

APPENDIX A: SURVEY SENT TO STATE DOTs

NCHRP Synthesis Topic 48-12 Inertial Profiler Certification for IRI Measurements

The Transportation Research Board (TRB) is preparing a synthesis on Inertial Profiler Certification for IRI Measurements. This is being done for NCHRP, under the sponsorship of the American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration (FHWA).

The Synthesis Topic Inertial Profiler Certification for IRI Measurements seeks to document the procedures used by State Highway Agencies (SHAs) to certify inertial profilers that are used to collect data for obtaining the International Roughness Index (IRI) for both project and network level applications.

Currently, many SHAs use the IRI to judge the smoothness of the final paved surface for new construction or rehabilitated pavements. Some SHAs use their own equipment to collect profile data to assess the smoothness level of the final paved surface; other SHAs allow contractors or a testing company hired by the contractor to collect this data, with the SHA performing QA testing. The IRI data collected for construction acceptance is considered to be project level data. High-speed profilers that operate at highway speeds as well as low-speed profilers (i.e., lightweight profilers, which are housed on a utility vehicle), are used to collect this data.

SHAs use profile data collected on their highway network to compute a roughness index to keep track of the roughness of their highway network. The roughness data are typically assessed in terms of the IRI. The FHWA requires SHAs to annually submit to the Highway Performance Monitoring System (HPMS) roughness data for the following roadways in their state: (1) National Highway System (NHS) roads; (2) non-NHS freeways, expressways, and principal arterials; and (3) HPMS sections that are located on minor arterials. The roughness data for these roadways have to be submitted in terms of the IRI. Some of the roadways of which IRI data have to be submitted to the HPMS are not under the jurisdiction of the SHA. The IRI data collected on the state highway system and the IRI data collected for HPMS submittal on the non-state highway system are considered to be network level data. This data are collected using high-speed profilers that operate at highway speeds.

The profile data collected by an inertial profiler is used to compute the IRI value. The inertial profilers that are used for smoothness data collection at the project and network level must be capable of collecting repeatable and accurate data. This questionnaire is aimed at gathering information on the procedures used by the SHAs to certify/validate inertial profilers that are used to collect project and network level profile data for computation of IRI.

Information regarding project level data collection is sought in Section 2, while information regarding network level data collection is sought in Section 3. This distinction is made because in many highway agencies, data collection for project level and network level are handled by different

divisions within the highway agency. Also, the procedures employed to certify/validate equipment used for project level and network level data collection could be different.

We estimate that it should take approximately 45 minutes to complete. If you have any questions, please contact our principal investigator Rohan Perera (e-mail: perera@sme-usa.com).

Thank you very much for your time and expertise.

INFORMATION ABOUT RESPONDENT AND ANONYMITY

NAME:

TITLE:

AGENCY:

ADDRESS:

EMAIL:

PHONE:

Question 1. Do you want anonymity with respect to the answers you provide (i.e., your responses will not be identified with your state)?

- (a) Yes
- (b) No

SECTION 1. INERTIAL PROFILERS OWNED BY THE HIGHWAY AGENCY

Question 2: How many inertial profilers does your agency own and operate (Indicate the number of devices for each category)?

Profiler Type	Number
High-Speed, Profiling Equipment Permanently Fixed to Vehicle)	
High-Speed Portable, Equipment Can be Moved to Another Vehicle	
Low-speed (Lightweight)	

Question 3: What type of reference profiling devices does your agency own and operate (Indicate the number of devices for each equipment category that the agency owns)?

Device	Number
Dipstick (Face Technology)	
ARRB Walking Profiler (Older Version 9.5" Recording Interval)	
ARRB Walking Profiler G3 (Newer Version 1" Recording Interval)	
SurPRO Walking Profiler (ICC)	
Walking Profiler (SSI)	

Question 4: For what purposes are these inertial profilers utilized (check all that apply)?

- (a) Collect data on the state highway system to be stored in the pavement management system.
- (b) Collect data on non-state highways required for HPMS.
- (c) Collect data on final paved surface of new construction for construction acceptance.
- (d) Collect Quality Assurance (QA) data on final paved surface of new construction to verify contractor collected data.
- (e) Other, Please specify:

Question 5: Do you use IRI as the smoothness index for construction acceptance in your state (Answer Yes if you use it only on asphalt pavements; Answer Yes if you use it on concrete pavements; Answer Yes if you use it on both asphalt and concrete pavements)?

- (a) Yes
- (b) No

SECTION 2. PROJECT LEVEL IRI DATA COLLECTION

If you answer No to Question 5 please go to Question 36

This group of questions pertain to collecting IRI data on the final paved surface on construction projects for construction acceptance.

Question 6: Please identify cases below where you use IRI as the smoothness index for construction acceptance (check all that apply).

- (a) Asphalt Concrete Pavements.
- (b) Concrete Pavements.
- (c) Bridge decks.

Question 7: Please indicate the approximate percentage of the State highway system that is surfaced with asphalt and concrete.

Asphalt (%):
Concrete (%):

Question 8: What type of equipment is allowed to collect the IRI data for construction acceptance (Put an X for applicable cases)?

Surface Type	High-Speed	Low-Speed (Lightweight)	IRI Not Used For Construction Acceptance
Asphalt Concrete Pavements			
Concrete Pavements			
Bridge Decks			

Question 9: Does the SHA have a policy requiring smoothness specification be applied to all state highways or does the districts have an option of either using them or not using them at their discretion (check one)?

- (a) The State Highway Agency has a policy that specifies the roadways for which the smoothness specification must be applied.
- (b) The Districts have the option of either using or not using the smoothness specification on a project at their discretion.
- (c) Other: Please specify:

Question 10: Who collects the IRI data for construction acceptance on the final paved surface?

- (a) The State Highway Agency collects the data using agency owned equipment operated by agency personnel.
- (b) The contractor collects data using contractor owned equipment or the contractor hires a testing company to collect the data; highway agency may perform quality assurance testing.
- (c) Other, Please specify:

Question 11: When does your agency require a profiler that collects IRI data for construction acceptance on the final paved surface to be certified (check all that apply)?

- (a) My agency does not require a profiler to be certified.
- (b) Annually.
- (c) When inaccuracy is suspected.
- (d) After major repairs.
- (e) Other, Please specify:

Question 12: How does your agency certify agency-owned inertial profilers that are used to collect IRI data for construction acceptance on the final paved surface (check all that apply)?

- (a) Profiler is not certified, operational checks performed to see if equipment is operating properly.
- (b) Certification at a facility that is not subject to traffic by my agency.
- (c) Certification at a site(s) established on in-service road(s) by my agency.
- (d) Certification at a facility that is not subjected to traffic by another highway agency.
- (e) Certification at a site(s) established on in-service road(s) by another highway agency.
- (f) Certification at a facility that is not subjected to traffic operated by a university in my State.
- (g) Certification at a site(s) established on in-service roads by a university in my State.
- (h) Certification at a facility that is not subjected to traffic operated by a university in another State.
- (i) Certification at a site(s) established on in-service roads by a university in another State.
- (j) Other, Please specify:

Question 13: How does your agency certify contractor-owned inertial profilers that are used to collect IRI data for construction acceptance on the final paved surface (check all that apply)?

- (a) Contractor owned profilers are not allowed to collect data.

- (b) Profiler is not certified, assume contractor performs operational checks to see if equipment is operating properly.
- (c) Profiler is not certified; agency personnel observe the contractor performing operational checks to see if equipment is operating properly.
- (d) Certification at a facility that is not subject to traffic by my agency.
- (e) Certification at a site(s) established on in-service road(s) by my agency.
- (f) Certification at a facility that is not subjected to traffic by another agency.
- (g) Certification at a site(s) established on in-service road(s) by another agency.
- (h) Certification at a facility that is not subjected to traffic operated by a university in my State.
- (i) Certification at a site(s) established on in-service roads by a university in my State.
- (j) Certification at a facility that is not subjected to traffic operated by a university in another State.
- (k) Certification at a site(s) established on in-service roads by a university in another State.
- (l) Other, Please specify:

Question 14: If your agency does not currently certify agency-owned inertial profilers or contractor-owned inertial profilers that collect smoothness data for construction acceptance, please select all answers that are applicable to your agency (check all that apply).

- (a) Not applicable.
- (b) We are currently developing a program to certify agency-owned inertial profilers.
- (c) We are currently developing a program to certify contractor owned inertial profilers so they can be allowed to collect smoothness data for construction acceptance.
- (d) Comments:

Question 15: What surface/texture types and IRI levels are used for profiler certification (Put an X for all cases that are applicable, you can enter additional surface types under “other”)?

Surface Type	Mean IRI Level (in/mi)			
	< 70 in/mi	70 to 120 in/mi	> 120 in/mi	No Specific IRI Value
Dense-Graded Asphalt Concrete				
Open-Graded Asphalt Concrete				
Stone Matrix Asphalt				
Concrete (Carpet Drag or Broom Finish)				
Concrete (Transverse Tining)				
Concrete (Longitudinal Tining)				
Concrete (Diamond Grinding)				
Other:				
Other:				
Other:				

Question 16: Indicate the height sensor type that is specified by the SHA for collecting data on the following surface types, check all that apply (Note: Single spot laser projects a single spot 1 to 3 mm on the pavement surface; a wide-spot laser projects a wider spot about 0.5 to 0.75 inches

on the pavement; Line laser means a RoLine or Gocator sensor that projects a line about 4 inches wide on the pavement surface)

Surface Type	Single Spot Laser (SS)	Wide Spot Laser (WS)	Line Laser (LL)	Not Specified (NS)
Dense-Graded Asphalt Concrete (DAC)				
Open-Graded Asphalt Concrete (OAC)				
Stone Matrix Asphalt (SMA)				
Carpet Drag or Broom Finished Concrete (BFC)				
Transversely Tined Concrete (TTC)				
Longitudinally Tined Concrete (LTC)				
Diamond Ground Concrete (DGC)				
Note: Line laser means a RoLine or a Gocator sensor				

Question 17: What is the typical length of a section that is used for certification of profilers?

- (a) Profiler certification not performed.
- (b) 0.1 Mile (528 ft).
- (c) 0.2 Mile (1,056 ft).
- (d) Other: Please specify.

Question 18: What method is used to collect the reference data that are used as the basis for certifying profilers (check all that apply)?

- (a) Profiler certification not performed.
- (b) SurPRO manufactured by International Cybernetics Corporation.
- (c) Walking Profiler, manufactured by Surface Systems and Instruments.
- (d) Walking Profiler manufactured by ARRB Group.
- (e) Dipstick manufactured by Face Technologies.
- (f) Rod and Level.
- (g) IRI from DOT owned profiler.
- (h) Other: Please specify:

Question 19: What procedure is used to certify profilers (please check one)?

- (a) Profiler certification not performed.
- (b) AASHTO R 56.
- (c) ASTM E950.
- (d) Agency developed procedure that includes the cross-correlation method specified in AASHTO R 56.
- (e) Agency developed procedure that does not include the cross-correlation method specified in AASHTO R 56.
- (f) Other: Please specify:

Question 20: Do you have a written procedure on how profilers that are used to judge the smoothness level of the final paved surface are certified?

- (a) Yes.
- (b) If Yes and document is available on the web provide web address:
- (c) No.
- (d) Other, Please specify:

Question 21: Do you charge a fee for certifying contractor owned profilers?

- (a) Agency does not certify contractor owned equipment.
- (b) Yes.
- (c) If Yes, specify the amount charged for one profiler (\$):
- (d) No.

Question 22: What type of documentation is provided after certifying a contractor-owned profiler (check all that apply)?

- (a) Agency does not certify contractor owned profilers.
- (b) Decal affixed to profiler.
- (c) Letter indicating profiler is certified is provided.
- (d) Details of the profiler are posted on the web.
- (e) Comments:

Question 23: Do you require operators of inertial profilers to be certified (check all that apply)?

- (a) Highway Agency employees do not need certification; they are assumed to be knowledgeable in operation of equipment.
- (b) Highway Agency employees are required be certified.
- (c) No certification is required for contractor employees who operate contractor owned profilers.
- (d) Contractor employees who operate a contractor owned profiler are required to be certified.
- (e) Comments:

Question 24: Do you have a written procedure on how profiler operators that collect data on the final paved surface for smoothness acceptance are certified?

- (a) Yes.
- (b) If Yes, and document is available on the web, please provide web address:
- (c) No.
- (d) Other, Please specify:

Question 25: What procedures are used to certify operators of inertial profilers (check all that apply)?

- (a) My agency does not certify operators.
- (b) Attend a class describing profiler operations.

- (c) Take an on-line course on profiler operations.
- (d) Pass a written examination administered in a classroom.
- (e) Pass an on-line written exam.
- (f) Pass a practical exam.
- (g) Comment:

Question 26: If your agency certifies operators, for how long is the certification valid?

- (a) Agency does not certify operators.
- (b) One year.
- (c) Three years.
- (d) Others, Please specify:

Question 27: What type of documentation is provided after certifying an operator of a contractor (check all that apply)?

- (a) My agency does not certify contractor profiler operators.
- (b) A letter indicating operator is certified is provided.
- (c) A photo ID card indicating the operator is certified is provided.
- (d) Name of certified operators (without a picture of operator) are posted on the web.
- (e) Name with picture of certified operator is posted on the web.
- (f) Comment:

Question 28: Do you charge a fee for certifying operators of contractor owned profilers (Check one answer)?

- (a) Agency does not allow contractors to collect data.
- (b) Agency does not certify profiler operators.
- (c) Agency does not charge a fee for certifying profiler operators.
- (d) Agency charges a fee for certifying profiler operators.
- (e) If a fee is charged for certifying operators, what is the fee per operator (\$)?
- (f) Comment:

Question 29: Do you accept certification for contractor owned profilers issued from another state (Please select one answer)?

- (a) Agency does not allow contractors to collect data.
- (b) Yes.
- (c) No.
- (d) Comment:

Question 30: Do you accept a profiler operator certification for a contractor employee issued by another state (Please select one answer)?

- (a) Agency does not allow contractors to collect data.
- (b) Profiler operators are not required to be certified.

- (c) Yes.
- (d) No.
- (e) Comment:

Question 31: What type of pre-operational checks are performed on Highway Agency owned profilers prior to collecting data on a project (Please select all that apply)?

- (a) Verification that the distance measuring system in the profiler is accurate.
- (b) Bounce test.
- (c) Block check on the laser sensor.
- (d) Indicate Additional Checks:

Question 32: What type of pre-operational procedures/checks are performed on Contractor owned profilers prior to collecting data on a project (Please select all that apply)?

- (a) Agency does not allow contractors to collect data.
- (b) A highway agency employee or a consultant working for the highway agency verifies the profiler is certified.
- (c) A highway agency employee or a consultant working for the highway agency verifies the operator is certified.
- (d) A highway agency employee or a consultant working for the highway agency observes the contractor verifying the distance measuring system in the profiler is accurate.
- (e) A highway agency employee or a consultant working for the highway agency observes the contractor performing the bounce test and verifies the profiler passes an established criterion.
- (f) A highway agency employee or a consultant working for the highway agency observes the contractor performing the block check on the laser sensor and verifies the profiler passes an established criterion.
- (g) Other: Please specify:

Question 33: If the contractor is allowed to collect data, what type of quality assurance procedures are utilized by the agency (check all that apply)?

- (a) Contractors are not allowed to collect data.
- (b) The agency always collects data on a portion of each project.
- (c) The agency always collects data on entire project.
- (d) The agency collects data on a portion of each project or the entire project if a potential issue is flagged for the contractor provided data.
- (e) Other, Please specify:

Question 34: If there is a discrepancy between contractor collected data and agency collected data, how is this issue handled?

- (a) Contractors are not allowed to collect data.
- (b) The agency collected data is assumed to be accurate.
- (c) Documented procedures are used to address this issue.

(d) Comment:

Question 35: Please provide any other comments you may have regarding certification of equipment for IRI data collection for construction acceptance:

SECTION 3. NETWORK LEVEL IRI DATA COLLECTION

This group of questions pertain to collecting IRI data at the network level on the state highway system as well as collecting IRI data on non-state highways for HPMS submittal.

Question 36: Who collects network level roughness data in your state (Put an X on all boxes that are applicable)?

Network	Highway Agency	Contractor
State Highway Network		
Non-State Roadways Required for HPMS		

Question 37: When does your agency require a profiler that collects IRI data at network level to be certified/validated (check all that apply)?

- (a) My agency does not require a profiler to be certified.
- (b) Before collecting network level data for the year.
- (c) Annually.
- (d) When inaccuracy is suspected.
- (e) After major repairs.
- (f) Comment:

Question 38: How does your agency certify/validate agency-owned inertial profilers that are used to collect network level IRI data (check all that apply)?

- (a) Profiler is not certified, operational checks performed to see if equipment is operating properly.
- (b) Certification at a facility not subjected to traffic by my agency.
- (c) Certification at a site(s) established on in-service road(s) by my agency.
- (d) Certification at a facility not subjected to traffic by another highway agency.
- (e) Certification at a site(s) established on in-service road(s) by another highway agency.
- (f) Certification at a facility not subjected to traffic operated by a university in my State.
- (g) Certification at a site(s) established on in-service road(s) operated by a university in my State.
- (h) Certification at a facility not subjected to traffic operated by a university in another State.
- (i) Certification at a site(s) established on in-service roads operated by a university in another State.
- (j) Other, Please specify:

Question 39: How does your agency certify contractor-owned inertial profilers that are used to collect IRI data at network level (check all that apply)?

- (a) Contractor owned profilers do not collect network level data.
- (b) Profiler is not certified, assume contractor performs operational checks to see if equipment is operating properly.
- (c) Certification at a facility not subjected to traffic by my agency.
- (d) Certification at a site(s) established on in-service road(s) by my agency.
- (e) Certification at a facility not subjected to traffic by another highway agency.
- (f) Certification at a site(s) established on in-service road(s) by another highway agency.
- (g) Certification at a facility not subjected to traffic operated by a university in my State.
- (h) Certification at a site(s) established on in-service road(s) operated by a university in my State.
- (i) Certification at a facility not subjected to traffic operated by a university in another State.
- (j) Certification at a site(s) established on in-service roads operated by a university in another State.
- (k) Other, Please specify:

Question 40: If your agency does not currently certify agency-owned inertial profilers or contractor-owned inertial profilers that collect network level data, please select all answers that are applicable to your agency.

- (a) Not applicable.
- (b) We are currently developing a program to certify agency-owned inertial profilers.
- (c) We do not have plans to develop a program to certify agency-owned inertial profilers.
- (d) We are currently developing a program to certify contractor owned inertial profilers.
- (e) We do not have plans to develop a program to contractor-owned inertial profilers.
- (f) Comment:

Question 41: What surface/texture types and IRI levels are used for profiler certification (Put an X for all cases that are applicable, you can enter additional surface types under “other”)?

Surface Type	Mean IRI Level (in/mi)			
	< 70 in/mi	70 to 120 in/mi	> 120 in/mi	No Specific IRI Value
Dense-Graded Asphalt Concrete				

Open-Graded Asphalt Concrete				
Stone Matrix Asphalt				
Concrete (Carpet Drag or Broom Finish)				
Concrete (Transverse Tining)				
Concrete (Longitudinal Tining)				
Concrete (Diamond Grinding)				
Other:				
Other:				
Other:				

Question 42: Indicate the height sensor type that is specified by the SHA for collecting data on the following surface types, check all that apply (Note: Single spot laser projects a single spot 1 to 3 mm on the pavement surface; a wide-spot laser projects a wider spot about 0.5 to 0.75 inches on the pavement; Line laser means a RoLine or Gocator sensor that projects a line about 4 inches wide on the pavement surface). Please put an “X” for each applicable box.

Surface Type	Single Spot Laser (SS)	Wide Spot Laser (WS)	Line Laser (LL)	Not Specified (NS)
Dense-Graded Asphalt Concrete (DAC)				
Open-Graded Asphalt Concrete (OAC)				
Stone Matrix Asphalt (SMA)				
Carpet Drag or Broom Finished Concrete (BFC)				
Transversely Tined Concrete (TTC)				
Longitudinally Tined Concrete (LTC)				
Diamond Ground Concrete (DGC)				
Note: Line laser means a RoLine or a Gocator sensor				

Question 43: What is the typical length of a section that is used for certification of profilers?

- (a) 0.1 Mile (528 ft).
- (b) 0.2 Mile (1056 ft).
- (c) 1 Mile (1056 ft).
- (d) Profiler certification not performed.
- (e) Other: Please specify.

Question 44: What method is used to collect the reference data that are used as the basis for certifying profilers (check one)?

- (a) Profiler certification not performed.
- (b) SurPRO manufactured by International Cybernetics Corporation.
- (c) Walking Profiler, manufactured by Surface Systems and Instruments.
- (d) Walking Profiler manufactured by ARRB Group.
- (e) Dipstick manufactured by Face Technologies.

- (f) Rod and Level.
- (g) IRI from DOT owned profiler.
- (h) Other, Please specify or Additional Comments:

Question 45: What procedure is used to certify profilers?

- (a) Profiler certification not performed.
- (b) AASHTO R 56.
- (c) ASTM E950.
- (d) Agency developed procedure that includes the cross-correlation method specified in AASHTO R 56.
- (e) Agency developed procedure that does not include the cross-correlation method specified in AASHTO R 56.
- (f) Other: Please specify:

Question 46: Do you charge a fee for certifying contractor owned profilers?

- (a) Agency does not certify contractor owned equipment.
- (b) No.
- (c) Yes.
- (d) If Yes, indicate the amount for a profiler (\$):

Question 47: What type of documentation is provided after certifying a contractor-owned equipment (check all that apply)?

- (a) Agency does not certify contractor owned equipment.
- (b) No documentation is provided, assume that the contractor will use the certified profiler to collect data.
- (c) Decal affixed to equipment.
- (d) Letter indicating equipment is certified is provided.
- (e) Details of the equipment are posted on the web.
- (f) Comment:

Question 48: Do you require operators of inertial profilers that collect network level data to be certified (check all that apply)?

- (a) Highway agency employees do not need certification; they are assumed to be knowledgeable in operation of equipment.
- (b) Highway agency employees are required be certified.
- (c) No certification required for contractor employees who operate contractor-owned profilers.
- (d) Contractor employees who operate contractor-owned profilers are required to be certified.
- (e) Other, Please specify:

Question 49: What procedures are used to certify operators of inertial profilers (check all that apply)?

- (a) Operators are not certified.
- (b) Attend a class describing profiler operations.
- (c) Take an on-line class on profiler operations.
- (d) Pass a written examination administered in a classroom.
- (e) Pass an on-line written exam.
- (f) Pass a practical exam.
- (g) Other, Please specify:
- (h) Comments:

Question 50: If your agency certifies operators, for how long is the certification valid?

- (a) Agency does not certify operators.
- (b) One year.
- (c) Three years.
- (d) Others, Please specify:

Question 51: What type of documentation is provided after certifying an operator (check all that apply)?

- (a) Agency does not certify profiler operators.
- (b) Letter indicating operator is certified is provided.
- (c) A photo ID card indicating the operator is certified is provided.
- (d) Name of certified operators (without a picture) are posted on the web.
- (e) Name with picture of certified operator is posted on the web.
- (f) Other, Please Specify:

Question 52: Do you charge a fee for certifying contractor operators who operate contractor-owned profilers?

- (a) Agency does not certify operators.
- (b) Agency does not charge a fee for certifying operators.
- (c) Agency charges a fee for certifying operators.
- (d) If a fee is charged for certifying operators, what is the fee per operator?
- (e) Additional Comment:

Question 53: For contractor owned equipment that collect network level data, do you accept certification for equipment from another state?

- (a) Contractors do not collect network level data in my state.
- (b) Contractor owned equipment that collect network level data in my state do not need to be certified.
- (c) Yes.
- (d) No.
- (e) Comment:

Question 54: For operators of contractor owned equipment that collect network level data, do you accept certification of operator from another state?

- (a) Contractors do not collect network level data in my state.
- (b) Operators of contractor owned equipment do not need to be certified.
- (c) Yes.
- (d) No.
- (e) Comment:

Question 55: If contractors collect network level data in your state, are they required to submit a written data collection quality control plan prior to data collection?

- (a) Yes.
- (b) No.
- (c) Not sure.
- (d) Comment:

Question 56: If the highway agency collects network level data in your state, what type of procedures are utilized in your state during data collection (check all that apply)?

- (a) Collect data at verification sections established in different parts of the state during data collection.
- (b) Submit documentation at regular intervals to the office showing that profiler has passed operational checks such as block check and bounce test.
- (c) None of the above.
- (d) Additional Procedures/Comments:

Question 57: If a contractor collects network level data in your state, what type of procedures are utilized in your state during data collection?

- (a) Collect data at verification sections established in different parts of the state during data collection.
- (b) Submit documentation at regular intervals showing that profiler has passed operational checks such as block check and bounce test.
- (c) None of the above.
- (d) Additional Procedures/Comments:

Question 58: Does your agency have a written Data Quality Management procedure for network level roughness data?

- (a) Yes.
- (b) No.
- (c) Not sure.
- (d) If the plan is available on the web, please provide web address:

Question 59: What are the items covered in your Data Quality Management Procedure (check all that apply)?

- (a) Does not have a written data quality management plan.
- (b) Equipment calibration such as calibrating the distance measuring instrument.
- (c) Equipment operational checks such as block check and bounce check.
- (d) Periodic testing at control sections during data collection.
- (e) Routines for checking if data are within expected range.
- (f) Routines for checking data with previous data to identify inconsistencies.
- (g) Routines for checking missing road segments.
- (h) Other, please specify:
- (i) Additional Comments:

Question 60: Please provide any other comments you may have on the procedures used by your agency to check if the collected network level data are accurate:

Question 61: Please provide any other comments you may have regarding certification/validation of equipment used for network level IRI data collection.