

WIM System Field Calibration and Validation Handout Guide

Tennessee, SPS-6
SHRP ID – 470600

Validation Date: April 17, 2012



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1 Site Information

Site ID:	470600	State:	Tennessee
LTPP Region:	Southern	Configuration:	Loop-quartz-quartz-loop
Controller Type:	iSINC	Sensor Type:	Quartz Piezo
Power:	AC	Communication:	Landline
Class Scheme:	LTPP Mar 06	CPU type/setup:	

2 Contact Information

Agency	Contact	Position	Phone	E-Mail
FHWA	Debbie Walker	COTR	202 493-3068	deborah.walker@dot.gov
FHWA	John H. Steele	FHWA Division Office	615-781-5777	johnh.steele@dot.gov
RSC	Tim Martin	Project Manager	512-977-1837	tmartin@fugro.com
TN DOT	James Maxwell	LTPP Contact	615-350-4167	james.maxwell@tn.gov
TN DOT	Steve Allen	Project Planning Dir.	615-741-2208	steve.allen@tn.gov
ARA	Dean Wolf	Task Leader	717-512-6638	dwolf@ara.com
ARA	Olga Selezneva	Project Manager	410-540-9949	oselezneva@ara.com
Truck Scale	Ben Moyer	Manager	731-422-0901	

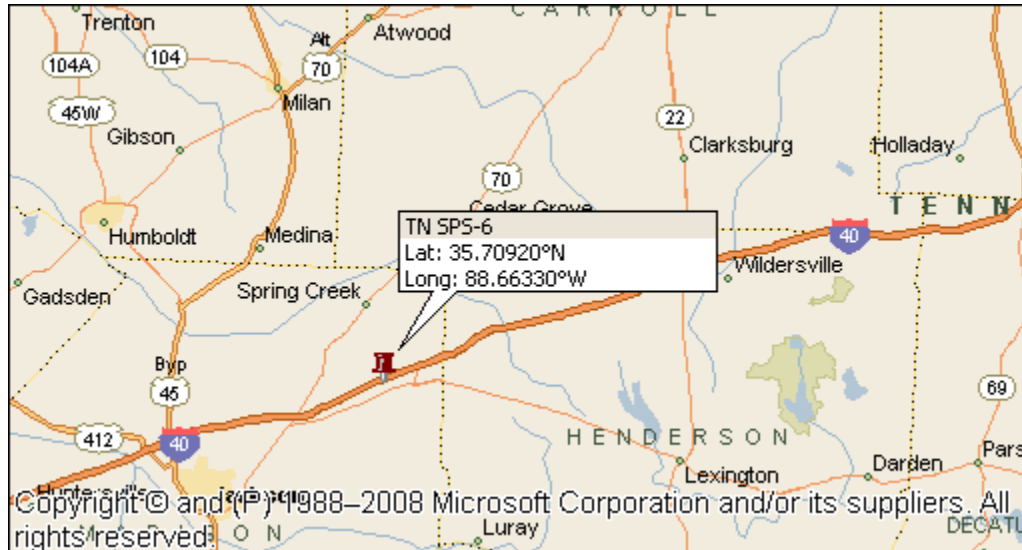
3 Schedule of Events

Date	Event	Location	Start Time
4/16/12	Travel	Jackson, TN	TBD
4/17/12	Test Truck Weigh/Measure/Inspection	Love's Country Store	6:00 am
4/17/12	Equipment Assessment	WIM Site	7:00 am
4/17/12	Initial Performance Evaluation	WIM Site	7:30 am
4/17/12	System Test/Class and Speed Study	WIM Site	TBD
4/18/12	Calibration/Validation (if required)	WIM Site	7:00 am
4/19/12	Travel	Camp Hill, PA	TBD

4 Maps

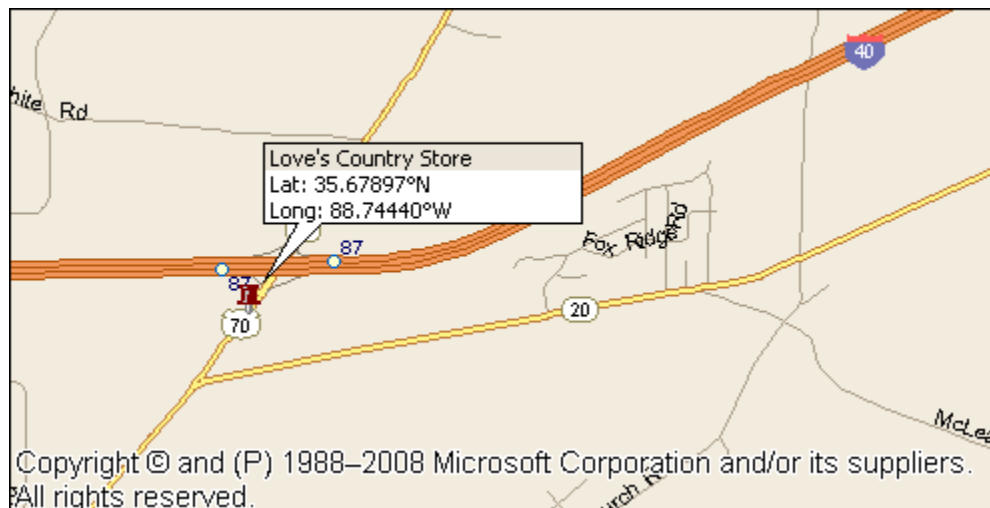
4.1 Site Location

Location:	I-40 West at M.P. 91.67, 1.75 miles west of exit 93 (SR 152)		Dir:	NB
Latitude:	35.70920°	Longitude:	-88.66330°	



4.2 Truck Scale Location

Name:	Love's Country Stores	Location:	I-40 @ Exit 87
Latitude:	35.67897°	Longitude:	-88.7444°



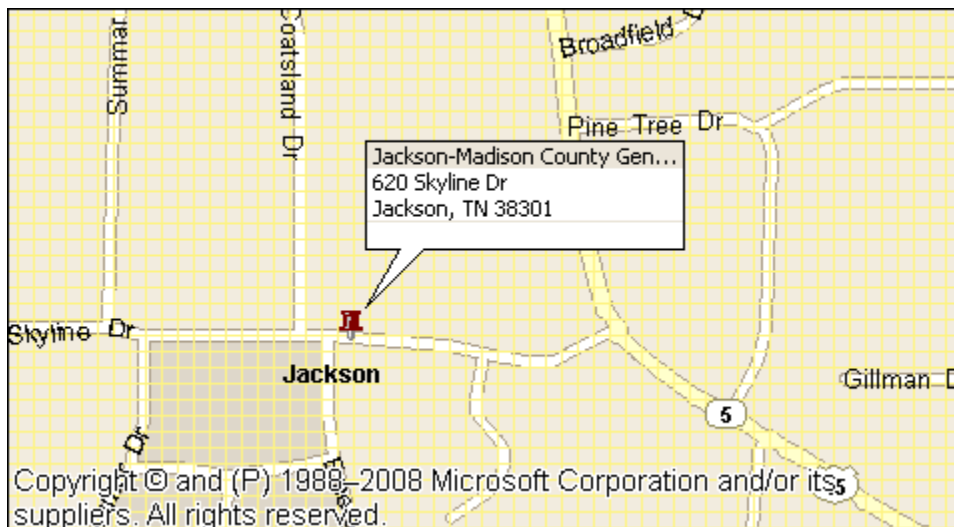
4.3 Airport Location

Name:	Memphis International Airport	Location:	Memphis, TN
Latitude:	35.0471°	Longitude:	-89.9818°



4.4 Hospital Location

Name:	Jackson-Madison County Gen Hosp-ER		
Phone:	731-541-6251	Location:	620 Skyline Drive, Jackson, TN



5 Occupational Health and Safety Plan

All fieldwork in the right-of-way will be carried out when the ground visibility is more than 3 km, and when there is no accumulation of water, snow, or ice is on the pavement.

To the extent possible, inspection work during extremely high and low temperatures will be avoided. If the work becomes necessary, workers will be reminded to make appropriate precautions (wear protective clothing, drink fluids, and avoid prolonged exposure to severe weather conditions).

All personnel present on the right-of-way will wear approved safety gear (boots, reflective safety vest, and helmet).

The following items will be available at the site: a standard first-aid kit, a cell phone, and the location of nearby hospital(s).

6 Contingency Plan

If inclement weather is forecasted prior to mobilizing to the site, the Project Manager will make the final decision to postpone the Validation visit. The Task Leader is responsible for contacting all parties involved to inform them of the postponement. He is also responsible for rearranging travel.

Once the Validation team is on-site, the On-Site Task Leader is responsible for making decisions to delay or postpone the Validation. He will contact the Project Manager to make recommendations for completing the Validation, and the Project Manager will make the final decision to cancel or postpone. The On-Site Task Leader is responsible for contacting the COTR and all other participating parties to inform them of the delay or postponement.

Traffic Sheet 16 LTPP MONITORED TRAFFIC DATA SITE CALIBRATION SUMMARY	STATE CODE:	47
	SPS WIM ID:	470600
	DATE (mm/dd/yyyy)	4/17/2012

SITE CALIBRATION INFORMATION

1. DATE OF CALIBRATION {mm/dd/yy} 4/17/12
2. TYPE OF EQUIPMENT CALIBRATED: Both
3. REASON FOR CALIBRATION: LTPP Validation
4. SENSORS INSTALLED IN LTPP LANE AT THIS SITE (Select all that apply):
- | | |
|----------------------------|------------|
| a. <u>Inductance Loops</u> | c. <u></u> |
| b. <u>Quartz Piezo</u> | d. <u></u> |
5. EQUIPMENT MANUFACTURER: IRD iSINC

WIM SYSTEM CALIBRATION SPECIFICS

6. CALIBRATION TECHNIQUE USED: Test Trucks
- Number of Trucks Compared:
- Number of Test Trucks Used: 2
- Passes Per Truck: 20

	Type	Drive Suspension	Trailer Suspension
Truck 1:	<u>9</u>	<u>steel spring</u>	<u>air</u>
Truck 2:	<u>9</u>	<u>steel spring</u>	<u>standard</u>
Truck 3:	<u></u>	<u></u>	<u></u>

7. SUMMARY CALIBRATION RESULTS (expressed as a %):

Mean Difference Between -

Dynamic and Static GVW:	<u>-4.6%</u>	Standard Deviation:	<u>2.0%</u>
Dynamic and Static Single Axle:	<u>-1.4%</u>	Standard Deviation:	<u>3.0%</u>
Dynamic and Static Double Axles:	<u>-2.7%</u>	Standard Deviation:	<u>2.4%</u>

8. NUMBER OF SPEEDS AT WHICH CALIBRATION WAS PERFORMED: 3

9. DEFINE SPEED RANGES IN MPH:

		Low		High	Runs
a.	<u>Low</u>	<u>59.0</u>	to	<u>62.7</u>	<u>16</u>
b.	<u>Medium</u>	<u>62.8</u>	to	<u>66.4</u>	<u>14</u>
c.	<u>High</u>	<u>66.5</u>	to	<u>70.0</u>	<u>10</u>
d.	<u></u>	<u></u>	to	<u></u>	<u></u>
e.	<u></u>	<u></u>	to	<u></u>	<u></u>

Traffic Sheet 16 LTPP MONITORED TRAFFIC DATA SITE CALIBRATION SUMMARY	STATE CODE:	47
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10. CALIBRATION FACTOR (AT EXPECTED FREE FLOW SPEED) 3034 3221

11. IS AUTO- CALIBRATION USED AT THIS SITE? No

If yes , define auto-calibration value(s):

CLASSIFIER TEST SPECIFICS

12. METHOD FOR COLLECTING INDEPENDENT VOLUME MEASUREMENT BY VEHICLE CLASS:

Manual

13. METHOD TO DETERMINE LENGTH OF COUNT: Number of Trucks

14. MEAN DIFFERENCE IN VOLUMES BY VEHICLES CLASSIFICATION:

FHWA Class 9:		FHWA Class	5	-	
FHWA Class 8:		FHWA Class		-	
		FHWA Class		-	
		FHWA Class		-	

Percent of "Unclassified" Vehicles: 0.0%

Validation Test Truck Run Set - Pre

Person Leading Calibration Effort:	Dean J. Wolf
Contact Information:	Phone: 717-975-3550
	E-mail: dwolf@ara.com

Traffic Sheet 18 LTPP MONITORED TRAFFIC DATA WIM SITE COORDINATION	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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1. DATA PROCESSING

- a. Download: LTPP only
- b. Data review: LTPP
If state, how often? _____
- c. Data submission LTPP
If state how often? _____

2. EQUIPMENT

- a. Purchase LTPP
- b. Installation Included with purchase
- c. Maintenance Contract with purchase
Expiration Date _____
- d. Calibration LTPP
- e. Manuals and software control: LTPP
- f. Power
i. Type Underground ii. Payment State
- g. Communication
i. Type Landline ii. Payment State

3. PAVEMENT

- a. Type Asphalt Concrete
- b. Allowable Rehabilitation activities Maintenance only
- c. Profile Site Markings Temporary

Traffic Sheet 18 LTPP MONITORED TRAFFIC DATA WIM SITE COORDINATION	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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4. Onsite Activities

- a. WIM Validation Check advance notice required

_____ Days 2 Weeks

- b. Notice for straightedge and grinding check

_____ Days 2 Weeks

i. On site lead LTPP

ii. Accept grinding LTPP

- c. Authorization to calibrate site LTPP

- d. Calibration routine LTPP annually
Other: _____

- e. Test Vehicle Responsibilities

- i. Trucks

1st- Air suspension 3S2 LTPP

2nd- Air Suspension 3S2 LTPP

3rd- _____

4th- _____

ii. Loads LTPP

iii. Drivers LTPP

- f. Contractor(s) with prior experience in wim calibration in state:
IRD

- g. Access to cabinet Joint

- h. State personel required on site No

- i. Traffic control required No

- J. Enforcement coordination required No

Traffic Sheet 18 LTPP MONITORED TRAFFIC DATA WIM SITE COORDINATION	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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5. SITE SPECIFIC CONDITIONS

- a. Funds and accountability: _____
- b. Reports: _____
- c. Other: _____
- c. Special Conditions _____

6. CONTACTS

- a. Equipment (operational status, access, etc.)
Name Roy Czinku Phone # 306-270-9492
Agency IRD
- b. Maintenance (equipment)
Name Roy Czinku Phone # 306-270-9492
Agency IRD
- c. Data Processing and pre-visit data
Name Basel Abukhater Phone # 716-632-0804
Agency Stantec
- d. Construction schedule and verification
Name _____ Phone # _____
Agency _____
- e. Test Vehicles (trucks, loads, drivers)
Name Max Inman Phone # _____
Agency Inman Trucking Inc.
- f. Traffic control
Name _____ Phone # _____
Agency _____
- g. Enforcement coordination
Name _____ Phone # _____
Agency _____
- h. Nearest static scale
Name Love's Country Store Location: I-40, exit 87
Phone: _____

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: <u>47</u> SPS WIM ID: <u>470600</u> DATE (mm/dd/yyyy) <u>4/17/2012</u>
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CALIBRATION TEST TRUCK - Primary

PART A

1. FHWA CLASS: 9 2. Number of axles: 5
3. AXLE WEIGHTS (lbs)

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11490	11260	Direct
B		16460	16365	Direct
C		16460	16365	Direct
D		16650	16645	Direct
E		16650	16645	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 77710
- c. Post Test Loaded Weight: 77280
- d. Difference Post Test - Pre-Tests: -430

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: Yes
photo: ☒

- b. Make: Freightliner
c. Model: Classic XL

d. Trailer Load Distribution Description:

sand

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - (feet and tenths)

A to B 19.5 B to C 4.3 C to D 28.1 D to E 4.1 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 56.0
- i. Kingpin offset from Axle B (units) -1.2' photo: ☐
- j. Overall Length - ☒ Measured 60.8

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Primary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	295/75R22.5	steel spring	☒
B	295/75R22.5	air	☒
C	295/75R22.5	air	☒
D	11R24.5	air	☒
E	11R24.5	air	☒
F			☐

d. Cold Tire Pressures (psi)- from right to left

Steering Axle	Axle B	Axle C	AxleD	AxleE	Axle F
97.7	110.1	105.7	98	100.7	
97.6	110.1	105.9	97.2	99.7	
	111.4	105.9	100.5	97.5	
	111.5	105.9	100.7	97.5	

PART B

Table 1 - Raw Measurements -Platform Scale

Axles	Meas.	Pre-test Weight	Instance	Instance	Post-test weight
A	I				
A+B	II				
A+B+C	III				
A+B+C+D	IV				
A+B+C+D+E(1)	V				
A+B+C+D+E+(F)(1)	VI				
B+C+D+E+(F)	VII				
C+D+E+(F)	VIII				
D+E+(F)	IX				
E+(F)	X				
(F)	XI				
A+B+C+D+E+(F)(2)	XII				

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Primary

Table 2 - Axle and GVW Computations -Platform Scale Pre-test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 3- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 4- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 5- Axle and GVW Computations - Platform Scale Post-Test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Traffic Sheet 19 LTTP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Primary

Table 6 - Raw Data -Axle Scales - Pre-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11500	16460	16460	16650	16650		77720
2	11480	16460	16460	16650	16650		77700
Avg.	11490	16460	16460	16650	16650		77710

Table 7- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 8- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 9 - Raw Data -Axle Scales - Post-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11280	16360	16360	16650	16650		77300
2	11240	16370	16370	16640	16640		77260
Avg.	11260	16365	16365	16645	16645		77280

Validation Test Truck Run Set - Pre

Measured By: Kevin Trousdale
Verified By: Dean J. Wolf

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: <u>47</u> SPS WIM ID: <u>470600</u> DATE (mm/dd/yyyy) <u>4/18/2012</u>
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CALIBRATION TEST TRUCK - Primary

PART A

1. FHWA CLASS: 9 2. Number of axles: 5
3. AXLE WEIGHTS (lbs)

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11300	0	Direct
B		16490	0	Direct
C		16490	0	Direct
D		16635	0	Direct
E		16635	0	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 77550
- c. Post Test Loaded Weight: 0
- d. Difference Post Test - Pre-Tests: -77550

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: Yes
photo: ☒

- b. Make: Freightliner
c. Model: Classic XL

d. Trailer Load Distribution Description:

sand

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - (feet and tenths)

A to B 19.5 B to C 4.3 C to D 28.1 D to E 4.1 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 56.0
- i. Kingpin offset from Axle B (units) -1.2' photo: ☐
- j. Overall Length - ☒ Measured 60.8

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Primary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	295/75R22.5	steel spring	☒
B	295/75R22.5	air	☒
C	295/75R22.5	air	☒
D	11R24.5	air	☒
E	11R24.5	air	☒
F			☐

d. Cold Tire Pressures (psi)- from right to left

Steering Axle	Axle B	Axle C	AxleD	AxleE	Axle F
97.7	110.1	105.7	98	100.7	
97.6	110.1	105.9	97.2	99.7	
	111.4	105.9	100.5	97.5	
	111.5	105.9	100.7	97.5	

PART B

Table 1 - Raw Measurements -Platform Scale

Axles	Meas.	Pre-test Weight	Instance	Instance	Post-test weight
A	I				
A+B	II				
A+B+C	III				
A+B+C+D	IV				
A+B+C+D+E(1)	V				
A+B+C+D+E+(F)(1)	VI				
B+C+D+E+(F)	VII				
C+D+E+(F)	VIII				
D+E+(F)	IX				
E+(F)	X				
(F)	XI				
A+B+C+D+E+(F)(2)	XII				

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Primary

Table 2 - Axle and GVW Computations -Platform Scale Pre-test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 3- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 4- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 5- Axle and GVW Computations - Platform Scale Post-Test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Primary

Table 6 - Raw Data -Axle Scales - Pre-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11260	16510	16510	16630	16630		77540
2	11340	16470	16470	16640	16640		77560
Avg.	11300	16490	16490	16635	16635		77550

Table 7- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 8- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 9 - Raw Data -Axle Scales - Post-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Validation Test Truck Run Set - Cal 1

Measured By: Kevin Trousdale
Verified By: Dean J. Wolf

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: <u>47</u> SPS WIM ID: <u>470600</u> DATE (mm/dd/yyyy) <u>4/18/2012</u>
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CALIBRATION TEST TRUCK - Primary

PART A

1. FHWA CLASS: 9 2. Number of axles: 5
3. AXLE WEIGHTS (lbs)

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11300	11160	Direct
B		16490	16335	Direct
C		16490	16335	Direct
D		16635	16640	Direct
E		16635	16640	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 77550
- c. Post Test Loaded Weight: 77110
- d. Difference Post Test - Pre-Tests: -440

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: Yes
photo: ☒

- b. Make: Freightliner
c. Model: Classic XL

d. Trailer Load Distribution Description:

sand

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - (feet and tenths)

A to B 19.5 B to C 4.3 C to D 28.1 D to E 4.1 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 56.0
- i. Kingpin offset from Axle B (units) -1.2' photo: ☐
- j. Overall Length - ☒ Measured 60.8

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Primary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	295/75R22.5	steel spring	☒
B	295/75R22.5	air	☒
C	295/75R22.5	air	☒
D	11R24.5	air	☒
E	11R24.5	air	☒
F			☐

d. Cold Tire Pressures (psi)- from right to left

Steering Axle	Axle B	Axle C	AxleD	AxleE	Axle F
97.7	110.1	105.7	98	100.7	
97.6	110.1	105.9	97.2	99.7	
	111.4	105.9	100.5	97.5	
	111.5	105.9	100.7	97.5	

PART B

Table 1 - Raw Measurements -Platform Scale

Axles	Meas.	Pre-test Weight	Instance	Instance	Post-test weight
A	I				
A+B	II				
A+B+C	III				
A+B+C+D	IV				
A+B+C+D+E(1)	V				
A+B+C+D+E+(F)(1)	VI				
B+C+D+E+(F)	VII				
C+D+E+(F)	VIII				
D+E+(F)	IX				
E+(F)	X				
(F)	XI				
A+B+C+D+E+(F)(2)	XII				

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Primary

Table 2 - Axle and GVW Computations -Platform Scale Pre-test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 3- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 4- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 5- Axle and GVW Computations - Platform Scale Post-Test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Primary

Table 6 - Raw Data -Axle Scales - Pre-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11260	16510	16510	16630	16630		77540
2	11340	16470	16470	16640	16640		77560
Avg.	11300	16490	16490	16635	16635		77550

Table 7- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 8- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 9 - Raw Data -Axle Scales - Post-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11160	16330	16330	16640	16640		77100
2	11160	16340	16340	16640	16640		77120
Avg.	11160	16335	16335	16640	16640		77110

Validation Test Truck Run Set - Post

Measured By: Kevin Trousdale
Verified By: Dean J. Wolf

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Secondary

PART A

1. FHWA CLASS: 9 2. Number of axles: 5
3. AXLE WEIGHTS (lbs)

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11510	11310	Direct
B		15745	15600	Direct
C		15745	15600	Direct
D		12975	13005	Direct
E		12975	13005	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 68950
- c. Post Test Loaded Weight: 68520
- d. Difference Post Test - Pre-Tests: -430

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: Yes
photo: ☒

- b. Make: Freightliner
c. Model: Classic XL

d. Trailer Load Distribution Description:

sand

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - (feet and tenths)

A to B 19.8 B to C 4.3 C to D 28.5 D to E 4.3 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 56.9
- i. Kingpin offset from Axle B (units) -0.8' photo: ☐
- j. Overall Length - ☒ Measured 61.0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Secondary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	11R22.5	steel spring	☒
B	275/80R22.5	air	☒
C	295/75R22.5	air	☒
D	285/75R24.5	air	☒
E	285/75R24.5	air	☒
F			☐

d. Cold Tire Pressures (psi)- from right to left

Steering Axle	Axle B	Axle C	AxleD	AxleE	Axle F

PART B

Table 1 - Raw Measurements -Platform Scale

Axles	Meas.	Pre-test Weight	Instance	Instance	Post-test weight
A	I				
A+B	II				
A+B+C	III				
A+B+C+D	IV				
A+B+C+D+E(1)	V				
A+B+C+D+E+(F)(1)	VI				
B+C+D+E+(F)	VII				
C+D+E+(F)	VIII				
D+E+(F)	IX				
E+(F)	X				
(F)	XI				
A+B+C+D+E+(F)(2)	XII				

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Secondary

Table 2 - Axle and GVW Computations -Platform Scale Pre-test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 3- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 4- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 5- Axle and GVW Computations - Platform Scale Post-Test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>2</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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CALIBRATION TEST TRUCK - Secondary

Table 6 - Raw Data -Axle Scales - Pre-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11520	15740	15740	12980	12980		68960
2	11500	15750	15750	12970	12970		68940
Avg.	11510	15745	15745	12975	12975		68950

Table 7- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 8- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 9 - Raw Data -Axle Scales - Post-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11320	15600	15600	13010	13010		68540
2	11300	15600	15600	13000	13000		68500
Avg.	11310	15600	15600	13005	13005		68520

Validation Test Truck Run Set - Pre

Measured By: Kevin Trousdale
Verified By: Dean J. Wolf

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

PART A

1. FHWA CLASS: 9 2. Number of axles: 5
3. AXLE WEIGHTS (lbs)

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11410	0	Direct
B		15680	0	Direct
C		15680	0	Direct
D		13005	0	Direct
E		13005	0	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 68780
- c. Post Test Loaded Weight: 0
- d. Difference Post Test - Pre-Tests: -68780

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: Yes
photo: ☒

- b. Make: Freightliner
c. Model: Classic XL

d. Trailer Load Distribution Description:

sand

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - (feet and tenths)

A to B 19.8 B to C 4.3 C to D 28.5 D to E 4.3 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 56.9
- i. Kingpin offset from Axle B (units) -0.8' photo: ☐
- j. Overall Length - ☒ Measured 61.0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	11R22.5	steel spring	☒
B	275/80R22.5	air	☒
C	295/75R22.5	air	☒
D	285/75R24.5	air	☒
E	285/75R24.5	air	☒
F			☐

d. Cold Tire Pressures (psi)- from right to left

Steering Axle	Axle B	Axle C	AxleD	AxleE	Axle F

PART B

Table 1 - Raw Measurements -Platform Scale

Axles	Meas.	Pre-test Weight	Instance	Instance	Post-test weight
A	I				
A+B	II				
A+B+C	III				
A+B+C+D	IV				
A+B+C+D+E(1)	V				
A+B+C+D+E+(F)(1)	VI				
B+C+D+E+(F)	VII				
C+D+E+(F)	VIII				
D+E+(F)	IX				
E+(F)	X				
(F)	XI				
A+B+C+D+E+(F)(2)	XII				

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

Table 2 - Axle and GVW Computations -Platform Scale Pre-test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 3- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 4- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 5- Axle and GVW Computations - Platform Scale Post-Test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>2</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

Table 6 - Raw Data -Axle Scales - Pre-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11420	15670	15670	13010	13010		68780
2	11400	15690	15690	13000	13000		68780
Avg.	11410	15680	15680	13005	13005		68780

Table 7- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 8- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 9 - Raw Data -Axle Scales - Post-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Validation Test Truck Run Set - Cal 1

Measured By: Kevin Trousdale
Verified By: Dean J. Wolf

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

PART A

1. FHWA CLASS: 9 2. Number of axles: 5
3. AXLE WEIGHTS (lbs)

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11410	11230	Direct
B		15680	15540	Direct
C		15680	15540	Direct
D		13005	13015	Direct
E		13005	13015	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 68780
- c. Post Test Loaded Weight: 68340
- d. Difference Post Test - Pre-Tests: -440

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: Yes
photo: ☒

- b. Make: Freightliner
c. Model: Classic XL

d. Trailer Load Distribution Description:

sand

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - (feet and tenths)

A to B 19.8 B to C 4.3 C to D 28.5 D to E 4.3 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 56.9
- i. Kingpin offset from Axle B (units) -0.8' photo: ☐
- j. Overall Length - ☒ Measured 61.0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	11R22.5	steel spring	☒
B	275/80R22.5	air	☒
C	295/75R22.5	air	☒
D	285/75R24.5	air	☒
E	285/75R24.5	air	☒
F			☐

d. Cold Tire Pressures (psi)- from right to left

Steering Axle	Axle B	Axle C	AxleD	AxleE	Axle F

PART B

Table 1 - Raw Measurements -Platform Scale

Axles	Meas.	Pre-test Weight	Instance	Instance	Post-test weight
A	I				
A+B	II				
A+B+C	III				
A+B+C+D	IV				
A+B+C+D+E(1)	V				
A+B+C+D+E+(F)(1)	VI				
B+C+D+E+(F)	VII				
C+D+E+(F)	VIII				
D+E+(F)	IX				
E+(F)	X				
(F)	XI				
A+B+C+D+E+(F)(2)	XII				

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

Table 2 - Axle and GVW Computations -Platform Scale Pre-test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 3- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 4- Axle and GVW Computations - Platform Scale - Instance -

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Table 5- Axle and GVW Computations - Platform Scale Post-Test

	1		2		Avg.
Axle A	I	0	VI-VII	0	0
Axle B	II-I	0	VII-VIII	0	0
Axle C	III-II	0	VIII-IX	0	0
Axle D	IV-III	0	IX-X	0	0
Axle E	V-IV	0	X-XI	0	0
Axle F	VI-V		XI		
GVW	VI	0	XII	0	0

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>2</u>	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/18/2012
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CALIBRATION TEST TRUCK - Secondary

Table 6 - Raw Data -Axle Scales - Pre-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11420	15670	15670	13010	13010		68780
2	11400	15690	15690	13000	13000		68780
Avg.	11410	15680	15680	13005	13005		68780

Table 7- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 8- Raw Data- Axle scales -

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
Avg.							

Table 9 - Raw Data -Axle Scales - Post-test

Pass	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW
1	11240	15530	15530	13020	13020		68340
2	11220	15550	15550	13010	13010		68340
Avg.	11230	15540	15540	13015	13015		68340

Validation Test Truck Run Set - Post

Measured By: Kevin Trousdale
Verified By: Dean J. Wolf

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS											STATE CODE: SPS WIM ID: DATE: (mm/dd/yyyy):					
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Pvmt Temp	Radar speed	Truck	Pass	Time	Record No.	WIM Speed	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW	A-B space	B-C space	C-D space
62.2	60	1	1	9:56:34	17332	60.0	11.3	16.0	15.5	16.2	15.5		74.6	19.7	4.3	28.2
62.2	60	2	1	9:56:45	17331	59.0	11.2	14.7	14.7	12.3	12.0		65.0	19.8	4.3	28.7
63.0	65	1	2	10:12:22	17844	65.0	11.4	16.0	15.8	16.2	15.9		75.2	19.7	4.3	28.3
63.0	65	2	2	10:12:25	17848	64.0	11.6	15.2	14.9	12.7	12.7		67.2	19.7	4.3	28.7
63.0	70	2	3	10:27:42	18385	69.0	11.3	15.2	15.5	12.9	12.8		67.7	19.7	4.2	28.7
62.9	70	1	3	10:42:55	18908	60.0	11.1	15.4	15.1	15.8	15.7		73.1	19.6	4.3	28.3
62.9	65	2	4	10:42:59	18912	59.0	12.9	14.8	14.8	12.5	12.1		67.2	19.7	4.3	28.7
62.9	66	1	4	10:57:56	19414	65.0	11.5	16.1	15.9	16.5	15.9		76.0	19.6	4.3	28.2
62.9	64	2	5	10:58:00	19415	64.0	11.3	15.0	15.1	12.5	13.1		67.0	19.8	4.2	28.6
62.9	69	1	5	11:14:40	19990	70.0	11.2	15.5	15.1	15.9	15.6		73.4	19.7	4.3	28.3
62.9	70	2	6	11:14:44	19995	70.0	11.2	15.3	15.4	13.1	13.3		68.4	19.7	4.2	28.7
62.9	60	1	6	11:32:48	20644	59.0	11.0	15.5	15.4	15.5	15.3		72.6	19.7	4.3	28.2
62.9	60	2	7	11:32:53	20648	60.0	11.1	14.7	14.7	11.9	12.2		64.5	19.7	4.2	28.7
62.9	65	1	7	11:47:34	21143	65.0	11.1	15.7	15.3	16.3	15.8		74.1	19.6	4.3	28.3
62.9	65	2	8	11:47:37	21145	64.0	11.3	15.4	15.0	13.1	12.6		67.4	19.7	4.3	28.7
64.8	69	1	8	12:02:39	21691	70.0	11.2	15.7	15.7	16.5	15.9		75.1	19.7	4.3	28.3
64.8	67	2	9	12:02:46	21699	68.0	11.1	15.3	15.4	12.4	12.8		66.9	19.7	4.2	28.7
64.8	59	1	9	12:20:29	22308	60.0	11.0	15.1	15.0	15.2	15.0		71.2	19.6	4.3	28.3
64.8	59	2	10	12:20:36	22311	59.0	11.5	14.8	14.7	12.8	12.0		66.0	19.7	4.3	28.6
65.6	64	1	10	12:35:20	22838	64.0	10.7	15.5	15.2	15.3	15.1		71.8	19.6	4.3	28.3
65.6	64	2	11	12:35:25	22841	65.0	11.6	15.0	15.4	12.3	12.9		67.1	19.7	4.3	28.7
65.6	68	1	11	13:24:48	24543	70.0	11.2	15.2	15.2	15.6	15.3		72.4	19.6	4.3	28.2
65.6	69	2	12	13:24:58	24550	69.0	11.2	14.8	14.8	12.0	12.3		65.0	19.8	4.3	28.7
64.7	59	2	13	13:40:52	25154	59.0	11.0	14.8	14.6	12.3	12.1		64.8	19.7	4.3	28.6

Recorded By: djw

Verified By: 0

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS										STATE CODE: SPS WIM ID: DATE: (mm/dd/yyyy):						
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Pvmt Temp	Radar speed	Truck	Pass	Time	Record No.	WIM Speed	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW	A-B space	B-C space	C-D space
65.8	65	1	12	13:57:22	25737	65.0	11.2	15.4	15.5	15.5	15.7		73.2	19.7	4.3	28.2
65.8	64	2	14	13:57:49	25760	64.0	11.4	15.2	15.3	12.1	12.5		66.4	19.7	4.2	28.6
64.4	65	1	13	14:14:00	26355	66.0	11.2	15.6	15.3	16.1	15.9		74.0	19.6	4.3	28.2
64.4	69	2	15	14:14:02	26357	69.0	11.7	15.3	14.9	13.0	12.6		67.3	19.7	4.3	28.6
65.6	60	1	14	14:30:00	26987	60.0	10.8	15.8	15.4	15.7	15.4		73.2	19.7	4.3	28.2
65.6	59	2	16	14:30:06	26996	59.0	11.2	14.4	14.7	12.4	12.4		65.1	19.7	4.2	28.7
65.6	62	1	15	14:46:28	27564	62.0	11.0	15.1	14.8	14.9	14.9		70.7	19.6	4.3	28.3
65.6	64	2	17	14:46:32	27568	65.0	11.0	14.9	15.0	12.5	12.2		65.5	19.8	4.3	28.7
64.9	59	1	16	15:18:38	28768	60.0	11.1	15.3	15.7	15.9	15.3		73.2	19.6	4.3	28.2
64.9	61	2	18	15:18:41	28769	59.0	10.9	14.7	14.5	12.7	12.3		65.1	19.7	4.3	28.6
64.9	65	1	17	15:38:51	29568	66.0	11.3	15.8	15.5	16.2	15.8		74.5	19.6	4.3	28.2
64.9	64	2	19	15:38:55	29570	64.0	11.5	15.1	15.1	11.9	12.5		66.2	19.8	4.3	28.7
63.7	70	1	18	15:55:04	30280	70.0	11.0	15.4	15.1	15.7	15.0		72.2	19.6	4.3	28.2
63.7	70	2	20	15:55:07	30281	69.0	10.9	14.7	15.2	12.8	12.2		65.7	19.8	4.2	28.7
63.7	59	1	19	16:10:42	30915	60.0	11.2	14.8	14.6	14.9	14.8		70.3	19.6	4.3	28.2
63.7	59	2	21	16:11:31	30942	60.0	11.0	14.8	14.8	11.8	12.6		64.9	19.7	4.3	28.7

Recorded By: <u> djw </u>	Verified By: <u> 0 </u>
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Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS	STATE CODE: SPS WIM ID: DATE: (mm/dd/yyyy):
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Pvmt Temp	Radar speed	Truck	Pass	Time	Record No.	WIM Speed	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW	A-B space	B-C space	C-D space
45.9	60	1	1	7:35:12	46950	60.0	11.5	16.3	15.8	16.2	16.1		76.1	19.6	4.3	28.3
45.9	58	2	1	7:35:35	46968	60.0	11.4	15.6	15.8	13.0	13.3		69.1	19.7	4.2	28.8
52.7	65	1	2	7:56:11	47752	65.0	11.3	16.6	16.6	16.7	16.7		78.0	19.6	4.3	28.3
52.7	64	2	2	7:56:22	47757	64.0	11.4	16.2	15.8	13.8	13.4		70.4	19.7	4.3	28.9
52.7	68	1	3	8:11:29	48245	69.0	11.6	17.1	16.8	17.5	16.4		79.5	19.6	4.3	28.4
52.7	70	2	3	8:11:45	48256	70.0	11.3	16.4	15.9	12.8	13.0		69.3	19.7	4.3	28.8
56.2	59	1	4	8:26:10	48762	60.0	11.4	16.8	16.4	16.5	16.6		77.7	19.6	4.3	28.3
56.2	60	2	4	8:26:12	48766	59.0	11.7	16.4	16.1	12.8	13.1		70.1	19.7	4.3	28.7
59.6	65	1	5	8:42:11	49284	66.0	11.3	16.3	15.9	17.0	16.4		77.1	19.6	4.3	28.3
59.6	64	2	5	8:42:13	49286	64.0	11.9	16.1	16.1	12.6	13.0		69.6	19.7	4.3	28.8
62.5	68	1	6	8:56:41	49745	68.0	11.8	16.1	15.9	15.9	15.7		75.5	19.7	4.3	28.3
62.5	69	2	6	8:56:43	49746	69.0	11.3	15.8	15.3	13.5	13.0		69.1	19.8	4.3	28.6

Recorded By: <u> djw </u>	Verified By: <u> 0 </u>
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Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS											STATE CODE: SPS WIM ID: DATE: (mm/dd/yyyy):					
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Pvmt Temp	Radar speed	Truck	Pass	Time	Record No.	WIM Speed	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW	A-B space	B-C space	C-D space
50.9	60	1	1	7:35:12	46950	60.0	11.5	16.3	15.8	16.2	16.1		76.1	19.6	4.3	28.3
50.9	58	2	1	7:35:35	46968	60.0	11.4	15.6	15.8	13.0	13.3		69.1	19.7	4.2	28.8
52.7	65	1	2	7:56:11	47752	65.0	11.3	16.6	16.6	16.7	16.7		78.0	19.6	4.3	28.3
52.7	64	2	2	7:56:22	47757	64.0	11.4	16.2	15.8	13.8	13.4		70.4	19.7	4.3	28.9
54.0	68	1	3	8:11:29	48245	69.0	11.6	17.1	16.8	17.5	16.4		79.5	19.6	4.3	28.4
54.0	70	2	3	8:11:45	48256	70.0	11.3	16.4	15.9	12.8	13.0		69.3	19.7	4.3	28.8
56.2	59	1	4	8:26:10	48762	60.0	11.4	16.8	16.4	16.5	16.6		77.7	19.6	4.3	28.3
56.2	60	2	4	8:26:12	48766	59.0	11.7	16.4	16.1	12.8	13.1		70.1	19.7	4.3	28.7
59.6	65	1	5	8:42:11	49284	66.0	11.3	16.3	15.9	17.0	16.4		77.1	19.6	4.3	28.3
59.6	64	2	5	8:42:13	49286	64.0	11.9	16.1	16.1	12.6	13.0		69.6	19.7	4.3	28.8
62.5	68	1	6	8:56:41	49745	68.0	11.8	16.1	15.9	15.9	15.7		75.5	19.7	4.3	28.3
62.5	69	2	6	8:56:43	49746	69.0	11.3	15.8	15.3	13.5	13.0		69.1	19.8	4.3	28.6
73.2	60	1	7	9:55:04	51621	60.0	11.4	16.4	16.1	16.7	16.5		77.1	19.7	4.3	28.2
73.2	61	2	7	9:55:08	51625	59.0	11.3	15.3	15.5	13.3	13.2		68.6	19.8	4.3	28.7
75.0	64	1	8	10:10:34	52142	65.0	11.2	15.8	15.6	15.7	15.6		74.2	19.6	4.3	28.3
75.0	64	2	8	10:10:38	52143	64.0	11.6	16.2	15.9	12.6	13.5		69.8	19.7	4.3	28.7
77.8	69	1	9	10:25:35	52641	70.0	11.3	16.4	15.7	16.5	16.3		76.1	19.6	4.3	28.3
77.8	64	2	9	10:25:39	52643	69.0	11.4	16.5	15.9	13.4	12.7		70.0	19.7	4.3	28.7
83.8	62	1	10	10:41:15	53184	61.0	11.5	16.6	16.3	17.4	16.7		78.6	19.6	4.3	28.3
83.8	55	2	10	10:41:24	53197	60.0	11.5	15.9	15.6	12.9	13.0		69.0	19.8	4.3	28.8
84.3	63	1	11	10:55:38	53683	66.0	11.3	16.2	15.6	16.2	15.9		75.2	19.6	4.3	28.3
84.3	64	2	11	10:55:42	53686	62.0	11.8	15.7	15.9	13.0	12.8		69.2	19.7	4.3	28.7
87.8	68	1	12	11:10:34	54228	69.0	11.2	16.4	16.2	16.9	16.6		77.3	19.5	4.3	28.2
87.8	70	2	12	11:10:37	54229	70.0	11.4	16.2	15.8	13.6	14.0		70.9	19.7	4.3	28.7

Recorded By: djw

Verified By: kt

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS	STATE CODE: _____ SPS WIM ID: _____ DATE: (mm/dd/yyyy): _____
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Pvmt Temp	Radar speed	Truck	Pass	Time	Record No.	WIM Speed	Axle A	Axle B	Axle C	Axle D	Axle E	Axle F	GVW	A-B space	B-C space	C-D space
90.1	62	1	13	11:25:48	54782	59.0	11.1	16.5	16.1	16.4	16.4		76.5	19.6	4.3	28.2
90.1	61	2	13	11:25:56	54788	60.0	11.3	15.3	15.6	13.4	13.0		68.7	19.7	4.3	28.6
92.6	64	1	14	11:44:01	55369	65.0	11.1	16.3	16.2	16.8	16.8		77.3	19.6	4.3	28.3
92.6	63	2	14	11:44:10	55375	64.0	11.5	16.2	16.2	13.1	13.1		70.1	19.7	4.3	28.7
99.1	67	1	15	13:14:18	58387	68.0	10.9	16.2	16.0	17.0	16.3		76.6	19.6	4.3	28.2
99.1	68	2	15	13:14:25	58396	68.0	11.4	15.4	15.5	13.5	12.4		68.2	19.7	4.3	28.7
99.8	60	1	16	13:30:57	58972	60.0	11.1	16.3	15.7	15.8	16.3		75.2	19.6	4.3	28.2
99.8	63	2	16	13:31:21	58989	59.0	11.4	15.8	15.6	13.4	13.0		69.3	19.7	4.2	28.7
102.2	66	1	17	13:47:25	59519	67.0	11.2	15.9	15.5	16.8	16.2		75.6	19.6	4.3	28.3
102.2	63	2	17	13:47:30	59521	64.0	11.2	15.2	15.0	13.0	12.7		67.2	19.8	4.2	28.7
105.0	69	2	18	14:02:15	60077	69.0	11.4	15.9	15.8	13.6	12.5		69.3	19.7	4.3	28.6
104.5	59	1	18	14:18:14	60646	59.0	11.3	16.6	16.3	16.6	16.7		77.4	19.6	4.3	28.2
104.5	60	2	19	14:18:17	60650	60.0	11.0	15.6	15.3	13.5	13.0		68.4	19.7	4.3	28.7
104.7	65	1	19	14:33:50	61251	67.0	11.7	16.7	16.5	15.9	15.8		76.5	19.7	4.3	28.3
104.7	63	2	20	14:34:53	61284	64.0	11.3	15.7	15.8	13.4	12.8		69.0	19.7	4.3	28.7
104.3	70	1	20	14:49:07	61842	70.0	11.0	16.1	15.8	16.3	15.9		75.2	19.6	4.3	28.3
104.3	70	2	21	14:49:34	61859	70.0	11.3	15.5	15.7	12.5	13.8		68.9	19.7	4.2	28.8

Recorded By: <u> djw </u>	Verified By: <u> kt </u>
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Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 47 SPS WIM ID: 470600 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 4/17/2012
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9. IN ROAD SENSORS:

Describe any deficiencies regarding the sensor installation. Indicate sensors that show any signs of being broken, severely worn, missing, removed, or loose. List photos on Sheet 24 for

the equipment is operating within the manufacturer's tolerances. None of the in-road sensors show signs of damage or excessive wear and appear to be fully secured in the pavement.

TRUCK OBSERVATIONS

- 10.** Indicate any irregular truck behaviors such as bouncing, swerving, or braking near the weighing area (within 40 meters). Note the distance from the weighing sensors.

A visual observation of the trucks as they approach, traverse, and leave the sensor area did not indicate any adverse dynamics that would affect the accuracy of the WIM system. The trucks appear to track down the center of the lane.

Minimum 15 minute or 35 truck sample video sample for pavement interaction deficiencies:

Tape Filename:

Time: From: _____ To: _____

Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 47 SPS WIM ID: 470600 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 4/17/2012
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11. CLASSIFICATION VERIFICATION VIDEO:

TAPE 1- NAME: _____

Interval	Filename	From	To
1			
2			
3			
4			
5			
6			
7			
8			

TAPE 2- NAME: _____

Interval	Filename	From	To
1			
2			
3			
4			
5			
6			
7			
8			

TAPE 3- NAME: _____

Interval	Filename	From	To
1			
2			
3			
4			
5			
6			
7			
8			

Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 47 SPS WIM ID: 470600 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 4/17/2012
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SYSTEM ACCURACY TESTS

12. CONDUCT THE FOLLOWING SYSTEM ACCURACY TESTS EITHER ON- SITE OR IN OFFICE

Speed Accuracy - Complete Sheet 20 and attach.

Average radar speed	<u>64.2</u> mph	Average WIM Speed	<u>64.3</u> mph
Mean Difference	<u>0.1</u> mph	SD of mean	<u>1.6</u>

Posted Speed Limit	<u>70</u> mph		
Speed Range	15th percentile - <u>63</u> mph	85th percentile-	<u>71</u> mph

Spacing and Weight - Complete Sheet 21 and attach.

Average distance between axles of drive tandem		<u> </u> feet	
% error from 4.25 ft (industry average)	OR	<u>4.28</u> ft (WIM system average)	
= <u>0.7</u> %			

Average front axle weight for Class 9 vehicles		<u> </u> lbs	
% error from 10.3 kips (industry average) OR		<u>11.2</u> lbs (known site value)	
= <u>9.1</u> %			

SUPPORT EQUIPMENT STRUCTURES

17. Indicate any deficiencies with any site equipment other than the in-road sensors. List all photos on the Sheet 24 for each occurrence.

Cabinet/Foundation None ☒

no cabinet or foundation deficiencies

Pull Boxes None ☒

no pull box deficiencies

Mast None ☒

no service mast deficiencies

Solar Panels None ☒

no solar panel deficiencies

Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 47 SPS WIM ID: 470600 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 4/17/2012
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Telephone D-Mark Box None ☒

no telephone d-mark box deficiencies

Power Service Box None ☒

no power service box deficiencies

Grounding None ☒

no grounding deficiencies

Conduit None ☒

no conduit deficiencies

STATIC AND DYNAMIC ELECTRONIC EQUIPMENT TESTS

18. Complete and attach a Sheet 22 addendum applicable to the installed road equipment.

ADDITIONAL COMMENTS

Loop resistance to ground indicated leakage. Right side leading quartz sensor read low on resistance. Electronic tests of the power and communication devices indicated that they were operating normally. Sensor 3 has been disabled in the WIM System operating parameters.

Assessor _____ Dean J. Wolf - ARA

Traffic Sheet 22 Addendum - Kistler Quartz LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 47 SPS WIM ID: 470600 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 4/17/2012
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STATIC EQUIPMENT VALUES (SYSTEM OFF)

1. POWER

a. Solar Panel		WATTS		VDC
b. Equipment Power	123.6	VAC		VDC
c. Battery 1	13.5	VDC		
d. Battery 2		VDC		
e. Regulated		VDC		
f. Power Supply	123.6	VAC	13.5	VDC
g. System Input		VAC	12.0	VDC
h. Modem Power		VAC	12.0	VDC
i. Telephone	54.0	VDC		

2. LOOP SENSORS

	Resistance	Inductance	Shield
a. Leading	0.8 Ω	120.7 μ h	inf M Ω
b. Trailing	0.5 Ω	117.2 μ h	inf M Ω

3. KISTLER SENSORS

	Resistance	Capacitance
a. K1 (lead/left)	10 ⁹ Ω	11.9 nF
b. K2 (lead/middle)	Ω	nF
c. K3 (lead mid/right)	Ω	nF
d. K4 (lead/right)	10 ⁹ Ω	11.3 nF
e. K5 (trail/left)	10 ¹⁰ Ω	11.5 nF
f. K6 (trail/mid left)	Ω	nF
g. K7 (trail/mid right)	Ω	nF
h. K8 (trail/right)	10 ¹⁰ Ω	12.7 nF

DYNAMIC EQUIPMENT VALUES (SYSTEM ON)

4. LOOP SENSORS

	Frequency
a. Leading	10.8 KHz
b. Trailing	10.8 KHz

5. KISTLER SENSORS

Dynamic testing for the Kistler Quartz sensor is not recommended.

Assessor Dean J. Wolf - ARA

Traffic Sheet 24A LTPP MONITORED TRAFFIC DATA SITE PHOTO LOG - Equipment	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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Item	Description	Filename
1	Power Source	470600_power_service_box_04_17_12.jpg
2	Telephone Source	470600_telephone_pedestal_04_17_12.jpg
3	Cabinet Exterior	470600_cabinet_exterior_04_17_12.jpg
4	Cabinet Interior - Front	470600_cabinet_interior_front_04_17_12.jpg
5	Cabinet Interior - Rear	
6	Leading weight sensor	470600_leading_WIM_sensor_04_17_12.jpg
7	Trailing weight sensor	470600_trailing_WIM_sensor_04_17_12.jpg
8	Leading classification sensor	
9	Trailing classification sensor	
10	Leading loop sensor	470600_leading_loop_04_17_12.jpg
11	Trailing loop sensor	470600_trailing_loop_04_17_12.jpg
12	Downstream from site	470600_downstream_04_17_12.jpg
13	Upstream from site	470600_upstream_04_17_12.jpg
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
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RECORDED BY: _____ Dean J. Wolf

Traffic Sheet 24B LTPP MONITORED TRAFFIC DATA SITE PHOTO LOG - Test Trucks	STATE CODE: 47 SPS WIM ID: 470600 DATE (mm/dd/yyyy) 4/17/2012
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Item	Description	Filename
1	Tractor, Truck #1	470600_Truck_1_Tractor_04_17_12.jpg
2	Trailer/Load, Truck #1	470600_Truck_1_Trailer_04_17_12.jpg
3	Kingpin Offset, Truck #1	
4	Suspension A, Truck #1	470600_Truck_1_Suspension_1_04_17_12.jpg
5	Suspension B, Truck #1	470600_Truck_1_Suspension_2_04_17_12.jpg
6	Suspension C, Truck #1	470600_Truck_1_Suspension_3_04_17_12.jpg
7	Suspension D, Truck #1	470600_Truck_1_Suspension_4_04_17_12.jpg
8	Suspension E, Truck #1	470600_Truck_1_Suspension_5_04_17_12.jpg
9	Suspension F, Truck #1	
10	Tractor, Truck #2	470600_Truck_2_Tractor_04_17_12.jpg
11	Trailer/Load, Truck #2	470600_Truck_2_Trailer_04_17_12.jpg
12	Kingpin Offset, Truck #2	
13	Suspension A, Truck #2	470600_Truck_2_Suspension_1_04_17_12.jpg
14	Suspension B, Truck #2	470600_Truck_2_Suspension_2_04_17_12.jpg
15	Suspension C, Truck #2	470600_Truck_2_Suspension_3_04_17_12.jpg
16	Suspension D, Truck #2	470600_Truck_2_Suspension_4_04_17_12.jpg
17	Suspension E, Truck #2	470600_Truck_2_Suspension_5_04_17_12.jpg
18	Suspension F, Truck #2	
19	Tractor, Truck #3	
20	Trailer/Load, Truck #3	
21	Kingpin Offset, Truck #3	
22	Suspension A, Truck #3	
23	Suspension B, Truck #3	
24	Suspension C, Truck #3	
25	Suspension D, Truck #3	
26	Suspension E, Truck #3	
27	Suspension F, Truck #3	
28	Scale	
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