Assessment Report for
Kansas, SPS 2

Visit date: March 31, 2004

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1 Executive Summary

A visit was made to the Kansas SPS-2 site on March 31, 2004 for the purposes of conducting an assessment of the WIM system located on US Interstate 70, at milepost 287.48, 1.1 miles east of the Chapman interchange, exit 286 on I-70. The LTPP lane is the driving lane in the western direction.

This site is not recommended for validation.

The site is instrumented with Mettler-Toledo load cell sensors. The equipment is not in working order because the WIM controller was removed and sent to the manufacturer for repair and upgrades. All in road sensors appear to be working properly, although both weighing platforms appear to be loose. The WIM controller needs to be replaced to make the equipment fully operational.

There was insufficient data to support a Sheet 16 for classification verification. This will need to be a part of the next assessment or evaluation.

The pavement condition is not satisfactory for conducting a performance evaluation. The WIM index threshold was exceeded for all the passes. There were no distresses observed that would influence truck motions significantly.

However, there are dips 175 feet and 85 feet prior to the WIM Scales that appear to influence the truck dynamics.

A review of the speed information collected on-site indicates that the range of truck speeds to be covered during an evaluation is 60 to 70 mph. The posted speed limit at this location is 70 mph.

This site has 1 year of data. There is no calibration information for this site as of December 2003 upload.

Based on available information and review of the data submitted through last year, this site still needs 5 years of data to meet the need for 5 years of research quality classification and weight data.

2 Corrective Actions Recommended

The WIM controller needs to be reinstalled. The loop sensor sealant needs to be filled in until it is flush with the pavement to prevent water and debris intrusion. The broken piezo needs to be removed and the channel filled with epoxy. Bolts on the weighing platforms and the access panel on the right weighing sensor need to be replaced. Since both platforms appear to be loose in their frames, the brackets that hold the weighing platforms need to be repaired or replaced.

Since the WIM Index threshold values were exceeded for all the passes, replacement of the pavement is recommended.

Should pavement replacement not be a viable option, grinding of the entire section of the pavement should be performed to reduce the roughness. Also, grinding should be performed 175 and 85 feet prior to the WIM scale to eliminate the dips.

The March 1993 data should be considered for elimination from the database based on its highly irregular vehicle distribution pattern.

3 Equipment inspection and diagnostics

The 6-foot load cell sensors are installed contiguous across the lane. A 6-foot long by 6-foot wide loop sensor is installed 7 feet 6 inches prior to the load cell sensors. Two 6-foot long piezos are installed between the loop and load cell sensors. The first piezo is installed 3 feet after the loop and the second piezo is installed 6 feet following the loop sensor. Neither piezo sensor is hooked up to the system because software upgrades have made their inputs unnecessary for proper system operation. The WIM system utilizes a Mettler-Toledo WIM Controller for signal processing, data storage, user interface and remote operation.

A complete electrical check of all support service components including the AC power equipment and telephone service was performed. All support equipment appears to be operating properly.

An electronic check of all WIM components was performed. All WIM components appear to be working properly.

A visual inspection of all system components, including in-road sensors, cabinet, pull boxes, service mast, and conduit as well as the power and telephone service components was conducted.

- Loop sealant is insufficient as seen in Figure 15-1 and needs to be filled in to prevent water and debris intrusion.

- Parts of the first piezo and the epoxy have broken free from the pavement as seen in Figure 15-2.

- An access panel for the right platform is missing and needs to be replaced as seen in Figure 15-3.

- Both load cell platforms are missing bolts as seen in Figure 15-4 and the missing bolts need to be replaced.

- Both load cell platforms appear to be loose in their frames. The holding brackets located under the platform need to be repaired or replaced.

All other components are in excellent physical condition.

4 Classification Verification with test truck recommendations

The agency uses the FHWA 13-bin classification scheme from the Traffic Monitoring Guide.

A sample of 100 trucks of data was collected at the site. Video was taken at the site to provide ground truth for the evaluation. Because the WIM Controller was removed classification accuracy study could not be performed.

A review of data collected on site indicates that Class 9s constitute 77 percent of the truck population. All other tractor-trailer combinations combined constitute another 15 percent. The remaining 8 percent were Class 5s.

A review of the data collected on site indicated that Class 9 constitutes at least 10 percent of the truck population. Based on this information in addition to the air-suspension 3S2, the second vehicle used for evaluation should be a Class 9. Due to the length of the truck turn around no additional vehicle is required. Using one fully loaded (72,000 – 80,000 lbs) truck and one partially loaded (45,000 – 55,000 lbs) truck is recommended based on historical information.

Review of historical data indicated a prior problem with successfully classifying 2-axle vehicles.

5 Profile Evaluation

The WIM site is a section of pavement that is 305 meters long with the WIM scale located at 274.5 meters from the beginning of the test section. An ICC profiler was used to collect longitudinal profiles of the test section with a sampling interval of 25 millimeters. The Long Range Index (LRI) incorporates the pavement profile starting 25.8 m prior to the scale and ending 3.2 m after the scale in the direction of travel. The Short Range Index (SRI) incorporates a shorter section of pavement profile beginning 2.7 m prior to the WIM scale and ending 0.5 m after the scale.

Profile data collected at the SPS WIM location by Stantec, Inc. on March 12, 2004 were processed through the LTPP SPS WIM Index software. This WIM scale is installed on a portland cement concrete pavement. The results are shown in Table 1.

A total of 8 profiler passes were conducted over the WIM site. Since the issuance of the LTPP directive on collection of longitudinal profile data for SPS WIM sections, the requirements have been a minimum of 3 passes in the center of the lane and one shifted to each side. For this site the RSC has done 4 passes at the center of the lane, 2 passes shifted to the left side of the lane, and 2 passes shifted to the right side of the lane. Shifts to the sides of the lanes were made such that data were collected as close to the lane edges as was safely possible. For each profiler pass, profiles were recorded under the left wheel path (LWP) and the right wheel path (RWP).

Table 1 shows the computed index values for all 8 profiler passes for this WIM site. The average values over the passes at each path were also calculated when three or more passes are completed. These are shown in the right most column of the table. Values above the index limits are presented in italics.

Table 1 Long Range Index (LRI) and Short Range Index (SRI)

Profiler Passes			**Pass 1**	**Pass 2**	**Pass 3**	**Pass 4**	**Ave.**
Center	LWP	LRI (m/km)	*2.105*	*1.741*	*1.763*	*1.908*	***1.879***
		SRI (m/km)	*4.066*	*1.987*	*1.729*	*2.777*	***2.640***
	RWP	LRI (m/km)	*1.355*	*1.401*	*1.347*	*1.330*	***1.358***
		SRI (m/km)	*1.266*	*1.090*	*0.980*	*1.052*	***1.097***
Left Shift	LWP	LRI (m/km)	*1.988*	*1.924*			
		SRI (m/km)	*3.009*	*2.837*			
	RWP	LRI (m/km)	*1.552*	*1.626*			
		SRI (m/km)	*1.201*	*1.228*			
Right Shift	LWP	LRI (m/km)	*1.957*	*2.111*			
		SRI (m/km)	*3.971*	*3.546*			
	RWP	LRI (m/km)	*2.027*	*1.997*			
		SRI (m/km)	*1.894*	*1.806*			

As seen from the table the WIM Index value of 0.789 m/km is exceeded for all the passes. However, there is one SRI value in center shift for pass 1 which is significantly different from the SRI values in center shift for other passes. The reason for this higher value cannot be determined since even after visual observation nothing significant was found. When all values are less than 0.789 it is presumed unlikely that pavement roughness will significantly influence sensor output. Values above that level may or may not influence the reported weights and potentially vehicle spacings. **Based on the profile data analysis, the Kansas SPS-2 WIM site does not meet the requirements for WIM site locations**. If any remedial action is taken it should be done for the entire section. Grinding may sufficiently reduce the roughness on the pavement surface to reduce the index below the limit.

Replacement of the entire pavement section is the recommended option.

6 Distress survey and any applicable photos

A visual inspection of the pavement 425 feet in advance of the WIM area and 75 feet following the WIM area was conducted. The pavement appears to be in good condition.

There are however dips 175 feet and 85 feet prior to the WIM Scales. Figure 13-1 and Figure 13-2 show the condition of the pavement in the downstream and upstream direction respectively.

7 Vehicle-pavement interaction discussion

During a visual survey of the truck dynamics in the area of the WIM scales, discernable truck bouncing was detected approximately 175 feet and 85 feet prior to the WIM scale area. The truck dynamics appeared to diminish just prior to crossing over the WIM scales.

There is no visible change in the motion of trucks that can be discerned as they cross or leave the sensor area. Daylight cannot be readily seen between the tires and any of the sensors indicating that the tires should be fully touching the sensors. All traffic appears to traveling along the center of the lane.

8 Speed data with speed range recommendations for evaluation

Based on the data collected on site the 15th and 85th percentile speeds for Class 9s are 60 and 70 mph respectively. The upper end of the range is the posted speed limit. This range does not vary significantly for other truck classes. As a result the recommended speeds for test trucks in an evaluation are 60, 65 and 70 mph.

Comparison of measured speed and speed collected by the WIM equipment could not be accomplished since the WIM Controller was not present at the time of assessment.

9 Traffic Data review: Overall Quantity and Sufficiency

As of March 31, 2004 this site does not have at least 5 years of research quality data.

Research quality data is defined to be at least 210 days in a year of data of known calibration meeting LTPP's precision requirements. The precision requirements are shown in Table 2. There is no calibration information for this site as of December 2003 upload.

Table 2 Precision and Bias Requirements for Weight Data

Pooled Fund Site	95 Percent Confidence Limit of Error
Single Axles	± 20 percent
Axle groups	± 15 percent
Gross Vehicle Weight	± 10 percent

Pooled Fund Site	95 Percent Confidence Limit of Error
Vehicle Speed	±1 mph (2 kph)
Axle Spacing	± 0.5 ft (150 mm)

Data that has validation information available is reviewed in light of the patterns present in the two weeks immediately following a validation/calibration activity. A determination of research quality data is based on the consistency with the validation pattern. Data that follows consistent and rational patterns in the absence of calibration information may be considered nominally of research quality pending validation information with which to compare it. Data that is inconsistent with expected patterns and has no supporting validation information is not considered research quality.

The amount and coverage for the site is shown in Table 3. The value for months is a measure of the seasonal variation in the data. The indicator of coverage indicates whether day of week variation has been accounted for on an annual basis. As can be seen from the table there is not sufficient quantity in 1993 to be considered a complete year of data. In the absence of previously gathered validation information it can be seen that at least 5 additional years of research quality data are needed to meet the goal of a minimum of 5 years of research classification and weight data.

Table 3 Amount of Traffic Data Available

Year	Class Days	Months	Coverage	Weight Days	Months	Coverage
1993	78	6	Complete Week	51	4	Complete Week

To evaluate the consistency of the existing data and determine its probable quality a series of reports and graphs have been generated. They include the SPS Summary report, vehicle distribution graphs, GVW distributions both over all years and by month within years, average daily steering axle weights for Class 9 vehicles, and ESAL graphs.

Based on this review it is recommended that further investigation be done for 1993 data given the March classification anomaly.

9.1 SPS Summary Report

The overall report is the SPS Summary Report. This report uses sets of benchmark data based on calibration information or consistent, rational data patterns. The report shows the trend in some basic statistics at the site over time. It provides a numeric equivalent to the graphs typically run for the comparison evaluation process. It includes the number of days of data and statistics associated with Class 9 vehicles. They include the average volumes, average ESALs, the average steering axle weight and mean loaded and unloaded weight on a monthly basis. Class Days and Percent Class 9s are generated from classification data submissions. All other values come from the weight data submissions. Counts derived from weight data are available for all months. Steering axle and weight statistics are only present when that data was loaded through LTPP's new traffic analysis

software, since it is the only software that calculates them. The data is separated into blocks that depend on when the site was validated. Where there is no validation record an initial time point has been picked at which continuous data exists and that data is used as the basis for comparison. Excluded months have no data.

Table 4 SPS Summary Report

Kansas 0200

West Lane 1

Comparison Date Weight - 01-January-1993 Classification - 01-January-1993

Month-Year	Class Days	Percent Class 9s	Weight Days	Average No. Class 9s	Avg.ESALs Per Class 9	Average Class 9 Steering	Mean Loaded Weight	Mean Unloaded Weight
Comparison values		11.0		627	1.37	10,200	77,813	33,956
JAN 1993	23	14.0						
MAR 1993	8	10.2						
MAY 1993	21	11.1	22	621	1.37	10,720	77,755	33,933
JUN 1993	6	11.0	8	557	1.42	10,663	77,995	33,751
NOV 1993	8	9.8	9	521	1.27	10,583	77,776	33,882
DEC 1993	12	15.5	12	714	1.32	10,658	77,831	34,126

As seen from the table there is not sufficient data to draw any conclusions.

9.2 Vehicle Distribution

The vehicle distribution graphs indicate whether the fleet mix is stable over time and any day of week or seasonal patterns that may exist. The vehicle distribution graphs contain two types of comparisons, one between data types and one over time. The between types comparison is represented by the two columns for every time unit present. The column on the left labeled with a 4 is for classification data. The right hand column of the pair is for weight data. Whether or not the data is equivalent is perhaps more important than the variation over time.

Figure 14-1 shows a by week pattern for heavy truck classification data. The individual weeks show essentially the same heavy truck mix. Every vehicle in Classes 6 through 13 that constitutes at least 10 percent of the population is expected to stay within plus or minus 5 percent of the value observed during the two weeks following validation. This range is shown by the darker band inside the lighter band to the right of the weekly data. Weeks that go outside more than plus or minus 10 percent of the expected value will fall above or below the light gray areas of the band. These are weeks that should have been subjected to additional scrutiny prior to accepting the data as reasonable.

In contrast to Figure 14-1, Figure 14-2 shows the distribution for vehicles collected by the WIM equipment. In the latter data set there are expected to be fewer than ten percent Class 8s unlike the classification data. As the classification data is just on the borderline, this difference is probably not significant.

For this site, the fleet mix is shown in Figure 14-3.

Figure 14-3 shows the pattern for truck distribution by month by year for the data collected from the classifier versus the data collected by the WIM equipment. From the figure it is clear that there is limited data. From the available data it can be seen that the average volume of Class 5 is significantly higher in March compared to the rest of the months. Also, the data collected by the WIM equipment is significantly less than the data collected by the classifier with the difference occurring in the Class 5 vehicles. The discrepancy is more distinctly illustrated in Figure 14-4, which shows essentially no Class 2s (cars) and a very large number of Class 5s in their place.

9.3 GVW Distributions for Class 9s

The Class 9 GVW graph is a generally accepted way to evaluate loading data reported at a site. A typical graph has two peaks, one between 28,000 and 36,000 pounds and the other between 72,000 and 80,000 pounds. The first is the unloaded peak. The second, the loaded peak, reflects the legal weight limit for a 5-axle tractor-trailer vehicle on the interstate highway system. Additionally, it is expected that less than 3 percent of the trucks will be excessively light (less than 12,000 pounds) and less than 5 percent will be significantly overweight (in excess of 96,000 pounds). Data that falls outside of the expected conditions needs a record of validation to verify that the pattern is in fact correct for the location. Data meeting the expected patterns is not automatically considered to be of research quality, merely rational as bias in scale measurements may shift the peaks in the data from their true values.

The overall assessment of loading patterns is done using a Class 9 GVW graph by year over the available years. In Figure 14-5 the pattern is shown for the single available year of data. As seen from the figure this site is basically a loaded site.

To investigate any seasonal variations the Class 9 GVW distributions are graphed by month by year. As shown in Figure 14-6 the weights are essentially constant.

9.4 Axle Distributions

Axle distribution graphs are not needed for this site, as the GVW graph was available for 1993.

9.5 ESALs per year

Average ESALs for Class 9 vehicles are a very crude method of identifying loading shifts. Figure 14-7 shows the average Class 9 ESALs per month for this location. To remove the influence of changing pavement structure all ESAL values have been computed with and SN = 5 and a p_t of 2.5. Average ESALs per Class 9 are not used as an indicator of research quality data. As seen from the figure there is not sufficient data to provide any conclusions.

9.6 Average Daily Steering Axle Weight

A frequently used statistic for checking scale calibration and doing auto-calibration of WIM equipment is the weight of the front axle. This value is site specific and should be relatively constant particularly for loaded Class 9s (vehicles in excess of 60,000 lbs). Typically when auto calibration is used this value either cycles repeatedly or with very large truck volumes results in an essentially straight line for the mean. As shown in Figure 14-8 there is not sufficient data to provide any conclusions although the values are reasonable.

10 Updated handout guide and Sheet 17

A copy of the post-visit handout guide has been included following page 16. It includes a current Sheet 17 with all applicable maps and photographs. There are no significant changes in the information provided.

11 Updated Sheet 18

A current Sheet 18 indicating the contacts, conditions for assessments and evaluations has been attached following the updated handout guide.

12 Traffic Sheet 16(s) (Classification Verification only) (Omitted)

There is not sufficient information to complete a Sheet 16, since the WIM Controller is currently not installed at the site.

13 Distress Photographs

Figure 13-1 Pavement Condition in Downstream Direction at 200200

Figure 13-2 Pavement Condition in Upstream Direction at 200200

14 Traffic Graphs

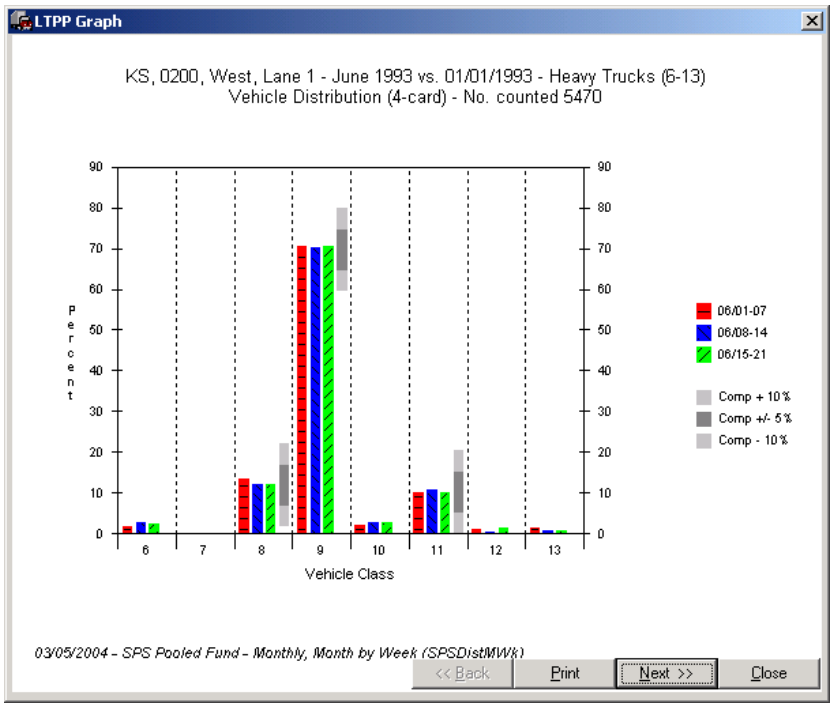


Figure 14-1 Heavy Truck Distribution Pattern for Classification Data for 200200

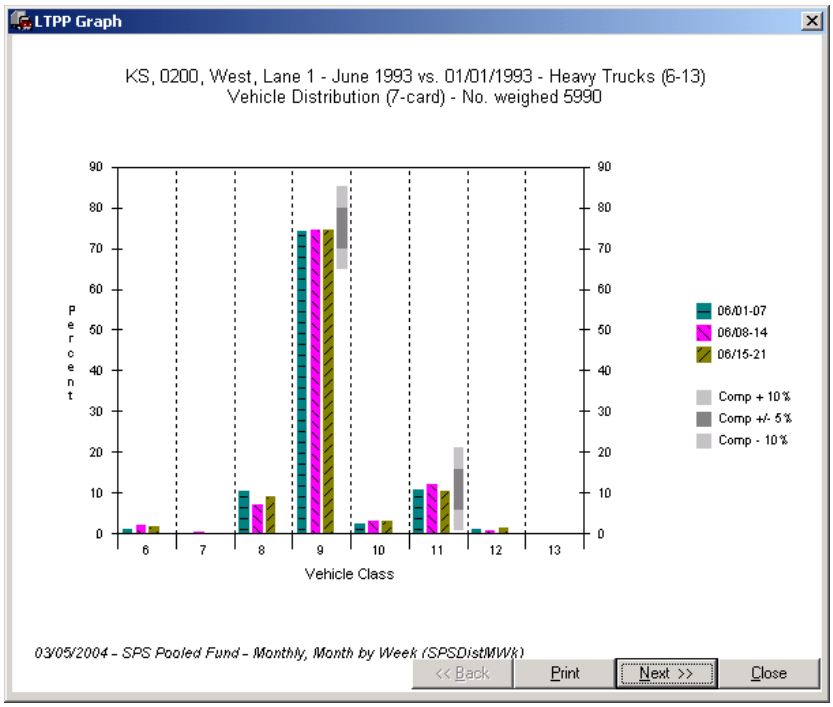


Figure 14-2 Heavy Truck Distribution Pattern for Weight Data for 200200

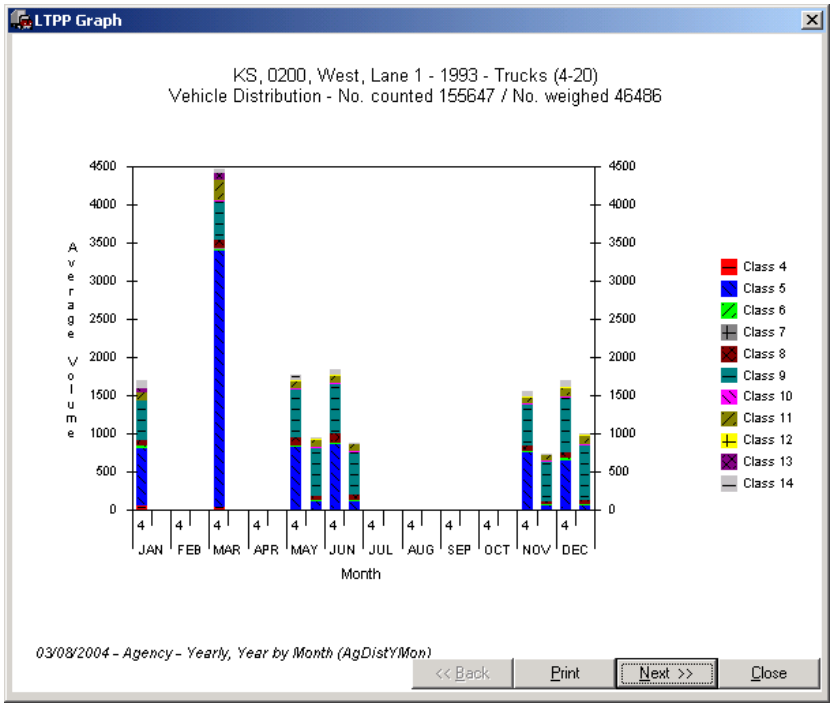


Figure 14-3 Truck Distribution by Month for the Year 1993 for 200200

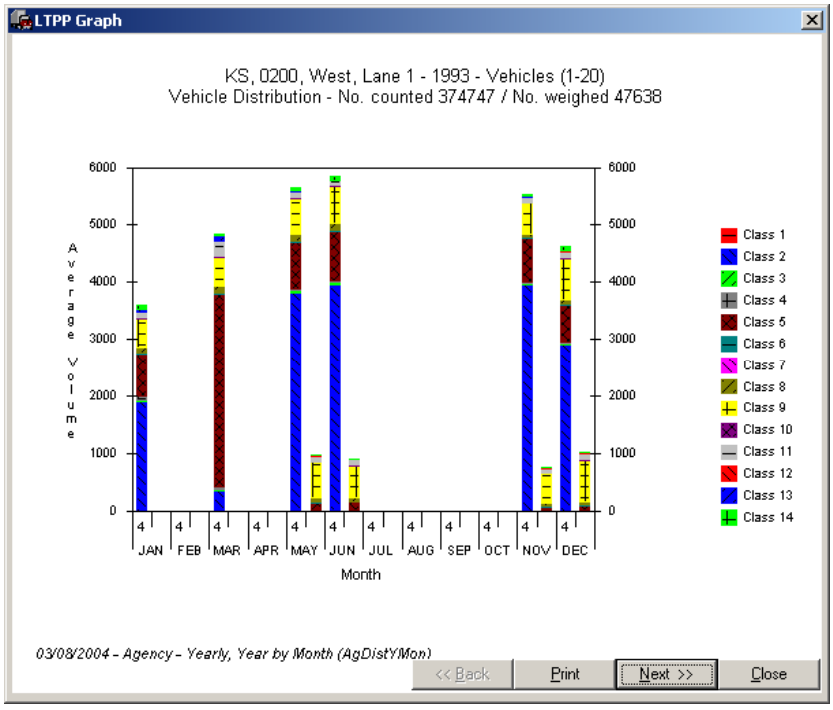


Figure 14-4 Vehicle Distribution by Month for the Year 1993 for 200200

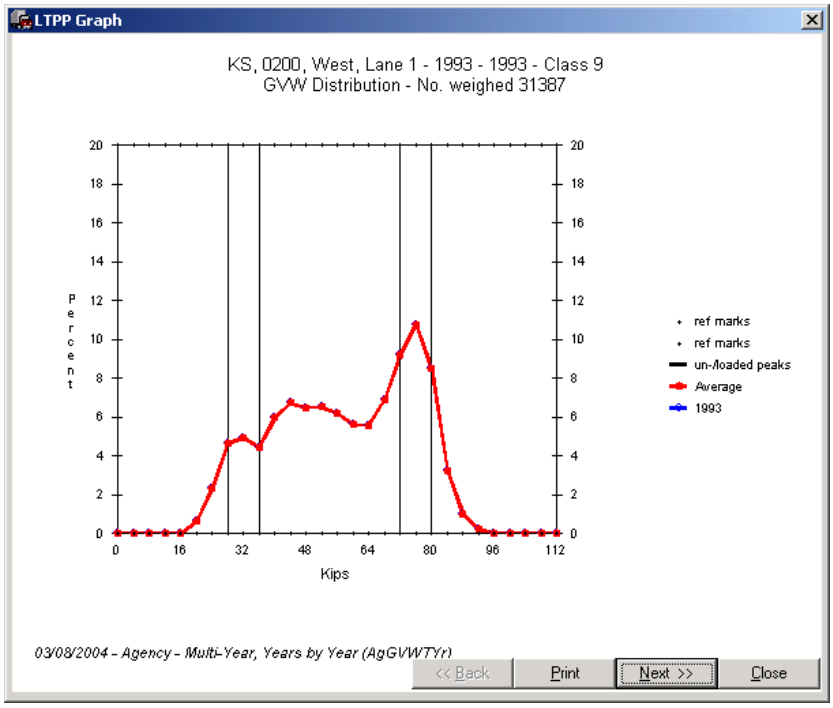


Figure 14-5 Class 9 GVW Distribution – 1993 for 200200

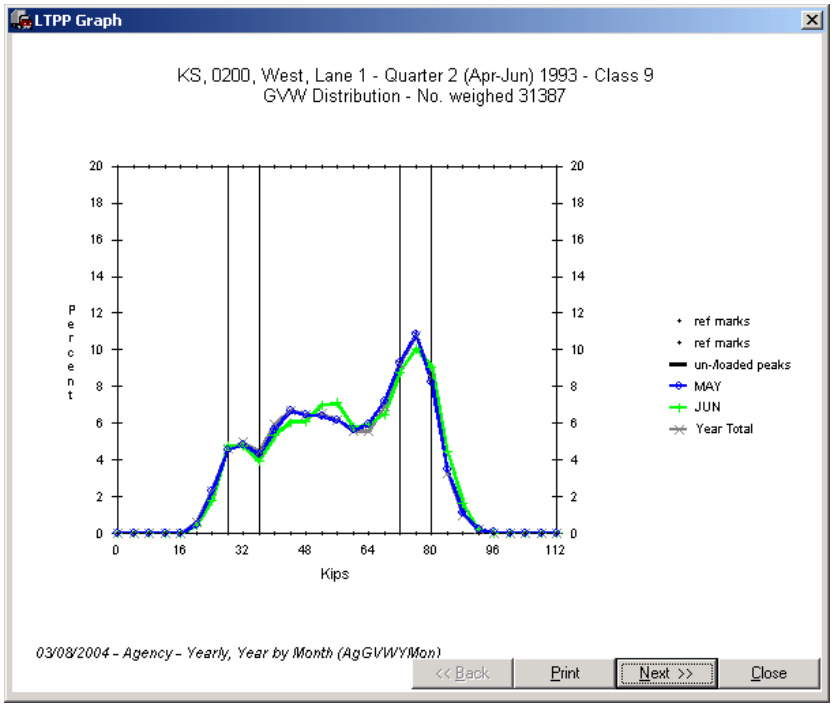


Figure 14-6 Class 9 GVW Distribution – April to June 1993 for 200200

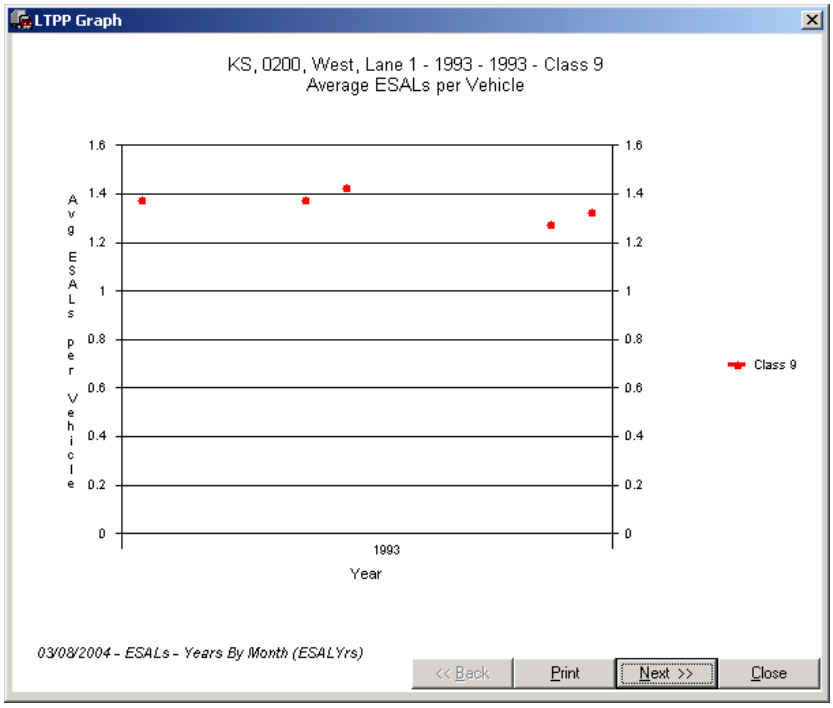


Figure 14-7 Average Class 9 ESALs for site for 1993 for 200200

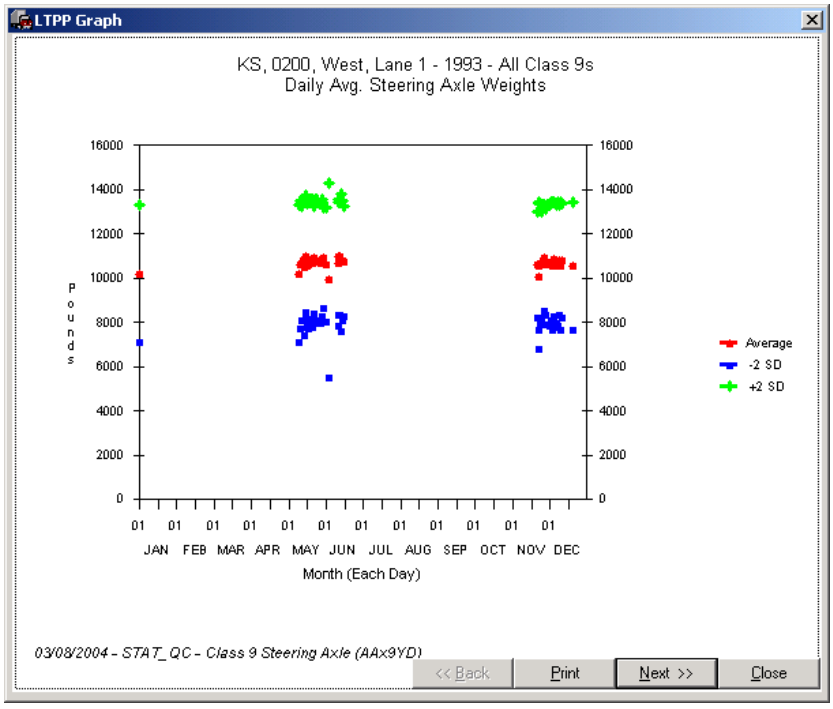


Figure 14-8 Average Daily Class 9 Steering Axle Weight – 1993 for 200200

15 Equipment Photos

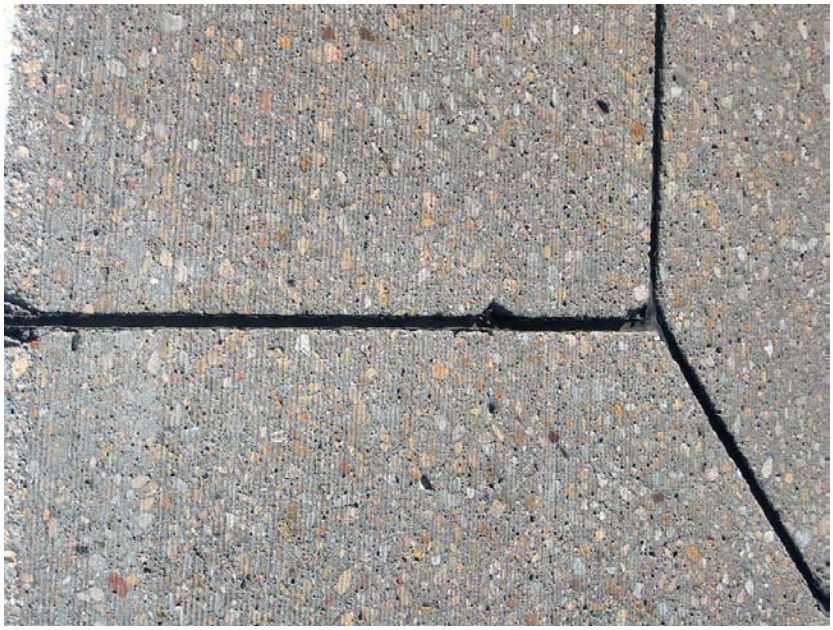


Figure 15-1 Insufficient Loop Sealant at 200200

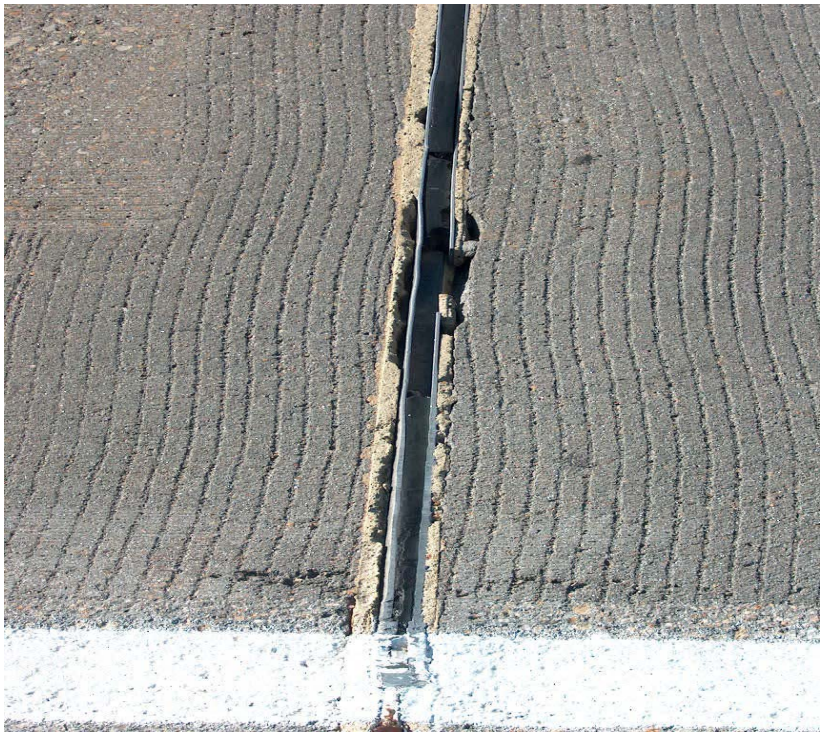


Figure 15-2 Damage of Piezo Sensor at 200200

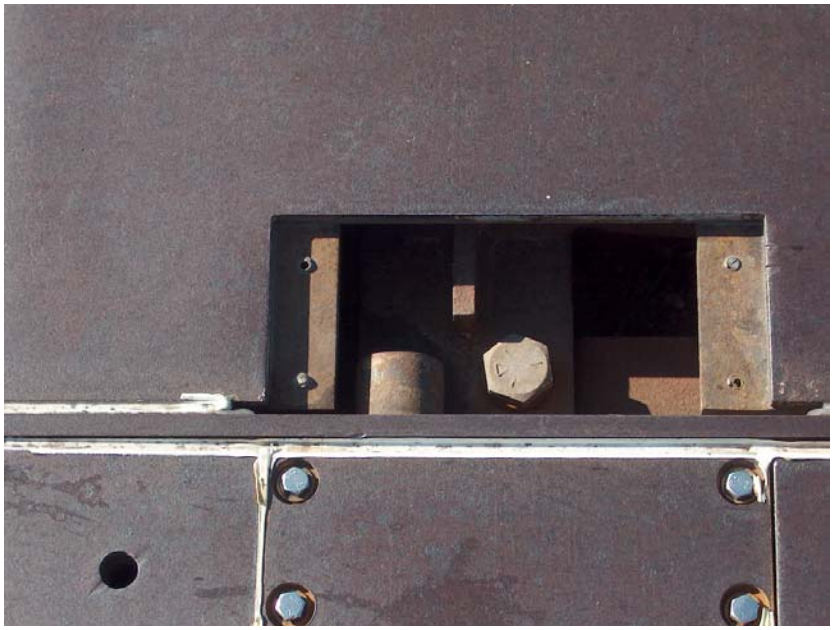


Figure 15-3 Missing Access Panel in Weight Sensors at 200200

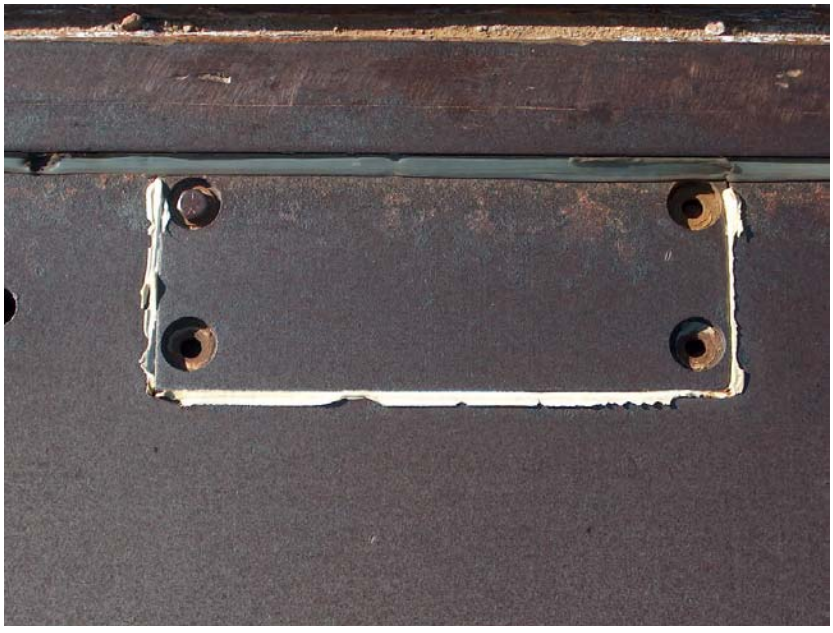


Figure 15-4 Missing Bolts in Weight Sensors at 200200

POST-VISIT HANDOUT GUIDE FOR SPS WIM FIELD ASSESSMENT

STATE: Kansas

SHRP ID: 0200

Figures

1. General Information

SITE ID: *200200*

LOCATION: *Interstate 70 West at M.P. 287.48*

VISIT DATE: *March 31, 2004*

VISIT TYPE: *Assessment*

2. Contact Information

POINTS OF CONTACT:

Assessment Team: *Dean J. Wolf, 301-210-5105, djwolf@mactec.com*

Highway Agency: *Bill Hughes, 785-296-6863, bhughes@ksdot.org*

Bill Parcells, 785-291-3846, billp@ksdot.org

Lon Ingram, ingram@ksdot.org

FHWA COTR: *Debbie Walker, 202-493-3068, deborah.walker@fhwa.dot.gov*

FHWA Division Office Liaison: *Kirk Fredrichs, 785-267-7299 x326, kirk.fredrichs@fhwa.dot.gov*

LTPP SPS WIM WEB PAGE: *http://www.tfhrc.gov/pavement/ltpp/spstraffic/index.htm*

3. Agenda

BRIEFING DATE: Was held at *9:00 a.m. on April 1, 2004 at Room No. 830, 915 Harrison St., Topeka, Kansas. Contact Bill Hughes, Phone No: 785-296-3841.*

ON SITE PERIOD: *March 31, 2004 beginning at 8:00 a.m.*

TRUCK ROUTE CHECK: *Done.*

4. Site Location/ Directions

NEAREST AIRPORT: *Kansas City International Airport, Kansas City, Kansas.*

DIRECTIONS TO THE SITE: *West of Chapman Interchange, East of Abilene, Kansas*

MEETING LOCATION: On–Site, *March 31, 2004 beginning at 8:00 a.m.*

WIM SITE LOCATION: *Interstate 70 West at M.P. 287.48* (*Latitude: 38^0 59.410' and Longitude: 97^0 0.020'*)

WIM SITE LOCATION MAP:*See Figure 4.1*

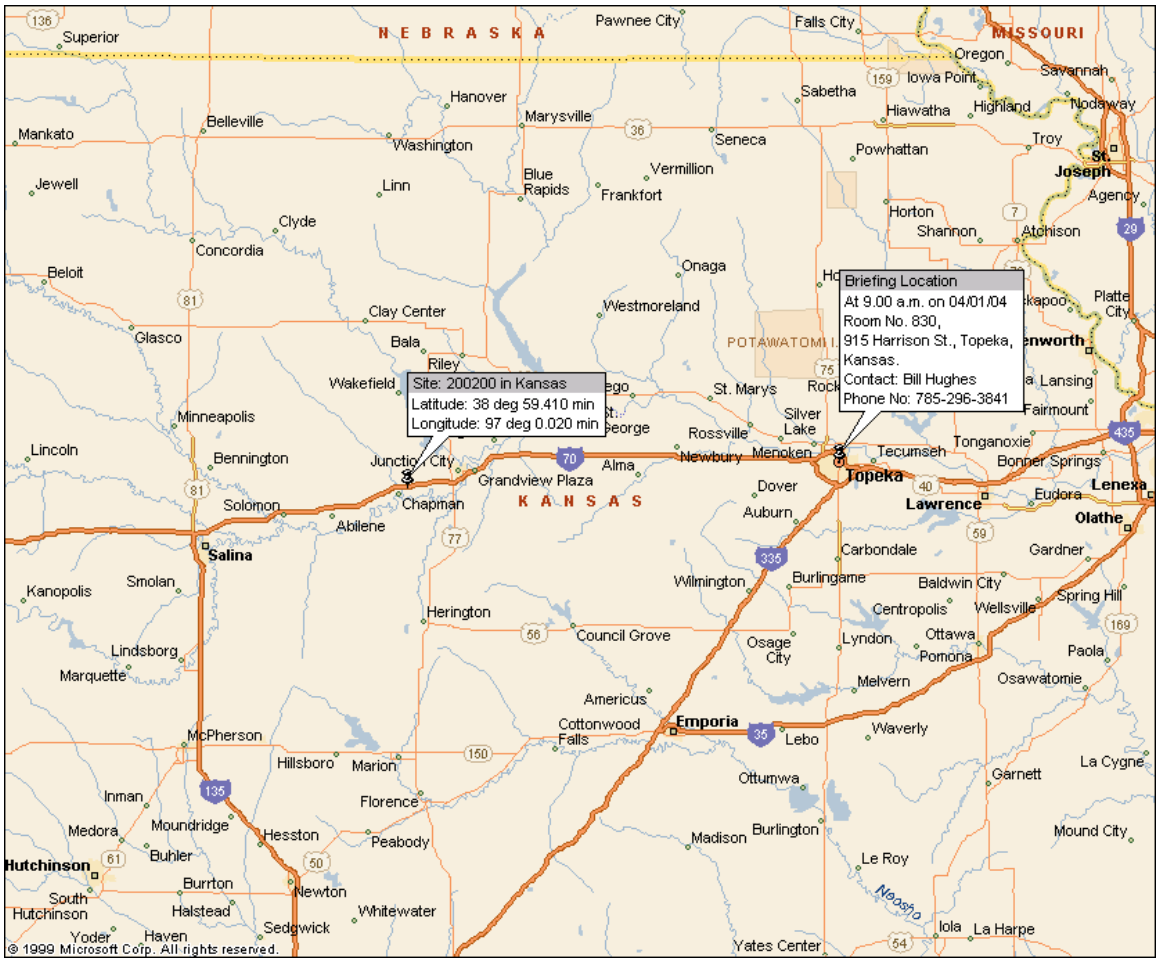


Figure 4.1: Site 200200 in Kansas and Briefing Location

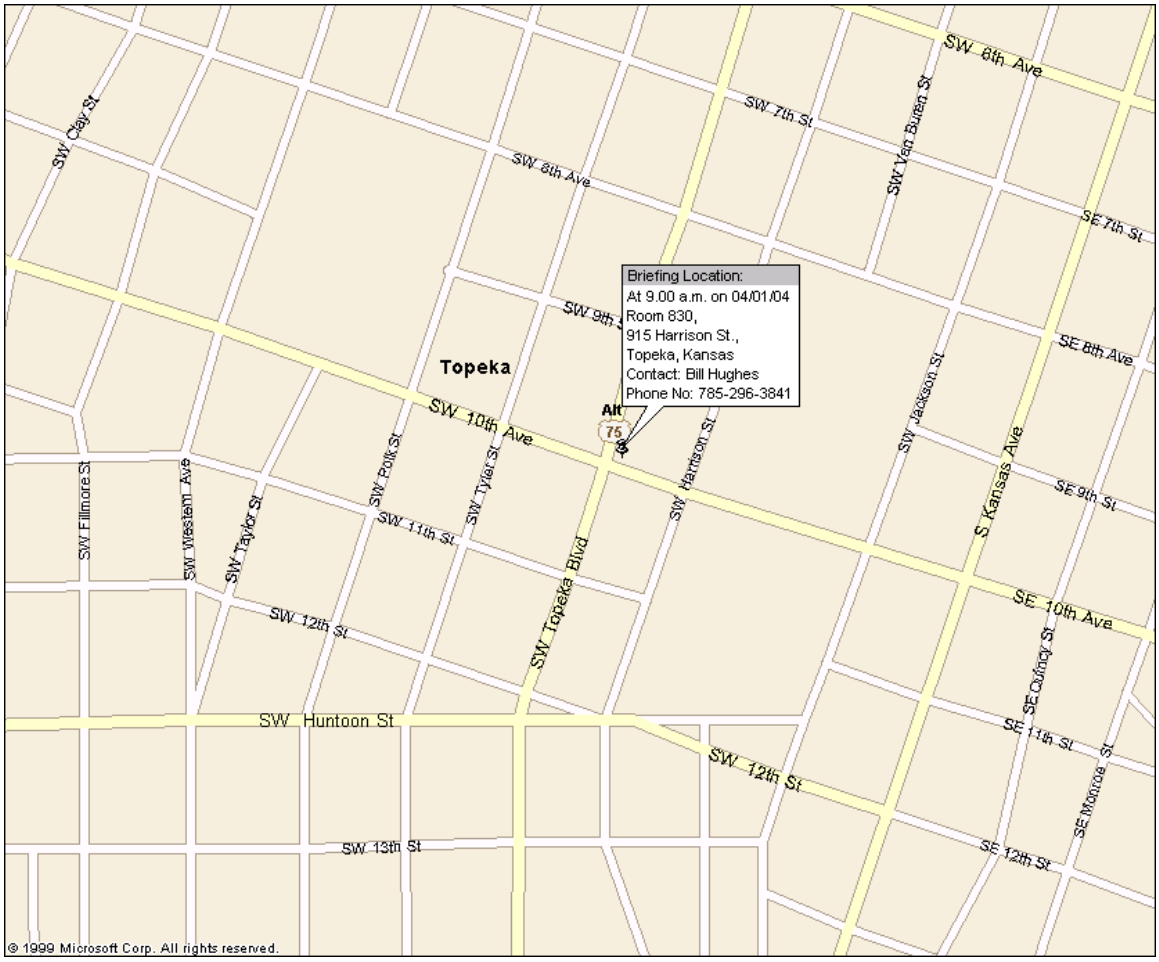


Figure 4.2: Briefing Location of 200200 in Kansas

5. Truck Route Information

ROUTE RESTRICTIONS: *None.*

SCALE LOCATION: *De Bruce Grain, 513 W. First St., Abilene, Kansas. Manager – Brent Martin, phone: (785) 263-7275. Open from 7:30 a.m. to 5:00 p.m. $ 10 per weight. (14.1 miles from site)*

TRUCK ROUTE:

- *East – 2.7 miles to exit 290 on I-70 (Milford Lake Road)*
- *West – 1.1 miles to exit 286 on I-70 (Chapman)*

Length of truck turnaround is 3.8 miles

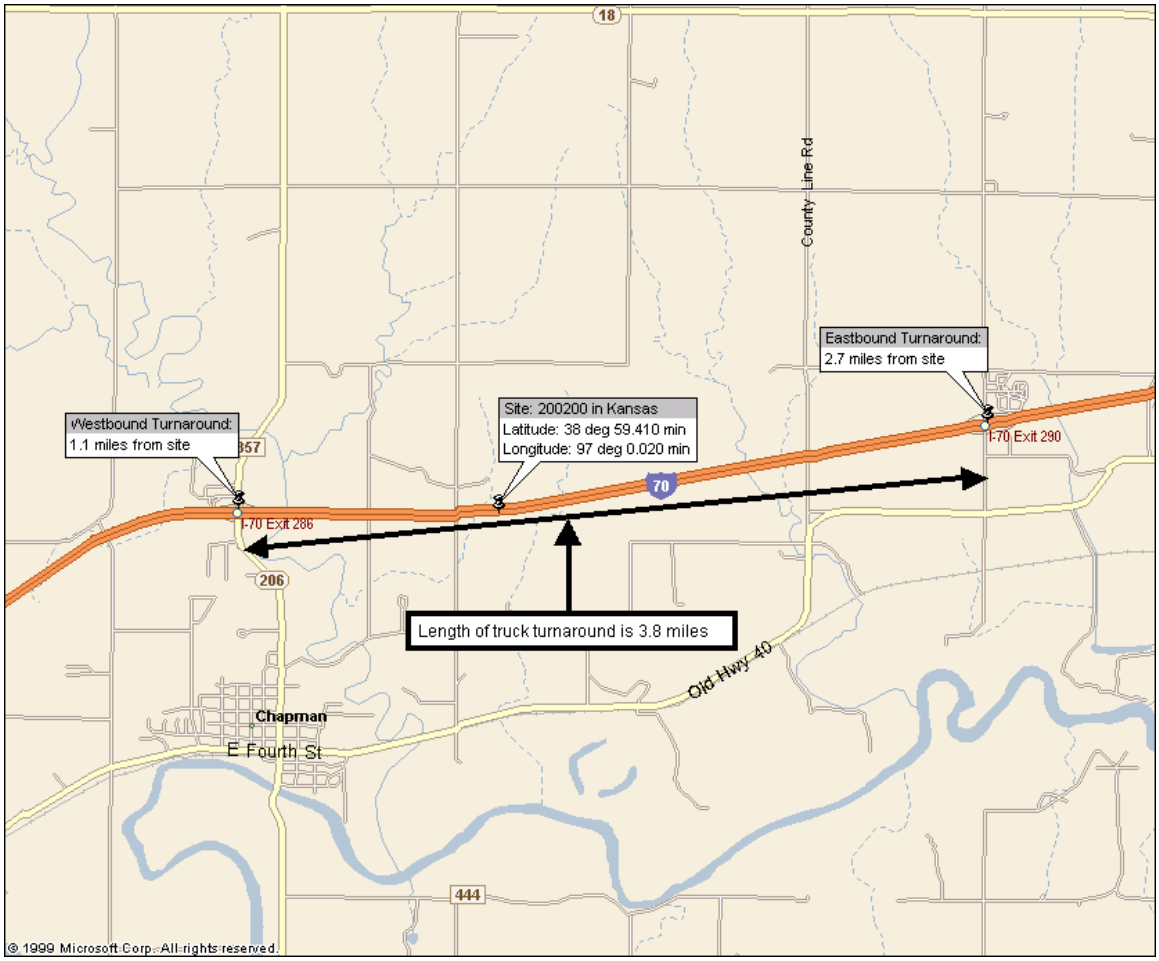


Figure 5.1: Truck Route of 200200 in Kansas

6. Sheet 17 – Kansas (200200)

1.* ROUTE ___I-70_____MILEPOST ___287.48__LTPP DIRECTION - N S E W

2.* WIM SITE DESCRIPTION - Grade __~ 1_____ % Sag vertical Y / N
Nearest SPS section upstream of the site ___ _200212__ ___ ___
Distance from sensor to nearest upstream SPS Section ___ _1885__ ___ ___ ft

3.* LANE CONFIGURATION
Lanes in LTPP direction __2__ Lane width _1_ _2_ ft

Median - 1 – painted
2 – physical barrier
3 – grass
4 – none

Shoulder - 1 – curb and gutter
2 – paved AC
3 – paved PCC
4 – unpaved
5 – none

Shoulder width _10.5__ ___ ft

4.* PAVEMENT TYPE _____Portland Cement Concrete_____

5.* PAVEMENT SURFACE CONDITION – Distress Survey
Date _____3-31-04_____Distress Photo Filename
_Downstream_TO_4_20_30A_0200_3_31_04.JPG_____
Date _____3-31-04_____Distress Photo Filename
_Upstream_TO_4_20_30A_0200_3_31_04.JPG_____
Date _____Distress Photo Filename _____

6. * SENSOR SEQUENCE _____Loop – Piezo – Piezo – Load Cell x 2 ____

7. * REPLACEMENT AND/OR GRINDING __ __ __ / __ __ / __ __ __ __
REPLACEMENT AND/OR GRINDING __ __ __ / __ __ / __ __ __ __
REPLACEMENT AND/OR GRINDING __ __ __ / __ __ / __ __ __ __

8. RAMPS OR INTERSECTIONS
Intersection/driveway within 300 m upstream of sensor location Y / N
distance _____
Intersection/driveway within 300 m downstream of sensor location Y / N
distance _____
Is shoulder routinely used for turns or passing? Y / N

9. DRAINAGE (*Bending plate and load cell systems only)*

1 – Open to ground
2 – Pipe to culvert
3 – None

Clearance under plate ___ _12_. _0__ in
Clearance/access to flush fines from under system Y / N

10. * CABINET LOCATION

Same side of road as LTPP lane Y / N Median Y/ N Behind barrier Y / N

Distance from edge of traveled lane _9_ _2_ ft

Distance from system __ _9_ _8_ ft

TYPE _____M_____

CABINET ACCESS controlled by LTPP / STATE / JOINT?

Contact - name and phone number _Bill Hughes (785) 296-6863 ____

Alternate - name and phone number_Bill Parcells (785) 291-3846 _____

11. * POWER

Distance to cabinet from drop ___ _35.7__ ___ ftOverhead / underground / solar / AC in cabinet?

Service provider _____ Phone number _____

12. * TELEPHONE

Distance to cabinet from drop ___ _75.1__ ___ ftOverhead / under ground / cell?

Service provider _____ Phone Number_____

13.* SYSTEM (software & version no.)-____Mettler Toledo _____

Computer connection – RS232 / Parallel port / USB / Other _____

14. * TEST TRUCK TURNAROUND time __12_____ minutes DISTANCE _7.6_mi.

15. PHOTOS FILENAME

Power source __Power_Service_Box_TO_4_20_30A_0200_3_31_04.JPG__

Phone source __Phone_Pedestal_TO_4_20_30A_0200_3_31_04.JPG__

Cabinet exterior __Cabinet_Exterior_TO_4_20_30A_0200_3_31_04.JPG__

Cabinet interior __Cabinet_Interior_TO_4_20_30A_0200_3_31_04.JPG__

Weight sensors __Weight_Sensors_TO_4_20_30A_0200_3_31_04.JPG___

Classification sensors __Weight_Sensors_TO_4_20_30A_0200_3_31_04.JPG__

Other sensors _____

Description_____

Downstream direction at sensors on LTPP lane

_Downstream_TO_4_20_30A_0200_3_31_04.JPG_____

Upstream direction at sensors on LTPP lane _

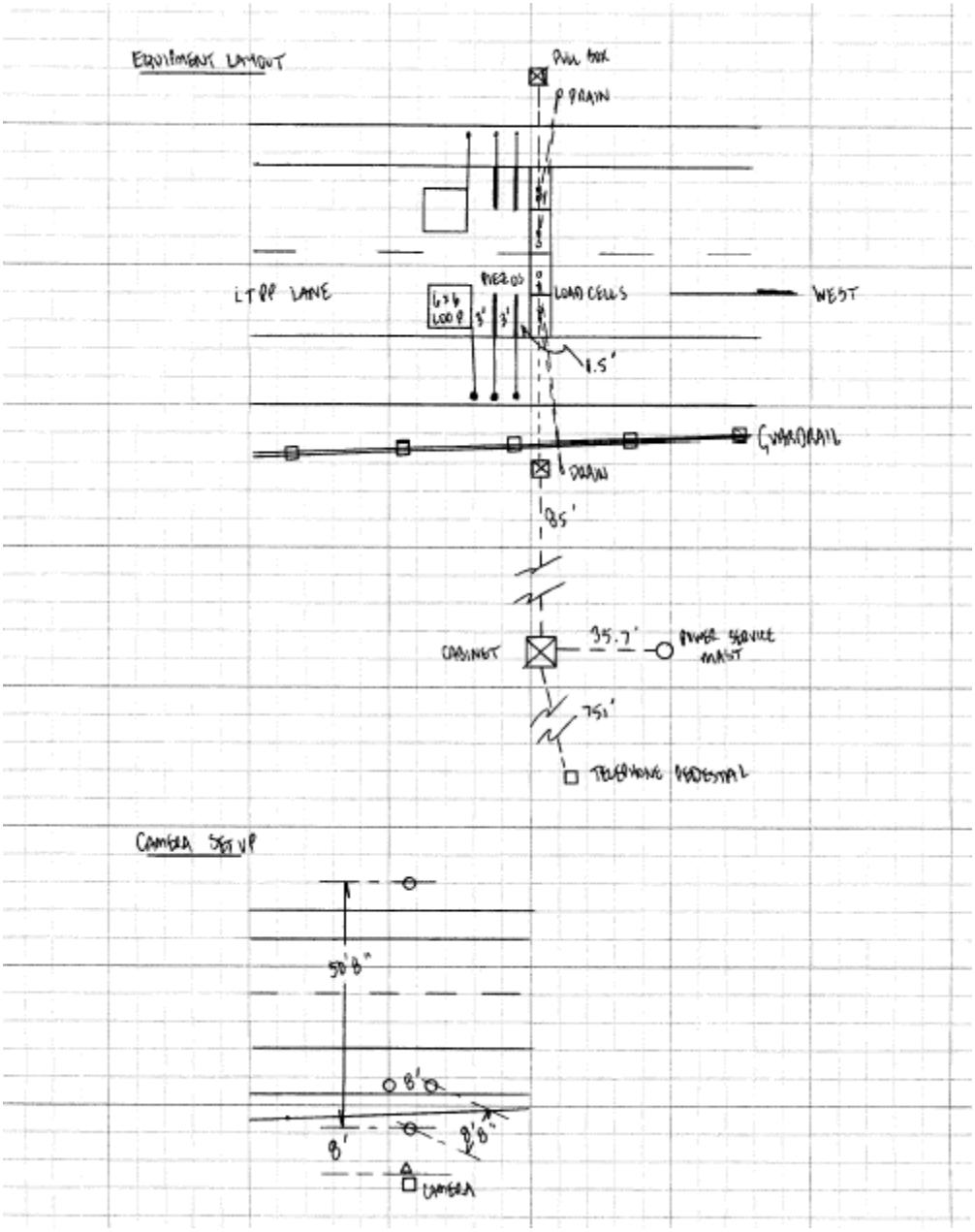
Downstream_TO_4_20_30A_0200_3_31_04.JPG _____

COMMENTS _ _____
_____GPS Coordinates: Latitude: 38^0 59.410' and Longitude: 97^0 0.020'_____
_____
_____
_____Amenities:_____
_____
_____West: exit 275 on I-70, Abilene – 12.1 miles from site_____
_____BP Gas, Holiday Inn Express, Super 8, various restaurants_____
_____
_____East: exit 295 on I-70 – 6.9 miles from site_____
_____Motel 6, Phillips 66 Gas, Conoco Gas_____
_____
_____exit 296 on I-70 – 8.5 miles from site_____
_____Comfort Inn, Ramada Ltd, Days Inn, various gas stations & restaurants_____
_____
_____exit 298 on I-70 – 9.9 miles from site_____
_____Holiday Inn Express, various gas stations & restaurants, Wal-Mart_____
_____
_____Speed Limit – 70 mph_____
_____Site Phone No: 785-922-6420_____
_____
_____
____ Test Truck Recommendations: _____
_____Types of Trucks: Two Class 9s_____
_____Truck 1: Class 9, 72,000 to 80,000 legal limit on gross and axles, air_____
suspension; _____
_____Truck 2: Class 9, 45,000 to 55,000 lbs_____
_____
_____ Expected Speeds: 60, 65 and 70 mph_____
_____
_____
_____

COMPLETED BY _____Dean J. Wolf_____

PHONE __301-210-5105___DATE COMPLETED _0_ _3_ /_3_ _1_ / _2_ _0_ _0_ _4_

Sketch of equipment layout



Site Map

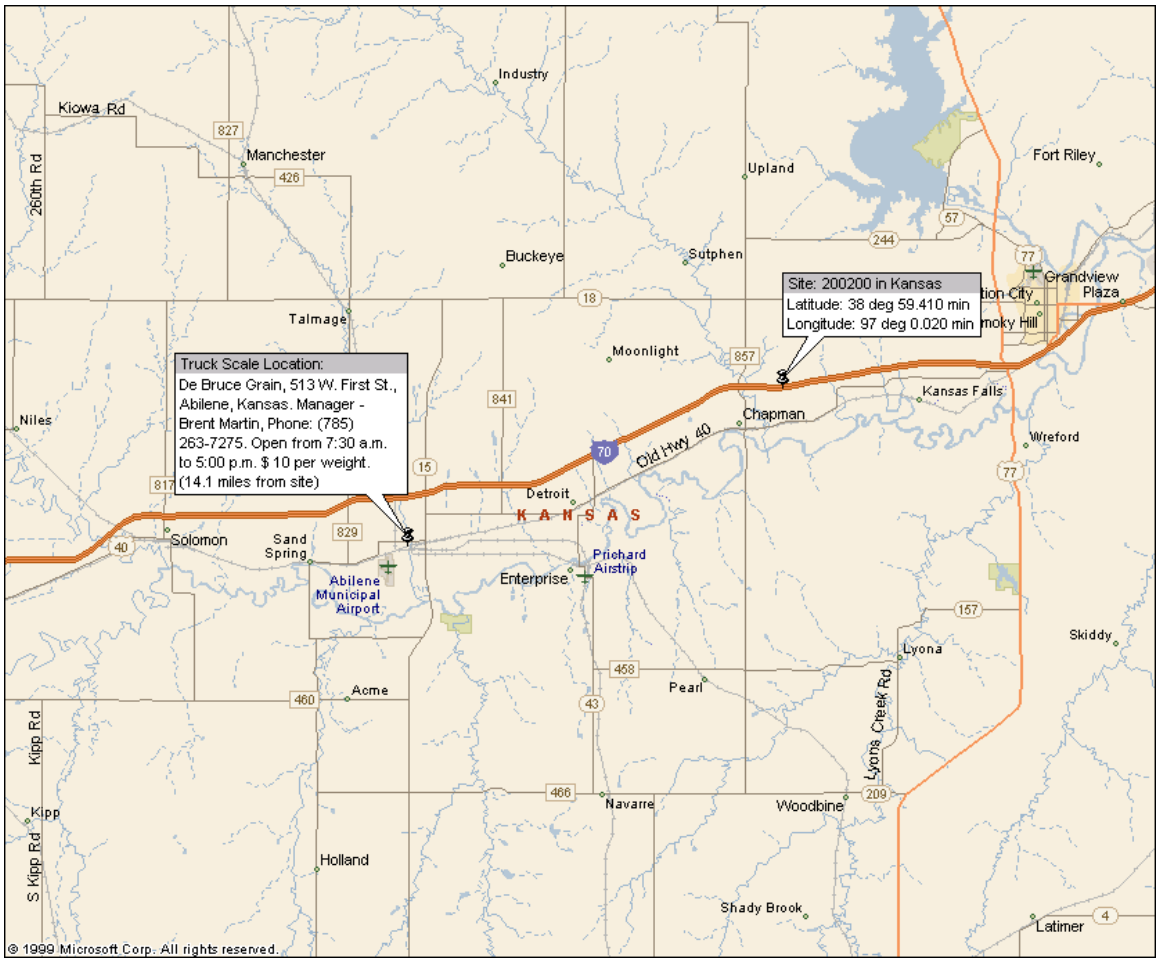


Figure 6.1: Site Map of 200200 in Kansas

Downstream_TO_4_20_30A_0200_3_31_04.JPG (Distress photo 1)

Upstream_TO_4_20_30A_0200_3_31_04.JPG (Distress Photo 2)

Power_Service_Box_TO_4_20_30A_0200_3_31_04.JPG

Phone_Pedestal_TO_4_20_30A_0200_3_31_04.JPG

Cabinet_Exterior_TO_4_20_30A_0200_3_31_04.JPG

Cabinet_Interior_TO_4_20_30A_0200_3_31_04.JPG

Weight_Sensors_TO_4_20_30A_0200_3_31_04.JPG

Weight_Sensors_TO_4_20_30A_0200_3_31_04.JPG (Classification Sensors)

Downstream_TO_4_20_30A_0200_3_31_04.JPG

Upstream_TO_4_20_30A_0200_3_31_04.JPG

WIM SITE COORDINATION

SPS Project_ID _0_ _2_ _0_ _0_

1. Equipment –
   - Maintenance – contract with purchase / separate contract LTPP / separate contract State / state personnel
     Contact ____Bill Hughes (785) 296-6863 _____

   - Purchase by LTPP / State
     Constraints on specifications (sensor, electronics, warranties, maintenance, installation)

   - Installation – Included with purchase / separate contract by State / state personnel / LTPP contract

   - Calibration – Vendor / State / LTPP

   - Manuals and software – State / LTPP

   - Pavement PCC/AC – always new / replacement as needed / grinding and maintenance as needed / maintenance only / no remediation

   - Power - overhead / underground / solar billed to State / LTPP / N/A

   - Communication - Landline / Cellular / Other billed to State / LTPP / N/A

2. Site visits – Evaluation

   - WIM Validation Check - advance notice required __1___ days / week

   - Trucks – air suspension 3S2 State / LTPP
     2nd common State / LTPP
     3rd common State / LTPP
     4th common State / LTPP
     Loads State / LTPP
     Contact _____

     Drivers State / LTPP
     Contact _____

     Contractors with prior successful experience in WIM calibration in state:
     _____Hammell Scale_____
     Nearest static scale (commercial or enforcement)
     De Bruce Grain, 513 W. First St., Abilene, Kansas. Manager – Brent Martin, phone: (785) 263-7275. Open from 7:30 a.m. to 5:00 p.m. $ 10 per weight._____

   - Profiling – short wave -- permanent / temporary site marking
     -- long wave – permanent / temporary site marking

WIM SITE COORDINATION SPS Project_ID _0_ _2_ _0_ _0_

- Pre-visit data
  - Classification and speed: Contact ___ Bill Hughes (785) 296-6863___
  --Typical operating conditions (congestion, high truck volumes)
  Contact ____ Bill Hughes (785) 296-6863_____
  -- Equipment operational status: Contact ___ Bill Hughes (785) 296-6863____

- Access to cabinet
  State only / Joint / LTPP Key / Combination

- State personnel required on site Y / N
Contact information ___ Bill Hughes (785) 296-6863_____

- Enforcement Coordination required Y / N
Contact information _____

- Traffic Control Required Y/ N
Contact information _____

- Maximum number of personnel on site _3__;
  Invitees _____

- Authorization to calibrate site -- State only / LTPP

- Special conditions _____

3. Data Processing
- Down load State only / LTPP read only / LTPP download / LTPP download and copy to state
- Data Review State per LTPP guidelines / State weekly / LTPP
- Data submission for QC State - weekly; twice a month; monthly / LTPP

4. Site visits – Validation

- WIM Validation Check - advance notice required __1___ days / week
  LTPP Semi-annually / State per LTPP protocol semi-annually / State other

- Trucks – air suspension 3S2 State / LTPP
  2nd common State / LTPP
  3rd common State / LTPP
  4th common State / LTPP
  Loads State / LTPP
  Contact _____

  Drivers State / LTPP

WIM SITE COORDINATION SPS Project_ID _0_ _2_ _0_ _0_

Contact _____

Contractors with prior successful experience in WIM calibration in state:
_____

- Profiling – short wave -- permanent / temporary site marking
  -- long wave – permanent / temporary site marking

- Pre-visit data
  – Classification and speed: Contact _____ Bill Hughes (785) 296-6863_____
  -- Equipment operational status: Contact __ Bill Hughes (785) 296-6863_____

- Access to cabinet
  State only / Joint / LTPP Key / Combination

- State personnel required on site Y / N
Contact information ___ Bill Hughes (785) 296-6863_____

- Enforcement Coordination required Y / N
Contact information _____

- Traffic Control Required Y/ N
Contact information _____

- Authorization to calibrate site -- State only / LTPP

- Special conditions _____

5. Site visit – Construction

- Construction schedule and verification – Contact __ Bill Hughes (785) 296-6863__

- Notice for straightedge and grinding check - ___1___ days / week
On site lead to direct / accept grinding – State / LTPP

- WIM Calibration - advance notice required __7___ days / weeks
  Number of lanes -- __1____
  LTPP / State per LTPP protocol / State Other _____

- Trucks – air suspension 3S2 State / LTPP
  2nd common State / LTPP
  Loads State / LTPP
  Drivers State / LTPP

  Contractors with prior successful experience in WIM calibration in state:

WIM SITE COORDINATION SPS Project_ID _0_ _2_ _0_ _0_

_____

- Profiling – straight edge -- permanent / temporary site marking
  -- long wave – permanent / temporary site marking

- Pre-visit data
  – Classification and speed: Contact ___ Bill Hughes (785) 296-6863_____
  -- Equipment operational status: Contact _ Bill Hughes (785) 296-6863_____

- Access to cabinet
  State only / Joint / LTPP Key / Combination

- State personnel required on site Y / N
  Contact information _____ Bill Hughes (785) 296-6863_____

- Enforcement Coordination required Y / N
  Contact information _____

- Traffic Control Required Y/ N
  Contact information ____ Bill Hughes (785) 296-6863_____

- Authorization to calibrate site -- State only / LTPP

- Special conditions _____

6. Special conditions
   - Funds and accountability
   - Reports
   - Other