Assessment Report for
Arizona, SPS Experiment 2

Visit date: March 2, 2004

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1 Executive Summary

A visit was made to the Arizona SPS-2 site on March 2, 2004 for the purposes of conducting an assessment of the WIM system located on Interstate 10 at milepost 108.55, located between Tonopah, AZ and AZ State Spur 85. The LTPP lane is the driving lane in the eastbound direction.

This site is not recommended for a site validation.

The site is instrumented with IRD load cell weight sensors. The site was instrumented with an IRD controller before the cabinet was vandalized. Currently, there is no WIM controller, power service panels or communications equipment installed in the cabinet. The corrective actions section of this report lists the actions to be taken to make the equipment 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 was exceeded at all the locations**.

A visual survey of truck movement over the site determined that there is no discernable vertical or horizontal movement of the trucks prior to, passing over, or beyond the WIM scale area. However, there is breakout of epoxy around the right WIM scale, which is directly in the right wheel path. Until this damage is repaired, it may not be possible to calibrate the system to obtain research quality data.

A review of the speed information collected on-site indicates that the range of truck speeds to be covered during an evaluation is 55 to 75 mph. The posted speed limit on site is 75 mph.

This site has 3 years of data. There is no validation information available 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 data**.

2 Corrective Actions Recommended

Both WIM platforms need to be repaired or replaced due to high excitation resistance and bridge resistance values.

The WIM Controller needs to be replaced as well as supporting power and sensor terminal panels. The appropriate number of solar panels with regard to the WIM controller's power consumption needs to be installed in addition to the two panels that are presently installed.

Communication equipment needs to be installed.

Repair of the epoxy in the WIM scale area must be performed.

Grinding of the pavement should be performed in order to reduce the roughness.

The traffic data in the database should be reviewed to verify that the difference between the data for late 1995 through early 1996 and other periods' loading data is rational.

3 Equipment inspection and diagnostics

Electrical checks of most of the WIM system power and communication components including the battery, cellular modem and power regulation devices could not be performed because they are not currently installed. The two solar panels that are presently installed appear to be working properly.

Electronic testing of the equipment installed in the pavement indicated that the two weighing sensors need to be repaired or replaced due to high bridge resistance readings. Tests conducted on the loop sensors and the piezo sensor indicated that they were working properly.

A visual inspection of all on-site equipment such as the cabinet, solar panels, conduit, grounding and inroad sensors was performed. The epoxy on the leading and trailing edges of the right weigh sensor is breaking apart from the scale frame as shown in Figure 13-1. The epoxy is also breaking out of the lead-in conduit channel as shown in Figure 13-2.

4 Classification Verification with test truck recommendations

The agency uses the FHWA 13-bin classification scheme with an agency specific definition for Class 14 that describes a 5-axle tractor-trailer combination. Its dimensions it could be typified by dump trucks hauling trailers. In contrast the last axle on the Class 9 must be a tandem, tridem or split tandem.

A sample of 100 trucks was collected at the site. One hour of video was taken at the site to provide ground truth for the evaluation. One hour of video was collected for pavement interaction studies. Because of the absence of the WIM controller, classification accuracy study could not be performed on site.

A review of data collected on site indicates that Class 9s constitute 67 percent of the truck population, Class 8, 10, 11,and 12 constitute 13 percent combined and Class 5 and 6 constitute the rest of the percentage.

A review of the site data both collected on site and previously submitted by the agency indicated that Class 9 constitutes more than 65 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. Review of the data previously submitted by the agency, indicates that this is a loaded site. Therefore, both test vehicles should be loaded between 72,000 and 80,000 lbs.

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 Nichols Consulting Engineers, on February 4, 2004 was 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 have been conducted over the WIM site. Since the issuance of the LTPP directive on collection of longitudinal profile data for SPS WIM section, 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 have been made such that data are 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 were 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)	*1.374*	*1.570*	*1.455*	*1.465*	***1.466***
		SRI (m/km)	*1.717*	*1.518*	*1.535*	*1.408*	***1.545***
	RWP	LRI (m/km)	*1.924*	*1.734*	*1.878*	*1.535*	***1.768***
		SRI (m/km)	*4.474*	*1.753*	*3.468*	*1.396*	***2.773***
Left Shift	LWP	LRI (m/km)	*1.606*	*1.538*			
		SRI (m/km)	*1.588*	*1.614*			
	RWP	LRI (m/km)	*1.503*	*1.413*			
		SRI (m/km)	*1.027*	*1.339*			
Right Shift	LWP	LRI (m/km)	*1.289*	*1.362*			
		SRI (m/km)	*0.937*	*0.898*			
	RWP	LRI (m/km)	*1.387*	*1.331*			
		SRI (m/km)	*0.969*	*1.051*			

As seen from the table all of the passes exceed the WIM Index value of 0.789 m/km. However, there are two SRI values in the right wheel path of center shift, which are almost double the SRI values of the remaining two passes. It was observed on site that there is a breakout of epoxy around the right WIM scale, which is directly in the right wheel path, which may explain the drastic increase in the SRI values in the right wheel path. 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 Arizona 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 threshold.

6 Distress survey and any applicable photos

The pavement appears to be in good condition except for the epoxy breakout at the WIM scale. No discernable movement of the trucks, either vertical or horizontal could be detected as they approached, moved over, or exited the WIM scale area. Figure 13-1 through Figure 13-4 show the pavement condition at the site.

7 Vehicle-pavement interaction discussion

A visual inspection of the pavement 425 feet in advance of the WIM area and 75 feet following the WIM area was conducted. No significant pavement distress that would affect the performance of the WIM scales was detected except for the epoxy breakout.

Although no discernable movements by the trucks passing over the WIM scales could be detected, the epoxy breakout at the WIM scale may affect the dynamics of the trucks as they pass over the WIM scales.

Trucks do appear to stay centered in the lane and no daylight can be seen between the tires and any of the sensors as they pass over the WIM scales.

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 vehicles are 60 and 70 mph respectively. The upper end of the range is below the posted speed limit of 75 mph. This range does not vary significantly for other truck classes. As a result the recommended speeds for test trucks in an evaluation are 55, 65 and 75 mph. The wider range is suggested because there are vehicles traveling at the lower end of the range and that a 10-mile per hour increments is preferred where possible.

Comparison of measured speed and speed collected by the WIM equipment could not be accomplished since the equipment is not functioning at present.

9 Traffic Data review: Overall Quantity and Sufficiency

As of March 2, 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. **No validation information is available 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
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 a sufficient quantity for this site to be considered complete years 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
1994	118	5	Complete Week	147	6	Complete Week
1995	44	2	Complete Week	44	2	Complete Week
1996	151	8	Complete Week	180	8	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 all the years of weight data particularly November 1995 to May 1996.

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

Arizona 0200

East Lane 1

Comparison Date Weight - 01-May-1994 Classification - 01-May-1994

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		29.5		1634	1.52	11,500	65,825	34,231
MAY 1994	7	25.2	31	1554	1.52	11,479	77,013	34,347
JUN 1994	19	32.3	19	1682	1.54	11,516	76,822	34,438

Arizona 0200

East Lane 1

Comparison Date Weight - 01-May-1994 Classification - 01-May-1994

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		29.5		1634	1.52	11,500	65,825	34,231
JUL 1994			5	522	1.25	9,617	74,467	35,048
AUG 1994	31	31.2	31	1662	1.36	11,395	73,263	34,872
SEP 1994	30	33.3	30	1786	1.26	11,272	72,873	34,830
OCT 1994	31	33.6	31	1592	1.23	10,892	73,123	34,655
NOV 1995	18	28.7	18	1851	0.73	9,811	64,968	34,139
DEC 1995	26	29.1	26	1784	0.71	9,783	64,812	30,224
JAN 1996	24	32.2	24	1745	0.69	9,746	64,833	30,174
FEB 1996	29	32.6	29	1527	0.68	9,319	64,859	30,201
MAR 1996	24	31.8	19	1752	0.71	9,863	65,043	30,243
APR 1996	21	33.9	24	1900	0.77	10,008	65,325	30,518
MAY 1996	22	34.2	24	1881	0.81	10,104	65,414	34,366
OCT 1996	12	34.9	13	2100	1.41	11,058	74,139	34,900
NOV 1996	9	27.5	19	1796	1.57	11,468	77,978	34,922
DEC 1996	10	25.3	28	1663	1.48	11,363	77,875	34,819

From Table 4 the available classification data suggests that the percent of class 9s remained essentially the same except in May 1994, November and December 1996 when the percent is significantly less. From the weight data it appears that the average number of Class 9s is almost the same for all the years except in July 1994 where the number is significantly less. The average ESALs per Class 9 gradually decreased till May 1996 and suddenly returned to the previous values. The possible reason being that the trucks were shifting their weight or that the equipment calibration was shifting. The average steering axle weights, the mean loaded weights, and the mean unloaded weights declined significantly in the winter season of 1995 and spring season of 1996 compared to the rest of the months and years. The reason for this change could not be determined.

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 typical 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.

For this site, the fleet mix is essentially similar. A typical graph for this period is shown in Figure 14-1. There was no significant difference in the mix stability graphed for the weight data as shown in Figure 14-2.

Figure 14-3 shows the typical pattern for vehicle distribution by month by year for the data collected from the classifier versus the data collected by the WIM equipment. From the figure it may appear that the data collected by the WIM equipment has fewer vehicles than the classifier.

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 14-4 the typical pattern is shown in the gray line with Xs. From the figure it appears that the site is basically a fully loaded site. However, the peak loads for all the years are at the limit of or outside the expected range. Also, the peak loads for all the years were slightly different.

To investigate any seasonal variations the Class 9 GVW distributions are graphed by month by year. As shown in Figure 14-5, based on 1996 data there may be some seasonal variation in weights, given the difference in the fourth quarter curve shapes and locations from the annual average. However, without validation data it cannot be determined if this is reality or an artifact of scale drift.

9.4 Axle Distributions

Axle distribution graphs were not needed since the GVW graphs were available for all years.

9.5 ESALs per year

Average ESALs for Class 9 vehicles are a very crude method of identifying loading shifts. Figure 14-6 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 an SN = 5 and a p_t of 2.5. Average ESALs per Class 9 are not used as an indicator of research quality data. . However, the distinct difference between the late 1995 and early 1996 values and the rest of the data re-enforces the need to review the data for reasonability.

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 14-7 for 1996 the average steering axle weights were essentially the same. There are a few days with suspect data based on the mean steering axle weight being more than two standard deviations below the typical value.

10 Updated handout guide and Sheet 17

A copy of the post visit handout has been included following page 17. It includes a current Sheet 17 with all applicable maps and photographs. The only significant change from the pre-visit handout is the correction for the information provided for the FHWA Division Office Liaison, which was incorrect in the pre-visit 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 provide a Sheet 16.

13 Distress Photographs

Figure 13-1 Epoxy Breakout at Right Load Cell of 040200 (Distress Photo 1)

Figure 13-2 Epoxy Breakout at Lead-in Channel of 040200 (Distress Photo 2)

Figure 13-3 Epoxy Breakout at Piezo of 040200 (Distress Photo 3)

Figure 13-4 Polished Aggregate in Pavement of 040200 (Distress Photo 4)

14 Traffic Graphs

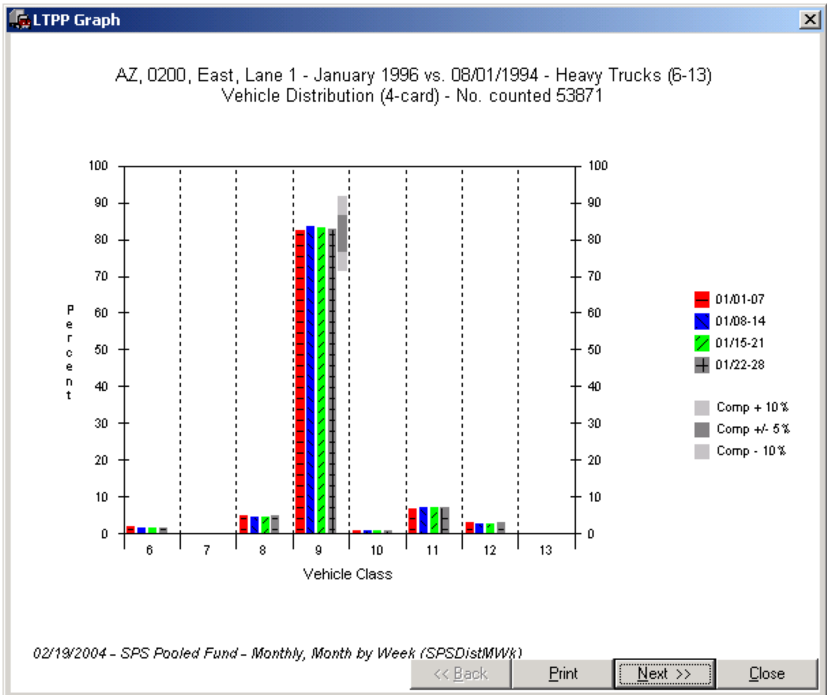


Figure 14-1 Typical Heavy Truck Distribution Pattern for Classification Data for 040200

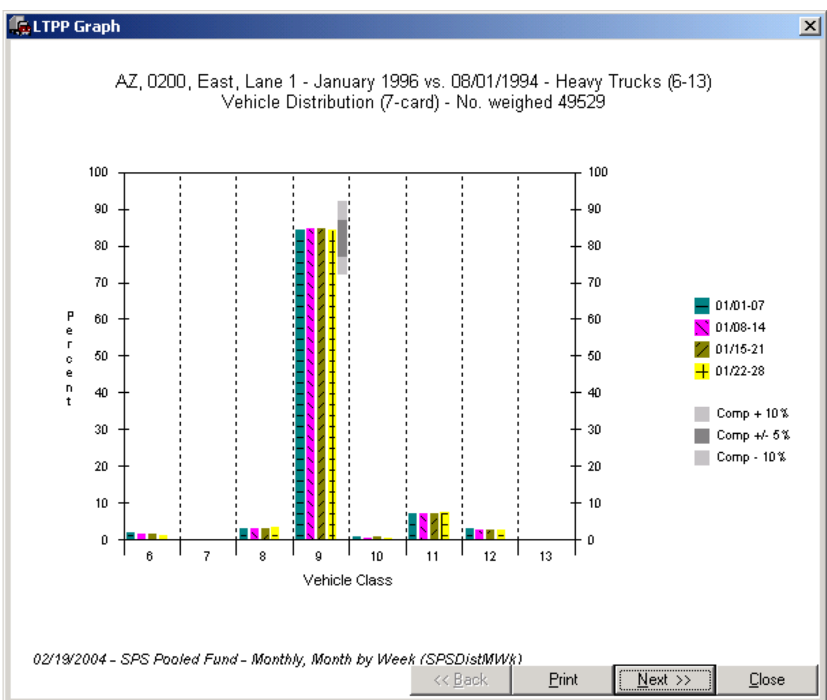


Figure 14-2 Typical Heavy Truck Distribution Pattern for Weight Data for 040200

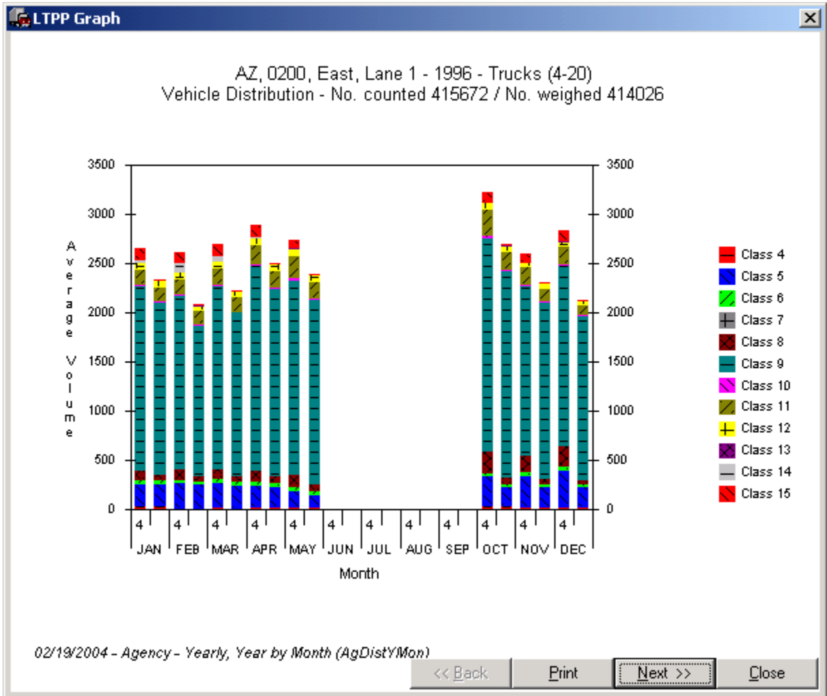


Figure 14-3 Vehicle Distribution by Month for the Year 1996 for 040200

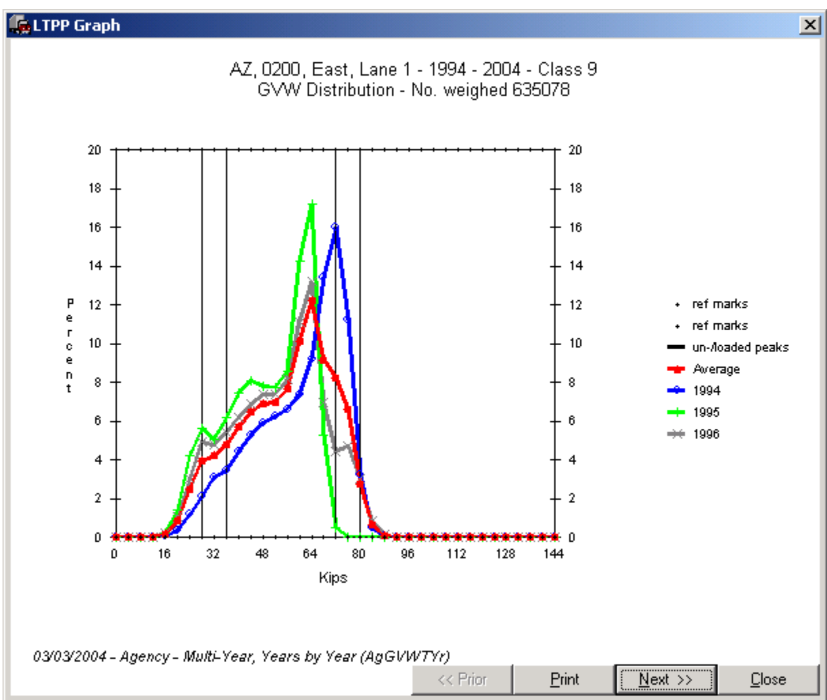


Figure 14-4 Class 9 GVW Distribution – 1994 to 1996 for 040200

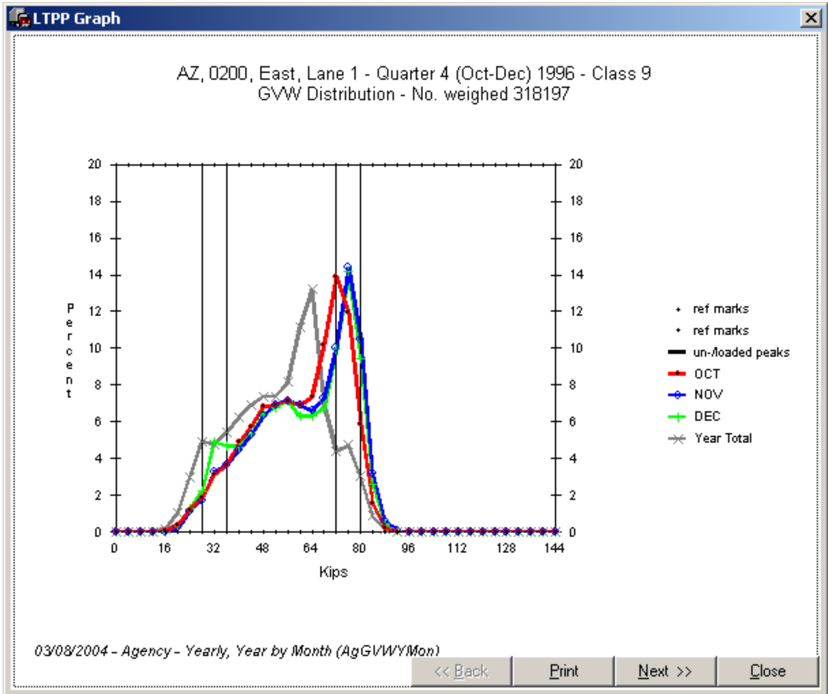


Figure 14-5 Class 9 GVW Distribution - October 1996 to December 1996 for 040200

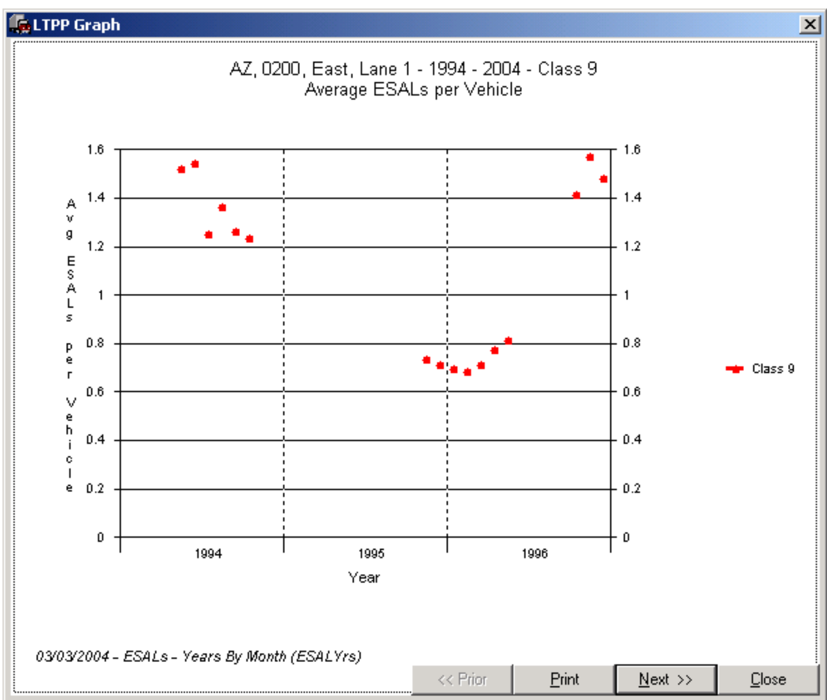


Figure 14-6 Average Class 9 ESALs for site from 1994 to 1996 for 040200

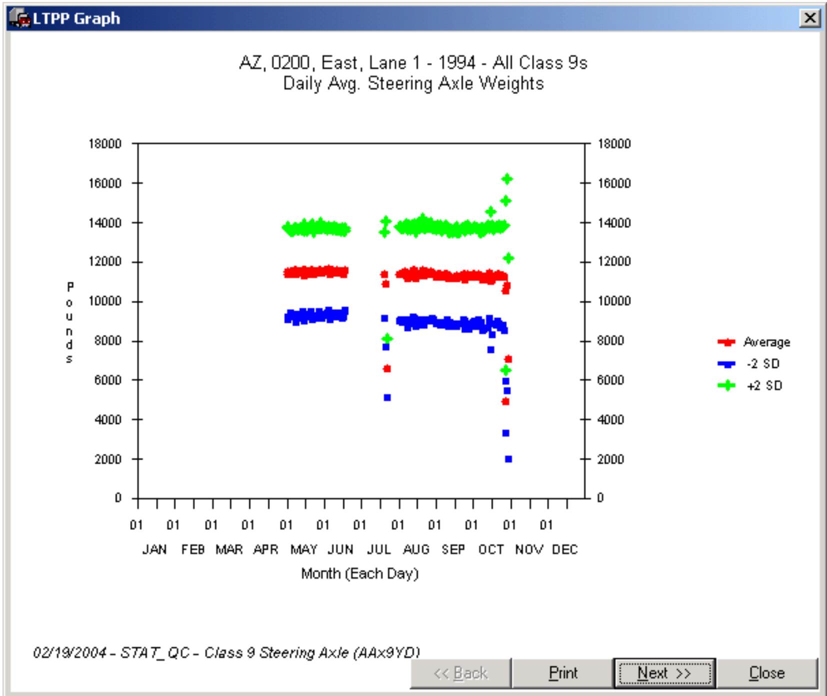


Figure 14-7 Average Daily Class 9 Steering Axle Weight - 1994 for 040200

POST VISIT HANDOUT GUIDE FOR SPS WIM FIELD ASSESSMENT

STATE: Arizona

SHRP ID: 0200

Figures

1. General Information

SITE ID: *040200*

LOCATION: *Interstate 10 East at M.P. 108.55*

VISIT DATE: *March 2, 2004*

VISIT TYPE: *Assessment*

2. Contact Information

POINTS OF CONTACT:

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

Highway Agency: *Dr. Estomih Kombe, 602-712-3135, ekombe@dot.state.az.us*

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

FHWA Division Office Liaison: *Alan Hansen, 602-379-3645 x 108, Alan.Hansen@fhwa.dot.gov*

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

3. Agenda

BRIEFING DATE: Held *March 5, 2004, 9:00 a.m. in the office of Dr. Kombe, 2739 E. Washington St., Phoenix, AZ, 85034 – Contact 602-712-3135*

ON SITE PERIOD: *March 2, 2004*

TRUCK ROUTE CHECK: *Completed. See truck route.*

4. Site Location/ Directions

NEAREST AIRPORT: *Phoenix Sky Harbor International Airport, Phoenix, AZ*

DIRECTIONS TO THE SITE: On Interstate 10, *Between Tonopah, AZ and AZ State Spur 85*

MEETING LOCATION: *On Site at 8:00 a.m.*

WIM SITE LOCATION: *Interstate 10 East at M.P. 108.55 (Latitude: 33^0 26.591' and Longitude: -112^0 41.774')*

WIM SITE LOCATION MAP:*See Figure 4.1*

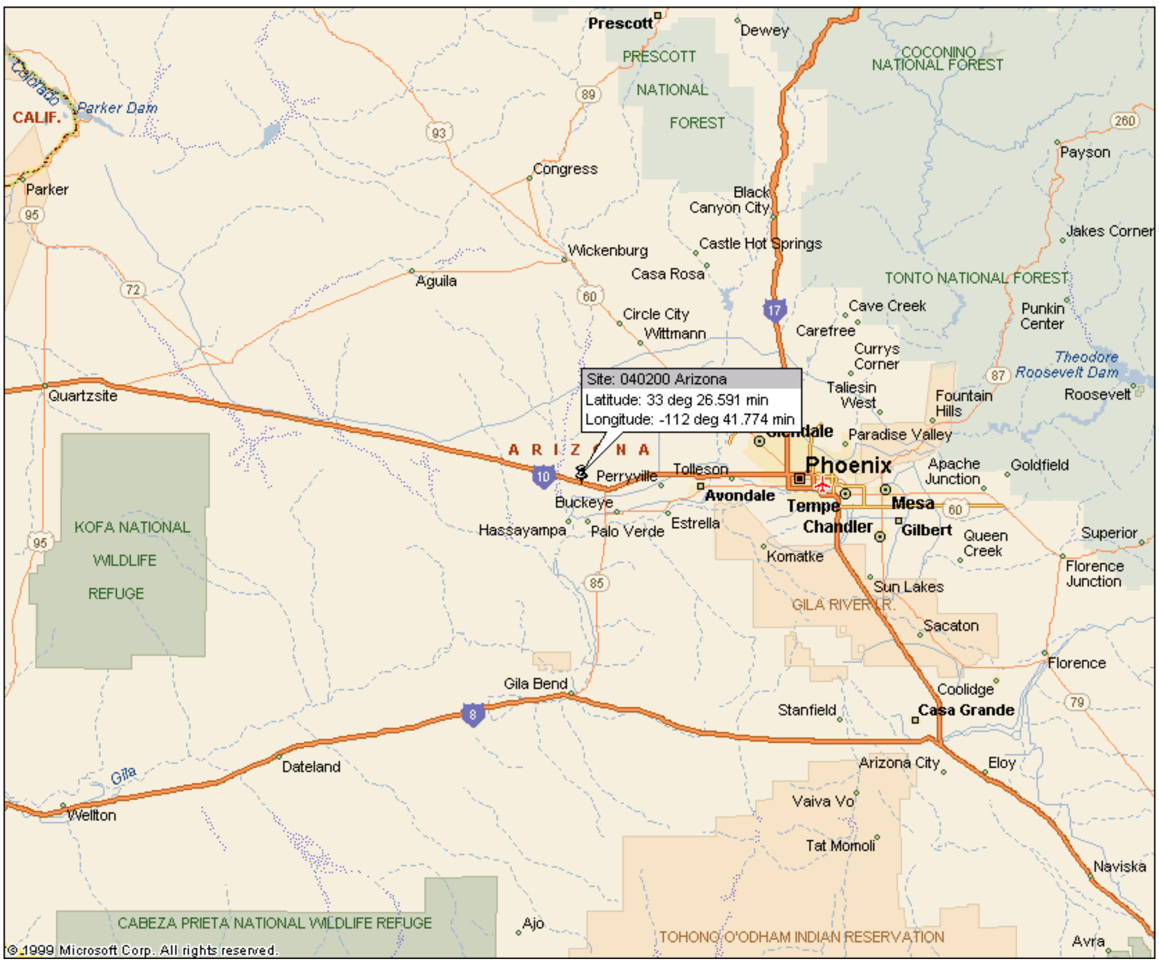


Figure 4.1: Site 040200 in Arizona

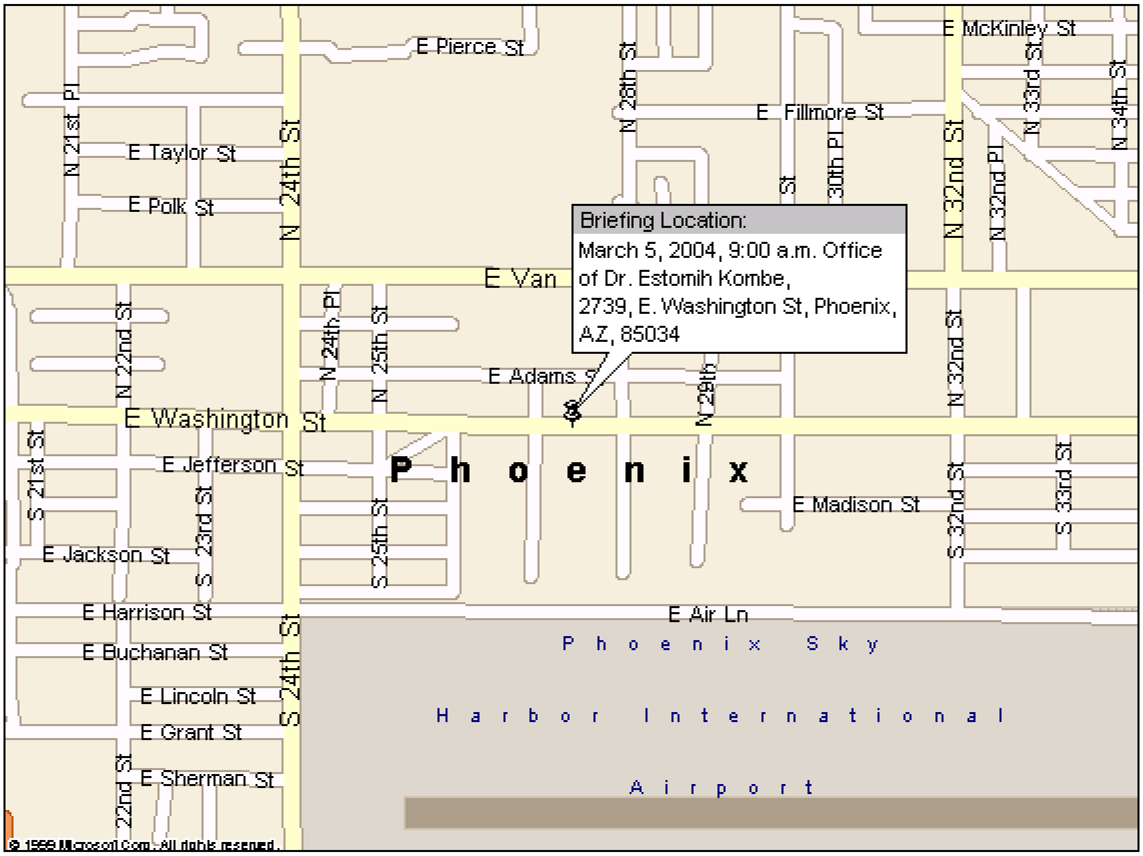


Figure 4.2: Briefing Location of 040200 in Arizona

5. Truck Route Information

ROUTE RESTRICTIONS: *None.*

SCALE LOCATION: *Lowe's Country Store, Buckeye, AZ, I-10, exit 114, Latitude: 33.43200, Longitude: -112.59110, Kevin Kobel – proprietor, Phone No: 623-386-6926, 24hrs, $8.00 per run.*

TRUCK ROUTE:

- *Eastbound*: *0.87 miles to Exit 109 (Sun Valley Parkway/N. Palo Verde Rd)*
- *Westbound: 4.4 miles to Exit 103 (339th Ave)*
- *Total Truck Turnaround is 5.27 miles*

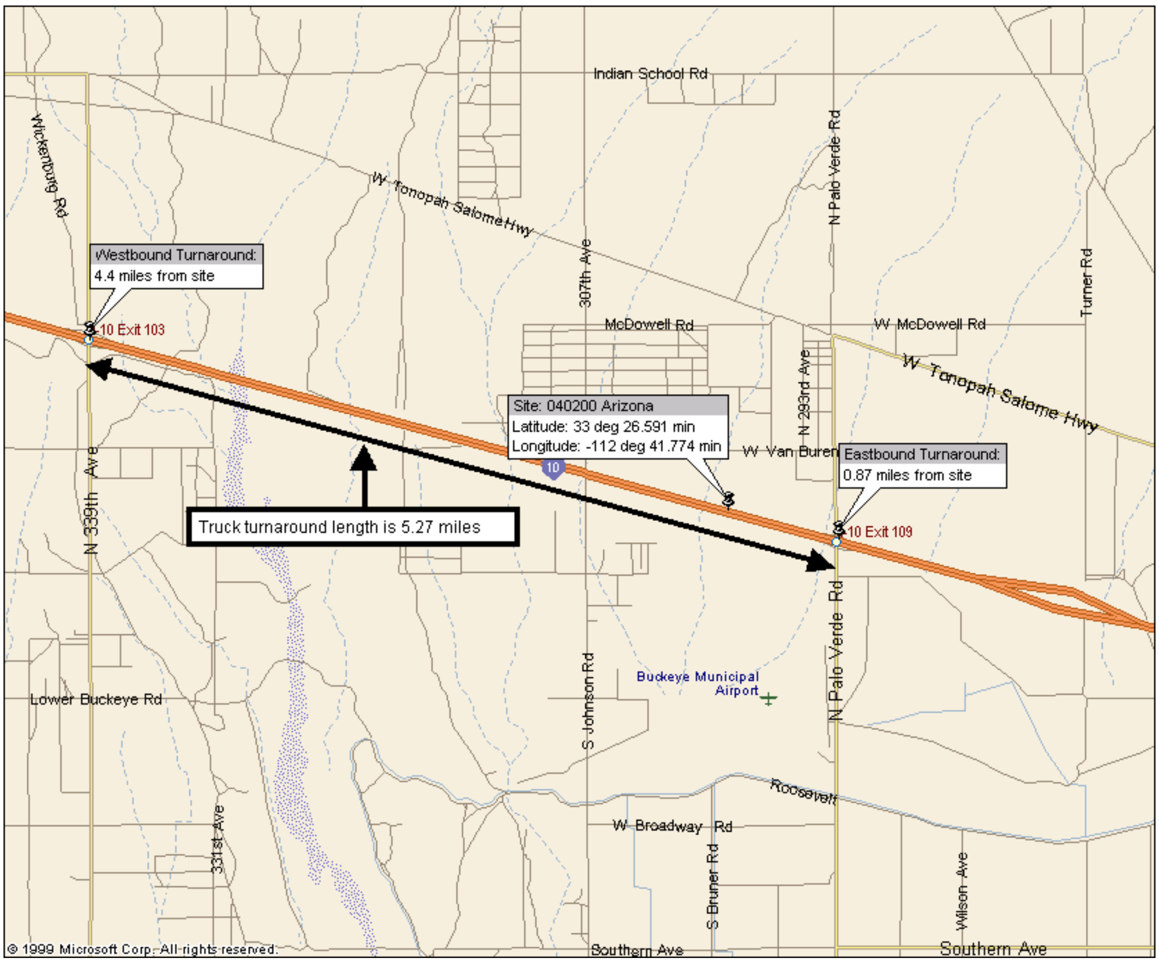


Figure 5.1: Truck Route at 040200 in Arizona

6. Sheet 17 – Arizona (040200)

1.* ROUTE ___I-10_______MILEPOST ___108.55__LTPP DIRECTION - N S E W

2.* WIM SITE DESCRIPTION - Grade ___<_1____ % Sag vertical Y / N
Nearest SPS section upstream of the site _0__ _4_0_ _2_6_ _6__
Distance from sensor to nearest upstream SPS Section ___ ___ _5__ _0__ 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 _1__ _0__ ft

4.* PAVEMENT TYPE _____Portland Cement Concrete____________________

5.* PAVEMENT SURFACE CONDITION – Distress Survey
Date _____03-02-04_________________Distress Photo Filename
_Distress_1_TO_4_04_25A_0200_03_02_04.JPG________________
Date _____03-02-04_________________Distress Photo Filename
_Distress_2_TO_4_04_25A_0200_03_02_04.JPG________________
Date _____03-02-04_________________Distress Photo Filename
_Distress_3_TO_4_04_25A_0200_03_02_04.JPG________________

6. * SENSOR SEQUENCE _____________Loop – 2 x Load Cell – Piezo – Loop ___

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 ___ __6_. _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 _73.5_ __ ft
Distance from system __ __ __ ft
TYPE ___________________________

CABINET ACCESS controlled by LTPP / STATE / JOINT?
Contact - name and phone number __ Estomih Kombe – (602) 712-3135
Alternate - name and phone number__Nate Woolfenden – (602) 954-0257

11. * POWER
Distance to cabinet from drop ___ ___ _0__ ft Overhead / underground / solar / AC in cabinet?
Service provider _____________________ Phone number _______________

12. * TELEPHONE
Distance to cabinet from drop ___ ___ ___ ft Overhead / under ground / cell?
Service provider _____No Service______ Phone Number_______________

13.* SYSTEM (software & version no.)-_No equipment installed__________________
Computer connection – RS232 / Parallel port / USB / Other _________________

14. * TEST TRUCK TURNAROUND time ___16__minutes, DISTANCE _10.54__ mi.

15. PHOTOS FILENAME
Power source _Solar_Panel_TO_4_04_25A_0200_03_02_04.JPG____
Phone source ___N/A____________________
Cabinet exterior _Cabinet_Exterior_TO_4_04_25A_0200_03_02_04.JPG____
Cabinet interior _Cabinet_Interior_TO_4_04_25A_0200_03_02_04.JPG_____
Weight sensors _Weight_Sensors_TO_4_04_25A_0200_03_02_04.JPG___
Classification sensors _Classification_Sensor_TO_4_04_25A_0200_03_02_04.JPG____
Other sensors _______________________
Description ______________________________
Downstream direction at sensors on LTPP lane
_Downstream_TO_4_04_25A_0200_03_02_04.JPG___________________
Upstream direction at sensors on LTPP lane
_Upstream_TO_4_04_25A_0200_03_02_04.JPG__________________

COMMENTS

GPS Coordinates: Latitude: 33^0 26.591’ and Longitude: -112^0 41.774’

Amenities:
Exit 103 – Travel Plaza, Texaco, Subway, Country Fare Restaurant
Phoenix – 35 miles East of site – various amenities

WIM equipment not installed in cabinet, including controller, power panel and communication equipment

Could not locate drainage outlet

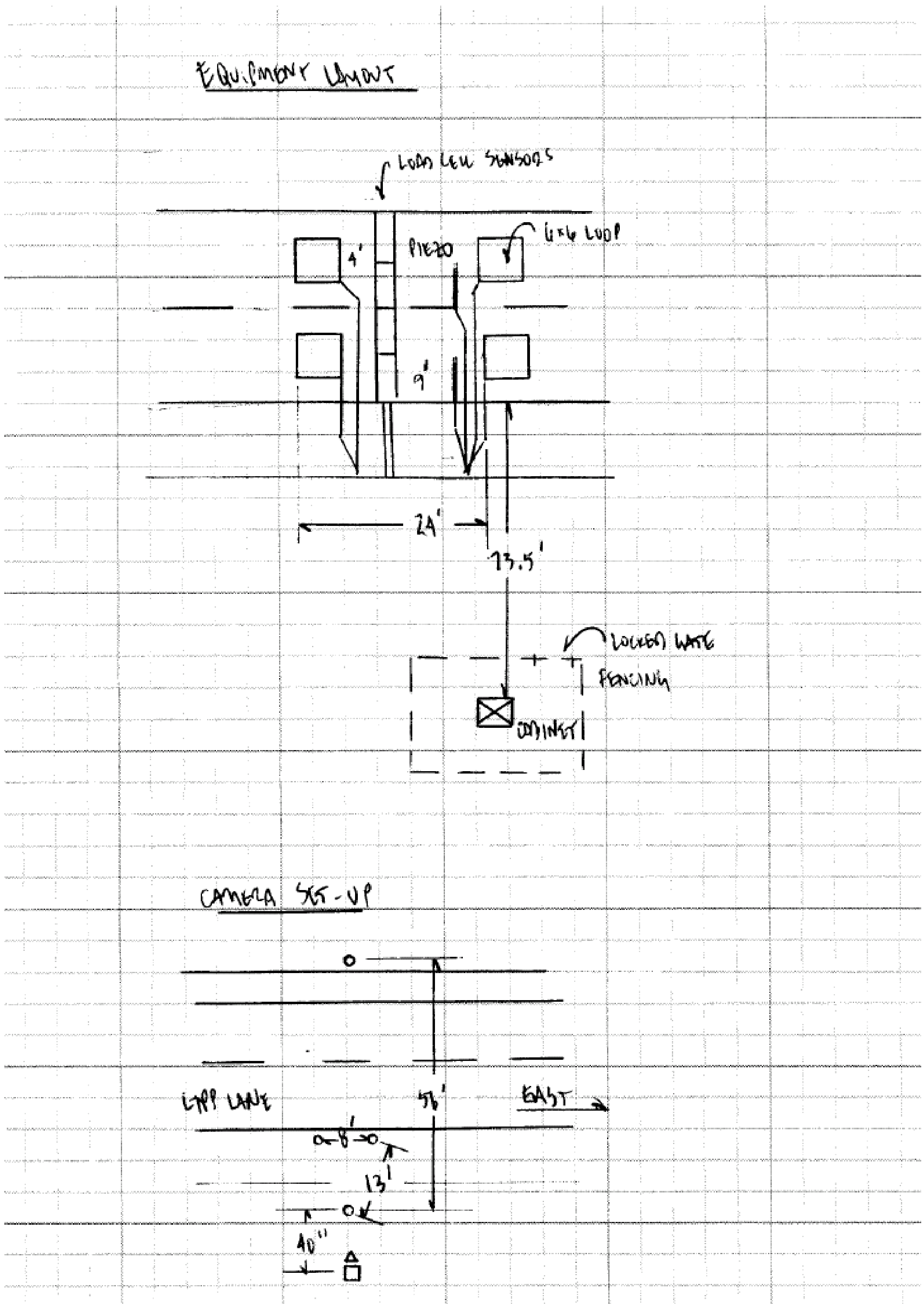
Test Truck Recommendations:
Types of Trucks: Two Class 9s
Truck 1: 72,000 to 80,000 legal limit on gross and axles, air suspension trailer;
Truck 2: 72,000 to 80,000 legal limit on gross and axles

Expected Speeds: 55, 65 and 75 mph

COMPLETED BY ____Dean J. Wolf____________________________

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

Sketch of equipment layout



Site Map

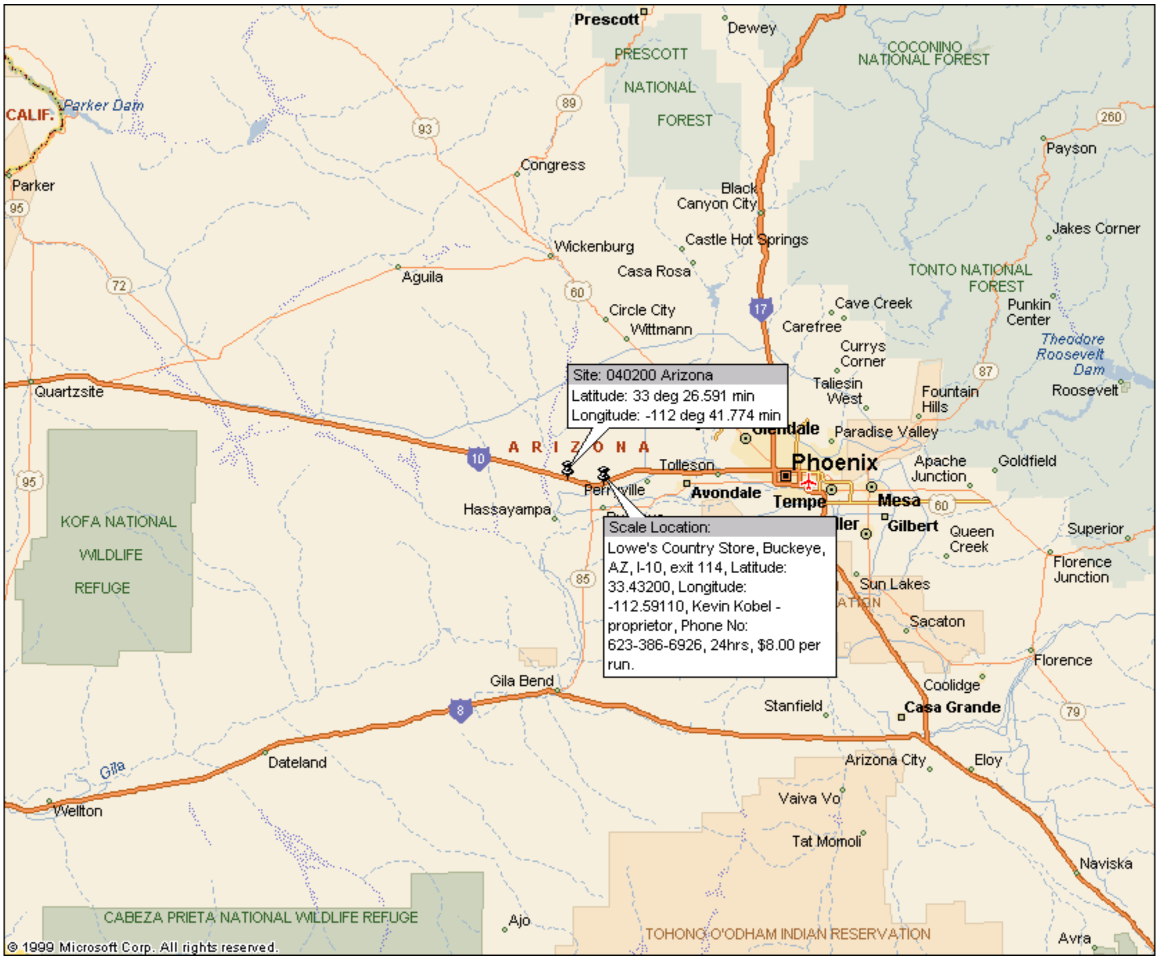


Figure 6.1: Site Map at 040200 in Arizona

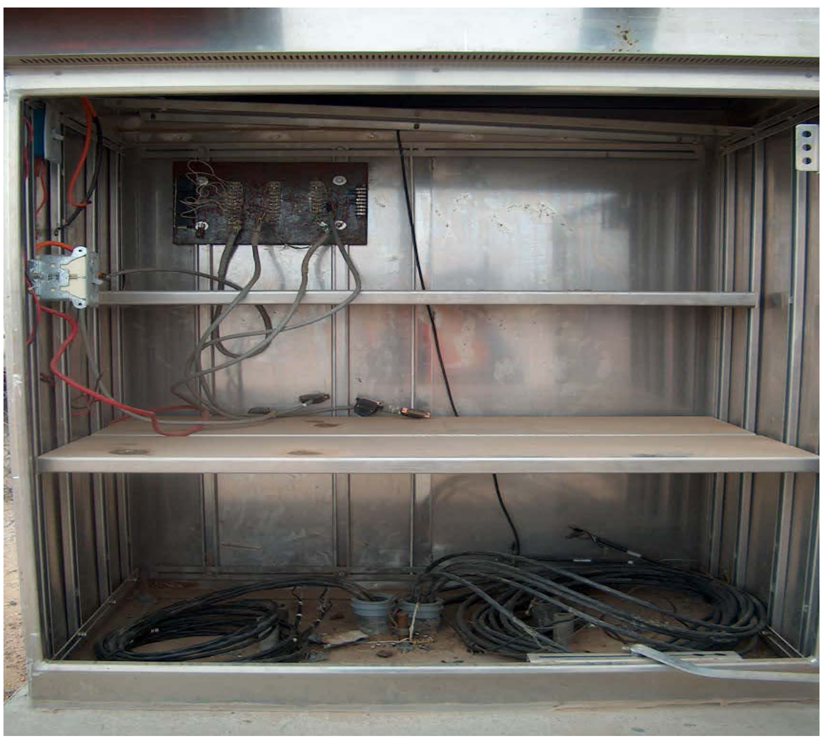
Distress_1_TO_4_04_25A_0200_03_02_04.JPG

Distress_2_TO_4_04_25A_0200_03_02_04.JPG

Distress_3_TO_4_04_25A_0200_03_02_04.JPG

Solar_Panel_TO_4_04_25A_0200_03_02_04.JPG

Cabinet_Exterior_TO_4_04_25A_0200_03_02_04.JPG



Cabinet_Interior_TO_4_04_25A_0200_03_02_04.JPG

Weight_Sensors_TO_4_04_25A_0200_03_02_04.JPG

Classification_Sensor_TO_4_04_25A_0200_03_02_04.JPG

Downstream_TO_4_04_25A_0200_03_02_04.JPG

Upstream_TO_4_04_25A_0200_03_02_04.JPG

STATE_CODE _0 _4

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: __Estomih Kombe (602) 712-3135______________________
   - 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 _7__ days / weeks
   - 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:
     _____________PAT/IRD______________________________
     Nearest static scale (commercial or enforcement)
     ____
   - Profiling – short wave -- permanent / temporary site marking
     -- long wave – permanent / temporary site marking

<u>WIM SITE COORDINATION</u> SPS Project_ID 0_ 2_ 0_ 0_

- Pre-visit data
  – Classification and speed: Contact __ Estomih Kombe (602) 712-3135_____
  --Typical operating conditions (congestion, high truck volumes)
  Contact ____ Estomih Kombe (602) 712-3135_______________
  -- Equipment operational status: Contact, Estomih Kombe (602) 712-3135

- Access to cabinet
  State only / <u>Joint</u> / LTPP <u>Key</u> / <u>Combination Fenced Area</u>

- State personnel required on site <u>Y</u> / N
Contact information ____ Estomih Kombe (602) 712-3135_________________

- Enforcement Coordination required Y / <u>N</u>
Contact information ____

- Traffic Control Required Y/ <u>N</u>
Contact information ____

- Maximum number of personnel on site __5___
  Invitees _____________________________

- Authorization to calibrate site -- <u>State only</u> / LTPP

- Special conditions ____

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

4. Site visits – Validation

   - WIM Validation Check - advance notice required __7_ <u>days</u> / weeks
     LTPP Semi-annually / Sate per LTPP protocol semi-annually / <u>State other Annually</u>

   - Trucks – air suspension 3S2 State / <u>LTPP</u>
     2nd common State / <u>LTPP</u>
     3rd common State / <u>LTPP</u>
     4th common State / <u>LTPP</u>
     Loads State / <u>LTPP</u>
     Contact ____

     Drivers State / <u>LTPP</u>

WIM SITE COORDINATION SPS Project_ID 0_ 2_ 0_ 0_

Contact ____

Contractors with prior successful experience in WIM calibration in state:
___________PAT/IRD______________________________________

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

- Pre-visit data
  – Classification and speed: Contact ____________________
  -- Equipment operational status: Contact _________________

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

- State personnel required on site Y / N

Contact information ___ Estomih Kombe (602) 712-3135_____________

- 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 ___ Estomih Kombe (602) 712-3135;
District Maintenance Office, Phoenix (602) 712-6664__

- Notice for straightedge and grinding check - ___2___ days / weeks

On site lead to direct / accept grinding – State / LTPP
District Maintenance Office, Phoenix (602) 712-6664

- WIM Calibration - advance notice required __7___ days / weeks
  Number of lanes -- ___4___
  LTPP / State per LTPP protocol / State Other ________________

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

WIM SITE COORDINATION SPS Project_ID 0_ 2_ 0_ 0_

Drivers State / LTPP

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

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

- Pre-visit data
  – Classification and speed: Contact ___ Estomih Kombe (602) 712-3135___
  -- Equipment operational status: Contact _ Estomih Kombe (602) 712-3135____

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

- State personnel required on site Y / N

Contact information _____ Estomih Kombe (602) 712-3135________________

- Enforcement Coordination required: Y / N

Contact information _ District Maintenance Office, Phoenix (602) 712-6664___

- Traffic Control Required: Y/ N

Contact information _ District Maintenance Office, Phoenix (602) 712-6664___

- Authorization to calibrate site -- State only / LTPP

- Special conditions ____

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