

**SHEET 10
LTPP TRAFFIC DATA**

**TRAFFIC VOLUME AND LOAD
ESTIMATE UPDATE-NO SITE COUNT**

*STATE ASSIGNED ID [117]

*STATE CODE [0 8]

*SHRP SECTION ID [0 2 0 0]

INTERSTATE 76, EB, MP 18.4

1. ANNUAL TRAFFIC ESTIMATES

*YEAR	ESTIMATED TOTAL VEHICLES AADT (TWO-WAY)	ESTIMATED TOTAL TRUCK AADT (TWO-WAY)	ESTIMATED TOTAL VEHICLES AADT LTPP LANE	*ESTIMATED TOTAL TRUCKS AADT LTPP LANE	*ESTIMATED ESAL'S/YR LTPP LANE (1000'S)
2013	31000	5500	13950	2475	2469

**2. METHOD FOR ESTIMATING TOTAL VEHICLE AADT
(TWO-WAY)**

- ☐ Growth factored last year's estimate. (6)
☒ Estimated based on volume counts at nearby locations.
(3)
☐ Used computerized network analyses. (4)
☐ Factored a single count taken this year at the LTPP site.
(1)
☐ Average multiple counts taken this year at the LTPP
site. (2)
☐ Average and factored multiple count taken this year at
the LTPP site. (5)
☐ Used flow maps. (7)
☐ Other: (8)

**3. METHOD FOR ESTIMATING TOTAL TRUCK AADT
(TWO-WAY)**

- ☐ Used system averages from counts taken this year. (6)
☒ Used count data from nearby sites. (3)
☐ Used count data from previous years at the LTPP site.
(7)
☐ Used system averages from previous years. (9)
☐ Used computerized network analyses. (4)
☐ Used a single count taken this year at the LTPP site. (5)
☐ Factored a single count taken this year at the LTPP site.
(4)
☐ Averaged multiple counts taken this year at the LTPP
site. (2)
☐ Other: (9)

**4. METHOD FOR ESTIMATING TOTAL VEHICLES
LTPP LANE AADT**

- ☒ System distribution factors. (2)
☐ Based on actual lane count data. (1)
☐ Other: (3)

***5. METHOD FOR ESTIMATING TOTAL TRUCKS,
LTPP LANE, AADT**

- ☒ System distribution factors. (2)
☐ Based on actual lane data count. (1)
☐ Other: (3)

***6. METHOD FOR ESTIMATING ESAL//YEAR
IN LTPP LANE**

- ☐ ESAL/Truck factor (1)
☒ ESAL/Vehicle class. (2) (No. of classes) 3
☐ ESAL/Axle(3) Sing Tand Tri
☐ Other: (4)

7. ESAL ESTIMATES - SOURCE OF DATA

- ☐ Weight data collected at LTPP site prior years. (2)
☐ Weight data from system averages this year. (3)
☐ Weight data from system averages prior years. (4)
☒ Weight data from historic W-4 Tables used. (5)
☐ Other: (6)

8. WEIGHT SCALE TYPE

- ☐ WIM scale. (1)
☐ Static scale used for enforcement. (2)
☒ Static scale not used for enforcement. (3)
☐ Other: (4)

NAME OF PREPARER: Leo Livecchi

PHONE # (303) 757-9498

DATE PREPARED: July 2, 2014

rev. March 12, 2001

ENTERED

Traffic Sheet 16 LTPP MONITORED TRAFFIC DATA SITE CALIBRATION SUMMARY	STATE CODE:	08
	SPS WIM ID:	080200
	DATE (mm/dd/yyyy)	7/23/2013

SITE CALIBRATION INFORMATION

1. DATE OF CALIBRATION {mm/dd/yy} 7/23/13
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. _____ |
| b. <u>Bending Plates</u> | d. _____ |
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>air</u>
Truck 3: _____	_____	_____

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

Mean Difference Between -

Dynamic and Static GVW:	<u>0.9%</u>	Standard Deviation:	<u>1.6%</u>
Dynamic and Static Single Axle:	<u>1.2%</u>	Standard Deviation:	<u>3.1%</u>
Dynamic and Static Double Axles:	<u>0.0%</u>	Standard Deviation:	<u>2.1%</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>61.0</u>	<u>8.7</u> to	<u>65.0</u>	<u>15</u>
b. <u>Medium</u>	<u>65.1</u>	<u>6.1</u> to	<u>69.1</u>	<u>14</u>
c. <u>High</u>	<u>69.2</u>	<u>11.1</u> to	<u>73.0</u>	<u>11</u>
d. _____	_____	_____ to	_____	_____
e. _____	_____	_____ to	_____	_____

ENTERED

SCANNED

Traffic Sheet 16 LTPP MONITORED TRAFFIC DATA SITE CALIBRATION SUMMARY	STATE CODE:	08
	SPS WIM ID:	080200
	DATE (mm/dd/yyyy)	7/23/2013

10. CALIBRATION FACTOR (AT EXPECTED FREE FLOW SPEED) 3435 | 3599

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:	1.0	FHWA Class	-	
FHWA Class 8:	50.0	FHWA Class	-	
		FHWA Class	-	
		FHWA Class	-	

Percent of "Unclassified" Vehicles: 0.0%

Validation Test Truck Run Set - Pre

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

SCANNED

Traffic Sheet 17 LTPP MONITORED TRAFFIC DATA WIM SITE INVENTORY	STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013
--	---

10. CABINET LOCATION

Same side of road as LTPP lane: Y
Distance from edge of traveled lane: 45 ft
distance from system: 55 ft
type: M

Cabinet access controlled by: Agency and LTPP

Contact name: Roberto E. de Dios

Phone # 303-757-9975

Alternate name: Roy Czinku

Phone # 306-653-6627

11. POWER

Distance to cabinet from drop: 287 ft

Type: AC

AC in cabinet? Y

Service provider: _____

Phone # _____

12. TELEPHONE

Distance to cabinet from drop: 288 ft

Type: landline

Service provider: _____

Phone # _____

13. SYSTEM

Software and version no. MBUS v5.0

Computer connection: RS-232

14. TEST TRUCK TURNAROUND TIME

Duration: 25 minutes

Distance: 28 miles

15. PHOTOS

Filename

Power source: 080200_power_box_7_23_13.jpg

Phone source: 080200_telephone_service_7_23_13.jpg

Cabinet exterior: 080200_cabinet_exterior_7_23_13.jpg

Cabinet interior: 080200_cabinet_interior_front_7_23_13.jpg

Weight sensors: 080200_leading_WIM_sensor_7_23_13.jpg

080200_trailing_WIM_sensor_7_23_13.jpg

Other sensors: 080200_leading_loop_7_23_13.jpg

080200_trailing_loop_7_23_13.jpg

Downstream from sensors on LTPP lane: 080200_downstream_7_23_13.jpg

Upstream from sensors on LTPP lane: 080200_upstream_7_23_13.jpg

Traffic Sheet 18 LTPP MONITORED TRAFFIC DATA WIM SITE COORDINATION	STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013
---	---

1. DATA PROCESSING

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

2. EQUIPMENT

- a. Purchase LTPP
- b. Installation LTPP contract
- 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 Portland Concrete Cement
- b. Allowable Rehabilitation activities Maintenance only
- c. Profile Site Markings Temporary

Traffic Sheet 18 LTPP MONITORED TRAFFIC DATA WIM SITE COORDINATION	STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013
---	---

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-	<u>Air suspension 3S2</u>	<u>LTPP</u>
2nd-	<u>Air Suspension 3S2</u>	<u>LTPP</u>
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: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013
---	---

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 Shawn Sweetman Phone # 303-289-2152
Agency Sweetman Enterprises
- f. Traffic control
Name _____ Phone # _____
Agency _____
- g. Enforcement coordination
Name _____ Phone # _____
Agency _____
- h. Nearest static scale
Name _____ Location: _____
Phone: _____

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 1	STATE CODE:	08
	SPS WIM ID:	080200
	DATE (mm/dd/yyyy)	7/23/2013

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		9990	9460	Direct
B		16790	16500	Direct
C		16790	16500	Direct
D		16810	16770	Direct
E		16810	16770	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 77190
- c. Post Test Loaded Weight: 76000
- d. Difference Post Test - Pre-Tests: -1190

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: No
photo: ☒

- b. Make: Peterbilt
c. Model: 378

d. Trailer Load Distribution Description:

gravel (pipe bedding/squeegee)

photo: ☒

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

A to B 17.8 B to C 4.3 C to D 24.8 D to E 3.9 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 50.8
- i. Kingpin offset from Axle B (units) -2'2" photo: ☐
- j. Overall Length - ☒ Measured 55.5

<p align="center">Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u></p>	<p align="right">STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013</p>
---	--

CALIBRATION TEST TRUCK - Primary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	11 R 24.5	steel spring	<input checked="" type="checkbox"/>
B	11 R 24.5	air	<input checked="" type="checkbox"/>
C	11 R 24.5	air	<input checked="" type="checkbox"/>
D	11 R 24.5	air	<input checked="" type="checkbox"/>
E	11 R 24.5	air	<input checked="" type="checkbox"/>
F			<input type="checkbox"/>

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				

<p align="center">Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u></p>	<p>STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013</p>
---	--

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

<p align="center">Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u></p>	<p align="right">STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013</p>
---	--

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	10020	16770	16770	16810	16810		77180
2	9960	16810	16810	16810	16810		77200
Avg.	9990	16790	16790	16810	16810		77190

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	9440	16510	16510	16770	16770		76000
2	9480	16490	16490	16770	16770		76000
Avg.	9460	16500	16500	16770	16770		76000

Validation Test Truck Run Set - Pre

Measured By: Greg Helman

Verified By: Dean Wolf

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2	STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013
--	---

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		10110	9780	Direct
B		15385	15085	Direct
C		15385	15085	Direct
D		12170	12250	Direct
E		12170	12250	Direct
F				

4. GVW (same units as axles)

- a. Empty GVW: _____
- b. Average Pre-Test Loaded weight: 65220
- c. Post Test Loaded Weight: 64450
- d. Difference Post Test - Pre-Tests: -770

5. TRUCK DESCRIPTION

- a. Tractor Cab Style: Conventional Sleeper Cab: No
photo: ☒

- b. Make: Peterbilt
- c. Model: 378

d. Trailer Load Distribution Description:

gravel

photo: ☒

- e. Tractor Tare weight - _____ - _____
- f. Trailer Tare weight - _____ - _____
- g. Axle Spacing - _____

A to B 17.8 B to C 4.3 C to D 24.6 D to E 4.0 E to F _____

- h. Wheelbase - ☐ Measured _____ ☒ Computed 50.7
- i. Kingpin offset from Axle B (units) -1'10" photo: ☐
- j. Overall Length - ☒ Measured 55.5

<p align="center">Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2</p>	<p align="right">STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013</p>
--	--

CALIBRATION TEST TRUCK - Secondary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A	11 R 24.5	steel spring	<input type="checkbox"/>
B	11 R 24.5	air	<input type="checkbox"/>
C	11 R 24.5	air	<input type="checkbox"/>
D	11 R 24.5	air	<input type="checkbox"/>
E	11 R 24.5	air	<input type="checkbox"/>
F			<input type="checkbox"/>

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				

<p align="center">Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # 2</p>	<p align="right">STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013</p>
--	--

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

<p align="center">Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>2</u></p>	<p align="right">STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013</p>
---	--

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	10120	15370	15370	12190	12190		65240
2	10100	15400	15400	12150	12150		65200
Avg.	10110	15385	15385	12170	12170		65220

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	9800	15090	15090	12240	12240		64460
2	9760	15080	15080	12260	12260		64440
Avg.	9780	15085	15085	12250	12250		64450

Validation Test Truck Run Set - Pre

Measured By: Greg Helman
Verified By: Dean Wolf

Traffic Sheet 20 LTPP MONITORED TRAFFIC DATA SPEED AND CLASSIFICATION STUDIES					STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013				
--	--	--	--	--	---	--	--	--	--

Count - 100 Time = 1:22:22 Trucks (4-15) - 100 Class 3s - 0

WIM speed	WIM class	WIM Record	Obs. Speed	Obs. Class	WIM speed	WIM class	WIM Record	Obs. Speed	Obs. Class
65	8	225	65	8	60	12	387	59	12
75	9	230	75	9	65	9	392	66	9
68	9	240	67	9	69	9	469	69	9
65	9	241	62	9	73	4	472	73	4
61	9	243	59	9	73	5	484	72	5
78	8	251	77	5	75	5	487	75	5
78	9	252	77	9	65	9	490	65	9
68	12	284	67	12	66	5	493	66	5
60	6	296	62	6	65	9	495	64	9
66	9	301	64	9	71	5	498	69	5
65	9	307	63	9	62	6	506	61	6
59	9	308	59	9	63	9	511	63	6
61	9	310	59	9	78	9	519	77	9
75	9	318	76	9	66	9	604	66	9
66	12	320	68	12	74	5	605	72	5
70	9	325	68	9	74	9	611	75	9
73	9	331	73	9	64	9	612	65	9
72	9	345	71	9	76	9	620	75	9
68	9	346	69	9	70	9	630	69	9
75	9	349	75	9	73	6	636	70	6
73	9	354	73	9	67	9	637	67	9
71	9	357	70	9	75	9	641	74	9
66	5	359	65	5	78	5	645	76	5
69	9	380	69	9	68	9	655	68	9
67	9	386	66	9	75	9	658	74	9

Sheet 1 - 0 to 50

Recorded By: _____

Start: 3:13:44

gh

Stop: 4:34:27

Verified By: _____

kt

Validation Test Truck Run Set - Pre

Traffic Sheet 20 LTPP MONITORED TRAFFIC DATA SPEED AND CLASSIFICATION STUDIES					STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013				
--	--	--	--	--	---	--	--	--	--

WIM speed	WIM class	WIM Record	Obs. Speed	Obs. Class	WIM speed	WIM class	WIM Record	Obs. Speed	Obs. Class
68	9	659	69	9	70	9	894	68	9
67	9	674	67	9	72	9	900	72	9
74	9	677	73	9	70	9	915	69	9
65	9	679	65	9	65	9	919	62	9
71	6	680	71	6	65	9	924	65	9
71	8	683	65	8	64	9	930	60	9
62	9	684	63	9	65	9	936	65	9
70	10	691	70	10	64	9	940	63	9
72	9	693	71	9	73	5	941	73	5
71	9	777	67	9	65	9	967	64	9
69	9	781	69	9	65	9	982	64	9
65	9	790	64	9	59	9	983	59	9
63	9	795	61	9	68	9	1016	68	9
70	9	800	70	9	61	9	1019	62	9
61	9	803	60	9	59	9	1022	58	9
64	6	809	63	6	65	9	1035	65	9
75	9	817	74	9	72	9	1037	72	9
77	9	818	77	9	73	9	1046	71	9
75	9	823	74	9	64	11	1047	62	11
67	6	830	66	6	65	9	1061	64	9
73	6	831	73	6	72	9	1062	71	9
72	6	841	71	6	75	9	1065	72	9
69	9	843	67	9	69	9	1066	69	9
75	9	850	73	9	70	9	1075	70	9
75	9	851	73	9	61	9	1077	58	9

Sheet 2 - 51 to 100

Start: 4:35:02

Stop: 5:57:24

Recorded By: _____

Validation Test Truck Run Set - Pre

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS													STATE CODE: 08 SPS WIM ID: 080200 DATE: (mm/dd/yyyy): 7/23/2013							
---	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--

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	D - E space	E - F space	Axle Length	Overall Length
89.0	64	1	1	3:20:05	262	64.0	10.0	17.5	17.0	18.2	17.2		79.9	17.7	4.3	24.8	3.9		50.7	56.0
89.0	64	2	1	3:20:10	263	64.0	10.6	16.0	15.3	12.8	12.0		66.7	17.8	4.3	24.8	4.0		50.9	56.0
90.7	72	1	2	3:49:13	423	73.0	10.4	17.2	16.7	17.7	17.3		79.4	17.8	4.3	24.9	4.0		51.0	56.0
90.7	69	2	2	3:49:17	424	68.0	10.4	16.1	15.1	12.4	12.4		66.4	17.8	4.4	24.8	3.9		50.9	56.0
94.6	64	1	3	4:16:20	566	64.0	9.9	16.6	16.9	16.7	16.8		76.9	17.7	4.3	24.8	3.9		50.7	56.0
94.6	64	2	3	4:16:22	567	64.0	10.5	16.6	15.4	12.7	11.9		67.2	17.7	4.3	24.8	3.9		50.7	56.0
97.0	68	1	4	4:43:21	699	68.0	10.2	16.7	16.5	18.0	17.2		78.6	17.7	4.3	24.8	3.9		50.7	56.0
97.0	68	2	4	4:43:23	700	68.0	10.6	15.8	15.6	12.8	12.7		67.5	17.8	4.3	24.7	3.9		50.7	56.0
98.9	72	1	5	5:11:32	853	73.0	9.9	16.6	16.2	17.0	17.4		77.1	17.8	4.3	24.9	3.9		50.9	57.0
98.9	71	2	5	5:11:37	854	73.0	10.0	15.6	14.4	13.5	12.5		65.8	17.7	4.4	24.7	3.9		50.7	56.0
101.2	63	1	6	5:38:28	986	64.0	10.1	17.0	17.1	17.4	17.4		79.1	17.8	4.3	24.9	3.9		50.9	56.0
101.2	65	2	6	5:38:30	987	64.0	10.3	15.6	15.3	12.3	11.9		65.6	17.8	4.3	24.7	3.9		50.7	56.0
103.8	61	1	7	6:05:20	1106	63.0	9.6	16.6	16.6	17.3	16.6		76.8	17.8	4.4	24.8	3.9		50.9	56.0
103.8	61	2	7	6:05:28	1107	69.0	10.3	15.3	14.4	12.3	12.1		64.5	17.8	4.3	24.6	3.9		50.6	56.0
107.4	73	1	8	6:35:26	1241	73.0	9.3	16.7	16.1	17.0	17.3		76.3	17.8	4.3	25.0	3.9		51.0	57.0
107.4	73	2	8	6:35:30	1242	73.0	9.8	15.3	14.2	12.1	12.6		63.9	17.8	4.4	24.7	3.9		50.8	56.0
109.6	64	1	9	7:02:37	1351	64.0	9.7	16.7	16.7	16.4	17.0		76.5	17.7	4.3	24.8	3.9		50.7	56.0
109.6	64	2	9	7:02:39	1352	62.0	10.5	15.4	14.8	12.3	11.6		64.7	17.8	4.4	24.6	3.9		50.7	56.0
111.9	69	1	10	7:30:12	1466	69.0	9.4	16.5	16.3	17.2	17.5		76.9	17.7	4.3	24.7	3.9		50.6	56.0
111.9	69	2	10	7:30:13	1467	68.0	10.2	14.9	14.5	11.9	12.7		64.3	17.8	4.3	24.7	3.9		50.7	56.0
113.1	73	1	11	7:57:02	1605	73.0	9.8	16.7	16.4	16.7	17.4		77.0	17.7	4.3	24.8	3.9		50.7	56.0
113.1	72	2	11	7:57:04	1606	72.0	9.9	16.0	14.9	13.1	12.4		66.4	17.8	4.4	24.7	3.9		50.8	56.0
114.4	64	1	12	8:24:18	1702	64.0	10.2	17.1	16.8	17.4	16.5		78.1	17.7	4.3	24.9	4.0		50.9	57.0
114.4	65	2	12	8:24:22	1703	65.0	10.3	15.6	15.1	11.9	12.2		65.0	17.8	4.3	24.7	3.9		50.7	57.0

Recorded By: <u>gh</u>	Verified By: <u>djw</u>	Run Set <u>Pre</u>
------------------------	-------------------------	--------------------

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS										STATE CODE: 08 SPS WIM ID: 080200 DATE: (mm/dd/yyyy): 7/23/2013									
---	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--

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	D - E space	E - F space	Axle Length	Overall Length
114.1	68	1	13	8:51:52	1811	68.0	9.6	16.6	16.6	17.2	17.3		77.4	17.7	4.3	24.8	3.9		50.7	56.0
114.1	68	2	13	8:51:55	1812	68.0	9.9	15.3	15.0	12.1	12.0		64.2	17.8	4.4	24.7	3.9		50.8	56.0
112.0	73	1	14	9:18:31	1936	73.0	9.8	16.9	16.5	17.6	17.3		78.0	17.8	4.3	24.9	3.9		50.9	56.0
112.0	73	2	14	9:18:33	1937	73.0	9.9	15.0	14.9	12.0	12.0		63.9	17.8	4.3	24.7	3.9		50.7	56.0
113.3	62	1	15	9:37:02	2026	62.0	9.6	16.5	16.6	16.5	16.1		75.2	17.8	4.3	24.9	3.9		50.9	56.0
113.3	66	2	15	9:37:37	2030	66.0	9.9	15.3	15.0	13.2	12.1		65.5	17.8	4.4	24.8	3.9		50.9	56.0
114.0	68	1	16	10:04:01	2136	68.0	9.7	16.9	16.3	17.3	16.4		76.7	17.8	4.3	24.9	4.0		51.0	57.0
114.0	68	2	16	10:04:04	2137	68.0	10.2	15.3	14.7	13.0	12.2		65.4	17.8	4.4	24.8	3.9		50.9	56.0
109.3	64	1	17	10:31:29	2260	64.0	9.5	17.1	17.0	17.7	16.4		77.6	17.7	4.3	24.8	3.9		50.7	56.0
109.3	63	2	17	10:31:31	2261	63.0	9.8	15.6	15.0	12.1	12.3		64.9	17.8	4.4	24.7	3.9		50.8	56.0
105.5	72	1	18	10:57:53	2369	72.0	9.2	16.5	16.0	18.0	16.9		76.6	17.8	4.3	24.8	3.9		50.8	57.0
105.5	73	2	18	10:57:56	2370	73.0	9.9	15.4	15.2	11.6	12.3		64.3	17.8	4.3	24.7	3.9		50.7	57.0
102.7	61	1	19	11:16:35	2454	61.0	9.5	16.7	16.6	16.9	16.8		76.6	17.8	4.3	24.9	3.9		50.9	56.0
102.7	67	2	19	11:16:44	2455	67.0	9.9	15.4	15.0	13.1	11.7		65.1	17.8	4.4	24.8	4.0		51.0	57.0
98.4	68	1	20	11:43:30	2559	68.0	10.0	16.6	16.2	17.4	17.0		77.1	17.8	4.4	24.9	3.9		51.0	56.0
98.4	68	2	20	11:43:34	2560	68.0	9.9	15.7	15.1	13.5	11.4		65.7	17.8	4.4	24.7	4.0		50.9	56.0

Recorded By: _____ gh _____	Verified By: _____ djw _____	Run Set _____ Pre _____
-----------------------------	------------------------------	-------------------------

Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 08 SPS WIM ID: 080200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 7/23/2013
--	--

SITE EQUIPMENT INFORMATION

1. TYPE OF EQUIPMENT BOTH

2. LANE NUMBER ON SITE 1 3. DIRECTION ON SITE east

4. VENDOR IRD MODEL WCU-II SERIAL# 51202224

5. WEIGHING SENSOR TYPE bending plate

6. SYSTEM SOFTWARE VERSIONS:

CPU

LOOP DIOM

PIEZO

WEIGHTPAD/ LOADCELL SSM

COMMUNICATIONS WCU-II

7. CLASSIFICATION VIDEO:

TIME FROM: 3:13:44 TO: 5:57:24
TIME FROM: TO:

SITE CONDITIONS

8. PAVEMENT:

Indicate any deficiencies that may affect the performance of the WIM system. List all photos on Sheet 24 that support the evaluation.

There were no pavement distresses noted that may affect the accuracies of the WIM system.

<p align="center">Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY</p>	<p>STATE CODE: 08 SPS WIM ID: 080200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 7/23/2013</p>
--	---

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: _____

<p align="center">Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY</p>	<p>STATE CODE: 08 SPS WIM ID: 080200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 7/23/2013</p>
--	---

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	_____	_____	_____

<p align="center">Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY</p>	<p>STATE CODE: 08 SPS WIM ID: 080200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 7/23/2013</p>
--	---

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>67.9</u> mph	Average WIM Speed	<u>68.7</u> mph
Mean Difference	<u>0.8</u> mph	SD of mean	<u>1.3</u>
Posted Speed Limit	<u>75</u> mph		
Speed Range	15th percentile - <u>68</u> mph	85th percentile-	<u>80</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>4.33</u> ft (WIM system average)
= <u>1.9</u> %		
Average front axle weight for Class 9 vehicles		<u> </u> lbs
% error from 10.3 kips (industry average) OR		<u>10.0</u> lbs (known site value)
= <u>-3.3</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: 08 SPS WIM ID: 080200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 7/23/2013
--	--

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

All values for the WIM sensors and inductive loops were within tolerances. Electronic tests of the power and communication devices indicated that they were operating normally.

Assessor Greg Helman

Traffic Sheet 22 Addendum - Weighpad LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 08 SPS WIM ID: 080200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 7/23/2013
--	--

STATIC EQUIPMENT VALUES (SYSTEM OFF)

1. POWER

a. Solar Panel	122.7	WATTS		VDC
b. Equipment Power	13.45	VAC		VDC
c. Battery 1		VDC		
d. Battery 2	13.45	VDC		
e. Regulated	13.53	VDC		
f. Power Supply	123.4	VDC		VDC
g. System Input		VAC	11.77	VDC
h. Modem Power	49.2	VAC		VDC
i. Telephone		VDC		

2. LOOP SENSORS

	Resistance		Inductance		Shield	
a. Leading	0.4	Ω	144.2	μ h	inf	M Ω
b. Trailing	0.5	Ω	144.1	μ h	inf	M Ω

3. WEIGHPAD SENSORS

	Input		Output		Shield	
a. Leading	979	Ω	846	Ω	inf	Ω
b. Trailing	979	Ω	846	Ω	inf	Ω

DYNAMIC EQUIPMENT VALUES (SYSTEM ON)

4. LOOP SENSORS

	Frequency	
a. Leading	20.5	KHz
b. Trailing	20.6	KHz

5. WEIGHPAD SENSORS

	Zero Point	
a. Leading	0.2	mV
b. Trailing	0.2	mV

Assessor Greg Helman

<p align="center">Traffic Sheet 24A</p> <p align="center">LTPP MONITORED TRAFFIC DATA</p> <p align="center">SITE PHOTO LOG - Equipment</p>	<p>STATE CODE: 08</p> <p>SPS WIM ID: 080200</p> <p>DATE (mm/dd/yyyy) 7/23/2013</p>
---	--

Item	Description	Filename
1	Power Source	080200_power_box_7_23_13.jpg
2	Telephone Source	080200_telephone_service_7_23_13.jpg
3	Cabinet Exterior	080200_cabinet_exterior_7_23_13.jpg
4	Cabinet Interior - Front	080200_cabinet_interior_front_7_23_13.jpg
5	Cabinet Interior - Rear	
6	Leading weight sensor	080200_leading_WIM_sensor_7_23_13.jpg
7	Trailing weight sensor	080200_trailing_WIM_sensor_7_23_13.jpg
8	Leading classification sensor	
9	Trailing classification sensor	
10	Leading loop sensor	080200_leading_loop_7_23_13.jpg
11	Trailing loop sensor	080200_trailing_loop_7_23_13.jpg
12	Downstream from site	080200_downstream_7_23_13.jpg
13	Upstream from site	080200_upstream_7_23_13.jpg
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Traffic Sheet 24B LTPP MONITORED TRAFFIC DATA SITE PHOTO LOG - Test Trucks	STATE CODE: 08 SPS WIM ID: 080200 DATE (mm/dd/yyyy) 7/23/2013
---	---

Item	Description	Filename
1	Tractor, Truck #1	080200_Truck_1_Tractor_7_23_13.jpg
2	Trailer/Load, Truck #1	080200_Truck_1_Trailer_7_23_13.jpg
3	Kingpin Offset, Truck #1	
4	Suspension A, Truck #1	080200_Truck_1_Suspension_1_7_23_13.jpg
5	Suspension B, Truck #1	080200_Truck_1_Suspension_2_7_23_13.jpg
6	Suspension C, Truck #1	080200_Truck_1_Suspension_3_7_23_13.jpg
7	Suspension D, Truck #1	080200_Truck_1_Suspension_4_7_23_13.jpg
8	Suspension E, Truck #1	080200_Truck_1_Suspension_5_7_23_13.jpg
9	Suspension F, Truck #1	
10	Tractor, Truck #2	080200_Truck_2_Tractor_7_23_13.jpg
11	Trailer/Load, Truck #2	080200_Truck_2_Trailer_7_23_13.jpg
12	Kingpin Offset, Truck #2	
13	Suspension A, Truck #2	080200_Truck_2_Suspension_1_7_23_13.jpg
14	Suspension B, Truck #2	080200_Truck_2_Suspension_2_7_23_13.jpg
15	Suspension C, Truck #2	080200_Truck_2_Suspension_3_7_23_13.jpg
16	Suspension D, Truck #2	080200_Truck_2_Suspension_4_7_23_13.jpg
17	Suspension E, Truck #2	080200_Truck_2_Suspension_5_7_23_13.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	
29		
30		