INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY ASSESSMENT REPORT

INDIANA SPS-6
LTPP ID 180600
APRIL 19, 2007
CLIN 3001 TASK ORDER 19

CONTRACT NO. DTFH61-05-D-00001

U.S. Department of Transportation
Federal Highway Administration

LONG TERM Pavement PERFORMANCE

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

The Indiana SPS-6 (Rehabilitation of Rigid Concrete Pavements) test site was visited on April 18th, 2007, by the CLIN 1 team. The pavement test sections are located in the northbound outside lane on US 31 approximately 12 miles south of Plymouth in Marshall County. The team performed a search for a suitable Weigh-in-Motion (WIM) site over an approximate 6 mile range of US 31 between Mile Post 212 to the south and Mile Post 218 to the north. This section of US 31 was deemed to have the same truck composition as that passing through the SPS test sections as well as suitable traffic operating characteristics, geometrics, and topography. This search resulted in the selection and evaluation of a WIM site at Mile Post 216.97, approximately 8 miles south of Plymouth. It is proposed to install a WIM system for the northbound outside lane 3380 feet downstream of the end of SPS-6 pavement test section 180607. This proposed WIM site location coincides with the location recommended by the State and with the location of an existing WIM system (currently non-working) that had previously been installed in this area. Based upon our site evaluation it is recommended that a new WIM system utilizing Single Load Cell technology be installed after corrective action has been taken to address pavement structural issues.

The existing 14 inch thick pavement (4 inches of AC over 10 inches of jointed PCC) is in poor condition with transverse cracking at +/- 6 foot intervals throughout. It is not deemed suitable by the CLIN 1 team for the installation of WIM weighing sensors. As such, it is recommended that the State replace 400 feet of the existing AC pavement with a PCC WIM slab with a minimum thickness of 12 inches to accommodate the new WIM system's weighing sensors. Following installation of the new PCC WIM slab, the slab's surface as well as the PCC/AC transverse cold joints should be blanket ground to meet pavement smoothness requirements for SPS WIM sites. Upon completion of these corrective actions, a follow-up evaluation of the pavement should be made. Such evaluation should include visual observation of the new PCC WIM slab's structural stability and visual observation of trucks passing through the site. Upon confirmation that the pavement is acceptable in terms of structural soundness and smoothness such that the pavement is adequate for the WIM system to meet accuracy requirements, this site can be instrumented with WIM.

Power and telephone services previously installed for the existing non-functioning WIM system are still available at the selected site location, and can easily be utilized for the new WIM system,

It is noted that the State can option to have Kistler quartz weighing sensors installed in the AC pavement by performing an AC mill and overlay to the existing pavement (minimum 4 inch mill and 4 inch overlay) for a length of 1000 feet in the LTPP lane. By doing so, however, it is the opinion of the CLIN 1 team that such a WIM system may not provide five years of research quality traffic data without the incurring of rehabilitation costs during the five year period.

2.0 EXISTING ROADWAY

Visual on-site observation of the existing roadway and traffic operating characteristics were performed and recorded by the CLIN 1 Team. This included taking roadside measurements, digital photography, and driving over the roadway to evaluate conditions at the proposed location.

2.1 PAVEMENT AND GEOMETRICS

The SPS-6 is a rigid pavement rehabilitation study. The existing US 31 roadway at the study location as well as at the proposed WIM site location 3380 feet downstream from the end of the last test section consists of 4 lanes, 2 northbound and 2 southbound. The pavement test sections and the proposed WIM system are located in the outside northbound lane. The existing northbound roadway pavement approaching, through, and departing the proposed new WIM site consists of a dense grade AC overlay on jointed PCC. The outside and inside (median) shoulders are also dense grade AC. The northbound outside lane is 11 feet wide and the northbound inside lane is 12 feet wide. The outside shoulder is 11 feet wide and the inside shoulder is 4.5 feet wide. It is noted that, according to State furnished documentation, the AC pavement section at the selected WIM site consists of a 4 inch AC overlay on top of 10 inches of jointed PCC. The AC pavement at this location was last rehabilitated in 1990. The roadway alignment is tangent and the grade is relatively flat at the proposed WIM site. In regard to cross slope, the two adjacent lanes are crowned at the lane line with each lane sloping +/- 1.5% toward their respective shoulders.

2.2 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

There is one intersection and median crossover (17th Road) in the vicinity of the proposed WIM site which accommodates local residential traffic. This intersection is located 677 feet downstream of the scale location. No observed detrimental traffic flow conditions occurred as a result of this intersection during the team's site visit. The medium traffic flow exhibited good lane discipline, staying well within the lane and shoulder line markings. Traffic is free flowing at all times at speeds between 55 and 65 MPH (posted speed limit is 60 MPH). Trucks are "cruising" through the site at constant 55 to 65 MPH speeds. In that there are no significant on/off locations between the WIM site and SPS site, the truck traffic composition at the WIM site is the same as that at the SPS site.

3.0 SITE CONFORMANCE TO EVALUATION CRITERIA

A number of site parameters where evaluated at the proposed WIM location to confirm site acceptability. These site parameters included items such as pavement, traffic patterns, availability of power and telephone, and logistics. These parameters were rated as either “Pass”, “Requires Attention”, or “To Be Performed”. At the end of this section, recommendations on site acceptance and necessary corrective action are noted. The following represents the findings of the CLIN 1 Team.

3.1 PAVEMENT TYPE AND CONDITION- *REQUIRES ATTENTION*

The existing AC pavement approaching, through, and departing the selected WIM site is in poor condition and the pavement is not structurally adequate for the installation of a WIM system’s weighing sensors. Although the roadway appears to be in fairly stable condition, transverse cracking is apparent at +/- 6 foot increments. It is recommended that a section of the existing AC pavement between 325 feet in advance of and 75 feet following the proposed new scale location be removed and replaced with a blanket ground PCC WIM slab with a minimum thickness of 12 inches.

3.2 PAVEMENT SMOOTHNESS- *REQUIRES ATTENTION*

Following installation of a 400 foot PCC WIM slab, the new PCC WIM slab as well as the PCC/AC transverse cold joints on each end of the slab should be blanket ground. Following pavement grinding, a reassessment of the pavement’s structural stability and smoothness should be performed.

3.3 ANALYSIS OF PAVEMENT PROFILE DATA- *TO BE PERFORMED*

Profile data analysis of the pavement at or near the recommended WIM site location for conformance to SPS smoothness criteria has not been provided to the CLIN 1 team for analysis.

Following the installation of a blanket ground PCC WIM slab at the recommended WIM site location the CLIN 1 Team will verify whether or not the smoothness of the pavement from 325 feet in advance of to 75 feet following the WIM scale location meets the smoothness requirements for installation of a WIM system.

3.4 ROADWAY GEOMETRICS- *PASS*

The selected WIM site is located within a long tangent section of the roadway, grade is minimal, and the lane in which the sensors are to be installed is 11 feet wide. The pavement cross slope is adequate for proper roadway drainage.

3.5 TRAFFIC OPERATING CHARACTERISTICS- *PASS*

Although there is one intersection in the vicinity of the proposed WIM site, the general traffic pattern is free flowing with good lane discipline. The truck traffic is cruising through the site and staying within the lane lines.

3.6 TRUCK TRAFFIC COMPARISON BETWEEN WIM AND TEST SITE- *PASS*

There are no significant exit/entrance locations between the WIM site and the SPS-6 pavement test sections.

3.7 POTENTIAL WIM SYSTEM INTERFERENCE SOURCES- *PASS*

The nearest source of any potential interference, power lines paralleling the northbound lanes' right-of-way, are the standard "service" lines and will not interfere with system performance. Railroad tracks are located approximately 2000 feet downstream of the proposed WIM cabinet location and will not be a factor.

3.8 ACCESS TO POWER AND PHONE SERVICES- *PASS*

Power and phone services have been installed previously for the existing non-functional WIM system are readily available for the new proposed WIM system. The State will need to make the necessary arrangements with the appropriate service providers to reconnect if necessary.

3.9 EQUIPMENT INSTALLATION CAPABILITY- *PASS*

There is an excellent location for the WIM controller cabinet opposite the scales within the northbound roadway's right-of-way. The proposed location would provide 70 feet clearance from the traveled way. There is adequate access to the cabinet for off-shoulder parking, good visibility of the sensors and approaching vehicles from the cabinet location, and adequate room adjacent to the cabinet location for the existing service facilities. Roadway and overall site drainage is good. There is no foreseen potential for ponding or flooding at the cabinet or pullbox locations. There is adequate topography for scale pit drainage. Although the 4.5 foot width of the median shoulder will accommodate only a slight lane closure traffic shift, signing and enforcing a reasonable speed limit through the work zone should provide safe clearance from live traffic during installation of the WIM system.

3.10 POTENTIAL TRAFFIC CONTROL / WORK ZONE SAFETY ISSUES- *PASS*

The traffic control should go smoothly, given the good approach sight distance and the ability to move traffic's left wheels onto the adjacent lane's median shoulder. No other work zone safety issues are foreseen at this rural site.

3.11 TRUCK CIRCUIT- *PASS*

The nearest usable northbound truck turnaround is a median crossover at approximately Mile Post 218 located 1.0 mile downstream of the WIM site at 16th Road. There is a left turn pocket at this location such that the test trucks will be completely off of the traveled way should they have to wait for southbound traffic to clear.

The nearest useable southbound truck turnaround is a median crossover at approximately Mile Post 215.1 located 1.9 miles upstream of the WIM site. This median crossover, which provides access to 19th Road, also has a left turn pocket off of the mainline.

There are no foreseen potential circuit restrictions and both turnarounds are easily accessed and maneuvered. The test truck round trip circuit route is approximately 3 miles and the estimated lap time is 7 minutes.

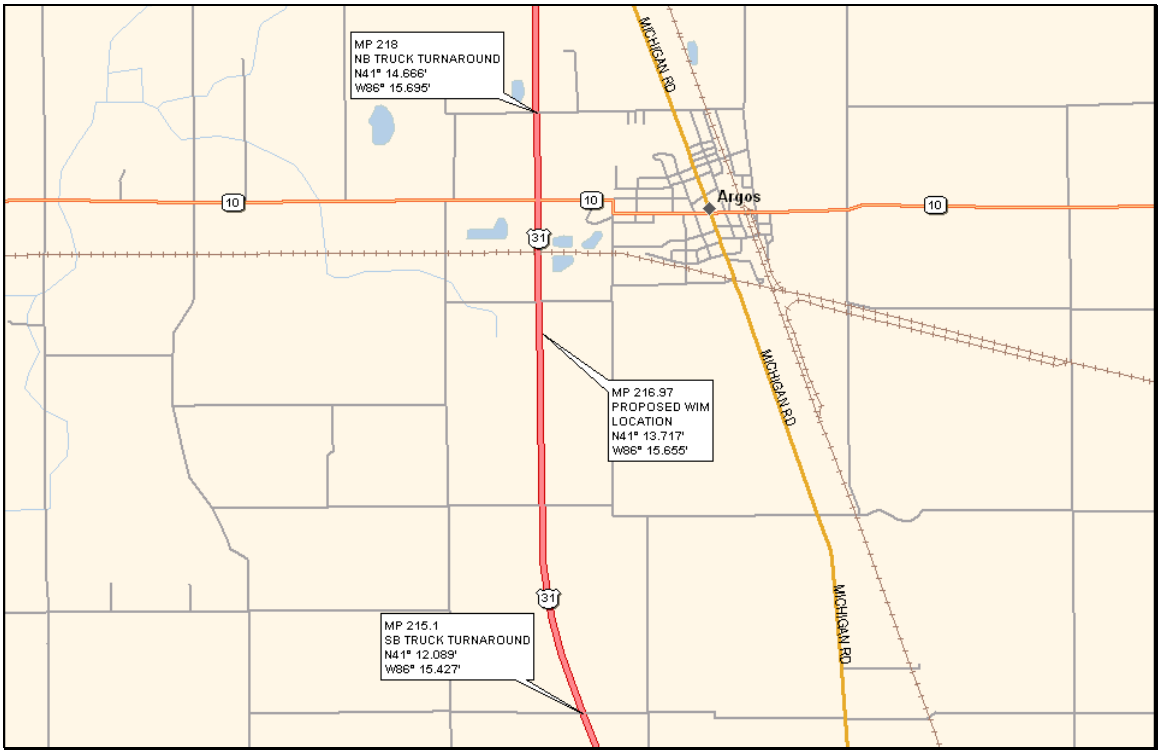


Figure 3.1: Truck Circuit Map, SPS-6 WIM Site on US 31

3.12 RECOMMENDATIONS ON SITE ACCEPTANCE / CORRECTIVE ACTIONS

Power and phone services have been installed previously for the existing WIM system are readily available for the new proposed WIM system and are currently within 25 feet of the proposed WIM cabinet location. The State will need to make the necessary arrangements with the appropriate service providers to reconnect if necessary.

It is recommended that the State install a 400 foot blanket ground PCC WIM slab with a minimum thickness of 12 inches. A follow-up assessment of the WIM site pavement will need to be made after corrective actions have been completed.

4.0 TRAFFIC DATA REVIEW

Vehicle distributions of all trucks (FHWA Class 4 and higher)
(Not Available)

Vehicle distributions for heavy trucks (FHWA Class 6 and higher)
(Not Available)

Volume of trucks comprising of 10 % or more of truck population
(Not Available)

Volume of trucks comprising 10 % or more of heavy truck population
(Not Available)

After discussions with the State, it has been determined that current traffic data containing the above mentioned information is not available

5.0 PAVEMENT EVALUATION

In determining WIM site pavement acceptability, visual on-site observation of the existing AC pavement was made by the CLIN 1 Team. Additionally, structural section documentation provided by the State and the SPS-6 Construction Report were reviewed.

5.1 SURFACE CONDITION

The site evaluation concentrated efforts on the range of pavement from 900 feet prior to and 100 feet following the proposed new WIM scale location. Pictures were taken to document the surface condition, several of which are presented in Appendix E.

5.1.1 AC PAVEMENT 325 FEET IN ADVANCE OF AND 75 FEET FOLLOWING PROPOSED WIM SCALE LOCATION ("WIM PAVEMENT")

According to documentation furnished by the State, the AC pavement section at the selected WIM site consists of a 4 inch AC overlay on top of 10 inches of jointed PCC. The AC pavement at this location was last rehabilitated in 1990. The total thickness of this pavement is 14 inches. The AC pavement and shoulder throughout the 400 ft section exhibit transverse cracking at approximate 6 foot intervals. It is the opinion of the CLIN 1 team that this pavement is not structurally suitable for installing WIM sensors. It is suggested by the CLIN 1 Team that the existing AC pavement be replaced by a PCC WIM slab with a minimum 12 inch thickness.

5.1.2 AC PAVEMENT UPSTREAM AND DOWNSTREAM OF WIM PAVEMENT

As exists, there are no discernable differences between the 400 foot "WIM Pavement" section and the "WIM Pavement" approach and departure pavements included in the 1000 foot evaluation section.

5.1.3 SHOULDER CONDITION

The roadway shoulders are AC throughout the study area. The upper lift was placed in 1990 in conjunction with the traveled way overlay. The shoulder pavement exhibits transverse cracking but otherwise appears to be in fair condition.

5.2 SURFACE PROFILE

Observations of trucks and other vehicle types approaching the selected scale location exhibited body motion. Body motion could also be observed in trucks passing through the proposed scale location. Several automobile "drive throughs" by the CLIN 1 team members confirm the above noted observations. Vehicle body and suspension motion could be felt passing through the proposed scale location.

5.3 PAVEMENT EVALUATION SUMMARY

Based upon the CLIN 1 team's on-site observations and review of the State furnished documentation on the pavement's structural section, it is recommended that WIM weighing sensors not be installed in the existing AC pavement. For a structurally secure installation of the WIM's weighing sensors, 400 feet of the existing AC pavement should be replaced with a blanket ground PCC WIM slab.

Upon completion of the new PCC WIM slab installation, the site's pavement will need to be re-evaluated for structural stability and smoothness to confirm that the pavement meets requirements for installation of an SPS WIM site.

6.0 PROPOSED WIM SITE- INFORMATION

6.1 LOCATION – US 31, MP 216.97

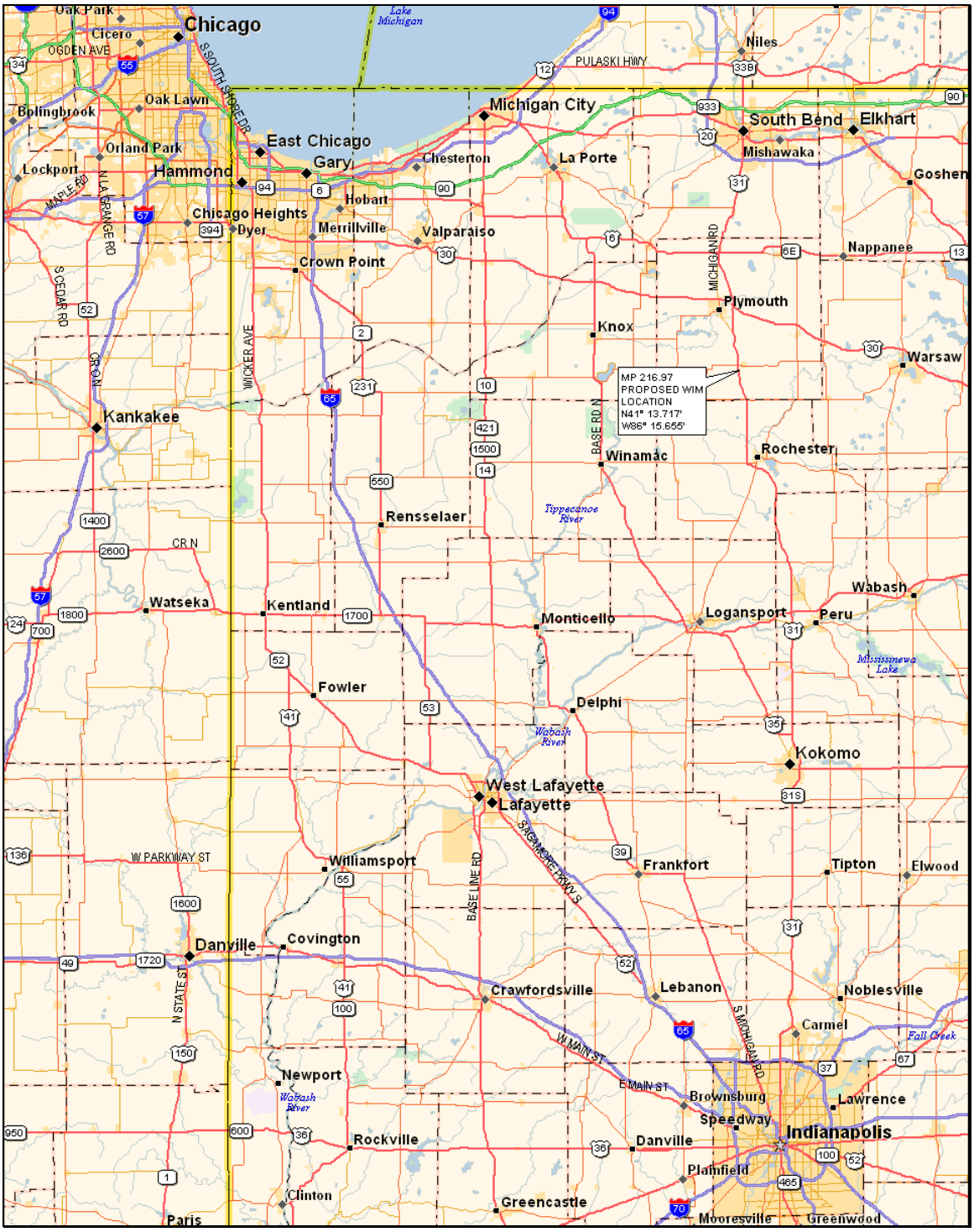


Figure 6.1: Map of the US 31 WIM Site

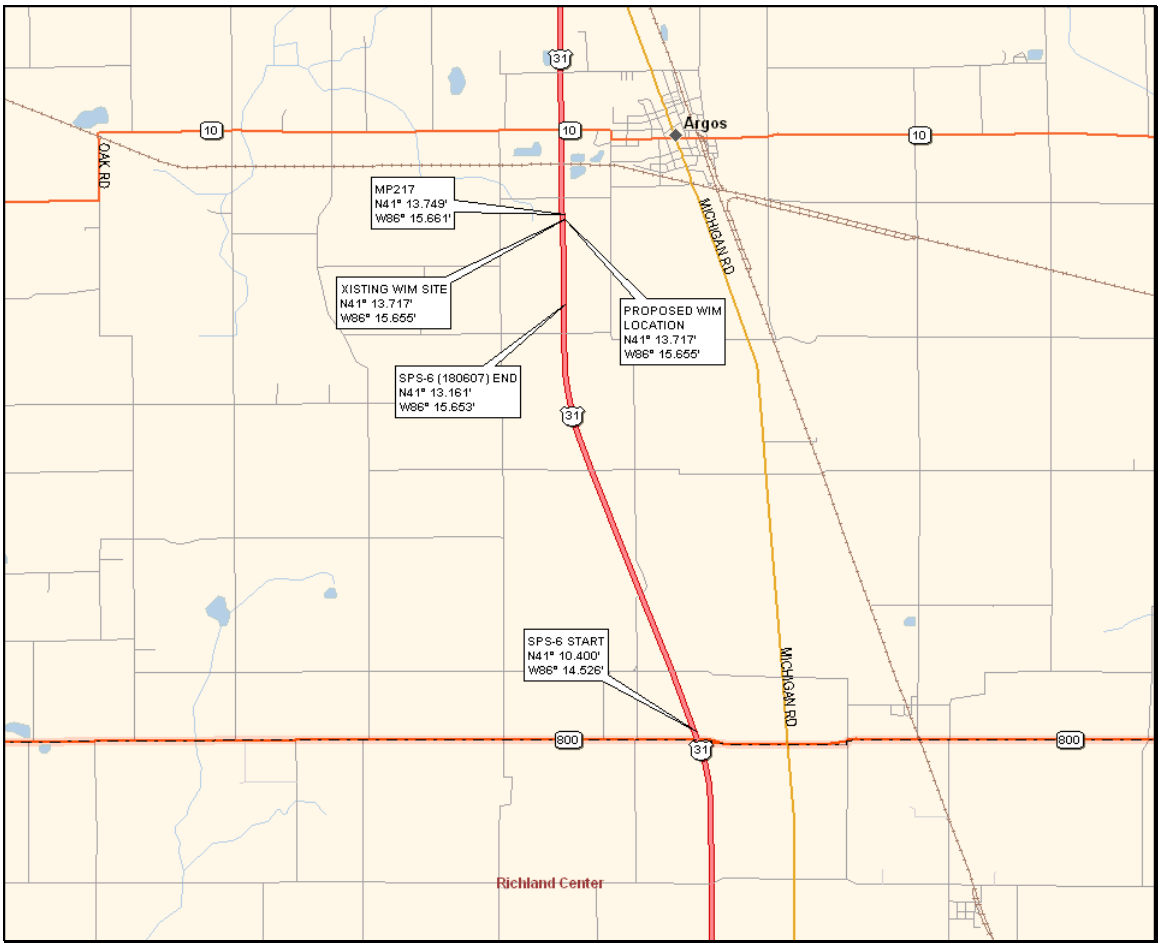


Figure 6.2: Map of the US 31 SPS-6 WIM Site at Milepost 216.97

The pavement test sections are located in the northbound outside lane on US 31 approximately 12 miles south of Plymouth in Marshall County.

The location selected for the proposed WIM system installation is at Mile Post 216.97, approximately 8 miles south of Plymouth near Argos and SR 10 junction. It is proposed to install a WIM system for the northbound outside lane approximately 3380 feet downstream of the end of SPS-6 pavement test section 180607.

The proposed WIM controller cabinet can be located within the roadway's right-of-way opposite the scales 72 feet off the edge of traveled way within 25 feet of the existing WIM cabinet and utilities.

7.0 RECOMMENDED WIM TECHNOLOGY

The State has expressed the desire to utilize SLC Sensor technology, not only in the LTPP lane, but in all other lanes on US31 for their own Data Collection purposes.

The CLIN 1 team is in agreement with this request in that the SLC technology has an excellent track record in terms of performance, minimal calibration "drift", and longevity. In addition this will compliment the existing SLC Data Collection Systems already installed within the State.

As such, it is recommended that the State replace 400 feet of the existing AC pavement with a PCC WIM slab with a minimum thickness of 12 inches to accommodate the new WIM system's weighing sensors. Following installation of the new PCC WIM slab, the slab's surface as well as the PCC/AC transverse cold joints should be blanket ground to meet pavement smoothness requirements for SPS WIM sites.

If it is not possible to install the 400 ft PCC slab, the State can option to have Kistler quartz weighing sensors installed in the AC pavement by performing an AC mill and overlay to the existing roadway (minimum 4 inch mill and 4 inch overlay) for a length of 1000 feet in the LTPP lane. By doing so, however, it is the opinion of the CLIN 1 team that such a WIM system may not provide five years of research quality traffic data without incurring rehabilitation costs during the five year period.

Upon confirmation that the pavement is acceptable in terms of structural soundness and smoothness, such that the pavement is adequate for the WIM system to meet accuracy requirements through one of the two above mentioned options, this site can be instrumented with WIM.

7.1 RECOMMENDED LOCATION AND LAYOUT FOR THE WIM SYSTEM

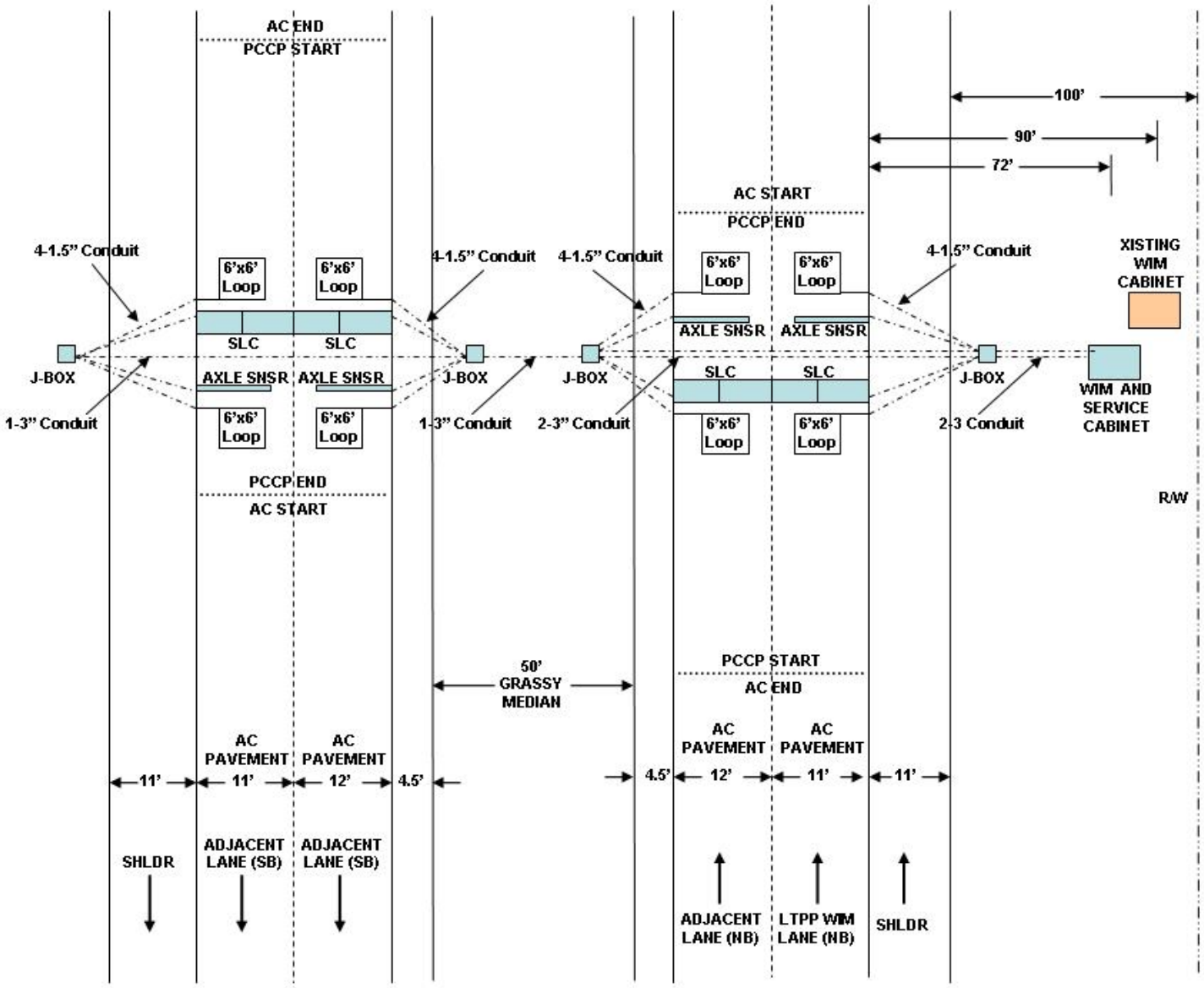


Figure 7.1: Proposed WIM Site Layout

GPS Coordinates for Scales: N41° 13.717', W86° 15.655'
US 31 at Milepost 216.97

A.0 COORDINATION DETAILS

Task Order # 19, which authorized the CLIN 3001 "Determine Acceptability of Proposed Site" for the Indiana SPS-6 Site (LTPP ID 180600), was issued on March 12, 2007.

Contacts were made with interested parties as follows:

- Contracting Officer's Technical Representative (COTR)
  - Debbie Walker – FHWA-LTPP ph: 202-493-3068
  - Initial contact made April 5, 2007

- State Highway Agency (SHA)
  - Kirk Mangold – INDOT ph: 317-233-3690
  - Scott MacArthur - INDOT ph: 317 233-1166
  - Tommy Nantung – INDOT ph: 765-463-1521 x248
  - Initial contact made April 5, 2007

- LTPP Regional Support Contractor (RSC)
  - Basel Abukhater - Stantec ph: 716-632-0804
  - Initial contact made April 5, 2007

- FHWA Division Office
  - Victor Gallivan – FHWA Div Rep ph: 317-226-7493
  - Initial contact made April 5, 2007

The "Pre-Visit Handout Guide" was distributed on April 12, 2007, to the following individuals:

- Kirk Mangold
- Tommy Nantung
- Victor Gallivan
- Basil Abukhater
- Jay Nave
- Debbie Walker

The site was visited on April 18, 2007, by Roy Czinku (IRD).

A briefing session was held at 9:00 a.m. April 19, 2007 at the Indiana DOT Office, IGCN Building, 100 North Senate Avenue, Indianapolis, IN 46204-2228. Attendees included Kirk Mangold (INDOT), Scott MacArther (INDOT), and Roy Czinku (IRD).

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY PRE-VISIT HANDOUT GUIDE

INDIANA SPS-6
LTPP ID 180600

Date: April 12, 2007

CONTRACT NO. DTFH61-05-D-00001

U.S. Department of Transportation
Federal Highway Administration

LONG TERM PAVEMENT PERFORMANCE

B.0 PRE-VISIT HANDOUT GUIDE

B.1 SCHEDULE

a. Briefing session
   i. Meeting is scheduled for 9:00 a.m. April 19, 2007 at the IGCN Building, 100 North Senate Avenue, Indianapolis, IN 46204-2228
b. Site visit
   i. April 18, 2007

B.2 BRIEFING SESSION APRIL 19, 2007, POINTS OF CONTACT

a. Contracting Officer's Technical Representative (COTR)
   i. Debbie Walker – FHWA-LTPP ph: 202-493-3068
b. State Highway Agency (SHA)
   i. Kirk Mangold – INDOT ph: 317-233-3690
   ii. Tommy Nantung – INDOT ph: 765-463-1521 x248
c. LTPP Regional Support Contractor (RSC)
   i. Basil Abukhater – Stantec ph: 716-632-0804
d. FHWA Division Office
   i. Victor Gallivan – FHWA Div Rep ph: 317-226-7493

B.3 INFORMATION REQUESTS

a. From COTR
   i. FHWA Division contact person
   ii. New pavement profile from RSC if recent profile data unavailable
b. From RSC
   i. SHA contact person
   ii. SPS roadway section layouts (plan view and/or stationing or mileposts)
   iii. Recent pavement profile data (within the past year)
   iv. Request any current traffic data (within past 2 years)
c. From SHA
   i. As-built info on roadway at proposed site
      1. Pavement cross section and structural section
      2. Alignment and grade
      3. Any utilities located in WIM install work area
   ii. Location and general availability of power and phone services, service providers, service provider contacts and phone numbers (may be beneficial if power and phone utility reps be requested to participate in briefing session and/or site visit)
   iii. Will SHA agree to extend power and phone services from existing available access points to demarcation points near planned controller cabinet location?
   iv. If existing roadway pavement is AC or inadequate PCC will SHA consider replacement with 400' PCC slab if recommended per site assessment?

v. What permits will be needed to install equipment and what are procedures and time frames for obtainment?
vi. Required cabinet clear zone from edge of traveled way?
vii. If no detour routing available at proposed site (or three or more adjacent lanes), will SHA permit shifting inside lane traffic partially onto inside shoulder to provide safe clearance during installation in outside lane?
viii. Historic truck traffic data?

B.4 SITE LOCATION INFORMATION

a. Proposed WIM site
   i. US Route 31 northbound outside lane, approximate Mile Post 217
b. Briefing session location
   i. IGCN Building, 100 North Senate Avenue, Indianapolis, IN 46204-2228
c. Nearest major airport
   i. Chicago O'Hare International Airport

Distribution --- COTR, RSC, SHA, FHWA Division, MACTEC, Site Assessment Team

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY

SITE VISIT EVALUATION FORM

INDIANA SPS-6
LTPP ID 180600

Date of Site Visit: April 18, 2007

CONTRACT NO. DTFH61-05-D-00001

U.S. Department of Transportation
Federal Highway Administration

LONG TERM Pavement PERFORMANCE

C.0 SITE EVALUATION FORM

C.1 PROPOSED WIM LOCATION

Proposed WIM Site Location – 4 Lane Roadway (2 Lanes each Direction)

Route: US 31 Mile Post: 216.97 Direction: NB Lane: Outside

Proposed WIM Site is 3380 feet downstream of the end of SPS Test Section 180607 approximately 8 miles south of Plymouth in Marshall County.

C.1.1 EXISTING ROADWAY SURROUNDING THE PROPOSED WIM SITE

Type Pavement: AC over PCC Pavement Age Top lift placed 1990

Lane Width: 11 feet Thickness: 4 inch AC over 10 inch PCC

Observed Structural Soundness: Poor Observed Smoothness: Poor

Outside NB Shoulder Type: AC Width: 11 feet

Outside NB Shoulder Condition: Fair

Inside NB Shoulder Type: AC Width: 4.5 feet

Inside NB Shoulder Condition: Fair

C.1.2 PAVEMENT 325' PRIOR AND 75' FOLLOWING WIM SCALE LOCATION

Type: AC Thickness/Type: 4 inch AC over 10 inch Jointed PCC

Observed Structural Soundness: Poor Observed Smoothness: Poor

Notes/Comments on Pavement:
The existing roadway is AC over PCC and is in poor condition. Both the traveled way and shoulders exhibit transverse cracking at approximately every 6 feet. The 400 foot "WIM Pavement" section is the same as the approaching and departing pavement. The existing pavement should be replaced with a 400 foot blanket ground PCC WIM slab prior to the installation of WIM weighing sensors.

C.1.3 ROADWAY GEOMETRICS

Horizontal Alignment: Tangent Grade: Minimal (Less than +0.5 %)

Cross-slope: Crowned on lane line, +/- 1.5 % away Lane width: 11 feet

C.1.4 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

Passing, merging, not following lane lines? Good Lane Discipline –occasional passing

Stop and go traffic, congestion periods? Free flowing, see notes below

Traffic signals/interchanges affecting traffic? Median crossover and Intersection in vicinity of selected location do not affect traffic flow (see notes below)

Other adverse traffic flow conditions? Traffic Flow is medium

Truck traffic at "cruising" speed (no lugging)? No lugging, smooth flow

Truck traffic staying within lane lines? Yes, trucks track within lane lines

Observed truck suspension or body motion dynamics? Body and suspension motion noted through scale area.

Truck traffic composition same at WIM site and SPS site? Yes

Truck traffic on/off locations between WIM site and SPS site? No (see notes)

Posted Speed Limit: 60 MPH

Observed Truck Speeds: 55–65 MPH

Notes/Comments on Geometrics and/or Traffic Operating Characteristics:
There is an intersection 677 feet downstream of the proposed scale location providing access to a residential area via 17th Road. No observed detrimental effects on traffic flow occurred as a result of this crossover. Vehicles track smoothly through this area at speeds between 55 and 65 MPH (posted speed is 60 MPH for all traffic). There is very good lane discipline at this site. Traffic flow is medium on this US highway. Several drive throughs were performed and body and suspension motion was observed across the proposed scale location.

C.1.5 ACCESS TO UTILITY SERVICES

Potential source(s) for power: Power Service is available at existing WIM location, within 25 feet of proposed new WIM cabinet.

Potential source(s) for telephone: Telephone Service is available at existing WIM location, within 25 feet of proposed new WIM cabinet.

C.1.6 EQUIPMENT INSTALLATION CAPABILITY

Adequate location for controller cabinet? Yes, near existing cabinet

Distance from edge of traveled way to right of way? +/-100 feet

Distance from edge of traveled way to cabinet? 72 feet

Visibility from cabinet of sensors and approaching vehicles? Good

Adequate location for service facilities? Yes, service facilities existing

Adequate drainage for scale pits? Yes

Adequate roadway and overall site drainage? Yes

Potential for ponding or flooding at cabinet or pullboxes? Minimal

Potential for traffic control problems during installation? Minimal; the traffic can be shifted away from the outside lane's work area

Ability to provide safe clearance in work zone from live traffic via:

- ☑ OK from State Agency to use opposite shoulder for traffic shift
- ☐ Multiple Adjacent Lanes

Notes/Comments on Equipment Installation Capability:
The traffic flow is medium. We will have to work closely with the State to coordinate lane closures. There is 4.5 feet available on inside lane shoulder to accommodate a traffic shift.

C.1.7 POTENTIAL WIM SENSOR/EQUIPMENT INTERFERENCE SOURCES

Overhead power lines? High Voltage transmission lines are 1.5 miles upstream of the proposed new WIM location. Lower voltage lines run parallel to NB roadway right of way and supply power to the existing WIM cabinet. These lines will not affect WIM system operation.

Adjacent railroad? Railroad tracks are located 2000 feet north of cabinet location and will not be a factor.

C.1.8 CONDITIONS FOR USE OF TEST TRUCKS FOR CALIBRATION AND EVALUATIONS

Direction Northbound

Nearest usable truck turnaround location:
Median crossover at 16th Road with a left hand turn pocket Mile Post 218 located downstream of the WIM site.

Distance from WIM: 1.0 Mile

Direction Southbound

Nearest usable truck turnaround location:
Median crossover at 19th Road with left hand turn pocket Mile Post 215.1 located upstream of the WIM site.

Distance from WIM: 1.9 Miles

Circuit travel distance: 5.8 Miles Estimated lap time: 7 Minutes

Potential circuit route restrictions? None

Identification and location of trucking firm and certified static scales:

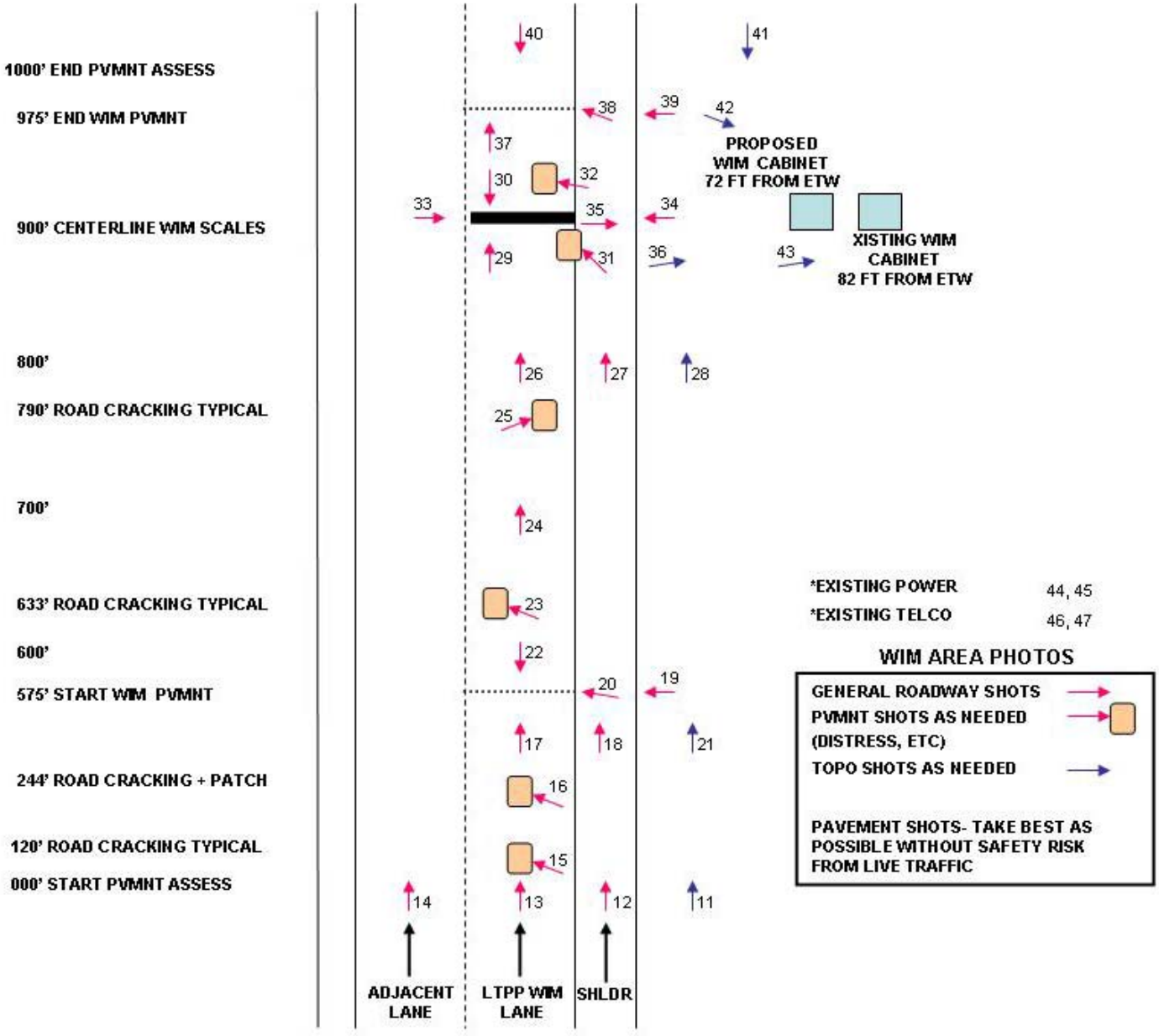
Name B.A. Patterson Trucking Contact Brian Patterson

Address 8125 W 10th St., Indianapolis, IN,

Phone 317-538-5524 Hours 8:00 a.m. – 5:00 p.m.

Notes/Comments on Test Truck Circuit and Static Weighing Facility:
B.A. Patterson is located approximately 112 miles from the Proposed WIM Site. They currently have 3 - 3S2 Tractor Trailer Air Ride vehicles and drivers available given 2-3 weeks notice. A certified static scale for weighing is located on route to the site (32 miles south) in Peru at Gallahan Travel Plaza, US 31 & US 24.

C.2 LOCATION LOG OF PHOTOS



C.3 EQUIPMENT AND MATERIALS

☑ Site Evaluation Forms
☑ Graph paper and note paper
☑ Clipboard
☑ Pens & pencils
☐ Small stapler
☑ Digital camera, with PC cable
☑ GPS receiver
☑ Notebook PC
☑ Calculator
☑ Cell phone
☑ Site Pre-visit Handout Guide
☑ Metal tape measure (25 ft.)
☑ Measuring wheel (ft.) and/or 100 ft. rag tape
☑ Folding rule (6 foot)
☑ Hand level
☑ Small torpedo level
☑ Keel markers
☑ Spray can white paint
☑ String Line
☑ Line Level
☑ Hammer and Concrete Nails
☐ _____

Request furnish on-site by Highway Agency:
☑ Spray can white paint
☐ Lath, 4 ft.
☐ Hammer
☐ Misc. small tools
☑ Keys for known Agency service cabinets
Note: Key for existing cabinet is a standard Type II

Proper attire for field work and expected weather:
☑ Durable shoes
☑ Cold weather layering
☑ Rain gear
☐ _____

Safety equipment per State Highway Agency requirements:
☑ Hard hat
☑ Safety vest – type Hi-Vis Safety Yellow
☑ Steel toe shoes
☐ Other required equipment _____

D.0 SHEET 17

Sheet 17		*STATE CODE	**LTPP**
LTPP Traffic Data		*SPS PROJECT ID	**180600**
WIM SITE INVENTORY		*SPS WIM ID	**SPS-6**

1.*ROUTE:	**US 31**	MILEPOST:	**216.97**	LTPP DIRECTION:	**N**

2.*WIM SITE DESCRIPTION - Grade		**+/- ½ %**	Sag vertical	**N**
	Nearest SPS section upstream of site		**180607**	
	Distance from sensor to nearest upstream SPS Section		**3380 ft from end of 180607**	

3.*LANE CONFIGURATION					
	Lanes in LTPP direction	**2**		Lane Width	**11 ft**
	Median -	1 - painted 2 - physical barrier **3 - grass** 4 - none	Shoulder -	1 - curb and gutter **2 - paved AC** 3 - paved PCC 4 – unpaved 5 - none	
	Outside Shoulder Width	**11.0 feet**			
	Inside Shoulder Width	**4.5 feet**			

4.*PAVEMENT TYPE		
	WIM approach – (greater than 325 feet upstream of WIM array)	**AC**
	WIM – (325 feet upstream through 75 feet downstream of WIM array)	**AC**
	WIM departure – (greater than 75 feet downstream of WIM array)	**AC**

5.*RAMPS OR INTERSECTIONS		
	Intersection/driveway within 300 m upstream of sensor location	**N**
	Intersection/driveway within 300 m downstream of sensor location	**Y**
	Is the shoulder routinely used for turns or passing?	**N**
	Other Information:	**NONE**

Form completed by:	**Roy Czinku - IRD**	Date:	**April 18, 2007**

E.0 PHOTOGRAPHS

E.1.1 MARKER FOR SPS TEST SECTION START

E.1.2 FACING DOWNSTREAM 900 FEET IN ADVANCE OF WIM SCALE LOCATION

E.1.3 TYPICAL, TRANSVERSE CRACKING IN AC APPROACH TO WIM PAVEMENT

E.1.4 FACING DOWNSTREAM AT START OF 400 FOOT WIM PAVEMENT SECTION

E.1.5 FACING UPSTREAM AT START OF 400 FOOT WIM PAVEMENT SECTION

E.1.6 TYPICAL, TRANSVERSE CRACKING IN 400' WIM PAVEMENT SECTION

E.1.7 RECOMMENDED SCALE LOCATION (AFTER REPLACEMENT OF PAVEMENT)

E.1.8 FACING DOWNSTREAM AT END OF 400' WIM PAVEMENT SECTION

E.1.9 FACING UPSTREAM AT END OF 1000 FOOT PAVEMENT ASSESSMENT SECTION

E.1.10 RECOMMENDED CABINET LOCATION

E.1.11 EXISTING POWER SERVICE ADJACENT EASTBOUND ROADWAY R/W

E.1.12 EXISTING PHONE SERVICE ADJACENT EASTBOUND ROADWAY R/W