INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY ASSESSMENT REPORT

WISCONSIN SPS-1
LTPP ID 550100
JULY 17, 2006
CLIN 2001 TASK ORDER 15

CONTRACT NO. DTFH61-05-D-00001

U.S. Department of Transportation
Federal Highway Administration

LONG TERM Pavement PERFORMANCE

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1.0 EXECUTIVE SUMMARY

The Wisconsin SPS-1 (Strategic Study of Structural Factors for Flexible Pavements) test site was visited on July 17th, 2006, by the CLIN 1 Team and a Weigh-in-Motion (WIM) site acceptability assessment was performed. The pavement test sections are located in the Westbound outside lane on State Highway 29 (SH-29) approximately 15 miles East of Wausau near Hatley in Marathon County. Given that SPS-2 test sections with Portland Cement Concrete (PCC) pavements are also located in the same lane and vicinity of the SPS-1 test sections and that an existing WIM system (currently non-working) had previously been installed in this PCC pavement, the Team's search for a suitable WIM site focused on the section of PCCP roadway near the existing WIM site. It is noted that a Phase I Field Assessment was performed for this existing WIM site in December, 2004. The Phase I contractor's Assessment Report, dated 2/16/2005 (hereafter "Phase I Assessment Report"), stated that the equipment was not in working order and that the existing pavement does not meet the smoothness requirement for a WIM location. In that the truck traffic through the SPS-1 and SPS-2 test sections are the same, it is the desire of FHWA that a single WIM system be installed which could be used to collect traffic data for both the SPS-1 and SPS-2 pavement test sections. The assessment for the SPS-2 site is addressed in a separate report.

This assessment resulted in the selection and evaluation of a WIM site for the Westbound outside lane at Mile Post 189.8 which is approximately 1.4 miles upstream from the start of the SPS-1 test sections (Section 550114). The PCC pavement in which it is proposed to install the WIM scales was constructed in 1997 for the SPS-2 studies. The selected WIM site exhibits, based upon observation, structurally sound PCC pavement as well as other favorable site selection criteria. However, some preparation of the existing PCC pavement surface will be necessary. The WIM scales would be located between SPS-2 test sections 550264 and 550218, approximately 90 feet in advance of the existing Westbound PAT bending plates (installed in all four lanes). Based upon the CLIN 1 Team's site evaluation and discussions with the State, it is recommended that a new WIM site utilizing Bending Plate technology be installed.

The selected WIM site is located on a tangent section of the roadway and the grade is relatively flat (<0.5%). Although there are residential and commercial driveways in the vicinity of the selected WIM site, vehicles track smoothly through this area at speeds between 60 and 75 MPH. Traffic flow is light on this four lane highway.

It is proposed to install a new WIM controller cabinet on the westbound side of the roadway between the proposed scale location and the roadway's right-of-way. Both power and phone facilities exist adjacent to the westbound right-of-way near the proposed new cabinet location. The State's accessing these apparently available sources to provide power and phone service points within 25 feet of the proposed new cabinet location would probably be less costly than

boring under the roadway to extend services from the existing cabinet which is located adjacent to the Eastbound roadway's right-of-way. Consideration was given to either utilizing the existing cabinet or installing a new cabinet adjacent to it to take advantage of its existing power and phone services. However, not only would working from the opposite side of the roadway from the new scales be awkward during system installation, commissioning, calibration, and evaluation, it would also be necessary to bore under the roadway to extend the Westbound lane's in-road sensor leads to the cabinet.

Based upon the CLIN 1 Team's on-site observations as well as the pavement profile analysis contained in the Phase I Assessment Report, it is recommended that the existing PCC pavement be blanket ground from 325 feet upstream to 75 feet downstream of the new scale location prior to the installation of a new WIM system. The smoothness of the existing PCC pavement's profile is questionable and as a result WIM accuracy may or may not be met. Upon completion of corrective actions to improve pavement profile smoothness, a follow-up evaluation of the pavement should be made. Such evaluation should confirm, by visual observation, the PCC pavement's structural stability as well as its smoothness. Upon confirmation that corrective actions have brought the pavement up to acceptable condition in terms of smoothness such that the pavement is adequate for the WIM system to meet accuracy requirements, this site can be instrumented with WIM.

2.0 EXISTING ROADWAY

2.1 PAVEMENT AND GEOMETRICS

The SPS-1 is a flexible pavement study. The existing asphalt concrete (AC) roadway at the pavement study location as well as the existing PCC roadway at the selected WIM site 1.4 miles upstream from the start of the first test section (550114) consists of four lanes, two lanes in each direction (Eastbound and Westbound). The SPS-1 test sections and the proposed new WIM site are in the Westbound outside lane.

The Westbound PCC pavement through the selected WIM site was installed in 1997 for the SPS-2 study. This pavement is plain jointed with a thickness of 8 inches and perpendicular transverse weakened plane joints on nominal 15 foot centers. These joints are doweled and are sealed starting at 840 feet in advance of the scale location. Both inside and outside lanes are 12 feet wide. 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. The outside shoulder is 8 feet wide and the inside shoulder is 3+ feet wide. Although a portion of this roadway's shoulders are PCC, the shoulders at the scale location are AC.

2.2 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

Although there are commercial and residential driveways in the vicinity of the selected WIM site, these facilities effected no observed detrimental traffic flow conditions during the team's site visit. The light traffic flow exhibited good lane discipline, staying well within the lane and shoulder line markings except for an occasional truck hugging the right shoulder stripe with its right wheels. Traffic is free flowing at all times at speeds between 60 and 75 MPH (posted speed limit is 65 MPH for all traffic). There are no signals or merging in the WIM site vicinity. In that there are no significant on/off locations through the 1.4 mile section of roadway between the WIM site and the SPS-1 site, the truck traffic composition at the WIM site is the same as that at the SPS test site.

3.0 SITE CONFORMANCE TO EVALUATION CRITERIA

3.1 PAVEMENT TYPE AND CONDITION- PASS

The existing PCC pavement approaching, through, and departing the selected WIM site visually displays good structural soundness. Only minor spalling of the transverse weakened plane joints, which are dowelled, was noted. These joints are sealed starting at 840 feet in advance of the scale location and the sealant is in fair condition. This pavement is structurally adequate for the installation of bending plate scales.

3.2 OBSERVED PAVEMENT SMOOTHNESS- REQUIRES ATTENTION

The adequacy of the profile smoothness of the 400 foot portion of the existing PCC pavement designated as the "WIM Pavement" (325 feet upstream to 75 feet downstream of the selected scale location) is questionable and as a result WIM accuracy may or may not be met. This determination is based upon the CLIN 1 Team's on-site observations as well as a pavement profile analysis included in the Phase I Assessment Report. As such, it is recommended that the existing PCC pavement be blanket ground from 325 feet upstream to 75 feet downstream of the new scale location prior to the installation of a new WIM system. Following pavement grinding, a reassessment of both the pavement's structural stability and smoothness should be made.

3.3 ANALYSIS OF PAVEMENT PROFILE DATA- REQUIRES ATTENTION

Profile data was collected by the RSC on 2/11/ 2004 and a profile data analysis was performed by the Phase I contractor (Phase I Assessment Report). The results of this analysis indicate that the smoothness of this pavement does not ensure that WIM accuracies meeting SPS performance requirements are achievable and supports the above noted recommendation that the 400 foot "WIM Pavement" portion of the PCC pavement be blanket ground prior to installation of the new WIM scales.

3.4 ROADWAY GEOMETRICS- PASS

The WIM site is located within a tangent section of the roadway, grade is minimal, and the lane in which the sensors are to be installed is 12 feet wide. The pavement cross slope is adequate for proper roadway drainage.

3.5 TRAFFIC OPERATING CHARACTERISTICS- PASS

The general traffic pattern is free flowing with good lane discipline. There are no interchanges or signals affecting traffic flow. 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 proposed WIM site location and the SPS-1 pavement test sections that would alter the truck traffic composition between the WIM site and the test sites.

3.7 POTENTIAL WIM INTERFERENCE SOURCES- PASS

Overhead power lines parallel the westbound roadway's right-of-way to a point approximately 80 feet from the proposed WIM cabinet location. These are the standard "service" lines and will not interfere with system performance.

3.8 ACCESS TO POWER AND PHONE SERVICES- PASS

Both power and phone appear to be readily accessible adjacent to the Westbound roadway's right-of-way. The State will need to provide service points within 25 feet of the proposed WIM cabinet location.

3.9 EQUIPMENT INSTALLATION CAPABILITY- PASS

There is a good location for the WIM controller cabinet opposite the proposed scale location between the westbound roadway and the right-of-way. This location would provide approximately 46 feet clearance from the roadway and 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 service facilities. Roadway and overall site drainage appears to be good and there is adequate topography for scale pit drainage. Although the 3+ 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 fair approaching sight distance, the lack of nearby significant intersections or interchanges, 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 Westbound truck turnaround is the Hilltop Road intersection which is located 1.2 miles downstream of the WIM site.

The nearest useable Eastbound truck turnaround is the Willow Drive intersection which is located 2.0 miles upstream of the WIM site.

The test truck round trip circuit route is approximately 6.5 miles and the estimated lap time is 10 minutes. There are no foreseen potential restrictions. Both of these turnaround locations are well signed and easily maneuvered.

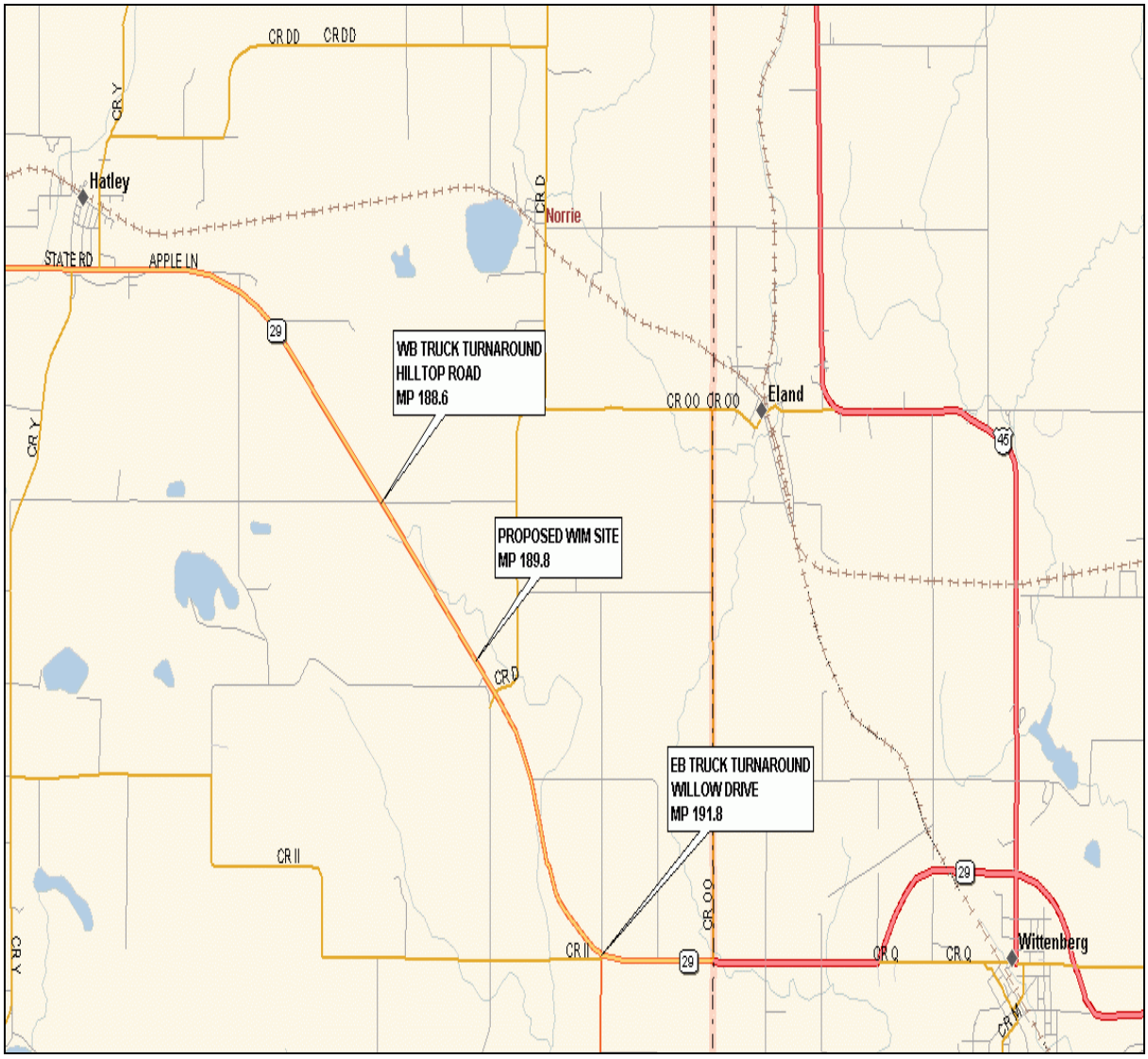


Figure 1: Truck Circuit Map, SPS-1 WIM Site on SH-29

3.12 RECOMMENDATIONS ON SITE ACCEPTANCE / CORRECTIVE ACTIONS

The State will need to provide power and phone services to service points within 25 feet of the proposed WIM cabinet location.

The existing PCC pavement through the recommended WIM site appears to be in good structural condition and a portion of this pavement can be utilized for the 400 foot “WIM Pavement” in which the system’s bending plates can be installed.

Based upon both on-site visual observations and an analysis of pavement profiling data, there is indication that the lack of adequate surface smoothness of the existing PCC pavement may cause suspension dynamics in the trucks traversing the site sufficiently large enough to cause inaccurate weight estimate measurements by the WIM system. Due to this, corrective action to the smoothness of the 400 foot “WIM Pavement” portion of the existing PCC slab prior to the installation of the WIM system’s scales should be performed. Such corrective action should be a blanket grinding of the PCC slab from 325 feet in advance of to 75 feet following the new scale location. This recommended pavement corrective action, properly carried out, should satisfy FHWA’s recommendation and preference that the WIM system’s scales be installed in PCC pavement with such pavement being structurally sound and smooth 325 ft. prior to and 75 ft. following the scales.

Upon completion of corrective actions to improve pavement profile smoothness, a follow-up evaluation of the pavement should be made. Such evaluation should confirm, by visual observation, the PCC pavement’s structural stability as well as its smoothness. Upon confirmation that corrective actions have brought the pavement up to acceptable condition in terms of smoothness such that the pavement is adequate for the WIM system to meet accuracy requirements, this site can be instrumented with WIM.

4.0 TRAFFIC DATA REVIEW

Vehicle distributions of all trucks (FHWA Class 4 and higher) – 16.8%

Vehicle distributions for heavy trucks (FHWA Class 6 and higher) – 12.8%

Volume of trucks comprising of 10 % or more of truck population

Class 5 vehicles – 22.6%
Class 9 vehicles – 57.5%

Volume of heavy trucks comprising 10 % or more of heavy truck population

Class 9 vehicles – 75.5%

The 2005 Traffic Volumes AADT at this location is 9,750

The above noted data has been compiled based upon classification count data provided by the Wisconsin Department of Transportation.

5.0 PAVEMENT EVALUATION

In determining WIM site acceptability, visual on-site observation of the existing PCC pavement approaching, through, and following the selected WIM site location was made by the CLIN 1 Team. Additionally, the SPS-2 Construction Report (December 17, 1999) and the analysis of the then current profile data performed by the Phase I contractor (Phase I Assessment 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 WIM scale location. Pictures were taken to document the surface condition, several of which are presented in Appendix E.

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

In 1997 the State constructed PCC pavements in both westbound lanes for the SPS-2 project. The 400 foot "WIM Pavement" section of this pavement was determined by marking a point immediately in advance of the existing WIM system's subsurface lead loop as the end of the blanket grind to be performed and backing the new WIM system in from that point. This resulted in the new scales' location being approximately 91 feet in advance of the existing scales. This new scale location will also necessitate blanket grinding of the pavement surface of the last 137 feet of the 550262 test section. This surface grinding within a test section situation has arisen in prior WIM site selections and has been deemed to be a pavement "maintenance" action not detrimental to the pavement study. This pavement is plain jointed with a thickness of 8 inches. The perpendicular transverse weakened plane joints are on nominal 15 foot centers and are doweled and well sealed. The structural soundness of this pavement, based upon visual observation, is good.

5.1.2 PCC PAVEMENT UPSTREAM AND DOWNSTREAM OF "WIM PAVEMENT" SECTION

As exists, there are no discernable differences between the 400 foot "WIM Pavement" section and the PCC approach and departure pavements included in the 1000 foot evaluation section other than the PCC pavement joints not being sealed for the first 158 feet of the approach pavement.

5.1.3 SHOULDER CONDITION

A portion of this roadway section's outside and inside shoulders is PCC and a portion is AC. The PCC shoulders are in good shape. The AC shoulders exhibit some transverse cracking but appear to be structurally stable.

5.1.4 SURFACE PROFILE

Observations of trucks and other vehicle types approaching and passing through the selected WIM Pavement section displayed some minor body motion. Several automobile “drive throughs” by the CLIN 1 Team members appeared to confirm the above noted observations. Some vehicle body motion could be felt as well as some suspension “chatter”. Based upon the profile evaluation performed by the Phase I contractor, (Phase I Assessment Report), the Wisconsin SPS-1 WIM site pavement smoothness does not ensure that WIM accuracies meeting SPS performance requirements are achievable. More current profile data or visual evaluation is not required until such time that corrective action is taken to smooth out the 400 foot “WIM Pavement” portion of the existing PCC pavement. This should be performed using a blanket grinder.

5.2 PAVEMENT EVALUATION SUMMARY

Based upon the on-site observations of the CLIN 1 Team and the Phase 1 evaluation of the pavement profile data, it is recommended that the pavement profile smoothness of the 400 foot “WIM Pavement” portion of the existing PCC pavement be improved by blanket grinding.

Upon completion of corrective actions to improve pavement profile smoothness, a follow-up evaluation of the pavement should be made. Such evaluation should confirm, by visual observation, that the PCC pavement is structurally sound and that its smoothness meets requirements for an SPS WIM site.

6.0 PROPOSED WIM SITE- INFORMATION

6.1 LOCATION – SH-29, MP 189.6

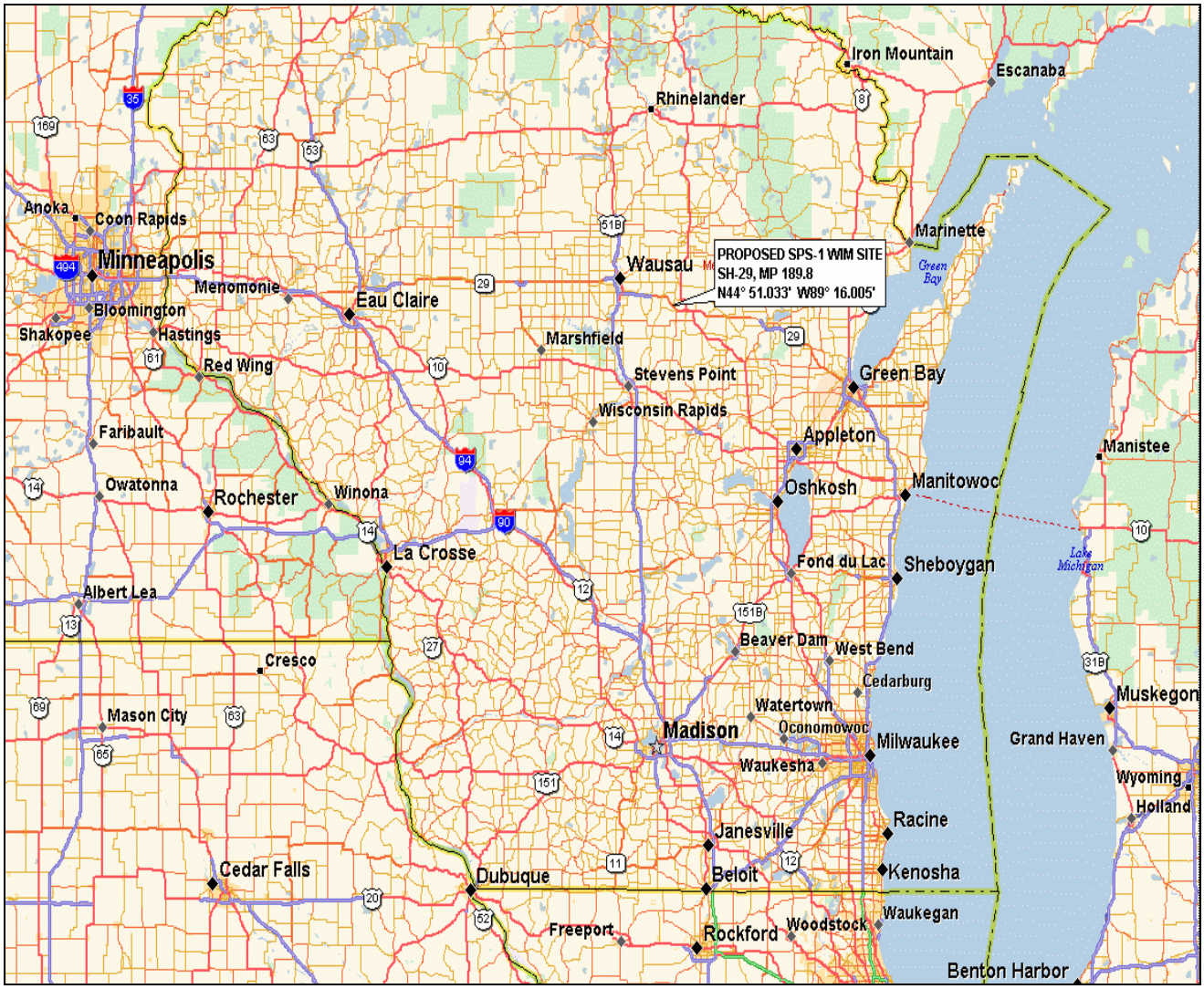


Figure 2: Location of the SH-29 SPS-1 WIM Site

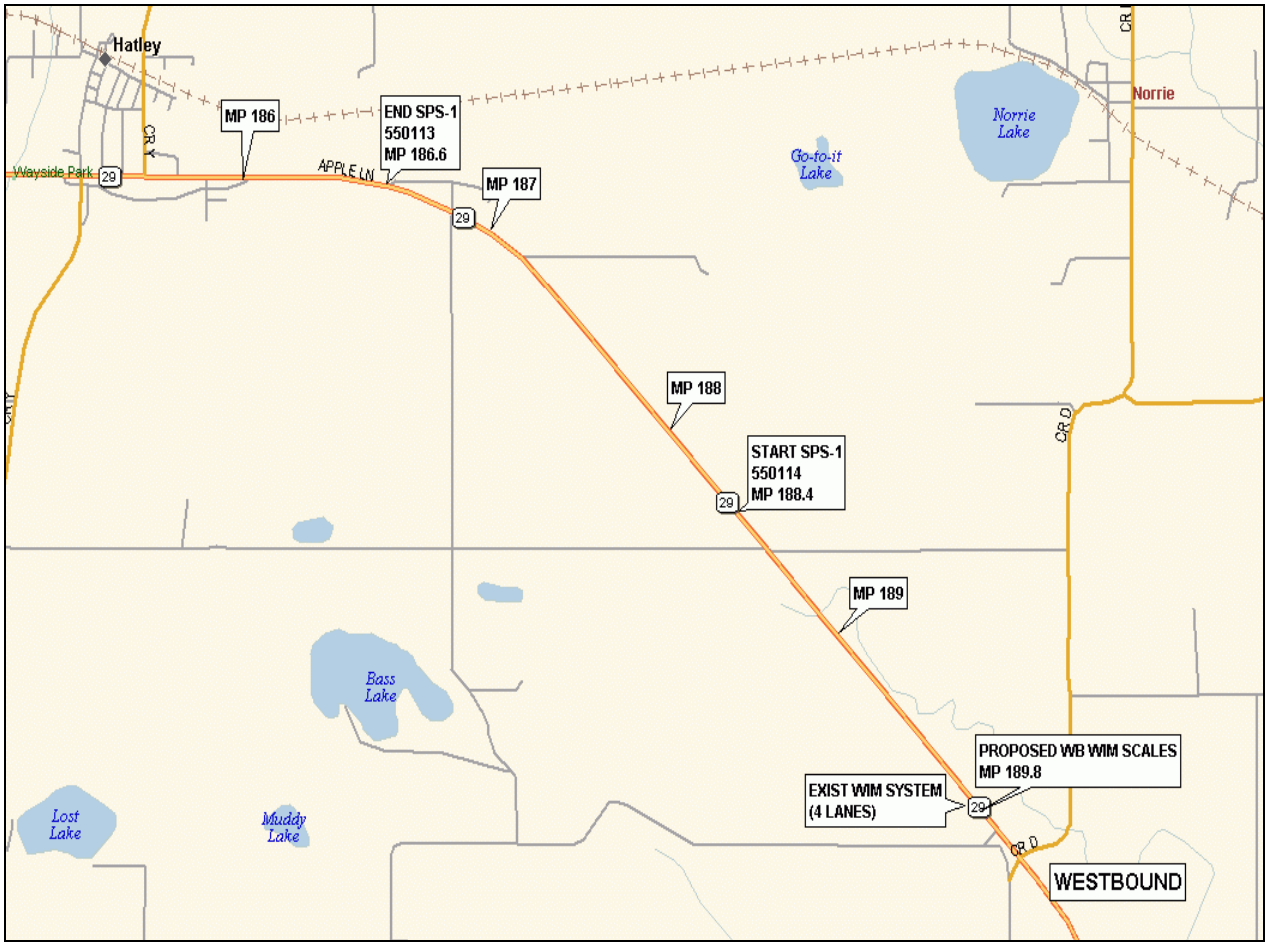


Figure 3: SH-29 SPS-1 WIM Site at Milepost 189.8 (Westbound)

The pavement test sections are located in the Westbound outside lane on State Highway 29 (SH-29) approximately 15 miles East of Wausau near Hatley in Marathon County.

The location for the proposed WIM site is the Westbound outside lane at Mile Post 189.8 which is approximately 1.4 miles upstream from the start of the SPS-1 test sections (Section 550114). The WIM scales would be located between SPS-2 test sections 550264 and 550218, approximately 90 feet in advance of the existing Westbound PAT bending plates (installed in all four lanes).

The WIM system's controller cabinet can be located opposite the proposed scale location between the westbound roadway and the right-of-way. This location would provide approximately 46 feet clearance from the roadway.

7.0 RECOMMENDED WIM TECHNOLOGY

Based upon the site conditions and discussions with the State, the bending plate technology is recommended for use at this site. It will fit the accuracy expectations of the State and provide the best value in terms of performance with minimal down time.

The centerline of the staggered bending plate weigh pads should be installed approximately 91 feet upstream of the centerline of the existing staggered bending plates. This location has been marked with a “+/- WIM Centerline” in white paint on the outside shoulder. During the WIM system installation, the layout of the existing transverse weakened plane joints will be analyzed to best fit the in-road sensors among the joints to optimize constructability and structural stability.

7.1 RECOMMENDED LAYOUT FOR THE WIM SYSTEM

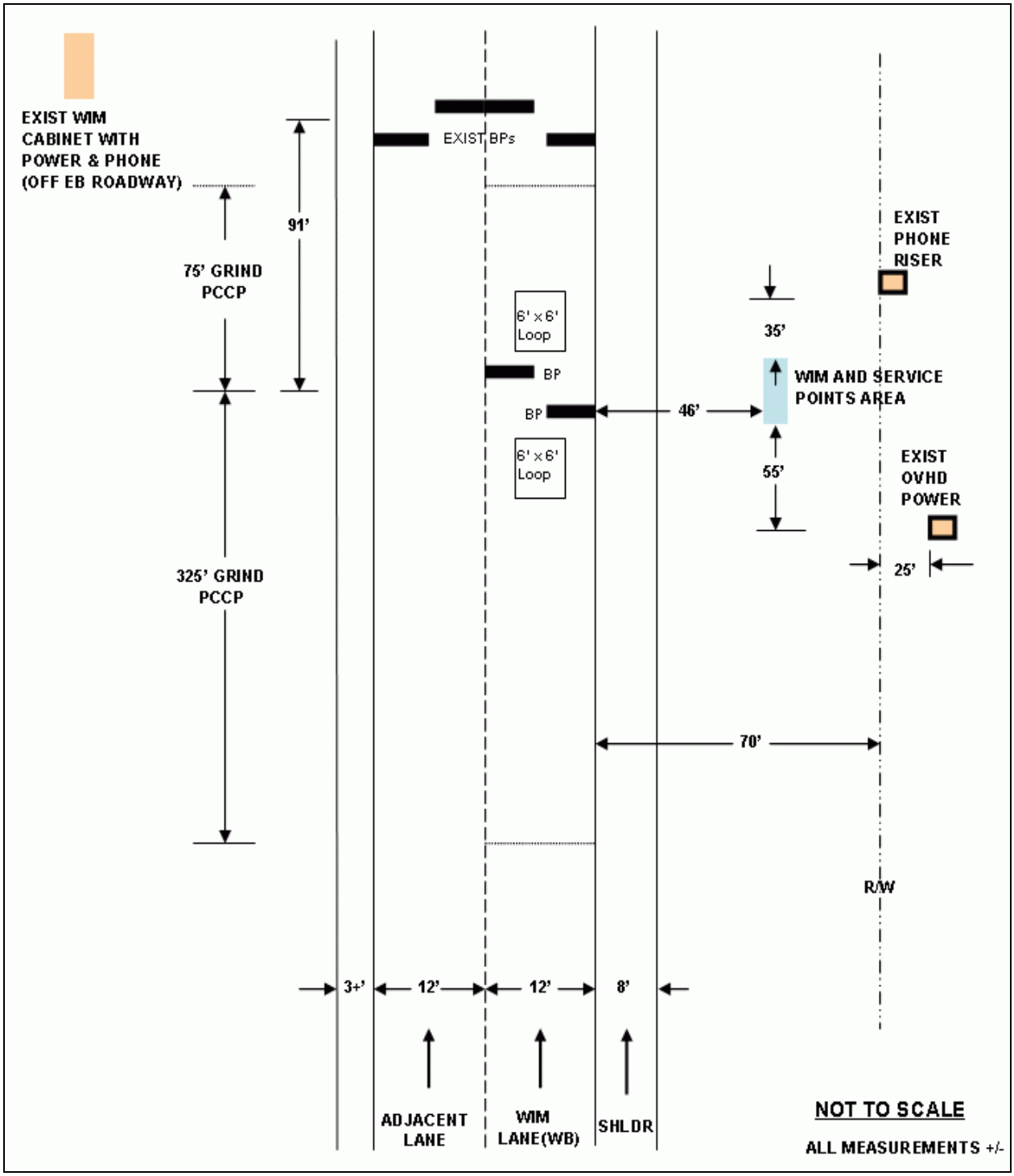


Figure 4: Proposed SH-29 SPS-1 WIM Site Layout

GPS Coordinates for Scales: N44° 51.033', W89° 16.003'

A.0 COORDINATION DETAILS

Task Order #15, which authorized the CLIN 2001 "Determine Acceptability of Proposed Site" for the Wisconsin SPS-1 Site (LTPP ID 550100), was effective June 26, 2006.

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 June 28, 2006

- State Highway Agency (SHA)
  - John Williamson – WisDOT ph: 608-267-2939
  - Initial contact made June 28, 2006

- LTPP Regional Support Contractor (RSC)
  - Basel Abukhater – Stantec ph: 716-632-0804
  - Initial contact made June 28, 2006

- FHWA Division Office
  - Jack Springer – FHWA Div Rep ph: 608-829-7521
  - Initial contact made June 28, 2006

The "Pre-Visit Handout Guide" was distributed on June 28, 2006, to the following individuals:

- Debbie Walker
- John Williamson
- Basil Abukhater
- Jack Springer

In that the State reps were unavailable to meet in Madison or at the site, no briefing session was held. However, Roy Czinku (IRD) and John Williamson (WisDOT) did exchange e-mail correspondence in coordinating the site visit and exchanging necessary information.

The site was visited on July 17, 2006, by Roy Czinku (IRD) and Rich Quinley (WIMTECH).

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

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

WISCONSIN SPS-1
LTPP ID 550100

Date: June 26, 2006

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. No formal meeting held
b. Site visit
   i. July 17, 2006

B.2 POINTS OF CONTACT, PHONE NO

a. Contracting Officer's Technical Representative (COTR)
   i. Debbie Walker – FHWA-LTPP ph: 202-493-3068
b. State Highway Agency (SHA)
   i. John Williamson -- WisDOT ph: 608-267-2939
c. LTPP Regional Support Contractor (RSC)
   i. Basel Abukhater -- Stantec ph: 716-632-0804
d. FHWA Division Office
   i. Jack Springer – FHWA Div Rep ph: 608-829-7521

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)
c. From SHA
   i. As-built info on roadway at proposed site
   ii. Pavement cross section and structural section
   iii. Alignment and grade
   iv. Any utilities located in WIM install work area
   v. 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)
   vi. Will SHA agree to extend power and phone services from existing available access points to demarcation points near planned controller cabinet location?
   vii. If existing roadway pavement is AC or inadequate PCC will SHA consider replacement with 400' PCC slab if recommended per site assessment?
   viii. What permits will be needed to install equipment and what are procedures and time frames for obtainment?

ix. Required cabinet clear zone from edge of traveled way?
x. 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?
xi. Historic truck traffic data?

B.4 SITE LOCATION INFORMATION

a. Proposed WIM site—
SH-29 vicinity Mile Post 190, WB Outside Lane
b. Briefing session location--
None held
c. Nearest major airports--
1) Dane County Regional (MSN), Madison WI. - Approximately 150 miles from site
2) Minneapolis-St. Paul Int'l, (MIN) - Approximately 200 miles from site

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

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY

SITE VISIT EVALUATION FORM

WISCONSIN SPS-1 LTPP ID 550100

Date of Site Visit: July 17, 2006

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)

Cnty: Madison Rte: SH-29 Direction: WB MP: 189.8 Ln: Outside

Proposed WIM Site is approximately 1.4 miles upstream from the start of SPS-1 test section 550114.

C.1.1 EXISTING ROADWAY SURROUNDING THE PROPOSED WIM SITE

Type Pvmnt: PCC Yr Const: 1997 Ln Width: 12' Thick: 8"

Observed Structural Soundness: Good

Observed Smoothness: Some minor long and short wavelength

Outside Shldr Type: Both PCC and AC Width: 8 ' Cond: PCC good, AC fair

Inside Shldr Type: Both PCC and AC Width: 3+' Cond: PCC good, AC fair

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

Type Pvmnt: PCC, Plain Jointed Yr Const: 1997 Ln Width: 12' Thick: 8"

Joints: Perpendicular 15' o.c., doweled, sealed (good condition), minor spalling

Observed Structural Soundness: Good

Observed Smoothness: Some minor long and short wavelength

Outside Shldr Type: PCC first 190', then AC Width: 8 '

Outside Shldr Cond: PCC good, AC some transverse cracking but stable

Inside Shldr Type: PCC first 190', then AC Width: 8 '

Inside Shldr Cond: PCC good, AC some transverse cracking but stable

Notes/Comments on Pavement:
A blanket grind of the PCC pavement 325' in advance and 75' trailing the proposed WIM scales location will be required.

C.1.3 OTHER ROADWAY GEOMETRICS

Horizontal Align: Tangent Grade: Minimal, <0.5%

Cross-slope Crowned section, est. +/- 1.5% from lane line to lanes' respective shoulders

Striping: WB lane longitudinal joints at 12' width; 4-1/2" solid shldr stripe just inside PCC lane/AC shoulder longitudinal joint (11'-5" lane width to inside edge shldr stripe)

C.1.4 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

Posted Speed Limit, MPH: Autos _65_ Trucks _65_

Observed Speed Range, MPH : Autos 60 – 75 Trucks _60 -- 75_

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

Stop and go traffic, congestion periods? Free flowing at all times during assessment

Traffic signals or interchanges affecting traffic flow? No Signals; a couple driveways but seldom used and no effect on traffic flow

Other adverse traffic flow conditions? None, traffic flow is light

Truck traffic at "cruising" speed and no lugging? Yes, as observed

Truck traffic staying within lane lines? Yes, but occasional truck hugging shoulder stripe

Observed truck suspension or body motion dynamics? Minor body motion observed

Drive-thru noted suspension or body motion dynamics? Some suspension chatter; minor body motion

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

Truck traffic on/off locations between WIM site and SPS site? None

Notes/Comments on Geometrics and/or Traffic Operating Characteristics:
The selected site is located on a straightaway with no curves or significant grades immediately before or after the WIM location.

C.1.5 ACCESS TO UTILITY SERVICES

Potential source(s) for power: Power service poles parallel WB R/W. Service appears to be available from a pole approximately 80' from the proposed WIM cabinet location.

Potential source(s) for telephone: An existing telephone service point is located adjacent to the WB R/W approximately 35' downstream of the proposed WIM cabinet location.

C.1.6 EQUIPMENT INSTALLATION CAPABILITY

Adequate location for controller cabinet? Yes, Large area opposite scale location between roadway and R/W with off-shoulder parking.

Distance from edge of traveled way to R/W? +/-70'

Distance from edge of traveled way to cabinet? +/-46'

Visibility from cabinet of sensors and approaching vehicles? Very good

Adequate location for service facilities? Yes, large area adjacent planned cabinet

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; although the inside lane's shoulder is quite narrow, the traffic is light and 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:
Although roadway traffic flow is light, lane closures will have to be well coordinated with the State.

C.1.7 POTENTIAL WIM SENSOR/EQUIPMENT INTERFERENCE SOURCES

Overhead power lines? Service type lines parallel WB R/W +/- 80' from cabinet location- not a problem.

Adjacent railroad? None

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

Direction WB - Nearest usable truck turnaround location: Hilltop Rd. at MP 188.6
Distance from WIM Site: 1.2 Mi

Direction EB - Nearest usable truck turnaround location: Willow Dr. at MP 191.8
Distance from WIM Site: 2.0 Mi

Circuit travel distance: 6.4 Miles Estimated lap time: 10 Minutes

Potential circuit route restrictions? EB left turn from inside lane might be a bit dangerous if traffic gets heavy (no turn pocket).

Location of Trucking Firm and Certified Static Scales:

Trucks: Firm Elite Carriers Contact Dispatch

Address 4701 County Rd Z, Wausau, WI

Phone 715-849-4000 Hours 8:00 am – 5:00 pm

Scales: Rib Mountain Truck Centers Contact Sharon Klatt

Address US 51-29 Exit 188, Wausau, WI

Phone 715-355-5600 Fax 715-359-8728 Hours 24 hours.

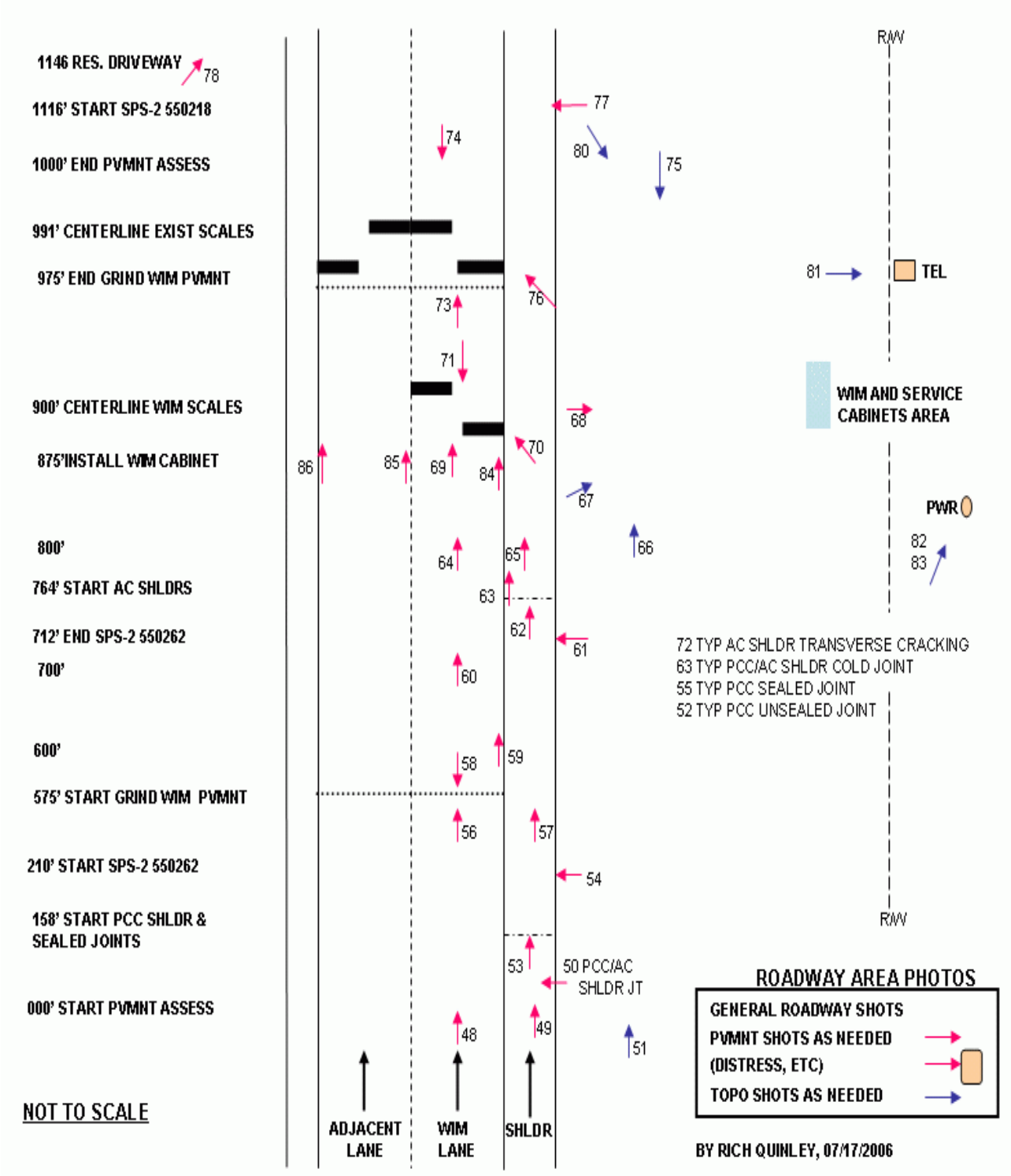
Notes/Comments on Test Truck Circuit, Trucking Firms, and Static Weighing Facility

C.1.9 GPS RECORDINGS

ROADWAY LOCATION (WB)		GPS RECORDINGS	
WIM Scales			
New scale location		N44° 51.033’	W89° 16.003’
Exist scale location		N44° 51.025’	W89° 16.045’
Roadway Mile Posts			
MP 186		N44° 52.893’	W89° 19.648’
MP 187		N44° 52.747’	W89° 18.424’
MP 188		N44° 52.158’	W89° 17.540’
MP 189		N44° 51.552’	W89° 16.711’
MP 190		N44° 50.915’	W89° 15.843’
MP 191		N44° 50.141’	W89° 15.249’
MP 192		N44° 49.640’	W89° 14.382’
SPS Pavement Test Sections			
SPS-1 550114	Start	N44° 51.914’	W89° 17.205’
SPS-1 550113	End	N44° 52.879’	W89° 18.939’
SPS-2 550260	Start	N44° 49.639’	W89° 14.004’
SPS-2 550215	End	N44° 51.311’	W89° 16.383’
Test Truck Turnaround Locations			
WB, Hilltop Road		N44° 51.795’	W89° 17.060’
EB, Willow Drive		N44° 49.649’	W89° 14.656’
Other Locations			
PCCP to AC Pavement		N44° 51.315’	W89° 16.394’
Power Pole, Approximate		N44° 51.036’	W89° 15.980’
Phone Riser, Approximate		N44° 51.043’	W89° 15.999’

BY Rich Quinley 07/17/2006

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	55
LTPP Traffic Data	*SPS PROJECT ID	550100
WIM SITE INVENTORY	*SPS WIM_ID	SPS-1

1.* ROUTE SH-29 MILEPOST 189.8 LTPP DIRECTION - W

2.* WIM SITE DESCRIPTION - Grade <0.5 % Sag vertical N
Nearest SPS-1 section downstream ~~upstream~~ of the site 550114
Distance from sensor to nearest downstream ~~upstream~~ Section 1.4 mi. from start of 550114

3.* LANE CONFIGURATION
Lanes in LTPP direction 2 Lane width 12 ft

Median -
1 – painted
2 – physical barrier
3 – grass
4 – none

Shoulder -
1 – curb and gutter
2 – paved AC
3 – paved PCC
4 – unpaved
5 – none

Shoulder width 8 ft

4.* PAVEMENT TYPE PCC

8. RAMPS OR INTERSECTIONS
~~Intersection~~/driveway within 300 m upstream of sensor location Y
Intersection/driveway within 300 m downstream of sensor location N
Is shoulder routinely used for turns or passing? N

COMPLETED BY Rich Quinley DATE COMPLETED July 17, 2006

E.0 PHOTOGRAPHS

E.1.1 FIRST SPS-1 TEST SECTION'S MARKER 1.4 MILES DOWNSTREAM FROM WIM SITE

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

E.1.3 APPROACH PAVEMENT JOINTS (FIRST 158 FEET)

UNSEALED TRANSVERSE JOINTS

PCC/AC SHOULDER COLD JOINT

E.1.4 APPROACH PAVEMENT

AC TO PCC SHOULDER

START SPS-2 550262

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

E.1.6 FACING UPSTREAM AT START OF 400 FOOT WIM PAVEMENT SECTION

E.1.7 WIM PAVEMENT FEATURES

END SPS-2 550262

PCC TO AC SHOULDER

E.1.8 WIM PAVEMENT, FACING DOWNSTREAM 100 FEET IN ADVANCE OF SCALES

E.1.9 RECOMMENDED SCALES LOCATION

E.1.10 STRIPING DETAILS AT WIM SCALE LOCATION

OUTSIDE SHOULDER STRIPE

LANE LINE, FACE DOWNSTREAM

INSIDE SHOULDER STRIPE

E.1.11 FACING UPSTREAM FROM RECOMMENDED SCALES LOCATION

E.1.12 END WIM PAVEMENT SECTION, FACING DOWNSTREAM

E.1.13 EXIST BENDING PLATES JUST DOWNSTREAM FROM WIM PAVEMENT SECTION

E.1.14 RECOMMENDED LOCATION FOR NEW CABINET

OPPOSITE SCALE LOCATION

FACING UPSTREAM

E.1.15 POTENTIAL PHONE AND POWER SOURCES

E.1.16 EXIST WIM CABINET WITH POWER AND PHONE ON EASTBOUND ROADWAY

WIM CABINET WITH PWR & PHONE

POWER BREAKER PANEL

PHONE INTERFACE BOX