
3234	35	35.00	35.00	45	66.58028833	67.28236620	35	0
3245	35	35.00	35.00	45	67.28236620	68.12926728	35	0
3252	35	35.00	35.00	45	68.12926728	69.13892415	35	0
3259	35	35.00	35.00	45	69.13892415	69.29090000	35	0
3274	60	60.00	79.00	37	1481.65000000	1481.71530000	60	0
3580	60	60.00	79.00	36	430.76537889	433.94800000	60	0
3591	60	60.00	79.00	35	416.79416519	418.89615298	60	0
3592	60	60.00	79.00	35		430.76537889	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
3592	60	60.00	79.00	35			60	0
3596	60	60.00	79.00	35			60	0
3598	60	60.00	79.00	35	430.08297354	430.17141974	60	0
3599	60	60.00	79.00	35	409.19790424	416.79416519	60	0
3602	60	60.00	79.00	35	429.99031238	430.08297354	60	0
3605	60	60.00	79.00	35	427.41246849	429.99031238	60	0
3626	60	60.00	79.00	35	407.58665565	409.19790424	60	0
3638	60	60.00	79.00	35	418.89615298	427.41246849	60	0
3643	60	60.00	79.00	35	403.59010000	407.58665565	60	0
3647	60	60.00	79.00	35	402.87749749	403.59010000	60	0
3665	60	60.00	79.00	35	400.03480000	402.87749749	60	0
3681	60	60.00	79.00	35	398.39824675	400.03480000	60	0
3685	60	60.00	79.00	35	398.03664602	398.39824675	60	0
3826	60	60.00	79.00	35	388.73568057	398.03664602	60	0
3831	60	60.00	79.00	35	388.25630000	388.73568057	60	0
3832	60	60.00	79.00	35	388.22485598	388.25630000	60	0
3846	60	60.00	79.00	35	386.66681652	387.67749881	60	0
3853	60	60.00	79.00	35	386.25229084	386.66681652	60	0
3856	60	60.00	79.00	35	386.22729371	386.25229084	60	0
3974	60	60.00	79.00	35	379.86174920	386.22729371	60	0
4183	60	60.00	79.00	35	371.03859336	379.86174920	60	0
4194	60	60.00	79.00	35	370.62028777	371.03859336	60	0
4399	60	60.00	79.00	35	361.04039007	370.62028777	60	0
4416	60	60.00	79.00	35	360.17610000	361.04039007	60	0
4426	60	60.00	79.00	35	317.74006022	318.33816685	60	0
4446	60	60.00	79.00	35	316.49916277	317.74006022	60	0
4450	60	60.00	79.00	35	316.46445937	316.49916277	60	0
4504	60	60.00	79.00	35	315.40898114	316.46445937	60	0
4592	60	60.00	79.00	35	349.16901266	360.17610000	60	0
4601	60	60.00	79.00	35	318.33816685	329.02480000	60	0
4627	60	60.00	79.00	35	329.02480000	330.58369269	60	0
4658	60	60.00	79.00	35	343.38438213	349.16901266	60	0
4665	60	60.00	79.00	35	341.72399449	343.38438213	60	0
4668	60	60.00	79.00	35	341.47883840	341.72399449	60	0
4673	60	60.00	79.00	35	340.97864381	341.47883840	60	0
4676	60	60.00	79.00	35	330.58369269	340.97864381	60	0
4723	60	60.00	79.00	35	305.05412866	315.40898114	60	0
4790	60	60.00	79.00	35	302.33547601	305.05412866	60	0
4824	60	60.00	79.00	35	299.21408476	302.33547601	60	0
4940	60	60.00	79.00	35	294.74090065	299.21408476	60	0
4997	60	60.00	79.00	35	293.91496979	294.74090065	60	0
5180	60	60.00	79.00	35	289.66538963	293.91496979	60	0
5242	70	70.00	79.00	35	287.97867970	289.38805510	70	0
5476	70	70.00	79.00	35	282.72012212	287.97867970	70	0
5497	70	70.00	79.00	35	281.86705531	282.72012212	70	0
5680	70	70.00	79.00	35	278.16375918	281.86705531	70	0
5719	70	70.00	79.00	35	277.22526888	278.16375918	70	0
5756	70	70.00	79.00	35	277.01285365	277.22526888	70	0
5782	70	70.00	79.00	35	275.90489449	276.71946282	70	0
5805	60	60.00	70.00	35	83.30718478	84.82228576	60	0
5821	60	60.00	70.00	35	82.36096905	83.30718478	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
5829	60	60.00	70.00	35	84.82228576	86.45210647	60	0
5835	60	60.00	70.00	35	82.02476935	82.36096905	60	0
5860	60	60.00	79.00	35	81.37286379	81.60653255	60	0
5863	60	60.00	79.00	35	80.94501225	80.99507572	60	0
5864	60	60.00	79.00	35	81.28829065	81.37286379	60	0
5865	60	60.00	79.00	35	80.99507572	81.28829065	60	0
5874	60	60.00	70.00	35	86.45210647	89.09256722	60	0
5931	60	60.00	79.00	35	74.86770000	80.94501225	60	0
5974	60	60.00	79.00	35	73.42212998	74.86770000	60	0
6024	60	60.00	70.00	35	89.09256722	92.86403967	60	0
6087	70	70.00	79.00	35	264.35605182	275.90489449	70	0
6102	70	70.00	79.00	35	262.59000267	264.35605182	70	0
6228	60	60.00	70.00	35	94.01914688	98.34712486	60	0
6233	60	60.00	70.00	35	98.34712486	98.86594993	60	0
6279	60	60.00	79.00	35	52.42223548	52.71320000	60	0
6282	60	60.00	79.00	35	52.28865352	52.42223548	60	0
6287	60	60.00	79.00	35	61.95096601	73.42212998	60	0
6288	60	60.00	79.00	35	60.17605579	61.95096601	60	0
6293	60	60.00	79.00	35	35.71600549	46.85968627	60	0
6294	60	60.00	79.00	35	46.85968627	52.28865352	60	0
6295	60	60.00	79.00	35	56.94830582	60.17605579	60	0
6297	60	60.00	79.00	35	54.19800381	56.94830582	60	0
6320	70	70.00	79.00	35	253.15788687	262.23633017	70	0
6331	70	70.00	79.00	35	251.40064129	253.15788687	70	0
6343	60	60.00	79.00	35	23.68923875	35.71600549	60	0
6366	60	60.00	79.00	35	23.07899837	23.68923875	60	0
6422	70	70.00	79.00	35	191.76838980	194.35353380	70	0
6432	70	70.00	79.00	35	247.10022157	251.40064129	70	0
6433	60	60.00	79.00	35	21.59338951	23.07899837	60	0
6438	70	70.00	79.00	35	227.53021693	229.33859963	70	0
6467	70	70.00	79.00	35	245.84412833	247.10022157	70	0
6497	70	70.00	79.00	35	245.04904499	245.84412833	70	0
6511	70	70.00	79.00	35	229.33859963	237.96059087	70	0
6517	70	70.00	79.00	35	194.35353380	197.44754389	70	0
6521	70	70.00	79.00	35	237.96059087	239.43936993	70	0
6526	70	70.00	79.00	35	173.04888597	173.12373918	70	0
6527	70	70.00	79.00	35	239.43936993	245.04904499	70	0
6528	70	70.00	79.00	35	200.66788786	226.99765961	70	0
6532	70	70.00	79.00	35	197.44754389	200.66788786	70	0
6539	60	60.00	79.00	35	18.10429285	21.59338951	60	0
6550	60	60.00	79.00	35	17.78820192	18.10429285	60	0
6556	70	70.00	79.00	35	173.12373918	191.76838980	70	0
6591	70	70.00	79.00	35	159.44830823	173.04888597	70	0
6795	70	70.00	79.00	35	121.44700000	123.02037577	70	0
7054	60	60.00		34	225.17003616	225.26486758	60	0
7191	70	70.00	79.00	35	123.02037577	132.75565109	70	0
7209	60	60.00		34	218.80410975	225.17003616	60	0
7217	60	60.00		34	218.64617476	218.80410975	60	0
7247	60	60.00		34	217.87717890	218.64617476	60	0
7260	70	70.00	79.00	35	159.16905434	159.44830823	70	0
7315	70	70.00	79.00	35	132.75565109	135.59399530	70	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
7328	70	70.00	79.00	35	147.25013576	148.19024123	70	0
7356	70	70.00	79.00	35	146.79135398	147.25013576	70	0
7391	70	70.00	79.00	35	135.59399530	137.02407304	70	0
7411	70	70.00	79.00	35	137.02407304	137.44811342	70	0
7450	60	60.00		34	212.29665360	217.87717890	60	0
7487	60	60.00		34	211.41205542	212.29665360	60	0
7529	70	70.00	79.00	35	143.36135455	146.79135398	70	0
7541	70	70.00	79.00	35	142.46376476	143.36135455	70	0
7542	70	70.00	79.00	35	137.44811342	141.61622181	70	0
7545	70	70.00	79.00	35	142.25606092	142.46376476	70	0
7547	70	70.00	79.00	35	142.17366337	142.25606092	70	0
7550	70	70.00	79.00	35	141.61622181	142.17366337	70	0
7696	60	60.00		34	207.35145960	211.41205542	60	0
7702	60	60.00		34	207.29770191	207.35145960	60	0
7752	60	60.00		34	206.14118404	207.29770191	60	0
7801	60	60.00		34	204.63500881	206.14118404	60	0
7861	60	60.00		34	202.99848333	204.63500881	60	0
7997	60	60.00		34	199.67327699	202.99848333	60	0
8062	60	60.00		34	198.81476902	199.67327699	60	0
8431	60	60.00		34	193.01795824	198.81476902	60	0
8465	60	60.00		34	192.52550220	193.01795824	60	0
8736	60	60.00		34	187.74728049	192.52550220	60	0
8796	60	60.00		34	186.52978872	187.74728049	60	0
8839	60	60.00		34	186.00620061	186.52978872	60	0
8974	60	60.00		34	182.97882921	186.00620061	60	0
8994	60	60.00		34	182.54022309	182.97882921	60	0
9209	60	60.00		34	178.19874747	182.16565561	60	0
9267	60	60.00		34	176.16920170	178.19874747	60	0
9512	60	60.00		34	168.90460383	176.16920170	60	0
9530	60	60.00		34	168.61192900	168.90460383	60	0
9661	60	60.00		34	167.20010922	168.61192900	60	0
9664	60	60.00		34	167.10861967	167.20010922	60	0
9686	60	60.00		34	166.91267799	167.10861967	60	0
9813	60	60.00		34	164.05177737	166.91267799	60	0
9819	60	60.00		34	163.98196485	164.05177737	60	0
9898	60	60.00		34	162.46835058	163.98196485	60	0
9940	60	60.00		34	161.01672480	162.46835058	60	0
10190	60	60.00		34	152.99386051	161.01672480	60	0
10195	60	60.00		34	152.91611920	152.99386051	60	0
10243	60	60.00		34	151.31440753	152.91611920	60	0
10246	60	60.00		34	151.22111727	151.31440753	60	0
10269	60	60.00		34	150.50553360	151.22111727	60	0
10298	60	60.00		34	148.98547351	150.50553360	60	0
10410	60	60.00		34	143.58884847	148.98547351	60	0
10412	60	60.00		34	142.68474938	143.58884847	60	0
10423	60	60.00		34	142.09985958	142.68474938	60	0
10467	60	60.00		34	137.46614097	142.09985958	60	0
10536	60	60.00		34	135.89073008	137.46614097	60	0
10793	60	60.00		34	126.60924394	135.89073008	60	0
10819	60	60.00		34	125.72056875	126.60924394	60	0
10851	60	60.00		34	123.34474954	123.43018137	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
10985	60	60.00		34	118.49234555	123.34474954	60	0
11020	60	60.00		34	117.52548795	118.49234555	60	0
11031	60	60.00		34	116.81233793	117.52548795	60	0
11205	60	60.00		34	112.73133242	116.81233793	60	0
11213	60	60.00		34	112.38642752	112.73133242	60	0
11951	60	60.00		34	100.05403977	112.38642752	60	0
11982	60	60.00		34	99.51575230	100.05403977	60	0
12324	60	60.00		34	93.50819330	99.51575230	60	0
12342	60	60.00		34	93.10056176	93.50819330	60	0
12558	60	60.00		34	86.89407936	93.10056176	60	0
12594	60	60.00		34	86.42482343	86.89407936	60	0
13064	60	60.00		34	72.76362693	86.04092264	60	0
13188	60	60.00		34	66.74037170	72.76362693	60	0
13196	60	60.00		34	66.33166010	66.74037170	60	0
13265	60	60.00		34	59.49120631	61.28115514	60	0
13372	60	60.00		34	53.39776827	59.49120631	60	0
13388	60	60.00		34	51.84105118	53.39776827	60	0
13460	60	60.00		34	47.56006108	51.84105118	60	0
13463	60	60.00		34	47.29751139	47.56006108	60	0
13546	60	60.00		34	40.83980000	47.29751139	60	0
13931	40	40.00		34	22.42414529	22.87000000	40	0
14132	40	40.00		34	18.08914734	22.42414529	40	0
14329	40	40.00		34	11.36906805	18.08914734	40	0
14636	40	40.00		34	3.91382466	11.36906805	40	0
14809	30	30.00	50.00	220	24.27332751	24.32890000	30	0
14823	30	30.00	50.00	220	24.02604981	24.27332751	30	0
14842	30	30.00	50.00	220	23.77173309	24.02604981	30	0
14850	30	30.00	50.00	220	23.38987572	23.77173309	30	0
14850	30	30.00	50.00	220			30	0
14945	35	35.00	40.00	26			35	0
14947	35	35.00	40.00	26	5.50000000	5.62299743	35	0
14958	60	60.00	75.00	26	3.45018000	3.45018000	60	0
14961	60	60.00	75.00	26	3.02953098	3.35116808	60	0
14964	60	60.00	75.00	26	2.98194226	3.02953098	60	0
14966	60	60.00	75.00	26	2.92022729	2.98194226	60	0
14968	60	60.00	75.00	26	2.54934912	2.62390428	60	0
14970	60	60.00	75.00	26	2.75400403	2.92022729	60	0
14971	60	60.00	75.00	26	2.62390428	2.67471628	60	0
14972	60	60.00	75.00	26	2.67471628	2.75400403	60	0
14974	60	60.00	75.00	26	2.51100150	2.54934912	60	0
14975	60	60.00	75.00	26	2.40158832	2.51100150	60	0
14977	60	60.00	75.00	26	1.60749021	2.40158832	60	0
14983	60	60.00	75.00	26	0.86058917	1.60749021	60	0
15018	60	60.00	79.00	25	248.95023640	250.49290000	60	0
15018	60	60.00	75.00	25	0.00100000	0.86058917	60	0
18841	60	60.00	75.00	25	145.43103626	146.23280000	60	0
19173	60	60.00	75.00	25	143.22965202	145.43103626	60	0
19539	60	60.00	75.00	25	128.87806638	134.20656076	60	0
19630	60	60.00	75.00	25	126.76435575	128.87806638	60	0
19683	60	60.00	75.00	25	124.74719021	126.76435575	60	0
19692	60	60.00	75.00	25	124.66530414	124.74719021	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
19939	60	60.00	75.00	25	118.70506025	124.66530414	60	0
19994	60	60.00	75.00	25	116.81510879	118.70506025	60	0
19999	60	60.00	75.00	25	116.69603374	116.81510879	60	0
20003	60	60.00	75.00	25	116.66352223	116.69603374	60	0
20015	60	60.00	75.00	25	116.36901451	116.66352223	60	0
20337	60	60.00	75.00	25	110.87818732	116.36901451	60	0
20392	60	60.00	75.00	25	109.52966801	110.87818732	60	0
20450	60	60.00	75.00	25	107.80961093	109.52966801	60	0
20458	60	60.00	75.00	25	107.69381066	107.80961093	60	0
20460	60	60.00	75.00	25	107.66683849	107.69381066	60	0
20899	60	60.00	75.00	25	98.84194113	102.79002899	60	0
20904	60	60.00	75.00	25	98.80601476	98.84194113	60	0
20911	60	60.00	75.00	25	98.74371648	98.80601476	60	0
21047	60	60.00	75.00	25	95.67326614	98.74371648	60	0
21068	60	60.00	75.00	25	95.21064341	95.67326614	60	0
21321	60	60.00	75.00	25	88.87271704	95.21064341	60	0
21402	60	60.00	75.00	25	86.94288738	88.87271704	60	0
21683	60	60.00	75.00	25	79.87450194	86.94288738	60	0
21773	60	60.00	75.00	25	78.61629860	79.87450194	60	0
21975	49	49.00	59.00	25	74.63418587	78.27052123	49	0
22008	49	49.00	59.00	25	74.06575050	74.63418587	49	0
22032	60	60.00	75.00	25	73.72785704	73.90000000	60	0
22384	60	60.00	75.00	25	67.55093020	73.72785704	60	0
22760	60	60.00	75.00	25	62.89150923	67.55093020	60	0
22765	60	60.00	75.00	25	62.86461867	62.89150923	60	0
22788	60	60.00	75.00	25	62.52454920	62.86461867	60	0
25220	45	45.00		0	0.00100000	0.00100000	45	0
25299	45	45.00		0	0.00100000	0.00100000	45	0
25323	45	45.00		25	9.81350493	10.10448901	45	0
25325	45	45.00		25	9.79241204	9.81350493	45	0
25345	45	45.00		25	9.35007546	9.79241204	45	0
25520	45	45.00		25	7.86040601	9.35007546	45	0
25555	45	45.00		25	7.72251685	7.86040601	45	0
25560	45	45.00		25	7.66656799	7.72251685	45	0
25597	45	45.00		25	6.77563456	7.66656799	45	0
25604	45	45.00		25	6.56432816	6.77563456	45	0
25610	45	45.00		25	5.51389664	5.82100909	45	0
25612	45	45.00		25	6.43819445	6.56432816	45	0
25613	45	45.00		25	5.82100909	5.88001895	45	0
25619	45	45.00		25	5.88001895	6.43819445	45	0
25640	30	30.00		22	6.85650000	6.85650000	30	0
25640	30	30.00		22	6.82361031	6.85095169	30	0
25643	30	30.00		22	6.61012359	6.82361031	30	0
25643	30	30.00		22	6.61012359	6.82361031	30	0
25701	30	30.00		22	5.50832858	6.61012359	30	0
25701	30	30.00		22	5.50832858	6.61012359	30	0
25710	30	30.00		22	5.44933818	5.50832858	30	0
25710	30	30.00		22	5.44933818	5.50832858	30	0
25756	30	30.00		22	4.52442195	5.44933818	30	0
25756	30	30.00		22	4.52442195	5.44933818	30	0
25767	30	30.00		22	4.46548579	4.52442195	30	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
25767	30	30.00		22	4.46548579	4.52442195	30	0
25797	30	30.00		22	3.05940282	3.08824963	30	0
25797	30	30.00		22	3.05940282	3.08824963	30	0
25799	30	30.00		22	3.08824963	3.10689616	30	0
25799	30	30.00		22	3.08824963	3.10689616	30	0
25801	30	30.00		22	3.20601125	4.46548579	30	0
25801	30	30.00		22	3.20601125	4.46548579	30	0
25802	30	30.00		22	3.10689616	3.14893095	30	0
25802	30	30.00		22	3.10689616	3.14893095	30	0
25803	30	30.00		22	3.14893095	3.20601125	30	0
25803	30	30.00		22	3.14893095	3.20601125	30	0
25814	30	30.00		22	1.85448947	1.89084812	30	0
25814	30	30.00		22	1.85448947	1.89084812	30	0
25815	30	30.00		22	1.89084812	2.05855997	30	0
25815	30	30.00		22	1.89084812	2.05855997	30	0
25816	30	30.00		22	1.83639519	1.85448947	30	0
25816	30	30.00		22	1.83639519	1.85448947	30	0
25820	30	30.00		22	1.81256435	1.83639519	30	0
25820	30	30.00		22	1.81256435	1.83639519	30	0
25829	30	30.00		22	2.19454797	2.22326658	30	0
25829	30	30.00		22	2.19454797	2.22326658	30	0
25830	30	30.00		22	2.05855997	2.19454797	30	0
25830	30	30.00		22	2.05855997	2.19454797	30	0
25834	30	30.00		22	2.22326658	2.56837447	30	0
25834	30	30.00		22	2.22326658	2.56837447	30	0
25839	30	30.00		22	2.56837447	2.59876303	30	0
25839	30	30.00		22	2.56837447	2.59876303	30	0
25840	30	30.00		22	2.59876303	3.05940282	30	0
25840	30	30.00		22	2.59876303	3.05940282	30	0
25857	30	30.00		22	1.66641987	1.81256435	30	0
25857	30	30.00		22	1.66641987	1.81256435	30	0
25873	30	30.00		22			30	0
25874	30	30.00		22	1.60000000	1.66641987	30	0
25874	30	30.00		22	1.61202922	1.66641987	30	0
25878	30	30.00		22			30	0
26023	50	50.00	70.00	3	429.88359029	430.00000000	50	0
26413	50	50.00	70.00	3	426.47718452	428.35728624	50	0
26422	50	50.00	70.00	3	426.39965943	426.47718452	50	0
26574	50	50.00	70.00	3	425.39216096	426.39965943	50	0
26770	50	50.00	70.00	3	424.07390993	425.39216096	50	0
26819	50	50.00	70.00	3	423.74153326	424.07390993	50	0
26831	50	50.00	70.00	3	423.65597437	423.74153326	50	0
26989	50	50.00	70.00	3	422.60981955	423.65597437	50	0
27005	50	50.00	70.00	3	422.45908096	422.60981955	50	0
27062	50	50.00	70.00	3	422.18756985	422.45908096	50	0
28002	60	60.00		3	410.39130000	410.39130000	60	0
30304	60	60.00		3	391.12607505	391.21753964	60	0
30326	60	60.00		3	390.80062888	391.12607505	60	0
30334	60	60.00		3	390.72416531	390.80062888	60	0
30482	60	60.00		3	388.96332713	390.72416531	60	0
31524	60	60.00		3	374.33021586	388.96332713	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
32201	60	60.00		3	361.97452007	362.06468232	60	0
32364	60	60.00		3	358.78782196	361.97452007	60	0
32414	60	60.00		3	358.46662390	358.78782196	60	0
32430	60	60.00		3	358.36200000	358.46662390	60	0
33359	60	60.00		3	351.50255855	358.36200000	60	0
33376	49	49.00		3	351.07663131	351.31520000	49	0
33557	49	49.00		3	349.61179433	351.07663131	49	0
34078	49	49.00		3	344.35409800	349.61179433	49	0
34328	49	49.00		3	342.71365680	344.35409800	49	0
34958	49	49.00		3	337.11508015	342.71365680	49	0
34964	49	49.00		3	337.04570000	337.11508015	49	0
36182	49	49.00		3	328.48043120	337.04570000	49	0
36190	49	49.00		3	328.40205549	328.48043120	49	0
36581	60	60.00		3	326.08158099	326.71105436	60	0
39821	60	60.00		3	301.53511414	316.49922386	60	0
39832	60	60.00		3	301.47278969	301.53511414	60	0
39898	60	60.00		3	301.34261344	301.47278969	60	0
39986	60	60.00		3	301.14699463	301.34261344	60	0
40025	60	60.00		3	301.05459800	301.14699463	60	0
40151	60	60.00		3	300.69211217	301.05459800	60	0
40572	60	60.00		3	299.72134199	299.73766112	60	0
40586	60	60.00		3	299.68366780	299.72134199	60	0
40593	60	60.00		3	299.66544983	299.68366780	60	0
41312	50	50.00		3	294.98373045	296.17720564	50	0
43616	50	50.00		3	275.89215401	294.98373045	50	0
48825	50	50.00		3	241.06522028	275.89215401	50	0
53844	60	60.00		3	212.97127645	213.84254793	60	0
53882	60	60.00		3	212.58561647	212.97127645	60	0
56785	60	60.00		3	188.70158081	212.58561647	60	0
56831	60	60.00		3	188.62958437	188.70158081	60	0
57615	60	60.00		3	186.75216373	188.62958437	60	0
57682	60	60.00		3	186.65620414	186.75216373	60	0
58223	60	60.00		3	185.18181901	185.41132154	60	0
58409	60	60.00		3	184.41785308	185.18181901	60	0
58674	60	60.00		3	183.26973482	184.41785308	60	0
59113	60	60.00		3	180.80958313	183.26973482	60	0
59847	60	60.00		3	177.53239801	180.80958313	60	0
59856	60	60.00		3	177.41537314	177.53239801	60	0
60899	60	60.00		3	171.76337815	177.41537314	60	0
61068	60	60.00		3	171.07108276	171.76337815	60	0
63816	49	49.00		3	158.33879876	171.00000000	49	0
63916	49	49.00		3	156.54062668	157.07592725	49	0
63934	49	49.00		3	156.44881260	156.54062668	49	0
64104	49	49.00		3	154.72400863	156.44881260	49	0
67325	49	49.00		3	153.70476292	154.72400863	49	0
67345	49	49.00		3	145.17078518	145.23320000	49	0
67653	49	49.00		3	143.90360000	143.90360000	49	0
68303	60	60.00		3	137.79741581	137.88800000	60	0
68596	60	60.00		3	135.80021926	137.79741581	60	0
68611	60	60.00		3	135.65779041	135.80021926	60	0
68628	45	45.00		3	98.49335774	98.74000000	45	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
68651	45	45.00		3	98.49000000	98.49335774	45	0
68945	60	60.00		3	129.63383392	135.65779041	60	0
69116	60	60.00		3	128.89899855	129.63383392	60	0
69376	60	60.00		3	127.87964496	128.89899855	60	0
70278	25	25.00	60.00	71	3.18897468	3.83000000	25	0
70715	60	60.00		3	111.75712854	127.87964496	60	0
70744	40	40.00	70.00	71	6.52520462	6.63045635	40	0
70761	40	40.00	70.00	71	6.63045635	6.67401973	40	0
70768	40	40.00	70.00	71	6.67401973	6.70263703	40	0
70776	40	40.00	70.00	71	6.70263703	6.73765953	40	0
70782	40	40.00	70.00	71	6.73765953	6.76240935	40	0
70789	40	40.00	70.00	71	6.76240935	6.80346315	40	0
70802	40	40.00	70.00	71	6.80346315	6.87040164	40	0
70833	40	40.00	70.00	71	6.87040164	7.05853197	40	0
70930	40	40.00	70.00	71	7.05853197	7.47956080	40	0
70949	40	40.00	70.00	71	7.47956080	7.54781493	40	0
71147	40	40.00	70.00	71	7.54781493	8.95230847	40	0
71161	40	40.00	70.00	71	8.95230847	8.98850809	40	0
71173	40	40.00	70.00	71	8.98850809	9.02548130	40	0
71818	45	45.00	70.00	71	12.32000000	12.34222472	45	0
72012	45	45.00	70.00	71	12.68298738	13.30601775	45	0
72041	45	45.00	70.00	71	13.30601775	13.43417761	45	0
72050	45	45.00	70.00	71	13.43417761	13.45894243	45	0
72554	45	45.00	70.00	71	15.38184342	16.41184894	45	0
72570	45	45.00	70.00	71	16.41184894	16.46567479	45	0
72743	45	45.00	70.00	71	16.46567479	17.47380862	45	0
72831	45	45.00	70.00	71	17.47380862	17.80840350	45	0
72848	45	45.00	70.00	71	17.80840350	17.88066484	45	0
73134	45	45.00	70.00	71	17.88066484	19.38632718	45	0
73185	45	45.00	70.00	71	20.67982857	21.17000000	45	0
73220	60	60.00		3	77.85570578	81.38297220	60	0
73325	50	50.00	70.00	71	22.44272067	24.49671357	50	0
73327	50	50.00	70.00	71	25.37119921	25.44249512	50	0
73422	50	50.00	70.00	71	25.44249512	26.06532239	50	0
73432	50	50.00	70.00	71	26.06532239	26.12689519	50	0
73923	50	50.00	70.00	71	26.12689519	27.78114344	50	0
73933	50	50.00	70.00	71	27.78114344	28.02406269	50	0
73939	50	50.00	70.00	71	28.02406269	28.09033313	50	0
73973	50	50.00	70.00	71	28.09033313	28.60865120	50	0
73994	50	50.00	70.00	71	28.60865120	28.94446553	50	0
74134	50	50.00	70.00	71	28.94446553	31.19605745	50	0
74236	50	50.00	70.00	71	31.19605745	32.23616981	50	0
74241	50	50.00	70.00	71	32.88620054	32.90965895	50	0
74249	50	50.00	70.00	71	32.90965895	32.93253894	50	0
74300	50	50.00	70.00	71	32.93253894	33.21342782	50	0
74370	50	50.00	70.00	71	33.21342782	33.56399932	50	0
74371	50	50.00	70.00	71	33.56399932	33.63462866	50	0
74422	50	50.00	70.00	71	33.63462866	34.00689587	50	0
74433	50	50.00	70.00	71	34.00689587	34.06754231	50	0
74510	50	50.00	70.00	71	34.06754231	34.62844684	50	0
74991	60	60.00		3	71.62076826	76.31982073	60	0

VID	MXSPEED	F_SPEED	P_SPEED	LS	MP_BEG	MP_END	MAX	SPEEDDIFF
75108	60	60.00		3	47.78953276	47.86690830	60	0
75128	60	60.00		3	71.09590481	71.62076826	60	0
75201	60	60.00		3	51.03961069	54.73133668	60	0
75204	60	60.00		3	47.86690830	49.55956874	60	0
75206	60	60.00		3	44.27941313	45.49410313	60	0
75219	60	60.00		3	45.49410313	47.78953276	60	0
75223	60	60.00		3	49.55956874	51.03961069	60	0
75248	60	60.00		3	54.73133668	55.32498413	60	0
75285	60	60.00		3	55.32498413	57.62166834	60	0
75300	60	60.00		3	57.62166834	58.87584637	60	0
75405	60	60.00		3	58.87584637	61.56404498	60	0
75429	60	60.00		3	61.56404498	62.22345319	60	0
75522	60	60.00		3	62.22345319	64.89393297	60	0
75547	60	60.00		3	68.95573863	71.09590481	60	0
75564	60	60.00		3	66.17196052	66.31108133	60	0
75570	60	60.00		3	66.31108133	66.70589944	60	0
75581	60	60.00		3	66.70589944	68.95573863	60	0
223571	60	60.00	79.00	45	3.05028154	3.89677194	60	0
223573	60	60.00	70.00	36	1219.13059324	1219.25000000	60	0
223573	60	60.00	65.00	36	1219.25000000	1219.33199947	60	0
223581	60	60.00	79.00	45	46.38373615	50.72966802	60	0
223585	35	35.00	35.00	45	63.49506684	64.53138542	35	0
223589	60	60.00	79.00	35	387.67749881	388.22485598	60	0
223607	60	60.00	79.00	35	289.44000000	289.66538963	60	0
223611	70	70.00	79.00	35	276.71946282	277.01285365	70	0
223621	70	70.00	79.00	35	262.23633017	262.59000267	70	0
223622	70	70.00	79.00	35	226.99765961	227.53021693	70	0
223627	70	70.00	79.00	35	148.19024123	159.16905434	70	0
223648	60	60.00		34	86.04092264	86.42482343	60	0
223664	35	35.00	40.00	26	5.62299743	5.89460000	35	0
223684	60	60.00	75.00	25	134.20656076	143.22965202	60	0
223697	49	49.00	59.00	25	78.27052123	78.36000000	49	0
223780	49	49.00		3	351.31520000	351.33000000	49	0
223943	49	49.00		3	157.07592725	158.33879876	49	0
223956	49	49.00		3	145.23320000	153.70476292	49	0
223968	60	60.00		3	107.26499361	111.75712854	60	0
223985	45	45.00	70.00	71	12.34222472	12.68298738	45	0
223991	45	45.00	70.00	71	19.38632718	20.36279673	45	0
223993	50	50.00	70.00	71	24.49671357	25.37119921	50	0
223997	50	50.00	70.00	71	32.23616981	32.88620054	50	0
224736	45	45.00	70.00	71	13.45894243	14.10985860	45	0
224738	45	45.00	70.00	71	20.36279673	20.67982857	45	0
224739	50	50.00	70.00	71	21.19585405	22.44272067	50	0
224804	45	45.00	70.00	71	14.10985860	15.38184342	45	0
1822	60			45	2.87520000	2.90000000		

ACRONYMS AND ABBREVIATIONS

AAT	Arc Attribute Table (Arc/Info)
BNSF	Burlington Northern Santa Fe
BTS	Bureau of Transportation Statistics
DOT	United States Department of Transportation
ERS	Emergency Response System
ESRI	Environmental Systems Research Institute
FRA	Federal Railroad Administration
LS	Line Segment
MGT	Million-Gross-Tons
MP	Milepost or Milepoint
Polyline-m	Measured polyline
RAT	Route Attribute Table (Arc/Info)
RIS	Railroad Information System
RSCAC	Railroad Safety Advisory Committee
SEC	Section Attribute Table (Arc/Info)
TIGER	Topologically Integrated Geographic Encoding and Referencing
URS	URS Corporation
Volpe	Volpe Transit Center