

WIM System Field Calibration and Validation Handout Guide

California, SPS-2
SHRP ID – 060200

Validation Date: September 24, 2013



Table of Contents

1	Site Information.....	3
2	Contact Information.....	3
3	Schedule of Events	4
4	Maps	5
4.1	Site Location	5
4.2	Truck Scale Location	5
4.3	Airport Location.....	6
4.4	Hospital Location.....	6
5	Occupational Health and Safety Plan	7
6	Contingency Plan.....	7

1 Site Information

Site ID:	060200	State:	California
LTPP Region:	Western	Configuration:	Loop - 2 Bending Plates - Loop
Controller Type:	iSINC	Sensor Type:	Bending Plate
Power:	A/C	Communication:	Landline
Class Scheme:	LTPP	CPU type/setup:	iSINC

2 Contact Information

Agency	Contact	Position	Phone	E-Mail
FHWA	Debbie Walker	COTR	202 493-3068	deborah.walker@dot.gov
FHWA	Steve Healow	FHWA Division Rep.	916-498-5849	Steve.healow@dot.gov
Nichols	Kevin Senn	Project Manager	775-329-4955	KSenn@nce.reno.nv.us
CalTrans	Nick Burmas	LTPP Coordinator	916-324-2906	Nick.Burmas@dot.ca.gov
CalTrans	Alfredo Rodriguez	Traffic Contact	916-324-2244	alfredo_b_rodriguez@dot.ca.gov
ARA	Dean Wolf	Task Leader	717-691-7625	dwolf@ara.com
ARA	Olga Selezneva	Project Manager	410-540-9949	oselezneva@ara.com
	Russ Prouty	Trucks	800-443-4018	

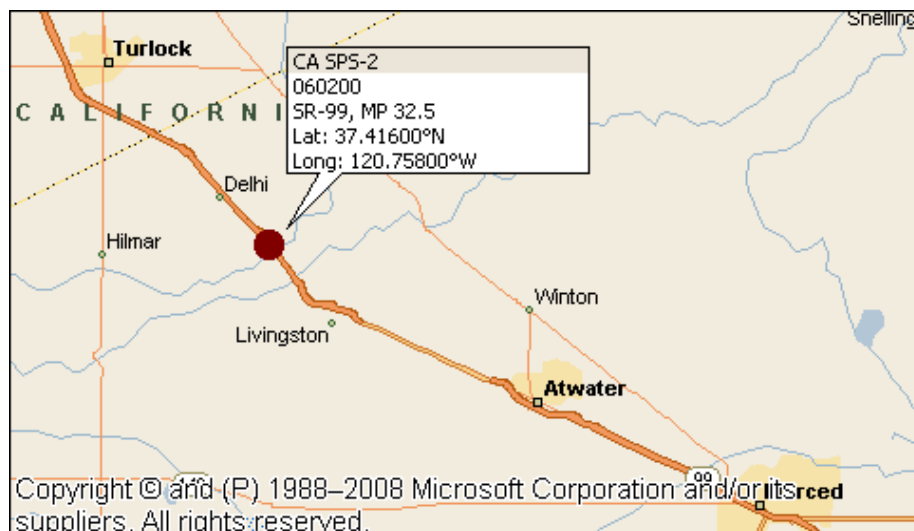
3 Schedule of Events

Date	Event	Location	Start Time
09/23/13	Travel	Turlock, CA	TBD
09/24/13	Test Truck Weigh/Measure/Inspection	TBD	7:30 am
09/24/13	Equipment Assessment	WIM Site	8:30 am
09/24/13	Initial Performance Evaluation	WIM Site	9:00 am
09/24/13	System Test/Class and Speed Study	WIM Site	TBD
09/25/13	Test Truck Weigh/Measure/Inspection	TBD	7:30 am
09/25/13	Calibration/Validation (if required)	WIM Site	8:00 am
09/26/13	Travel	Camp Hill, PA	TBD

4 Maps

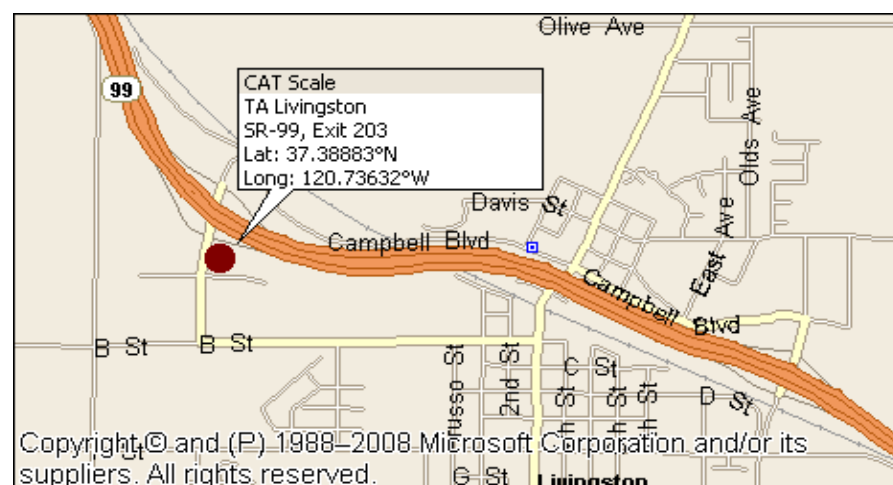
4.1 Site Location

Location:	SR-99 at M.P. 32.5		Direction:	NB
Latitude:	37.41600°	Longitude:	-120.75800°	



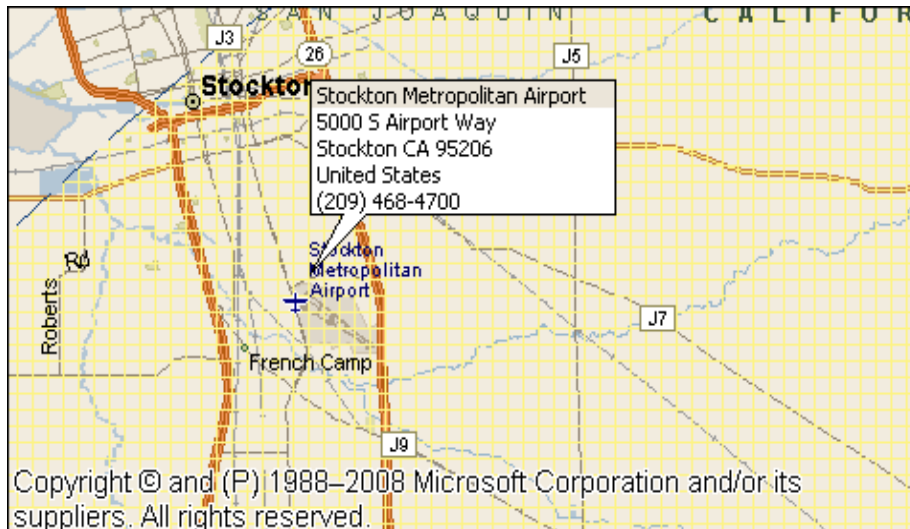
4.2 Truck Scale Location

Name:	TA Livingston	Location:	CA 99 Exit 203
Latitude:	37.38883	Longitude:	-120.73632



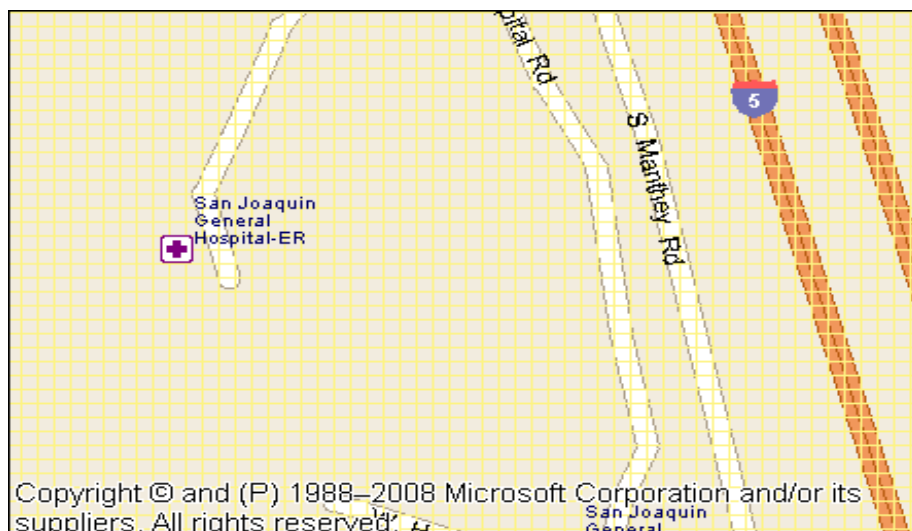
4.3 Airport Location

Name:	Stockton Metr. Airport	Location:	5000 S. Airport Way
Latitude:	37.8980	Longitude:	-121.2526



4.4 Hospital Location

Name:	San Joaquin Gen. Hosp.		
Phone:	209-468-6220	Location:	500 West Hospital Road, French Camp, CA



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 17 LTPP MONITORED TRAFFIC DATA WIM SITE INVENTORY	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
--	---

10. CABINET LOCATION

Same side of road as LTPP lane: Y
Distance from edge of traveled lane: 30 ft
distance from system: 36 ft
type: M

Cabinet access controlled by: Agency and LTPP
Contact name: _____ Phone # _____
Alternate name: _____ Phone # _____

11. POWER

Distance to cabinet from drop: 0 ft
Type: Solar
AC in cabinet? N
Service provider: _____ Phone # _____

12. TELEPHONE

Distance to cabinet from drop: 0 ft
Type: cellular
Service provider: _____ Phone # _____

13. SYSTEM

Software and version no. _____
Computer connection: _____

14. TEST TRUCK TURNAROUND TIME

Duration: 11 minutes Distance: _____ miles

15. PHOTOS

Filename
Power source: 060200_solar_panel_9_25_13.jpg
Phone source: 060200_cellular_modem_9_25_13.jpg
Cabinet exterior: 060200_cabinet_exterior_9_25_13.jpg
Cabinet interior: 060200_cabinet_interior_front_9_25_13.jpg
Weight sensors: 060200_leading_WIM_sensor_9_25_13.jpg
060200_trailing_WIM_sensor_9_25_13.jpg
Other sensors: 060200_leading_loop_9_25_13.jpg
060200_trailing_loop_9_25_13.jpg
Downstream from sensors on LTPP lane: 060200_downstream_9_25_13.jpg
Upstream from sensors on LTPP lane: 060200_upstream_9_25_13.jpg

Traffic Sheet 18 LTPP MONITORED TRAFFIC DATA WIM SITE COORDINATION	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	---

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 Separate contract LTPP
Expiration Date _____
- d. Calibration LTPP
- e. Manuals and software control: LTPP
- f. Power
i. Type Solar ii. Payment N/A
- g. Communication
i. Type Cellular ii. Payment State

3. PAVEMENT

- a. Type Portland Concrete Cement
- b. Allowable Rehabilitation activities Grinding and maintenance as needed
- c. Profile Site Markings Temporary

Traffic Sheet 18
LTPP MONITORED TRAFFIC DATA
WIM SITE COORDINATION

STATE CODE: 06
 SPS WIM ID: 060200
 DATE (mm/dd/yyyy) 9/24/2013

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- 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: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	---

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 _____ Kevin Senn _____ Phone # _____ 800-323-1541
Agency _____ Nichols _____
- d. Construction schedule and verification
Name _____ Phone # _____
Agency _____
- e. Test Vehicles (trucks, loads, drivers)
Name _____ Phone # _____
Agency _____
- 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: 06
	SPS WIM ID: 060200
	DATE (mm/dd/yyyy) 9/24/2013

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		11180	11070	Direct
B		15920	15825	Direct
C		15920	15825	Direct
D		15780	15780	Direct
E		15780	15780	Direct
F				

4. GVW (same units as axles)

a. Empty GVW: _____
b. Average Pre-Test Loaded weight: 74580
c. Post Test Loaded Weight: 74280
d. Difference Post Test - Pre-Tests: -300

5. TRUCK DESCRIPTION

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

b. Make: Peterbilt
c. Model: 377

d. Trailer Load Distribution Description:

concrete mix, bagged and palletized

photo: ☒

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

A to B 16.5 B to C 4.3 C to D 31.8 D to E 4.2 E to F _____

h. Wheelbase - ☐ Measured _____ ☒ Computed 56.8
i. Kingpin offset from Axle B (units) -1'5" photo: ☐
j. Overall Length - ☒ Measured 63.3

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>1</u>	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	--

CALIBRATION TEST TRUCK - Primary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A		steel spring	☒
B		air	☒
C		air	☒
D		air	☒
E		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 # <u>1</u>	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	--

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: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	--

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	11200	15910	15910	15780	15780		74580
2	11160	15930	15930	15780	15780		74580
Avg.	11180	15920	15920	15780	15780		74580

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	11120	15800	15800	15790	15790		74300
2	11020	15850	15850	15770	15770		74260
Avg.	11070	15825	15825	15780	15780		74280

Validation Test Truck Run Set - Pre

Measured By: _____
Verified By: _____

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>2</u>	STATE CODE:	06
	SPS WIM ID:	060200
	DATE (mm/dd/yyyy)	9/24/2013

CALIBRATION TEST TRUCK - Secondary

PART A

1. FHWA CLASS: 9 **2. Number of axles:** 5

3. AXLE WEIGHTS

	a. Empty Truck Avg. Axle Weight	b. Pre-test Average Axle Weight	c. Post-Test Avg. Axle Weight	d. Direct or Calculated?
A		11730	11580	Direct
B		13940	13850	Direct
C		13940	13850	Direct
D		12760	12760	Direct
E		12760	12760	Direct
F				

4. GVW (same units as axles)

a. Empty GVW:	
b. Average Pre-Test Loaded weight:	65130
c. Post Test Loaded Weight:	64800
d. Difference Post Test - Pre-Tests:	-330

5. TRUCK DESCRIPTION

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

b. Make: Peterbilt
c. Model: 386

d. Trailer Load Distribution Description:

concrete mix, bagged and palletized

photo: ☒

e. Tractor Tare weight - _____ - _____

f. Trailer Tare weight - _____ - _____

g. Axle Spacing - _____

A to B	17.6	B to C	4.3	C to D	32.2	D to E	4.3	E to F
--------	------	--------	-----	--------	------	--------	-----	--------

h. Wheelbase - ☐ Measured _____ ☒ Computed 58.4

i. Kingpin offset from Axle B (units) _____ -1.0' photo: ☐

j. Overall Length - ☒ Measured 65.3

Traffic Sheet 19 LTPP MONITORED TRAFFIC DATA CALIBRATION TEST TRUCK # <u>2</u>	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	--

CALIBRATION TEST TRUCK - Secondary

6. SUSPENSION

	a. Tire size	b.Suspension description (leaf, air # of leaves, taper or flat leaf, etc.)	c. photo
A		steel spring	☒
B		air	☒
C		air	☒
D		air	☒
E		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: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
--	--

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 # 2	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
--	--

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	11720	13940	13940	12760	12760		65120
2	11740	13940	13940	12760	12760		65140
Avg.	11730	13940	13940	12760	12760		65130

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	11580	13850	13850	12760	12760		64800
2	11580	13850	13850	12760	12760		64800
Avg.	11580	13850	13850	12760	12760		64800

Validation Test Truck Run Set - Pre

Measured By: _____
Verified By: _____

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS										STATE CODE: 06 SPS WIM ID: 060200 DATE: (mm/dd/yyyy): 9/24/2013									
---	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--

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
80.3	58	1	1	9:53:00	19667	57.0	11.1	17.3	15.0	16.0	15.9		75.3	16.7	4.5	31.9	4.3		57.4	64.0
80.3	58	2	1	9:53:06	19669	53.0	11.8	13.9	13.9	12.9	12.8		65.5	17.6	4.3	32.1	4.3		58.3	65.0
84.0	47	1	2	10:22:09	20022	47.0	10.9	16.9	14.9	15.8	15.6		74.2	16.6	4.4	31.7	4.2		56.9	63.0
84.0	47	2	2	10:22:11	20024	47.0	11.9	13.7	14.1	12.6	12.9		65.3	17.6	4.3	32.1	4.3		58.3	65.0
86.5	49	1	3	10:55:26	20441	49.0	10.8	16.8	14.7	15.9	15.6		73.8	16.6	4.3	31.7	4.2		56.8	64.0
86.5	49	2	3	10:55:29	20442	47.0	11.7	14.1	13.8	12.9	12.4		64.9	17.6	4.3	32.1	4.2		58.2	65.0
85.8	57	1	4	11:05:10	20561	54.0	11.2	16.2	15.0	16.1	15.1		73.7	16.6	4.4	31.7	4.2		56.9	63.0
85.8	57	2	4	11:05:12	20562	54.0	12.0	13.9	13.9	12.9	12.5		65.3	17.6	4.4	32.1	4.3		58.4	65.0
88.8	57	1	5	11:14:47	20682	57.0	11.2	16.8	15.1	15.6	15.4		74.0	16.6	4.3	31.5	4.3		56.7	63.0
88.8	56	2	5	11:14:51	20683	56.0	12.2	14.1	13.9	13.2	12.5		66.0	17.6	4.3	32.1	4.3		58.3	65.0
89.0	55	1	6	11:33:55	20914	55.0	11.3	16.5	14.7	16.6	15.7		74.8	16.8	4.4	31.9	4.2		57.3	64.0
89.0	55	2	6	11:33:57	20915	54.0	12.0	14.0	13.9	13.0	12.8		65.6	17.6	4.3	32.2	4.3		58.4	65.0
92.3	57	1	7	11:43:48	21037	57.0	11.1	17.0	15.1	15.7	15.3		74.1	16.6	4.4	31.5	4.2		56.7	63.0
92.3	57	2	7	11:43:51	21039	58.0	12.0	13.8	14.1	12.9	13.0		65.8	17.6	4.3	32.1	4.3		58.3	65.0
92.4	53	1	8	12:03:11	21261	52.0	11.1	16.6	15.1	15.7	14.9		73.6	16.6	4.3	31.7	4.2		56.8	64.0
92.4	53	2	8	12:03:13	21262	54.0	12.0	13.9	13.5	12.9	12.5		64.7	17.5	4.3	32.1	4.3		58.2	65.0
94.5	58	1	9	12:12:32	21376	59.0	11.3	16.9	15.1	15.9	15.4		74.7	16.6	4.4	31.8	4.3		57.1	64.0
94.5	58	2	9	12:12:37	21377	57.0	12.0	14.2	14.2	13.0	12.7		66.1	17.6	4.3	32.2	4.3		58.4	65.0
94.8	53	1	10	12:32:05	21632	54.0	11.2	16.5	14.9	15.5	14.8		72.9	16.6	4.4	31.9	4.3		57.2	64.0
94.8	53	2	10	12:32:07	21633	52.0	11.9	13.8	13.7	12.9	12.6		64.9	17.6	4.3	32.3	4.3		58.5	65.0
97.8	49	1	11	14:15:18	22941	47.0	11.1	17.0	15.4	16.4	15.9		75.6	16.7	4.4	31.7	4.2		57.0	64.0
97.8	49	2	11	14:15:25	22945	46.0	11.8	14.1	14.0	13.3	12.6		65.8	17.5	4.3	32.0	4.3		58.1	65.0
100.0	54	1	12	14:25:16	23062	54.0	11.0	16.9	14.5	16.1	15.3		73.8	16.5	4.4	31.9	4.2		57.0	66.0
100.0	53	2	12	14:25:19	23064	53.0	12.1	14.2	13.6	13.0	12.5		65.3	17.6	4.3	32.1	4.3		58.3	65.0

Recorded By: GHL

Verified By: ABL

Run Set Pre

Traffic Sheet 21 (Wheel Load) LTPP MONITORED TRAFFIC DATA WIM SYSTEM TRUCK RECORDS										STATE CODE: 06 SPS WIM ID: 060200 DATE: (mm/dd/yyyy): 9/24/2013									
---	--	--	--	--	--	--	--	--	--	---	--	--	--	--	--	--	--	--	--

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
102.3	59	1	13	14:35:13	23191	59.0	10.9	17.3	15.1	15.6	15.4		74.3	16.5	4.4	31.6	4.3		56.8	63.0
102.3	59	2	13	14:35:15	23192	59.0	12.1	14.2	14.1	13.0	12.7		66.0	17.6	4.3	32.0	4.3		58.2	65.0
98.8	54	1	14	14:54:34	23458	54.0	11.0	16.9	14.7	16.2	15.4		74.1	16.6	4.4	31.9	4.1		57.0	63.0
98.8	54	2	14	14:54:37	23459	53.0	11.8	14.0	14.0	13.0	12.7		65.5	17.6	4.4	32.3	4.3		58.6	65.0
99.7	60	1	15	15:04:03	23564	58.0	11.3	17.3	15.2	15.9	15.2		74.8	16.4	4.3	31.4	4.2		56.3	62.0
99.7	60	2	15	15:04:06	23565	57.0	11.9	14.0	14.1	12.8	12.6		65.5	17.4	4.2	31.7	4.2		57.5	64.0
99.9	49	1	16	15:14:14	23693	48.0	11.3	16.4	14.9	15.5	15.8		73.8	16.7	4.4	31.8	4.2		57.1	64.0
99.9	49	2	16	15:14:16	23694	48.0	11.9	14.1	13.9	12.7	12.8		65.6	17.6	4.3	32.2	4.3		58.4	65.0
99.5	58	1	17	15:34:03	23939	58.0	11.2	17.0	15.1	16.1	15.4		74.8	16.5	4.4	31.5	4.3		56.7	63.0
99.5	58	2	17	15:34:05	23940	57.0	12.0	14.0	14.0	13.2	12.7		65.8	17.6	4.3	32.1	4.2		58.2	65.0
99.1	51	1	18	15:43:46	24080	48.0	11.1	16.8	14.5	16.2	15.4		74.0	16.5	4.3	31.6	4.2		56.6	63.0
99.1	51	2	18	15:43:55	24084	47.0	11.7	14.0	14.2	12.8	12.8		65.4	17.6	4.3	32.2	4.3		58.4	65.0
99.0	55	1	19	16:03:07	24352	55.0	11.6	17.4	15.0	16.7	16.4		77.0	16.5	4.3	31.5	4.2		56.5	63.0
99.0	55	2	19	16:03:10	24354	56.0	11.7	14.1	13.8	12.9	12.8		65.3	17.6	4.3	31.9	4.2		58.0	65.0
98.8	49	1	20	16:13:17	24494	49.0	11.0	16.9	15.0	16.1	15.6		74.4	16.6	4.3	31.7	4.2		56.8	63.0
98.8	49	2	20	16:13:19	24495	49.0	12.1	13.9	14.1	12.7	12.7		65.6	17.6	4.3	32.1	4.3		58.3	65.0

Recorded By: GHL

Verified By: ABL

Run Set Pre

Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE:	06
	SPS WIM ID:	060200
	STATE ASSIGNED ID	0
	DATE (mm/dd/yyyy)	9/24/2013

SITE EQUIPMENT INFORMATION

1. TYPE OF EQUIPMENT	<u>BOTH</u>				
2. LANE NUMBER ON SITE	<u>1</u>	3. DIRECTION ON SITE	<u>north</u>		
4. VENDOR	<u>IRD</u>	MODEL	<u>iSINC</u>	SERIAL#	<u>70506451</u>
5. WEIGHING SENSOR TYPE	<u>bending plate</u>				
6. SYSTEM SOFTWARE VERSIONS:					
CPU	<u></u>				
LOOP	<u></u>				
PIEZO	<u></u>				
WEIGHTPAD/ LOADCELL	<u></u>				
COMMUNICATIONS	<u></u>				

7. CLASSIFICATION VIDEO:

TIME FROM: _____ TO: _____
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 is a bump at a pavement transition that may affect the accuracies of the WIM system.

Traffic Sheet 22 LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE: 06 SPS WIM ID: 060200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 9/24/2013
--	--

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. The leading WIM sensor has missing epoxy at the conduit exit in the shoulder. The sensors do not show signs of 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 indicated significant truck dynamics at the location of the pavement transition that may 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: 06 SPS WIM ID: 060200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 9/24/2013
---	---

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: 06 SPS WIM ID: 060200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 9/24/2013
--	--

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>57.5</u> mph	Average WIM Speed	<u>57.5</u> mph
Mean Difference	<u>0.0</u> mph	SD of mean	<u>5.3</u>

Posted Speed Limit	<u>55</u> mph	
Speed Range	15th percentile - <u>57</u> mph	85th percentile- <u>63</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>4.34</u> ft (WIM system average)
= <u>2.1</u> %		

Average front axle weight for Class 9 vehicles	<u> </u> lbs
% error from 10.3 kips (industry average) OR	<u>11.5</u> lbs (known site value)
= <u>12.0</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: 06 SPS WIM ID: 060200 STATE ASSIGNED ID 0 DATE (mm/dd/yyyy) 9/24/2013
--	--

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 _____

Traffic Sheet 22 Addendum - Weighpad LTPP MONITORED TRAFFIC DATA SITE EQUIPMENT ASSESSMENT LTPP LANE ONLY	STATE CODE:	06
	SPS WIM ID:	060200
	STATE ASSIGNED ID	0
	DATE (mm/dd/yyyy)	9/24/2013

STATIC EQUIPMENT VALUES (SYSTEM OFF)

1. POWER

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

2. LOOP SENSORS

	Resistance	Inductance	Shield
a. Leading	_____ Ω	_____ μh	_____ $M\Omega$
b. Trailing	_____ Ω	_____ μh	_____ $M\Omega$

3. WEIGHPAD SENSORS

	Input	Output	Shield
a. Leading	_____ Ω	_____ Ω	_____ Ω
b. Trailing	_____ Ω	_____ Ω	_____ Ω

DYNAMIC EQUIPMENT VALUES (SYSTEM ON)

4. LOOP SENSORS

	Frequency
a. Leading	_____ KHz
b. Trailing	_____ KHz

5. WEIGHPAD SENSORS

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

Assessor _____ 0 _____

Traffic Sheet 24A LTPP MONITORED TRAFFIC DATA SITE PHOTO LOG - Equipment	STATE CODE: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	--

Item	Description	Filename
1	Power Source	060200_solar_panel_9_25_13.jpg
2	Telephone Source	060200_cellular_modem_9_25_13.jpg
3	Cabinet Exterior	060200_cabinet_exterior_9_25_13.jpg
4	Cabinet Interior - Front	060200_cabinet_interior_front_9_25_13.jpg
5	Cabinet Interior - Rear	060200_cabinet_interior_rear_9_25_13.jpg
6	Leading weight sensor	060200_leading_WIM_sensor_9_25_13.jpg
7	Trailing weight sensor	060200_trailing_WIM_sensor_9_25_13.jpg
8	Leading classification sensor	
9	Trailing classification sensor	
10	Leading loop sensor	060200_leading_loop_9_25_13.jpg
11	Trailing loop sensor	060200_trailing_loop_9_25_13.jpg
12	Downstream from site	060200_downstream_9_25_13.jpg
13	Upstream from site	060200_upstream_9_25_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: 06 SPS WIM ID: 060200 DATE (mm/dd/yyyy) 9/24/2013
---	---

Item	Description	Filename
1	Tractor, Truck #1	060200_Truck_1_Tractor_9_24_13.jpg
2	Trailer/Load, Truck #1	060200_Truck_1_Trailer_9_24_13.jpg
3	Kingpin Offset, Truck #1	
4	Suspension A, Truck #1	060200_Truck_1_Suspension_1_9_24_13.jpg
5	Suspension B, Truck #1	060200_Truck_1_Suspension_2_9_24_13.jpg
6	Suspension C, Truck #1	060200_Truck_1_Suspension_3_9_24_13.jpg
7	Suspension D, Truck #1	060200_Truck_1_Suspension_4_9_24_13.jpg
8	Suspension E, Truck #1	060200_Truck_1_Suspension_5_9_24_13.jpg
9	Suspension F, Truck #1	
10	Tractor, Truck #2	060200_Truck_2_Tractor_9_24_13.jpg
11	Trailer/Load, Truck #2	060200_Truck_2_Trailer_9_24_13.jpg
12	Kingpin Offset, Truck #2	
13	Suspension A, Truck #2	060200_Truck_2_Suspension_1_9_24_13.jpg
14	Suspension B, Truck #2	060200_Truck_2_Suspension_2_9_24_13.jpg
15	Suspension C, Truck #2	060200_Truck_2_Suspension_3_9_24_13.jpg
16	Suspension D, Truck #2	060200_Truck_2_Suspension_4_9_24_13.jpg
17	Suspension E, Truck #2	060200_Truck_2_Suspension_5_9_24_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		

