INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY ASSESSMENT REPORT

NEW MEXICO SPS-1
LTPP ID 350100
FEBRUARY 06, 2008
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

On January 16th, 2008, a Weigh-in-Motion (WIM) site acceptability assessment was performed for the New Mexico SPS-1 (Strategic Study of Structural Factors for 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 9th, 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 10, 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-1 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 New Mexico SPS-1 pavement test sections are located on I-25, approximately 35 miles north of Las Cruces in Dona Ana County in the northbound outside lane starting at approximately Mile Post 36.4. 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.

As part of the June 2005 site assessment, the CLIN 1 team performed an extensive search for a suitable WIM site over a several mile range of I-25 deemed to have the same truck composition as that passing through the SPS test sections. In that the team could find only a single location which could potentially best meet the site assessment evaluation criteria, this same location at Mile Post 36.1 just north of the Rincon Road interchange, was the only location considered during the second assessment. It is proposed to install a WIM system for the northbound outside lane approximately 1470 feet in advance of the first SPS-1 pavement test section, 350101.

The selected WIM site is located within a tangent section of roadway with a relatively flat grade immediately followed by a short radius horizontal curvature and a short stretch of steep uphill grade (reported to be 4%). The State's existing WIM system's northbound scales were no longer in place due to the pavement rehabilitation work, but will soon be re-installed at approximately the original location in a section of roadway within this horizontal curvature and uphill grade approximately 530 feet downstream of the proposed new WIM scale location. Vehicles track smoothly through this section at a moderate rate of speed. The

observed traffic flow was light on this four lane Interstate. The existing AC roadway pavement at this SPS-1 location was recently rehabilitated and consists of a 5/8 inch Open Grade wearing course over +/- 12 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 much of the roadway in the vicinity of the SPS test sections exhibits significant “long wavelength” pavement profile problems, the 400 foot section of roadway selected for installation of the “WIM Pavement” appears to contain only minor profile problems.

Overhead power lines were observed on the west side of the roadway in the community of Rincon. Regardless of the feasibility of extending AC power to the proposed new WIM cabinet, the state expressed that its policy is to utilize solar power whenever possible. An existing telephone service is located at the existing WIM cabinet adjacent to the southbound lanes. A phone service point was also located near the southbound roadway’s right-of-way fence. However, regardless of what service point is selected it will require boring and trenching to extend service to the new WIM cabinet location.

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-1 is a flexible pavement study. The I-25 roadway at the study location consists of 4 lanes, 2 northbound and 2 southbound. The pavement test sections are located in the outside northbound 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 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 northbound lanes are each striped at 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 in which the pavement test sections are located has sections of tangent horizontal alignment but there are many sections with uphill and downhill grades to accommodate the hilly terrain. In regard to cross slope, the northbound outside lane typically slopes approximately 1.5% toward the outside shoulder.

2.2 OBSERVED TRAFFIC OPERATING CHARACTERISTICS

The light 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 70 and 80 MPH (posted speed limit is 75 MPH for all traffic). There is a northbound on ramp from Rincon Road whose right taper line ends approximately 590 feet in advance of the proposed WIM scale location. However, due to the light usage of this on ramp it should not effect traffic flow detrimental to WIM system performance. Trucks are “cruising” through the site at constant speeds. 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.

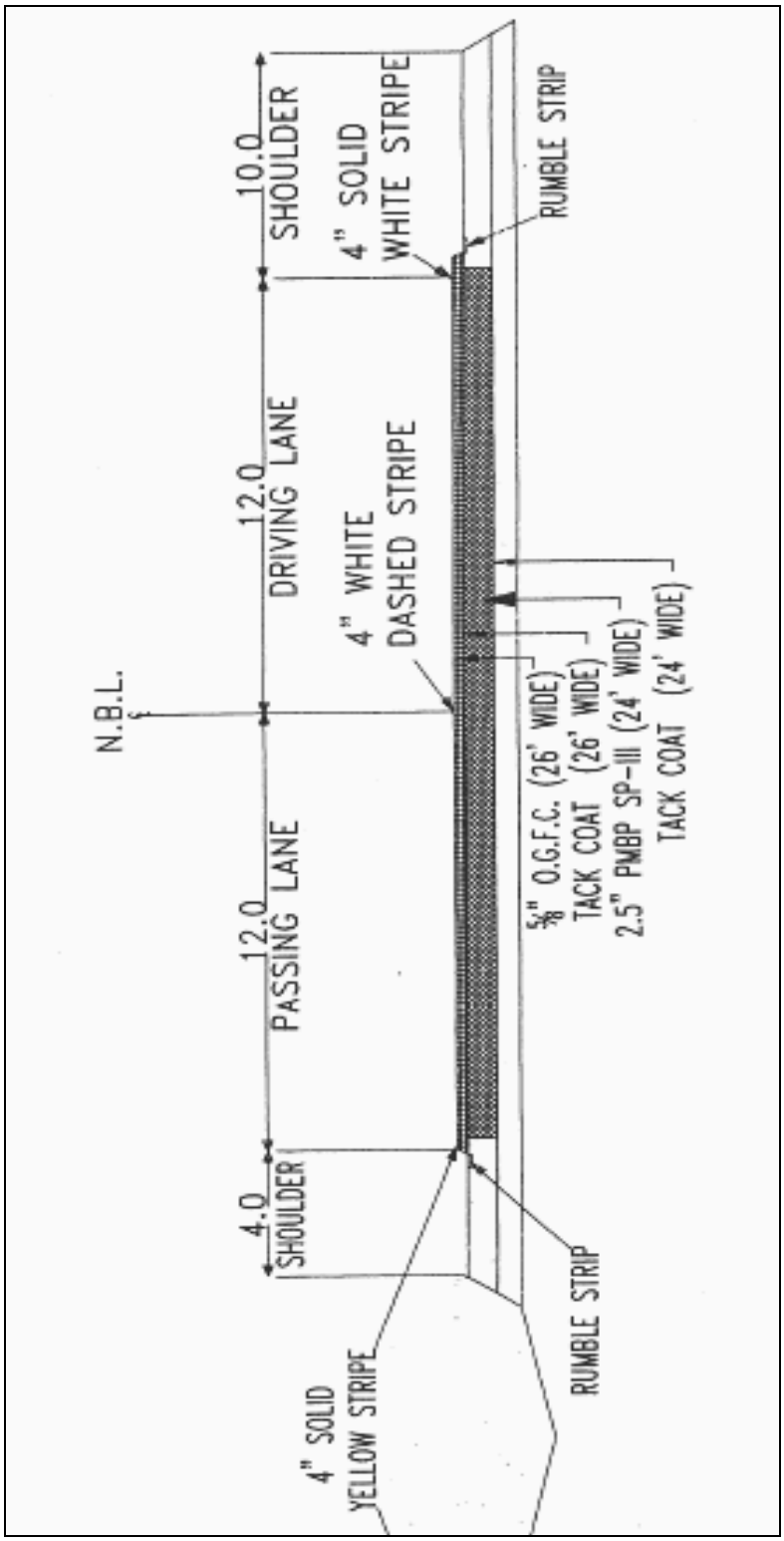


Figure 1: AC Rehabilitation Structural Section

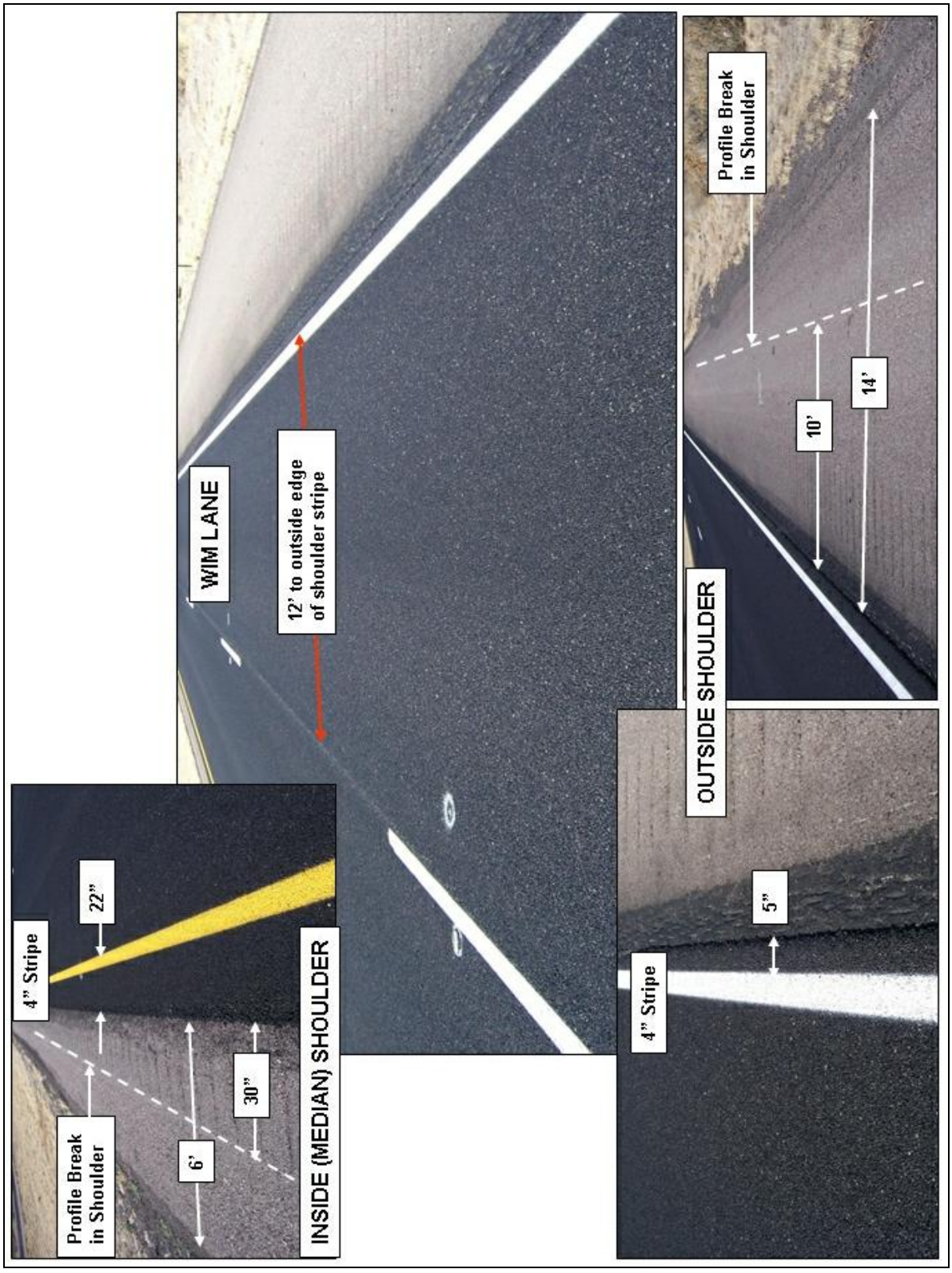


Figure 2: Pavement Measurements Taken at WIM Sensor Location

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 several automobile drive-through by the team member.

3.3 ANALYSIS OF PAVEMENT PROFILE DATA- TO BE PERFORMED

Although pavement profile data was collected in November 2003 in conjunction with an evaluation of the state's existing WIM site, 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

Although the selected WIM site immediately precedes a short radius horizontal curvature and an uphill grade, the site itself is located within a tangent section of the roadway with minimal grade. The lane in which the sensors are to be installed is 12 feet wide. The "best fit" for the WIM site does result in the scales being located in a superelevation transition from a cross slope to the outside shoulder to a cross slope to the inside shoulder due to the site's being immediately in advance of the horizontal curvature. However, it appears that this cross slope transition will not hinder proper roadway drainage or affect WIM system performance.

3.5 TRAFFIC OPERATING CHARACTERISTICS- PASS

The general traffic pattern is free flowing with good lane discipline. Although the selected WIM site is immediately downstream from an interchange on ramp, very little traffic was observed using this on ramp and any effect on the mainline traffic flow was negligible. The truck traffic is cruising through the site and, with rare exception, staying within the lane lines.

3.6 TRUCK TRAFFIC COMPARISON BETWEEN WIM AND TEST SITE- PASS

There are no exit/entrance locations between the WIM site and the SPS-1 pavement test sections.

3.7 POTENTIAL WIM INTERFERENCE SOURCES- PASS

None

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. Overhead power lines were observed on the west side of the roadway in and near the community of Rincon. Regardless of the feasibility of extending AC power to the proposed new WIM cabinet, the state expressed that its policy is to utilize solar power whenever possible. An existing telephone service is located at the existing WIM cabinet adjacent to the southbound lanes. A phone service point was also located near the southbound roadway's right-of-way. However, regardless of which service point is selected it will require boring and trenching to extend service to the new WIM cabinet location. The state will contact the telephone service provider as to available options and costs to extend service to the new WIM's cabinet location. The feasibility of the state's providing wireless telephone service was not discussed at the time, but should be explored if it is deemed not feasible to provide wired telephone service. The state is willing to 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 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 adjacent to the roadway with over 40 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 light traffic conditions, good approach sight distance, minor usage of the preceding interchange on ramp, 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 TEST TRUCK CIRCUIT - PASS

The nearest northbound truck turnaround for use by calibration and validation test trucks is I-25 Exit 41 (Hatch, SR 26), which is located 5.0 miles downstream (north) of the WIM site. The nearest useable southbound test truck turnaround is I-25 Exit 32 (Upham), which is located 3.0 miles upstream (south) of the WIM site. The test truck round trip circuit route is 17 miles. In utilizing the northbound Exit 41 off ramp, the drivers will have to determine the best way to get turned around for the southbound return. The interchange itself does not provide for an easily maneuvered turnaround and it may be necessary to travel toward or into the community of Hatch to find a suitable turnaround location. The southbound Exit 25 interchange should pose no maneuvering problem in returning northbound, but it is noted that the vertical clearance is posted at 14.0 feet for the road passing under the main line. The estimated lap time is 15 to 20 minutes. For the lower speed test truck runs, it might be possible for the test trucks to use the southbound I-25 Exit 35 (Rincon Road), immediately south of the proposed WIM site.

Figure 3: Truck Circuit Map

3.12 RECOMMENDATIONS ON SITE ACCEPTANCE / CORRECTIVE ACTIONS

Pending the state's agreement to provide solar power and either wired or wireless 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) – 20.6%

Vehicle distributions for heavy trucks (FHWA Class 6 and higher) – 15.8%

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

Class 5 vehicles – 21.8%
Class 9 vehicles – 56.5%

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

Class 8 vehicles – 12.4%
Class 9 vehicles – 73.9%

The 2006 Traffic Volumes provided by this site indicate the ADT to be 7,036

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 THE 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 shoulders display only some minor longitudinal cracking.

5.1.4 SURFACE PROFILE

During the initial assessment's search for a suitable WIM site in June 2005, observations of trucks and other vehicle types over a several mile stretch of I-25 in the vicinity of the SPS pavement test sections indicated significant "long wavelength" pavement profile problems. In that this type of profile problem would be difficult to correct, these profile problems severely restricted the options as to where a WIM site should be located. Vehicles approaching and passing through the location ultimately selected for the installation of the new WIM scales displayed only minor body motion indicating that there were no existing significant "long wavelength" profile problems. It was noted that significant vehicle body motion was observed at 500 feet in advance of the proposed scale location (175 feet in advance of the start of the proposed 400 foot PCC WIM

slab). However, this body motion appeared to dampen out before the vehicles reached the proposed scale location.

The selected WIM site's pavement profile assessment made during the current visit indicates the recent pavement rehabilitation has not effected any detrimental profile problems. Observation of approaching vehicles indicates that significant body motion, as was previously noted, still exists at approximately 500 feet in advance of the selected scale location but that such motion dampens out before the vehicles reach the scale location. Several automobile "drive throughs" by the CLIN 1 team member appeared to confirm the above noted observations. Only minor vehicle body motion could be felt when passing through the proposed scale location.

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

6.1 LOCATION – I-25 MP 36.1

Figure 4: Map of the I-25 WIM Site

GPS Coordinates for Scales: N32° 40.655', W107° 3.924'

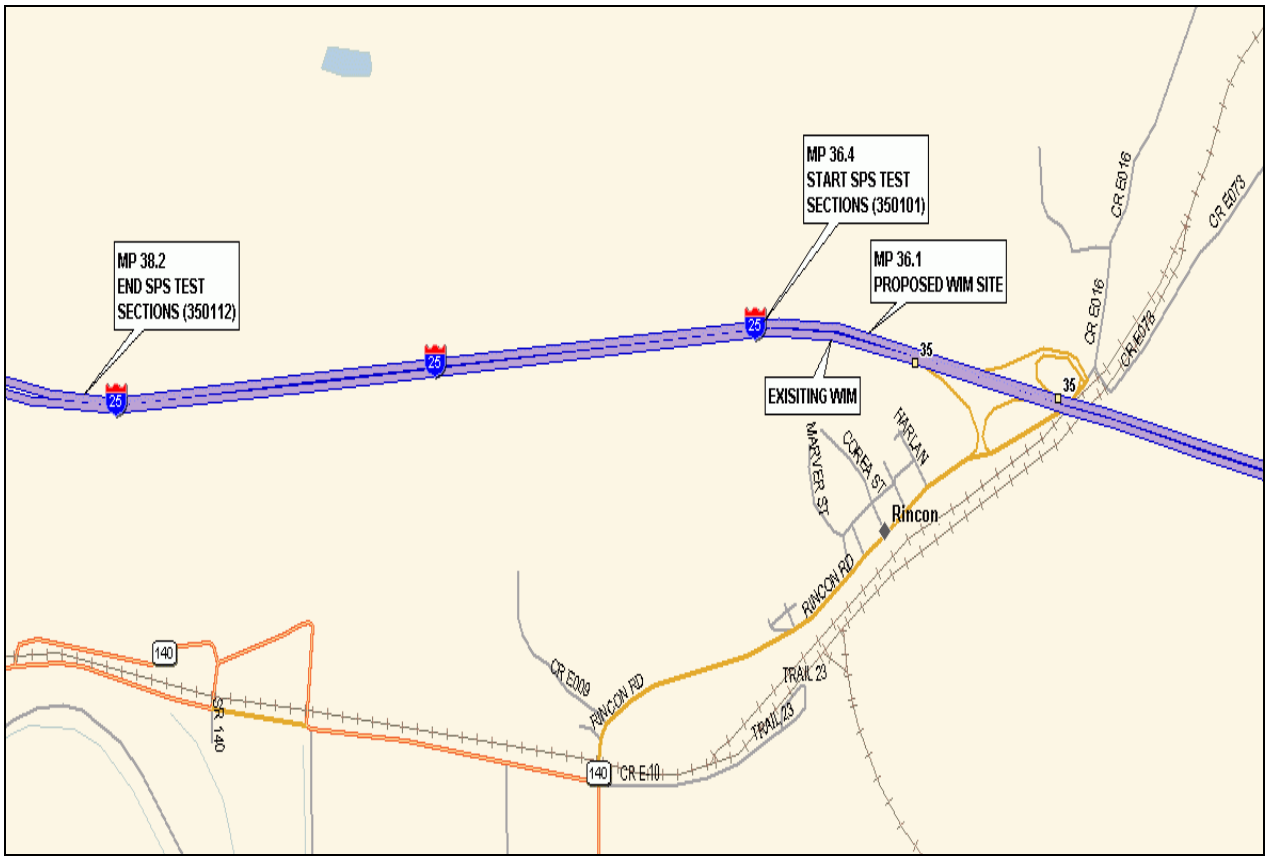


Figure 5: Map of the I-25 WIM Site at Milepost 36.1

The LTPP SPS-1 test sections are located approximately 35 miles North of Las Cruces between Rincon and Hatch in the northbound outside lane of I-25.

The location for the proposed WIM system installation is the northbound outside lane at Milepost 36.1 which is 1470 feet in advance of the first SPS-1 test section (350101) and approximately 530 feet in advance of the state's existing WIM scale location (sensors to be re-installed in near future). The proposed WIM controller cabinet will be located inside the Right of Way opposite the new scales, approximately 40 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 530 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 northbound in-road sensors). This location has been marked with a "900 WIM" in orange paint on the outside shoulder.

7.1 RECOMMENDED LOCATION AND LAYOUT FOR THE WIM SYSTEM

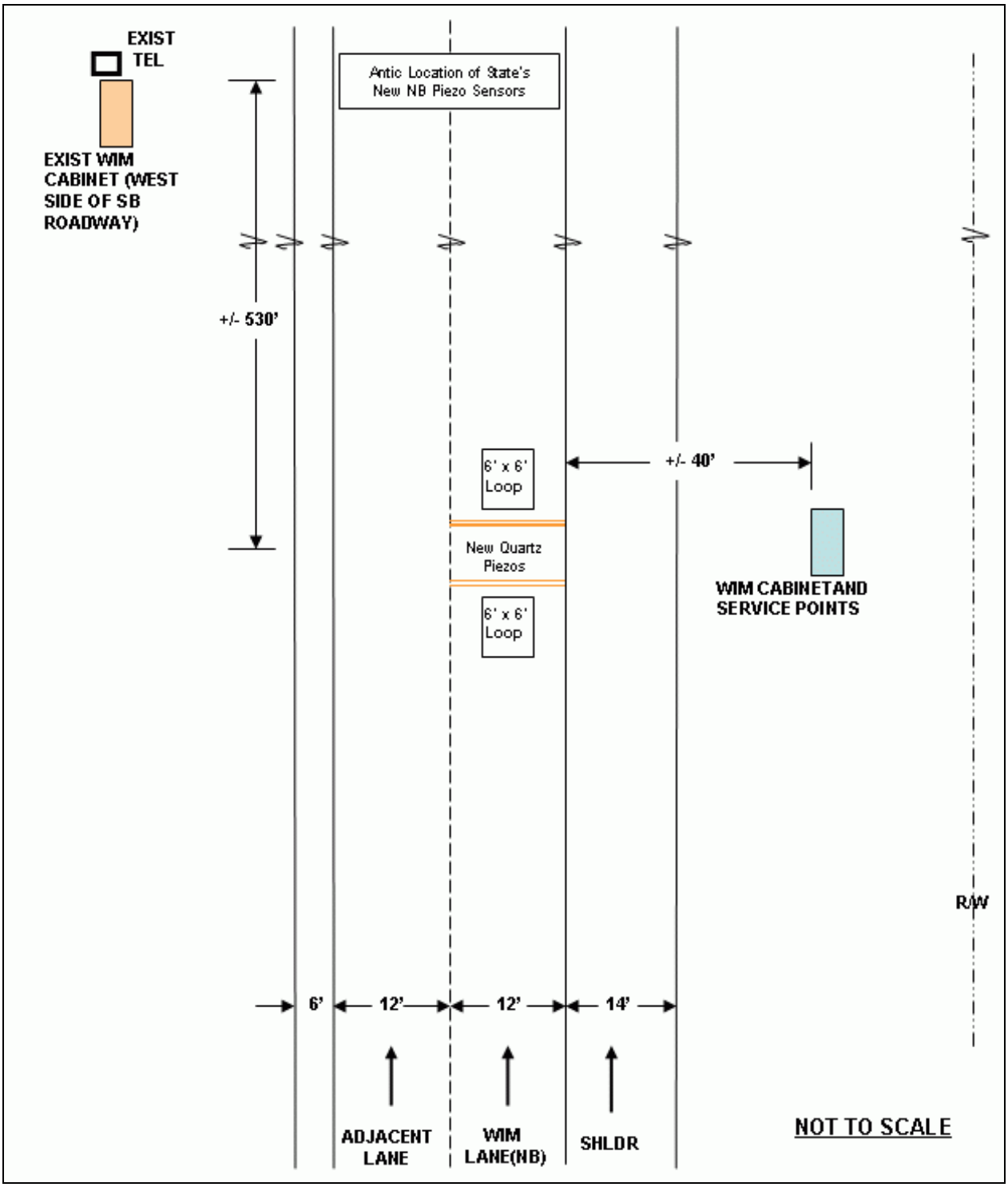


Figure 6: Proposed WIM Site Layout

A.0 COORDINATION DETAILS

Task Order #15, which authorized the CLIN 2001 "Determine Acceptability of Proposed Site" for the New Mexico SPS-1 Site (LTPP ID 350100), 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 15, Rich Quinley and Robert Meyers met with SHA District 1 Electrical and Communication reps at the District 1 office in Deming to determine the feasibility of the SHA's providing power and phone services for the proposed SPS-1 WIM system. On Wednesday AM, January 16, Rich Quinley again met with the SHA District 1 Electrical and Communication reps at the I-25 site prior to his performing 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-1 LTPP ID 350100

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

- 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-25, MilePost 36.1, NB outside lane
- Nearest major airport: El Paso International Airport (83 miles)
- Nearest lodging: Las Cruces (30 miles)

INTERNATIONAL ROAD DYNAMICS INC.

LTPP SPS PHASE II

WEIGH-IN-MOTION SITE ACCEPTABILITY

SITE VISIT EVALUATION FORM

NEW MEXICO SPS-1 LTPP ID 350100

Date of Site Visit: January 16, 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-25 Mile Post: 36.1 Direction: NB Lane: Outside

Proposed WIM Site is 1470 feet upstream of SPS Test Section 350101.

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

C.1.1 EXISTING ROADWAY APPROACHING AND DEPARTING THE PROPOSED WIM SITE

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

Thickness: 5/8" OGFC wearing course over +/- i2" PMBP courses

Observed Structural Soundness: Good

Observed Smoothness: Long Wavelength issues throughout the SPS Test Section and initial site search area

Outside Shoulder Type: AC Width: 14' Condition: Fair

Inside Shoulder 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, except this 400' section of pavement does not exhibit any indication of pavement smoothness problems.

Notes/Comments on Pavement:
Recently rehabilitated Asphalt Concrete Pavement with a 5/8" thick open grade wearing course over dense grade base courses.

C.1.3 OTHER ROADWAY GEOMETRICS

Horizontal Align: Tangent Grade: Minimal (< 0.5%) Cross-slope See Notes

Striping: NB outside lane: 4" solid white stripe delineates 12' lane. The 5/8" thick OG wearing course extends 5" beyond the outer edge of the stripe. The 14' shldr has a profile grade break at +/- 10' from the edge of the OG course. NB inside lane: 4" solid yellow stripe delineates 12' lane. The OG wearing course extends 18" beyond the outer edge of the stripe. The 6' shoulder has a profile break at 30" from the edge of the OG course.

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 at all Times

Traffic signals or interchanges affecting traffic flow? See Notes

Other adverse traffic flow conditions? None, Traffic Flow is Light

Truck traffic at "cruising" speed and no lugging? No Lugging, Smooth Flow

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

Observed truck suspension or body motion dynamics? Significant body motion, but dampens out before reaching selected WIM scale location.

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 site is located at the end of a straightaway with a short radius curve immediately following the proposed WIM location. The grade is relatively flat through the selected WIM site location, but a short steep grade immediately follows the WIM site. With regards to cross slope it is noted that the proposed scale location is within a super elevation transition from tangent to a curve to the left. It appears that the transverse slope of the pavement at the start of the proposed 400' WIM pavement slopes to the outside shoulder, is almost flat at the proposed scale location, and slopes toward the median at 75' beyond the scale location (end of WIM pavement). Vehicles track smoothly through this area at speeds between 70 and 80 MPH (posted speed is 75 MPH). There is an on ramp to the main line with its shoulder striping taper ending at the main line +/-590' upstream of the proposed WIM scales location. This ramp has very little traffic and will not be a factor with regards to truck traffic flow or system performance. There is very good lane discipline at this site. Traffic flow is light on this four lane, (two each direction) roadway.

C.1.5 ACCESS TO UTILITY SERVICES

Potential source(s) for power: AC power is available on the west side of the roadway within the town of Rincon. However, it is the state DOT's policy to utilize solar power whenever 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: Telephone service is available at the existing WIM cabinet (adjacent to SB lanes) which is located 685 feet from the proposed new WIM cabinet location (adjacent to NB lanes). A telephone service point was also found adjacent to the SB roadway's R/W fence. To extend service from either of these service points to the new WIM cabinet location would require a lengthy bore and trenching. The state rep advised he would discuss the feasibility of extending the service with the telephone service provider.

C.1.6 EQUIPMENT INSTALLATION CAPABILITY

Adequate location for controller cabinet? Yes, large area inside R/W opposite scales

Distance from edge of traveled way to cabinet? 40 feet clearance

Visibility from cabinet of sensors and approaching vehicles? Very Good

Adequate location for service facilities? Yes, Large area adjacent to right of way

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

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

- ☑ OK from State Agency to use inside shoulder for single lane traffic shift.

Notes/Comments on Equipment Installation Capability:
The Roadway traffic is fairly light but 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? None Adjacent railroad? None

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

Direction NB - Nearest usable truck turnaround location:

I-25 Exit 41, Hatch SR26 Distance from WIM: 5.0 Miles

Direction SB - Nearest usable truck turnaround location:

I-25 Exit 32, Upham Distance from WIM: 3.0 Mile

Circuit travel distance: 17 miles Estimated lap time: 15 - 20 Minutes

Potential circuit route restrictions? Trucks will have to determine best way to turn around on the NB Exit. This exit is not a conventional on/off ramp and the trucks may have some difficulty negotiating the change in direction to south bound. It is also noted that for the turnaround at the Exit 32 interchange the roadway under the freeway is posted for a 14' - 0' vertical clearance.

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

Identification and location of trucking firm and certified static scales:

Scales: TA Las Cruces Contact Jeff Wilcox

Address I-10 Exit 139, Las Cruces, New Mexico

Phone 505-527-7400 Hours 8:00 a.m. – 5:00 p.m.

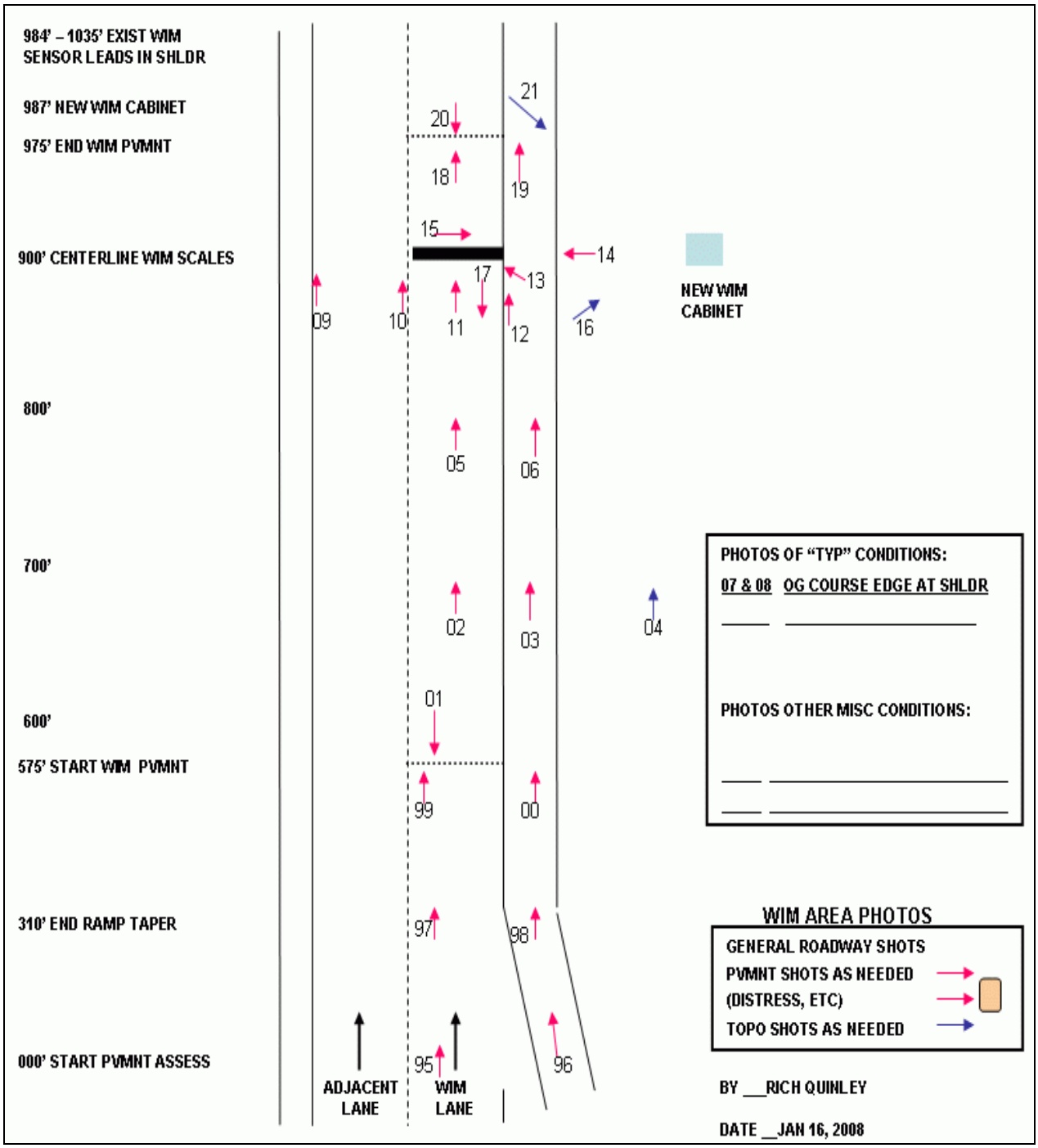
Notes/Comments on Test Truck Circuit and Static Weighing Facility

TA Las Cruces is located approximately 35 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° 40.655’	W107° 3.924’
Exist scale location		N32° 40.66’	W107° 4.02’
Roadway Mile Posts			
MP 38.0 NB		N32° 40.57’	W107° 5.86’
MP 36.0 NB		N32° 40.63’	W107° 3.79’
SPS Pavement Test Sections			
350101	Start	N32° 40.673’	W107° 4.206’
Test Truck Turnaround Locations			
NB, Exit 41		N32° 41.002’	W107° 9.072’
SB, Exit 32		N32° 40.290’	W107° 0.820’

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

Proper attire for field work and expected weather:
☑ Durable shoes
☑ Foul 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	350100
WIM SITE INVENTORY	*SPS WIM_ID	SPS-1

1.* ROUTE I-25 MILEPOST 36.1 LTPP DIRECTION N

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 14 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 01/16/2008

E.0 PHOTOGRAPHS

E.1.1 SPS TEST SECTION MARKERS

E.1.2 DOWNSTREAM VIEW OF ROADWAY FROM START OF 1000' PAVEMENT EVALUATION

E.1.3 DOWNSTREAM VIEW OF ROADWAY FROM START OF WIM PAVEMENT SECTION

E.1.4 UPSTREAM VIEW OF ROADWAY APPROACHING 400' WIM PAVEMENT SECTION

E.1.5 EDGE OF 5/8" THICK OPEN GRADE WEARING COARSE AT SHOULDER

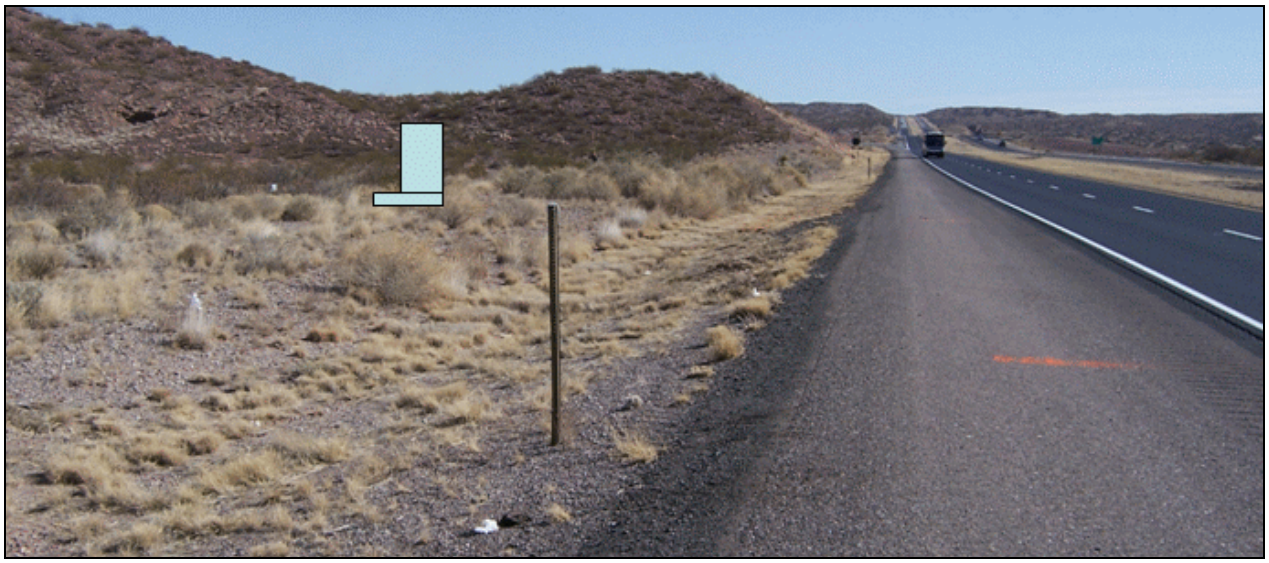
E.1.6 RIGHT SHOULDER, TYPICAL

E.1.7 DOWNSTREAM VIEW OF ROADWAY FROM RECOMMENDED SCALE LOCATION

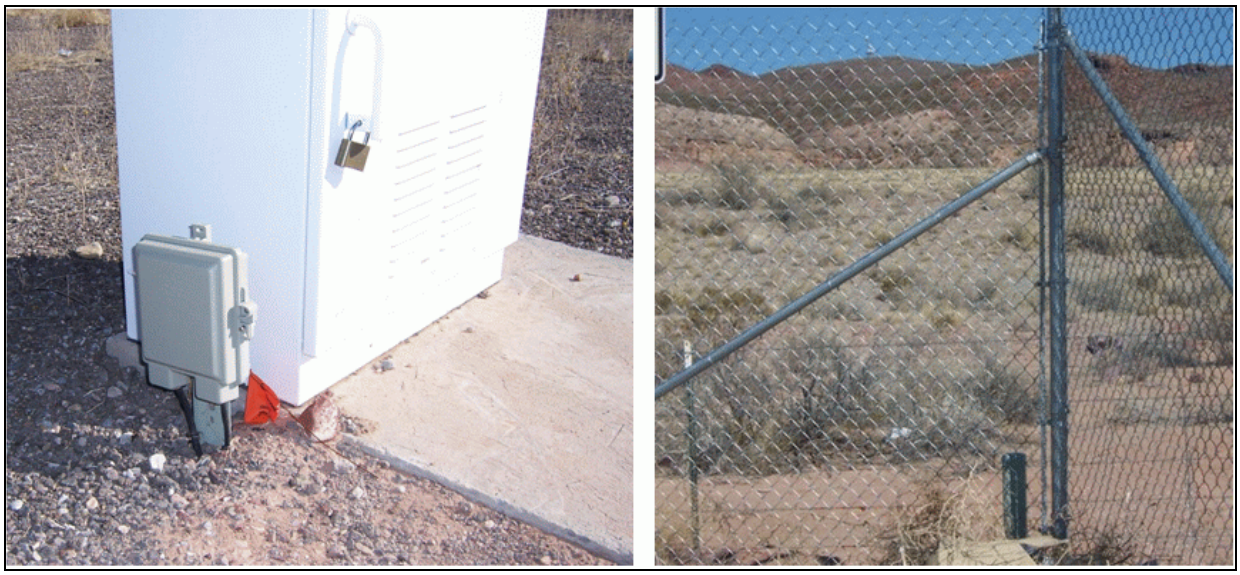
E.1.8 MARKING FOR RECOMMENDED SCALE LOCATION

E.1.9 DOWNSTREAM VIEW OF ROADWAY AT END OF 400' WIM PAVEMENT SECTION

E.1.10 RECOMMENDED CABINET LOCATION



E.1.11 EXISTING TELEPHONE SERVICE AT EXISTING WIM CABINET AND R/W



E.1.12 EXISTING WIM CABINET