INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY ASSESSMENT REPORT

NEW MEXICO SPS-5
LTPP ID 350500
JANUARY 21, 2008
CLIN 2001 TASK ORDER 15

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 3

2.0 EXISTING ROADWAY 5

2.1 PAVEMENT AND GEOMETRICS 5
2.2 OBSERVED TRAFFIC OPERATING CHARACTERISTICS 5

3.0 SITE CONFORMANCE TO EVALUATION CRITERIA 8

3.1 PAVEMENT TYPE AND CONDITION- CONDITIONALLY PASS 8
3.2 OBSERVED PAVEMENT SMOOTHNESS - PASS 8
3.3 ANALYSIS OF PAVEMENT PROFILE DATA- TO BE PERFORMED 8
3.4 ROADWAY GEOMETRICS- PASS 8
3.5 TRAFFIC OPERATING CHARACTERISTICS- PASS 8
3.6 TRUCK TRAFFIC COMPARISON BETWEEN WIM AND TEST SITE- PASS 8
3.7 POTENTIAL WIM SYSTEM INTERFERENCE SOURCES- PASS 8
3.8 ACCESS TO POWER AND PHONE SERVICES- NEEDS ATTENTION 9
3.9 EQUIPMENT INSTALLATION CAPABILITY- PASS 9
3.10 POTENTIAL TRAFFIC CONTROL / WORK ZONE SAFETY ISSUES- PASS 9
3.11 TRUCK CIRCUIT- PASS 9
3.12 RECOMMENDATIONS ON SITE ACCEPTANCE / CORRECTIVE ACTIONS 10

4.0 TRAFFIC DATA REVIEW 11

5.0 PAVEMENT EVALUATION 12

5.1 SURFACE CONDITION 12
5.1.1 AC Pavement 325 feet in advance of and 75 feet following proposed WIM scale location ("WIM Pavement") 12
5.1.2 AC Pavement Upstream and downstream of WIM pavement 12
5.1.3 Shoulder Condition 12
5.1.4 Surface Profile 12
5.2 PAVEMENT EVALUATION SUMMARY 13

6.0 PROPOSED WIM SITE- INFORMATION 14

LOCATION – I-10 MP 50.2 14

7.0 RECOMMENDED WIM TECHNOLOGY 1

7.1 RECOMMENDED LOCATION AND LAYOUT FOR THE WIM SYSTEM 2

A.0 COORDINATION DETAILS 3

B.0 PRE-VISIT HANDOUT GUIDE 1

B.1 BACKGROUND 1
B.2 SCHEDULE 1
B.3 BRIEFING SESSION MAY 31, 2005, POINTS OF CONTACT, PHONE NO 1
B.4 INFORMATION REQUESTS FROM NM DOT 2
B.5 SITE LOCATION INFORMATION 2

C.0 SITE EVALUATION FORM 1

C.1 PROPOSED WIM LOCATION 1
C.1.1 Existing Roadway Approaching and Departing Proposed WIM Site 1
C.1.2 Pavement 325' Prior and 75' Following WIM Scales ("WIM Pvmnt") 1
C.1.3 Other Roadway Geometrics 1

C.1.4 Observed Traffic Operating Characteristics 2
C.1.5 Access to Utility Services 2
C.1.6 Equipment Installation Capability 3
C.1.7 Potential WIM Sensor/Equipment Interference Sources 3
C.1.8 Conditions for Use of Test Trucks for Calibration and Evaluations 3
C.1.9 Location of Trucking Firm and Certified Static Scales: 4
C.1.10 GPS Recordings 5
C.2 LOCATION LOG OF PHOTOS 6
C.3 EQUIPMENT AND MATERIALS 7

D.0 SHEET 17 1

E.0 PHOTOGRAPHS 1

E.1.1 SPS test section marker 1
E.1.2 General site view of the roadway approaching WIM site 1
E.1.3 Downstream view of roadway at start of 1000' pvmnt evaluation 2
E.1.4 Downstream view of roadway at start of WIM pavement section 2
E.1.5 Upstream view of roadway approaching 400' WIM pavement section 3
E.1.6 OG wearing course edge at shoulder 3
E.1.7 Downstream view 100' in advance of WIM Scale location 4
E.1.8 Downstream view of Shoulder 100' in advance of WIM Scale location 4
E.1.9 Recommended scale location 5
E.1.10 Downstream Pavement at recommended Scale location 5
E.1.11 Upstream Pavement at recommended Scale location 5
E.1.12 Downstream Pavement at end of 400' WIM pavement section 6
E.1.13 Recommended cabinet location 6
E.1.14 Existing WIM cabinet 7
E.1.15 Existing telephone service at existing WIM cabinet 8
E.1.16 Shoulder slots for Existing WIM in-road Sensors (To be replaced)- facing upstream towards new WIM location 8

1.0 EXECUTIVE SUMMARY

On January 15th, 2008, a Weigh-in-Motion (WIM) site acceptability assessment was performed for the New Mexico SPS-5 (Rehabilitation of Flexible Pavements) site by a CLIN 1 Team member. This assessment was the second assessment performed at this site. The first visit was made on June 8th, 2005, by the CLIN 1 Team and a WIM site acceptability assessment was performed. Although the initial assessment resulted in the selection and evaluation of a WIM site, it was recommended by the CLIN 1 Team that 400 feet of the existing AC pavement be replaced with a blanket ground PCC slab to meet structural and smoothness requirements for an SPS "WIM Pavement" and that a new WIM system utilizing Bending Plate technology be installed. It was also a recommendation of the CLIN 1 report (June 16, 2005) that another pavement evaluation be performed following pavement corrective action.

Not only was the recommendation to replace a 400 foot pavement section deemed infeasible by the state, the state recently performed pavement rehabilitation at the previously recommended WIM site location as well as through all of the SPS-5 test section locations. As such, it was deemed necessary to perform another CLIN 1 WIM site acceptability assessment for a site at which Quartz Piezo technology could be utilized without the need to perform any pavement corrective work by the state.

The SPS-5 pavement test sections are located on I-10 between Lordsburg and Deming (Grant County) in the eastbound outside lane starting at Mile Post 51.3. It is noted that although all of the test section pavement markings are no longer in place due to the pavement's rehabilitation, the test section signs are still in place. The initially selected WIM site was located at Mile Post 50.5. Due to power and phone service access issues at that location, the current assessment focused on locating the new system near the state's existing WIM system at Mile Post 50.2 which is 1.1 miles in advance of the start of the pavement test sections. In that the state plans to soon re-install its WIM system's in-road sensors in the new pavement, a location at approximately 140 feet in advance of the anticipated location of the state's sensors was selected for the LTPP WIM system's quartz piezo sensors.

The selected WIM site is located within a tangent section of roadway with a relatively flat grade. Vehicles track smoothly through this section at a relatively high speed. Traffic flow is medium on this four lane Interstate with a high percentage of Class 9 trucks. The existing AC roadway pavement at this SPS-5 location was recently rehabilitated and consists of a 5/8 inch Open Grade wearing course over +/- 8 inches of AC dense grade courses. The wearing course is in pristine condition showing no signs of rutting, raveling, or cracking and appears to be reasonably smooth and structurally sound.

Although seemingly accessible overhead power lines run parallel to the eastbound lanes adjacent to the frontage road, the state expressed that its policy

is to utilize solar power whenever possible. Wired telephone service is available at the state's existing WIM cabinet and can be extended to the location selected for the LTPP WIM system cabinet.

Based upon the CLIN 1 Team member's site evaluation, the selected WIM site is deemed acceptable for the installation of quartz piezo sensors in the existing AC pavement without pavement preparation work as an alternative to the previously recommended installation of bending plate sensors in a PCC WIM slab. However, it is the opinion of the CLIN 1 Team that there is the risk that any WIM weighing sensor installed in an AC pavement's 5/8 inch O.G. wearing course may not maintain performance requirements or its structural stability for a five year period of time.

2.0 EXISTING ROADWAY

2.1 PAVEMENT AND GEOMETRICS

The SPS-5 is a study on the rehabilitation of flexible pavements. The existing I-10 roadway at the study location consists of 4 lanes, 2 eastbound and 2 westbound. The pavement test sections are located in the outside eastbound lane. The travelled way AC pavement approaching, through, and departing the selected location for the new WIM system as well as through the pavement test sections was recently rehabilitated by the state. This pavement consists of a 5/8 inch OGFC wearing course over +/- 8 inches of new and old PMBP coarses. The state provided the plan for the new sections which is displayed in Figure 1.

The outside and inside (median) shoulders are dense grade AC and were not included in the pavement rehabilitation project. The two eastbound lanes are each 12 feet wide. Although the state furnished plan displays the outside shoulder width at 10 feet and the inside (median) shoulder width at 4 feet, actual measurements taken at the new WIM location varied from these. The actual measurements are displayed in Figure 2.

The roadway alignment is tangent and the grade is relatively flat. In regard to cross slope, the two adjacent lanes slope 2.0% toward the outside shoulder.

2.2 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

The medium traffic flow exhibited good lane discipline, for the most part staying well within the lane and shoulder line markings. However, on occasion a truck was observed hugging the right shoulder stripe. Traffic is free flowing at all times at speeds between 70 and 80 MPH (posted speed limit is 75 MPH). Trucks are “cruising” through the site at constant speeds. The right taper line of the eastbound freeway on-ramp from the I-10/SR 146 interchange ends at +/- 450 feet in advance of the new WIM scale location, but this on-ramp is used very seldom. In that there are no 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.

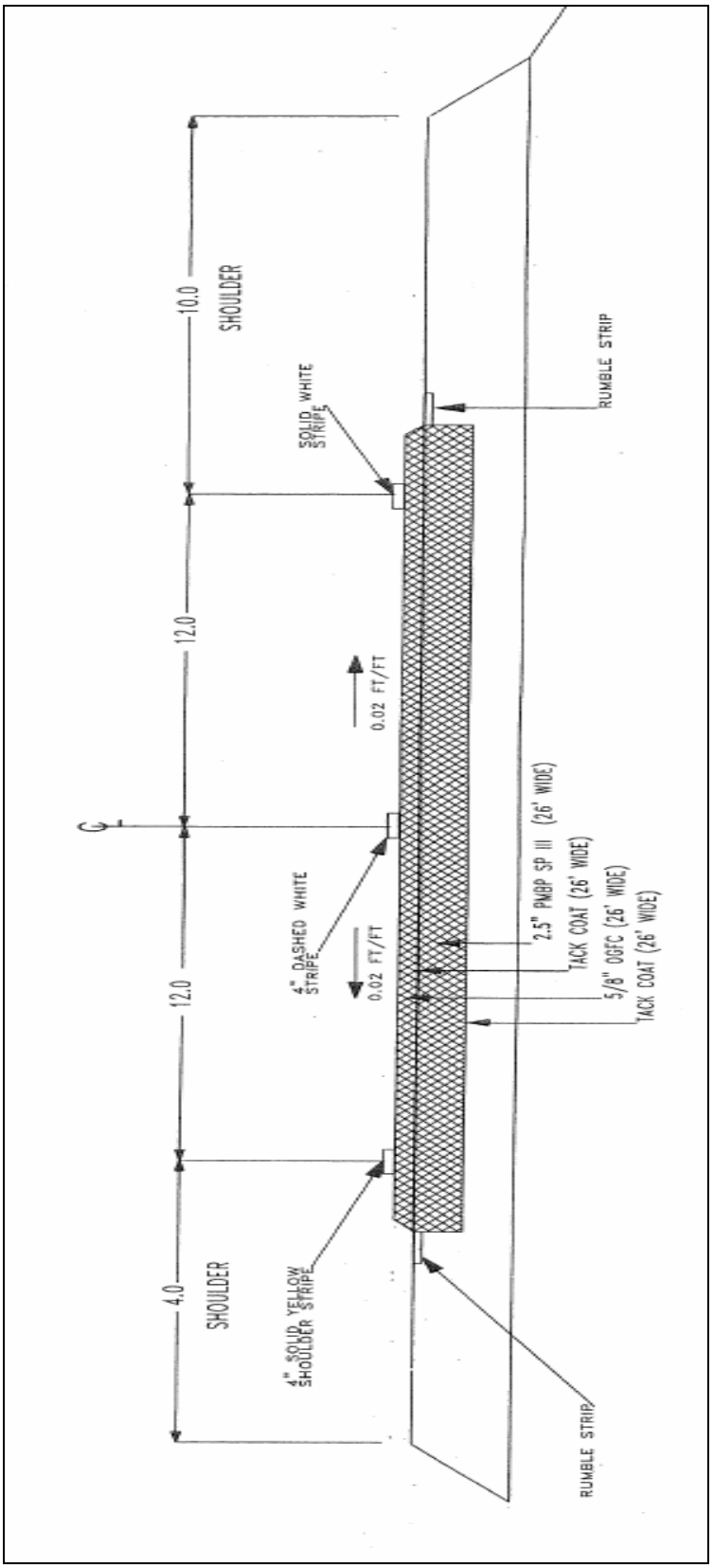


Figure 1: AC Rehabilitation Structural Section

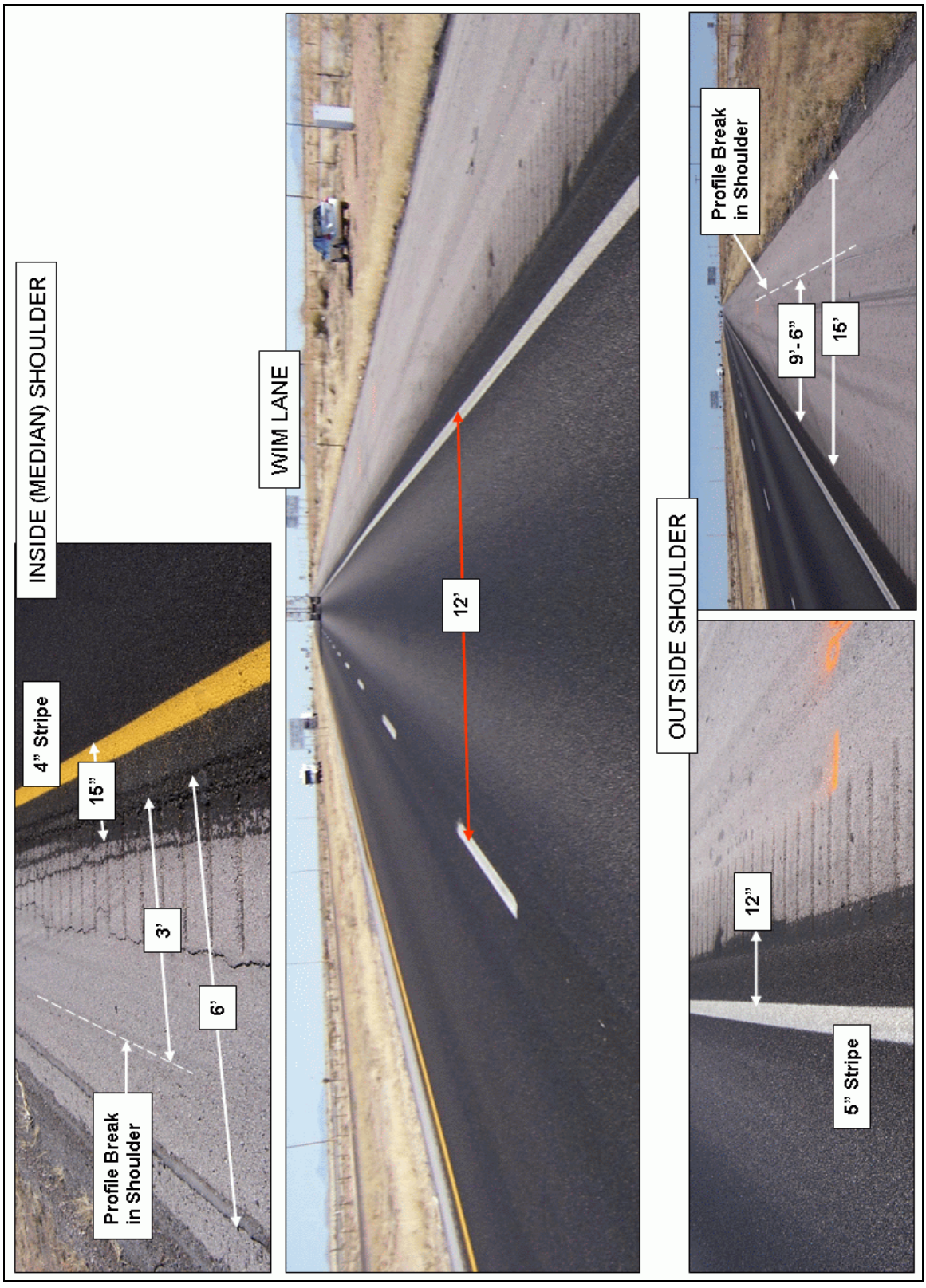


Figure 2: Pavement Measurements Taken at WIM Sensor Location

3.0 SITE CONFORMANCE TO EVALUATION CRITERIA

3.1 PAVEMENT TYPE AND CONDITION- CONDITIONALLY PASS

The existing AC pavement approaching, through, and departing the selected WIM site was recently rehabilitated and is relatively smooth and in excellent condition. But, it is the opinion of the CLIN 1 Team that installing any kind of a weighing sensor in the 5/8 inch Open Grade wearing course poses some risk in terms of the sensor's not maintaining performance requirements or its structural stability for a 5 year period.

3.2 OBSERVED PAVEMENT SMOOTHNESS - PASS

Based upon the CLIN 1 Team member's on-site observations the 400 foot WIM pavement section is reasonably smooth, exhibiting virtually no short wavelength profile problems and only minor long wavelength profile problems. This determination is based upon the observation of trucks and other vehicles approaching and passing through the proposed WIM sensor location as well as an automobile drive-through by the team member.

3.3 ANALYSIS OF PAVEMENT PROFILE DATA- TO BE PERFORMED

Although pavement profile data for the state's existing WIM site was collected in December, 2003, and discussed in the Phase 1 Contractor's Assessment Report dated 3/03/2004, the CLIN 1 Team is not aware of any profile data collected at the proposed new WIM site since this pavement's rehabilitation.

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 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. The truck traffic is cruising through the site and, with rare exception, staying within the lane lines. The right taper line of the eastbound freeway on-ramp from the I-10/SR 146 interchange ends at +/- 450 feet in advance of the new WIM scale location, but this on-ramp is used very seldom.

3.6 TRUCK TRAFFIC COMPARISON BETWEEN WIM AND TEST SITE- PASS

There are no exit/entrance locations between the WIM site and the SPS-5 pavement test sections.

3.7 POTENTIAL WIM SYSTEM INTERFERENCE SOURCES- PASS

The nearest source of any potential interference, power lines paralleling the eastbound lanes' frontage road, are 120 feet away from the proposed WIM system location and will not interfere with system performance. Railroad tracks parallel the westbound lanes, 420 feet from the WIM system.

3.8 ACCESS TO POWER AND PHONE SERVICES- NEEDS ATTENTION

The CLIN 1 Team member met on-site with state DOT District electrical and communication reps to discuss the state's providing power and phone services at the new WIM system's cabinet location. The state expressed that if the new WIM cabinet would be installed within 50 feet of the state's existing WIM system cabinet it would be feasible to extend phone service from the service point at the existing cabinet to an access point near the new cabinet. The solar power facility for the state's existing WIM system cannot be shared by the new WIM system, however the state will make an effort to procure and install necessary solar power equipment for the new system if the LTPP WIM installation project is approved in a timely manner. The state's local reps did make it clear that the providing of these power and phone services would be subject to approvals up the chain of command.

3.9 EQUIPMENT INSTALLATION CAPABILITY- PASS

There is an adequate location for the WIM controller cabinet at the site near the highway right-of-way fence. This location, in line with the state's existing WIM cabinet, would provide +/- 48 feet clearance from the traveled way. There is good visibility of the sensors and approaching vehicles from the cabinet location. There is adequate room adjacent to the cabinet location for 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. The width and structural stability of the adjacent lane and median shoulder allow a lane closure and traffic shift which will provide safe clearance in the work zone 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 eastbound truck turnaround is I-10 Exit 55, which is located 5.6 miles downstream of the WIM site.

The nearest useable westbound truck turnaround is I-10 Exit 42, which is located 7.6 miles upstream of the WIM site.

The test truck round trip circuit route is 27 miles. There are no foreseen potential restrictions and the turnaround locations are easily accessed and maneuvered. The estimated lap time is 25 minutes. It is noted that the state offered to consider providing traffic control safety services if a suitable median crossover location could be found for the test trucks, but no such crossover could be located.

Figure 3: Truck Circuit Map

3.12 RECOMMENDATIONS ON SITE ACCEPTANCE / CORRECTIVE ACTIONS

Pending the state's agreement to provide solar power and wired telephone service points within 25 feet of the proposed WIM cabinet location, it is recommended that a new WIM system utilizing Quartz Piezo technology be installed at the selected location. As a trade-off for performing pavement corrective actions as originally recommended, it is the opinion of the CLIN 1 Team that there is the risk that any WIM weighing sensor installed in a 5/8 inch AC Open Grade wearing course may not maintain performance requirements or its structural stability for a five year period of time.

4.0 TRAFFIC DATA REVIEW

Vehicle distributions of all trucks (FHWA Class 4 and higher) – 54.9%

Vehicle distributions for heavy trucks (FHWA Class 6 and higher) – 51.5%

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

Class 9 vehicles – 78.2%

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

Class 9 vehicles – 83.4

2006 Traffic Volume AADT (both directions) – 13,251

The above noted data has been collected by New Mexico Department of Transportation as supplied from the existing Weigh-in-Motion System.

5.0 PAVEMENT EVALUATION

In determining WIM site acceptability, visual on-site observation of the existing AC pavement was made by the CLIN 1 Team member.

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")

The traveled way AC pavement was rehabilitated in 2007. The structural condition of the AC pavement appears to be excellent. There is no evidence of cracking, rutting, or raveling in the wearing course.

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. The entire 1000 foot section was included in the 2007 pavement rehabilitation project.

5.1.3 SHOULDER CONDITION

Although the roadway's AC shoulders throughout the study area were not included in the recent pavement rehabilitation, they appear to be in fair to good condition. The outside shoulder displays only some minor longitudinal cracking along its extreme right edge. The inside shoulder does display some significant longitudinal cracking immediately adjacent to the rumble strip, but should not prevent moving the left wheels of traffic onto the shoulder to facilitate closure of the WIM lane during installation.

5.1.4 SURFACE PROFILE

Based upon visual observation, trucks and other vehicle types approaching and passing through the selected scale location area exhibited only minimal body motion, indicating that there are no existing significant "long wavelength" profile problems. An automobile "drive through" by the CLIN 1 team member appeared to confirm the above noted observation. Only minimal vehicle body motion could be felt.

5.2 PAVEMENT EVALUATION SUMMARY

Based upon on-site observations, it would appear that the newly rehabilitated AC pavement is structurally sound and reasonably smooth. However, it is the opinion of the CLIN 1 Team that in terms of weigh sensor longevity there is some risk in installing a sensor in a 5/8 inch Open Grade wearing course.

If pavement profile data is obtained at the proposed WIM site location, such data should be provided to the CLIN 1 Team for analysis to confirm that the pavement's smoothness meets requirements for installation of an SPS WIM site.

6.0 PROPOSED WIM SITE- INFORMATION

LOCATION – I-10 MP 50.2

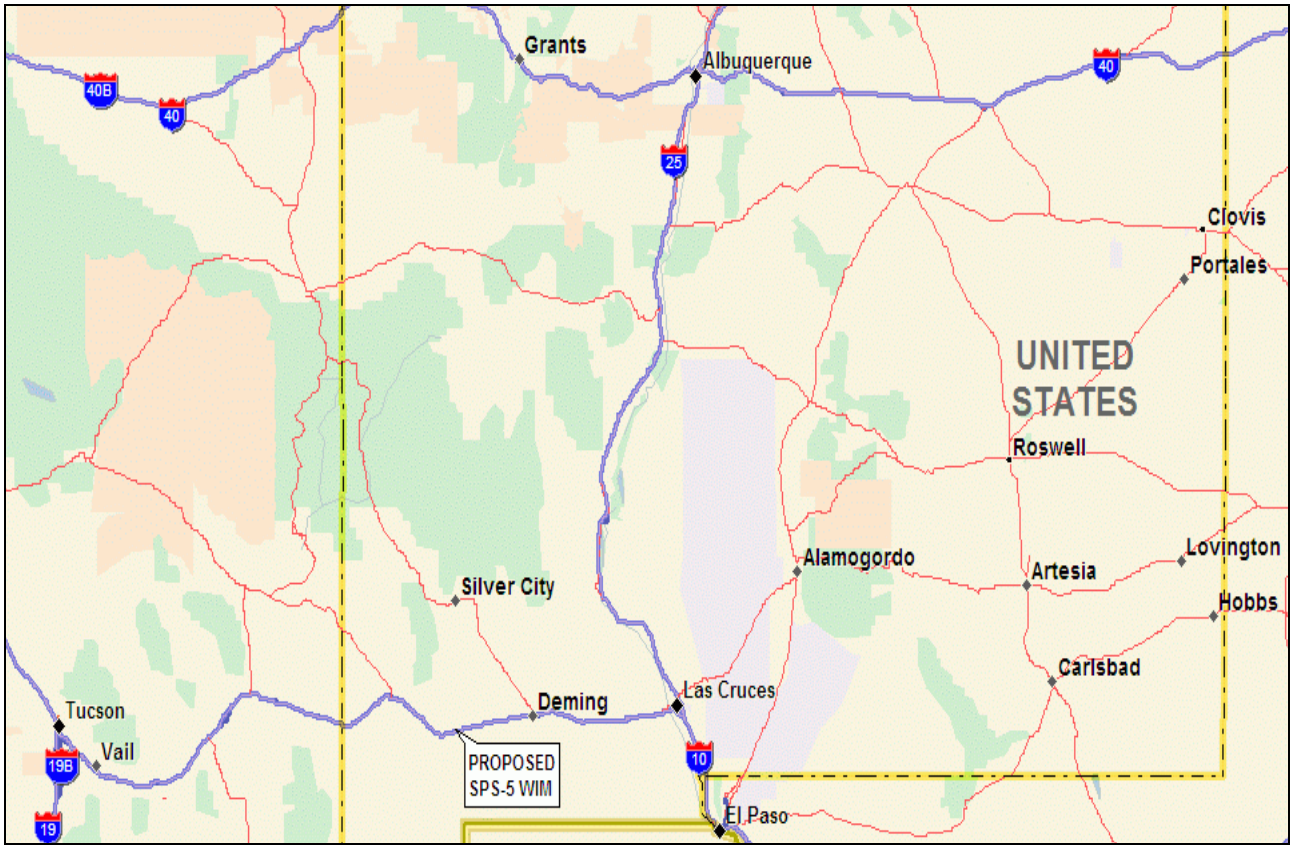


Figure 4: Map of the I-10 WIM Site

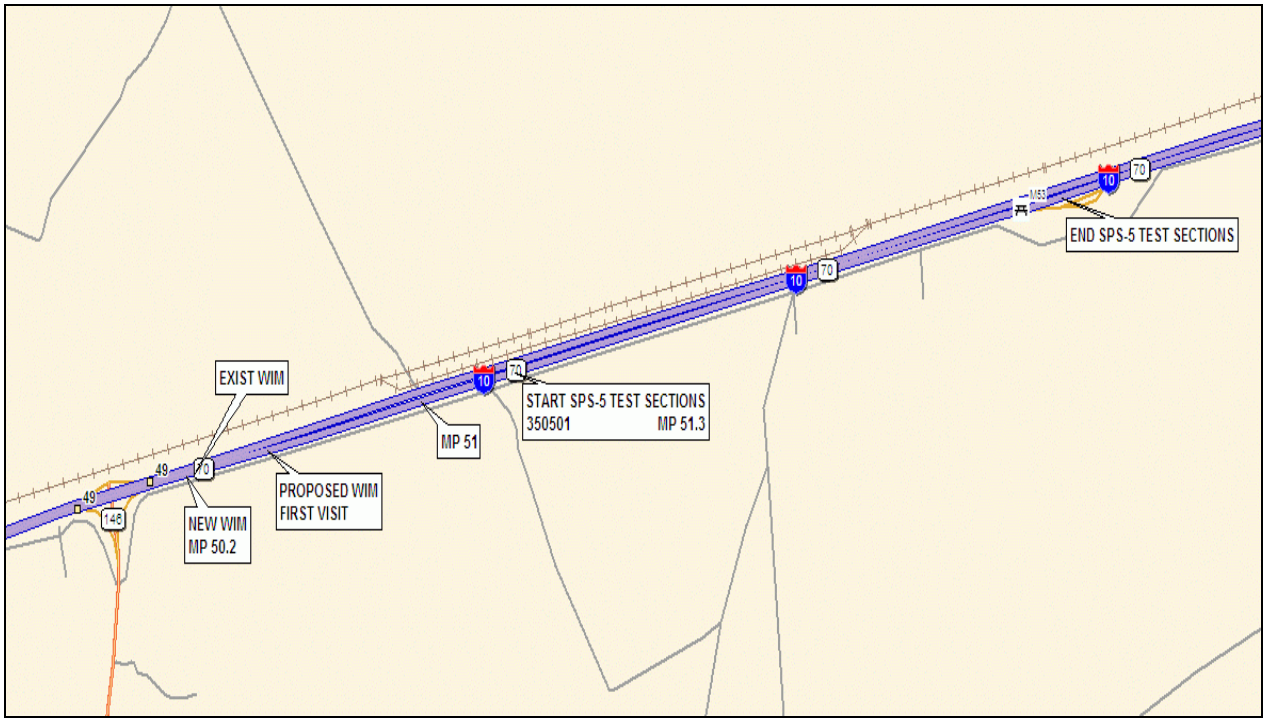


Figure 5: Map of the I-10 WIM Site at Milepost 50.2

The LTPP SPS-5 test sections are located approximately 85 miles west of Las Cruces in the eastbound outside lane of Interstate10 between Exit No.'s 49 and 55.

The location selected for the proposed WIM system installation is the eastbound outside lane at milepost 50.2 which is 1.1 miles in advance of the first test section (350501) and 140 feet in advance of the state's existing WIM scale location. The proposed WIM controller cabinet can be located near the Right-of-Way fence approximately 48 feet from the edge of traveled way.

7.0 RECOMMENDED WIM TECHNOLOGY

Based upon long term experience with bending plate technology, it is the CLIN 1 Team's opinion that bending plates installed in a 400 foot blanket ground PCC WIM slab would best meet accuracy and longevity expectations and provide the best value in terms of performance with minimal down time. However, given the infeasibility of the state's replacing a 400 foot length of existing AC pavement with a blanket ground PCC slab, Quartz Piezo technology is the recommended alternative for use at this site.

The centerline of the double threshold quartz piezo sensors should be installed approximately 140 feet upstream of the state's existing WIM cabinet (at the time of the site assessment, the state had not yet re-installed the WIM's in-road sensors). This location has been marked with a "WIM" in orange paint on the outside shoulder.

7.1 RECOMMENDED LOCATION AND LAYOUT FOR THE WIM SYSTEM

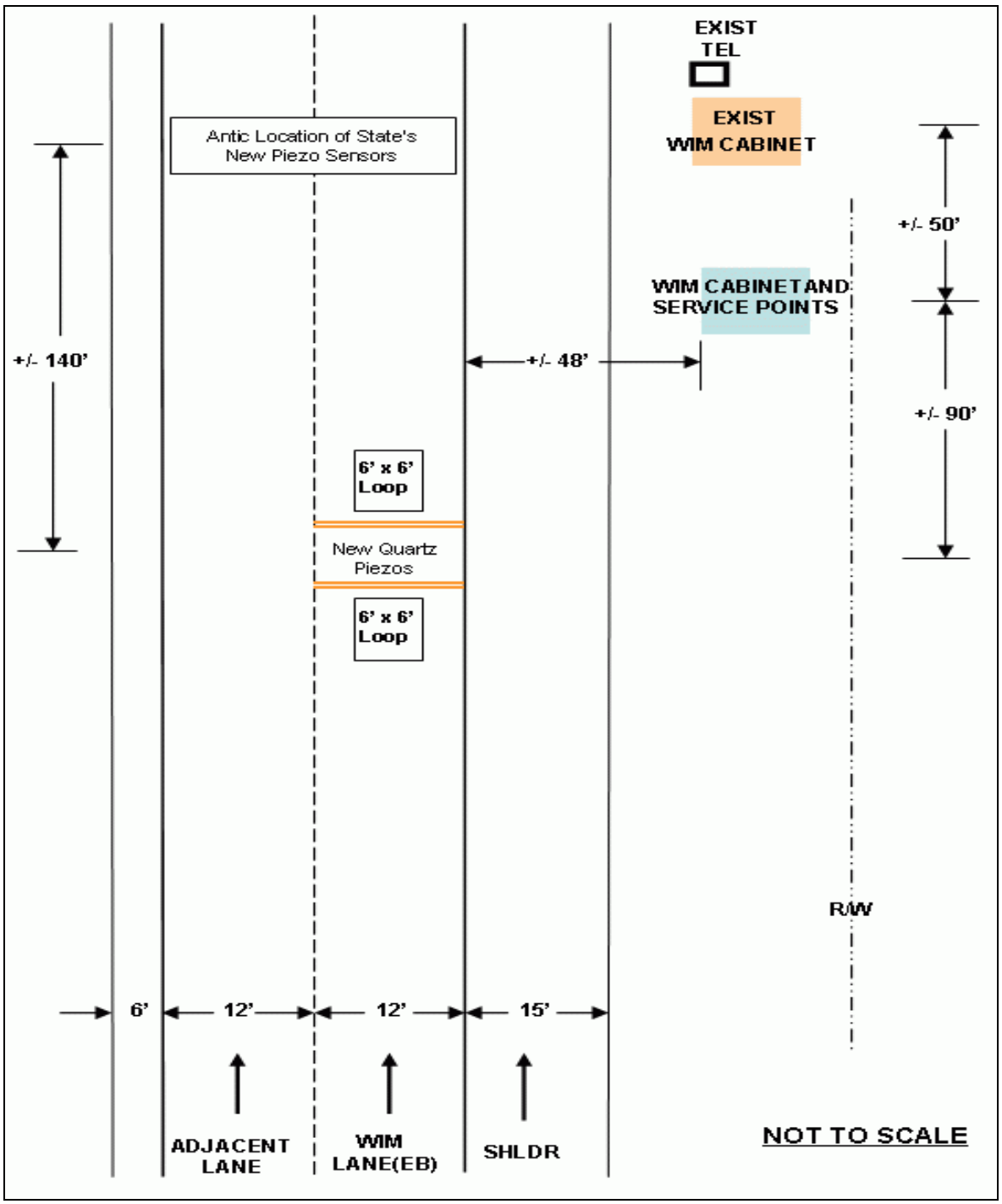


Figure 6: Proposed WIM Site Layout

GPS Coordinates for Scales: N32° 11.595', W108° 18.093'

A.0 COORDINATION DETAILS

Task Order #15, which authorized the CLIN 2001 "Determine Acceptability of Proposed Site" for the New Mexico SPS-5 Site (LTPP ID 350500), was issued on July 12, 2006.

Contacts were made with interested parties as follows:

- Contracting Officer's Technical Representative (COTR)
  - Debbie Walker – FHWA-LTPP ph: 202-493-3068
- State Highway Agency (SHA)
  - Robert Meyers – New Mexico DOT ph: 505-827-5466
- FHWA Division Office
  - Steve Von Stein – FHWA Div Rep ph: 505-526-2512

The "Pre-Visit Handout Guide" was distributed by e-mail on January 10, 2008, to the following individuals:

- Debbie Walker -- FHWA-LTPP
- Robert Meyers -- SHA
- Steve Von Stein -- FHWA Div Rep
- Mark Gardner -- Regional Support Contractor, Fugro Consultants, Inc.

A briefing was held at 1:00 PM, Monday January 14, 2008, at New Mexico DOT's Solano Project Office conference room at 750 N. Solano, Las Cruces. In addition to the FHWA and SHA reps noted above, SHA reps from HQ Traffic Data and District 1Traffic were also in attendance. Rich Quinley (WIM TECH), a CLIN 1 Team member, provided the attendees with details on the WIM site selection, the role of the SHA, and the design/installation processes.

On Tuesday AM, January 14, Rich Quinley and Robert Meyers met with SHA District 1 Electrical and Communication reps both at the District 1 office in Deming as well as at the site to determine the feasibility of the SHA's providing power and phone services for the proposed SPS-5 WIM system. Following the on-site meeting, Rich Quinley performed the CLIN 1 site assessment.

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

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

NEW MEXICO SPS-5 LTPP ID 350500

Date: January 10, 2008

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 BACKGROUND

On June 08, 2005, a WIM site acceptability assessment was performed by the CLIN 1 Team at the SPS-5 location on I-10 approximately 30 miles west of Deming. A site was selected at Mile Post 50.5 in the EB outside lane just east of the SR 146 interchange. It was recommended that a 400' section of the existing AC pavement be replaced with a blanket ground PCCP slab and that a WIM bending plate system be installed. This site assessment is documented in the WEIGH-IN-MOTION SITE ACCEPTABILITY ASSESSMENT REPORT dated June 16, 2005.

It was later decided that it would be more feasible to install a Quartz Piezo WIM system in the existing AC pavement instead of the recommended bending plate system in a PCCP slab. However, the state has recently performed pavement rehabilitation work over a 13 mile section of I-10 which includes the selected WIM site location. As such, it is deemed necessary to perform another site assessment to verify that the new pavement is suitable for installation of the weighing sensors. Given the pavement rehab job wiped out the pavement sensors at the state's existing WIM site at MilePost +/-49.6, this new assessment will also give consideration to moving the proposed WIM site nearer the existing WIM cabinet for more convenient access to utilities.

B.2 SCHEDULE

A site acceptability assessment is scheduled for the January 15, 2008, to be performed by Rich Quinley (WIM TECH), a member of IRD's CLIN 1 Team.
Rich's contact information:
Office phone 916-399-5983
Cell phone 916-803-6619
E-mail wimtech@comcast.net

B.3 BRIEFING SESSION, JANUARY 14, 2008, POINTS OF CONTACT

A briefing session is scheduled to be held at 1:00 PM, Monday January 14, 2008, at New Mexico DOT's Solano Project Office conference room. This office is located at 750 N. Solano, Las Cruces.

Distribution of this Pre-Visit Handout Guide is being distributed by e-mail to the following Points of Contact:

Contracting Officer's Technical Representative Deborah.Walker@fhwa.dot.gov
Debbie Walker – FHWA-LTPP Ph: 202-493-3068

State Highway Agency (SHA) robert.meyers@state.nm.us
Robert Meyers Ph: 505-827-5466

LTPP Regional Support Contractor (RSC) mgardner@fugro.com
Mark Gardner, Fugro Consultants, Inc. Ph: 512-977-1829

FHWA Division Office steven.von.stein@fhwa.dot.com
Steven Von Stein – FHWA Div Rep Ph: 505-526-2512

B.4 INFORMATION REQUESTS FROM NM DOT

- SHA's plans for re-installing pavement sensors at existing WIM site?
- Any utilities located in WIM install work area?
- Location and general availability of power and phone services, service providers, service provider contacts and phone numbers
- Will SHA agree to extend power and phone services from existing available access points to demarcation points near planned controller cabinet location?
- What permits will be needed to install equipment and what are procedures and time frames for obtainment?
- Required cabinet clear zone from edge of traveled way?
- Will SHA permit shifting inside lane traffic partially onto inside shoulder to provide safe clearance during installation in outside lane?
- Historic truck traffic data

B.5 SITE LOCATION INFORMATION

- Proposed WIM site location: I-10, MilePost +/-49.7, EB outside lane
- Nearest major airport: El Paso International Airport (141 miles)
- Nearest lodging: Deming (32 miles)

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY

SITE VISIT EVALUATION FORM

NEW MEXICO SPS-5 LTPP ID 350500

Date of Site Visit: January 15, 2008

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: I-10 Mile Post: 50.2 Direction: EB Lane: Outside

Proposed WIM Site is 1.1 mile in advance of SPS Test Section 350501.

NOTE: The pavement through the test section locations was recently rehabilitated.

C.1.1 EXISTING ROADWAY APPROACHING AND DEPARTING PROPOSED WIM SITE

Type Pavement: AC Yr Const: Rehabilitated 2007 Ln Width: Striped 12 feet

Thickness: 5/8" OGFC wearing course over +/- 8" PMBP courses

Observed Structural Soundness: Good

Observed Smoothness: Good

Outside Shldr Type: AC Width: 15' Condition: Good

Inside Shldr Type: AC Width: 6' Condition: Fair

C.1.2 PAVEMENT 325' PRIOR AND 75' FOLLOWING WIM SCALES ("WIM PVMNT")

Same as above for Approaching and Departing Pavement.

Notes/Comments on Pavement:
The existing roadway is recently rehabilitated AC and is in good condition. The 400' "WIM Pavement" section is the same as the approaching and departing pavement.

C.1.3 OTHER ROADWAY GEOMETRICS

Horizontal Align: Long stretch of tangent Grade: Minimal (< 0.5 %) Cross-slope: 2%

Striping: EB outside lane: 5" solid white stripe delineates 12' lane. The OG wearing course extends 12" beyond the outer edge of the stripe. The 15' shldr has a profile grade break at 9'-6" from the edge of the OG course. EB inside lane: 4" solid yellow stripe delineates 12'-8" lane. The OG wearing course extends 11" beyond the outer edge of the stripe. The 6' shoulder has a profile break at 3' from the edge of the OG course.

C.1.4 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

Posted Speed Limit, MPH: Autos 75 Trucks 75

Observed Speed Range, MPH: Autos 65-80 Trucks 65-80

Passing, merging, not following lane lines? Good Lane Discipline

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

Traffic signals or interchanges affecting traffic flow? The outside taper line of the I-10/SR 146 on-ramp to eastbound I-10 ends +/- 450' in advance of the proposed scale location. However, this on-ramp is seldom used (1 vehicle observed using ramp during the 6 hours on-site).

Other adverse traffic flow conditions? None observed

Truck traffic at "cruising" speed and no lugging? Yes

Truck traffic staying within lane lines? Yes, for the most part; an occasional truck hugging the right shoulder stripe

Observed truck suspension or body motion dynamics? No suspension motion; minor body motion

Drive-thru noted suspension or body motion dynamics? Minor body motion

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

Truck traffic on/off locations between WIM site and SPS site? No

Notes/Comments on Geometrics and/or Traffic Operating Characteristics:
Vehicles track smoothly through this area at speeds between 65 and 80 MPH (posted speed is 75 MPH for all traffic). There is very good lane discipline at this site. Traffic flow is medium on this four lane, two direction Interstate. There is a high percentage of 3S2s.

C.1.5 ACCESS TO UTILITY SERVICES

Potential source(s) for power: Overhead power lines parallel the EB lane's frontage road. Although it appears feasible to obtain a service drop from a nearby pole, it is the state DOT's policy to utilize solar power if possible. The state has been advised that to power the new WIM system it would be necessary to install 2 ea 80W solar panels and 2 ea 100A batteries.

Potential source(s) for telephone: Wired phone service is available at the state's existing WIM cabinet. The state has tentatively agreed to extend this service +/- 50' to the proposed location of the new WIM cabinet.

C.1.6 EQUIPMENT INSTALLATION CAPABILITY

Adequate location for controller cabinet? Yes, near Right of Way fence in line with state's existing WIM cabinet.

Distance from edge of traveled way to R/W? +/- 60'

Distance from edge of traveled way to cabinet? +/- 48 feet

Visibility from cabinet of sensors and approaching vehicles? Very Good

Adequate location for service facilities? Yes, adjacent new 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 break in the median shoulder's profile allows only +/- 3' of use, this should allow enough of a traffic shift during the closure of the outside lane to provide a safe work zone during in-road sensor installation. This site has excellent site distance for approaching vehicles.

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:
This roadway is moderately busy with a high percentage of 3S2s travelling at high speeds. The state has tentatively agreed to provide traffic control services which would simplify coordination and lane closure approvals.

C.1.7 POTENTIAL WIM SENSOR/EQUIPMENT INTERFERENCE SOURCES

Overhead power lines? Parallel to EB frontage road 120 ft from cabinet, not a problem
Adjacent railroad? Parallel to WB lanes, 420 ft from cabinet, not a problem

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

Direction EB - Nearest usable truck turnaround location: Exit 55 (Quincy) at MP +/- 55.8
Distance from WIM: 5.6 Miles

Direction WB - Nearest usable truck turnaround location: Exit 42 (Separ) at MP +/-42.6
Distance from WIM: 7.6 Miles

Circuit travel distance: 27 Miles Estimated lap time: 25 Minutes

Potential circuit route restrictions? None. It is noted that the SHA tentatively agreed to provide traffic warning safety services to facilitate using a median cross-over by the test

trucks (to shorten the circuit) if a suitable cross-over could be located. No improved "maintenance" cross-over could be located and the median's topography does not appear to be suitable for a loaded 3S2's turnaround.

C.1.9 LOCATION OF TRUCKING FIRM AND CERTIFIED STATIC SCALES:

Scales: Pilot Travel Center Contact: Heather Mendota

Address I-10 Exit 24, Lordsburg, New Mexico

Phone 505-542-3100 Hours 8:00 a.m. – 5:00 p.m.

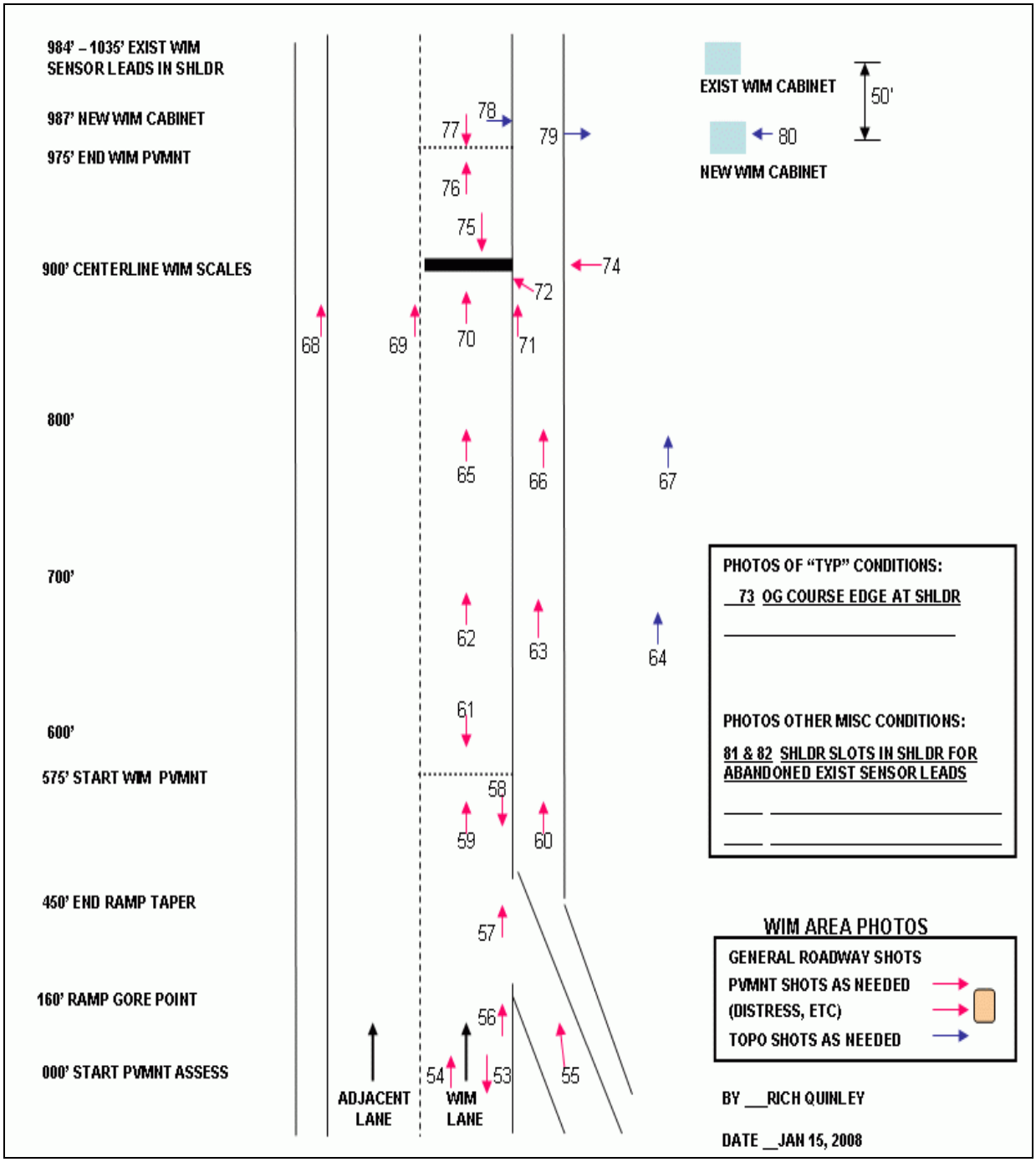
Notes/Comments on Static Weighing Facility and Trucking Firms:

Pilot Travel Center is located approximately 26 miles from the Proposed WIM Site. They can recommend hauling companies that have 3S2 Tractor Trailer Air Ride vehicles and drivers available given 2-3 weeks notice. They have a certified static scale located at their facility.

C.1.10 GPS RECORDINGS

ROADWAY LOCATION (EB)		GPS RECORDINGS	
WIM Scales			
New scale location		N32° 11.595’	W108° 18.093’
Exist WIM cabinet location		N32° 11.599’	W108° 18.066’
Roadway Mile Posts			
MP 51.0 EB		N32° 11.751’	W108° 17.256’
MP 50.0 EB		N32° 11.559’	W108° 18.280’
MP 49.0 EB		N32° 11.370’	W108° 19.257’
SPS Pavement Test Sections			
350501	Start	N32° 11.812’	W108° 16.924’
Test Truck Turnaround Locations			
EB, Exit 55		N32° 12.670’	W108° 12.450’
WB, Exit 42		N32° 12.071’	W108° 25.259’

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 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	35
LTPP Traffic Data	*SPS PROJECT ID	350500
WIM SITE INVENTORY	*SPS WIM_ID	SPS-5

1.* ROUTE I-10 MILEPOST 50.2 LTPP DIRECTION - E

2.* WIM SITE DESCRIPTION - Grade <0.5 % Sag vertical N
Nearest SPS section upstream of the site None upstream
Distance from sensor to nearest upstream SPS Section NA

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 15 ft

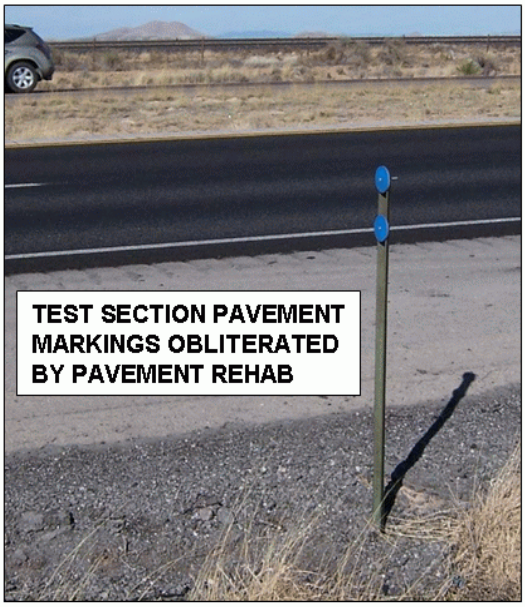
4.* PAVEMENT TYPE AC

8. RAMPS OR INTERSECTIONS
Intersection/driveway within 300 m upstream of sensor location Yes
Intersection/driveway within 300 m downstream of sensor location No
Is shoulder routinely used for turns or passing? No

COMPLETED BY Rich Quinley DATE COMPLETED 01/15/2008

E.0 PHOTOGRAPHS

E.1.1 SPS TEST SECTION MARKER



E.1.2 GENERAL SITE VIEW OF THE ROADWAY APPROACHING WIM SITE

E.1.3 DOWNSTREAM VIEW OF ROADWAY AT START OF 1000' PVMNT EVALUATION

E.1.4 DOWNSTREAM VIEW OF ROADWAY AT START OF WIM PAVEMENT SECTION

E.1.5 UPSTREAM VIEW OF ROADWAY APPROACHING 400' WIM PAVEMENT SECTION

E.1.6 OG WEARING COURSE EDGE AT SHOULDER

E.1.7 DOWNSTREAM VIEW 100' IN ADVANCE OF WIM SCALE LOCATION

E.1.8 DOWNSTREAM VIEW OF SHOULDER 100' IN ADVANCE OF WIM SCALE LOCATION

E.1.9 RECOMMENDED SCALE LOCATION

E.1.10 DOWNSTREAM PAVEMENT AT RECOMMENDED SCALE LOCATION

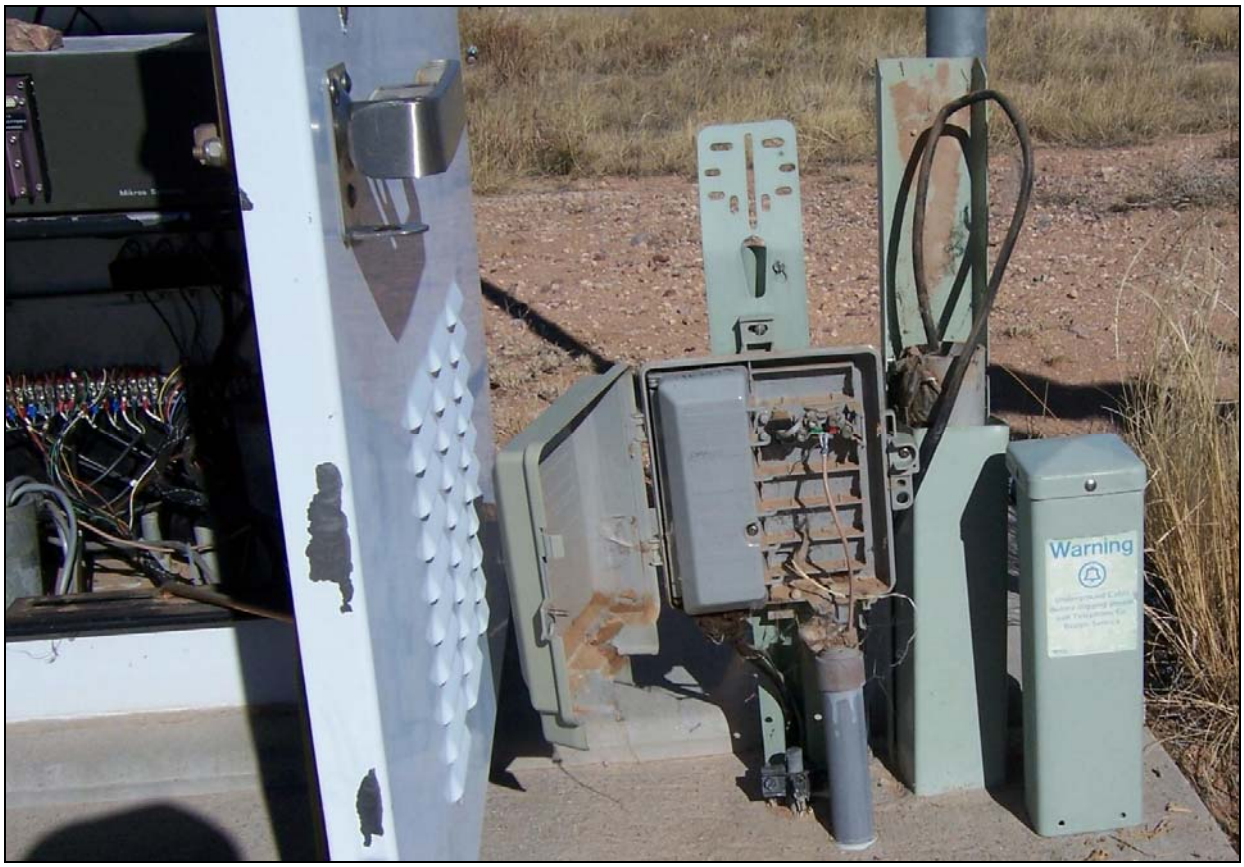
E.1.11 UPSTREAM PAVEMENT AT RECOMMENDED SCALE LOCATION

E.1.12 DOWNSTREAM PAVEMENT AT END OF 400' WIM PAVEMENT SECTION

E.1.13 RECOMMENDED CABINET LOCATION

E.1.14 EXISTING WIM CABINET

E.1.15 EXISTING TELEPHONE SERVICE AT EXISTING WIM CABINET



E.1.16 SHOULDER SLOTS FOR EXISTING WIM IN-ROAD SENSORS (TO BE REPLACED)- FACING UPSTREAM TOWARDS NEW WIM LOCATION