LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For The Technical Direction Of The LTPP Program

Program Area: MATERIALS **Directive Number: M-18**

Date: 13 April 1998

Subject: Sampling and Testing of AC Materials from GPS SMP Test Sections

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Background

Materials Directive No. M-18 transmits instructions to the RCOC's regarding sampling of asphalt concrete cores from GPS Seasonal Monitoring Program (SMP) test sections.

The next phase of resilient modulus (M_r) testing for asphaltic concrete is scheduled to begin in the summer of this year. M_r testing of asphalt SMP sections will be the highest priority. We have performed a query and found that several SMP sections are not represented in the current FHWA LTPP laboratory contractors' inventory for the North Atlantic, Southern and Western regions. Therefore, it is necessary to obtain cores for these test sections.

Action

The FHWA LTPP RCOs should coordinate with, and strongly encourage, participating state/provincial highway agencies (DOT) to obtain eight, four-inch diameter outer diameter cores (four cores from each end) from test sections listed in Table 1. Sampling should be conducted as per guidelines contained herein and applicable provisions of the LTPP Field Sampling and/or Laboratory Testing Guides. Where necessary, RCO's will bear the cost of packaging and shipping samples. All samples shall be shipped to Braun Intertec as per provisions contained in Materials Directive No. 15. Aramis should be contacted if a RCO is unable to obtain cores from a SMP section for any reason. If a SMP test section has been taken out of study, the RCO should

still attempt to retrieve cores unless the section has been reconstructed or otherwise is not representative of the in-service SMP section. The goal for completion of this action is 1 August 1998.

Due to the resilient modulus test sample configuration (indirect tensile) it is extremely important that the cores obtained be of the highest quality. Great care should be exercised in the sampling process. Appendix A of this directive contains sampling and testing instructions.

Summary

Any questions regarding this directive should be submitted to the FHWA Pavement Performance Division with a copy to the LTPP Technical Support Services Contractor (TSSC).

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Approved by:

Monte Symons
LTPP Team Leader

Table 1. SMP sections for which AC cores are needed.

State Code	SHRP ID	Region	Experiment	SMP
9	1803	NA	GPS-1	A
23	1026	NA	GPS-1	A
24	1634	NA	GPS-2	A
25	1002	NA	GPS-1	A
33	1001	NA	GPS-1	A
37	1028	NA	GPS-1	E
50	1002	NA	GPS-1	A
87	1622	NA	GPS-1	A
13	1005	S	GPS-1	C
13	1031	S	GPS-1	B
28	1016	S	GPS-2	B
28	1802	S	GPS-2	A
35	1112	S	GPS-1	A
40	4165	S	GPS-2	A
48	1060	S	GPS-1	F
48	1068	S	GPS-1	B
48	1077	S	GPS-1	A
48	1122	S	GPS-1	E
48	3739	S	GPS-1	G
4	1024	W	GPS-1	C
8	1053	W	GPS-1	A
16	1010	W	GPS-1	B
30	8129	W	GPS-1	A
49	1001	W	GPS-1	B
56	1007	W	GPS-1	A

APPENDIX A
Field Material Sampling Requirements

These instructions are partially extracted from the LTPP Field Sampling Guide and repeated herein for easy reference. Guidelines specific to this task (sampling plans) are also included herein. Appendix B contains the data forms (and instructions) to be used to record the field material sampling activities and Appendix C contains an example completed field sampling data packet.

Coordination

Coordination among all parties involved in the field sampling and testing process is essential to ensure smooth operations in the field. An essential activity of the field sampling and testing activity is the establishment and continuous communication between FHWA LTPP RCO contractor staff and the local state/provincial highway agency with regard to such items as planning, scheduling, responsibilities, and safety.

This communication and coordination should be performed for each participating agency in advance of any field operations with participation by the FHWA RCO personnel, any drilling and sampling contractor personnel, and local highway agency personnel. This is a very important activity. All questions and concerns about such items as sampling and field testing, layouts, scheduling, permits, responsibilities, and safety must be resolved prior to the beginning of field operations.

External coordination and communication of regional activities will be those activities related to other regions, FHWA LTPP technical support services contractor staff, and FHWA LTPP headquarters. Such communication will assure timely execution of the work and the transmission of results. Communications after normal working hours should be sent by facsimile machine (FAX) or e-mail to assure that timely information is transmitted.

Sampling Plan

The participating agency will provide the coring and drilling equipment to collect eight 101.6 mm (4 in.) diameter cores (full-depth) for each SMP section (four from the approach end and four from the leave end) as shown in figure 1. **Due to the resilient modulus testing**

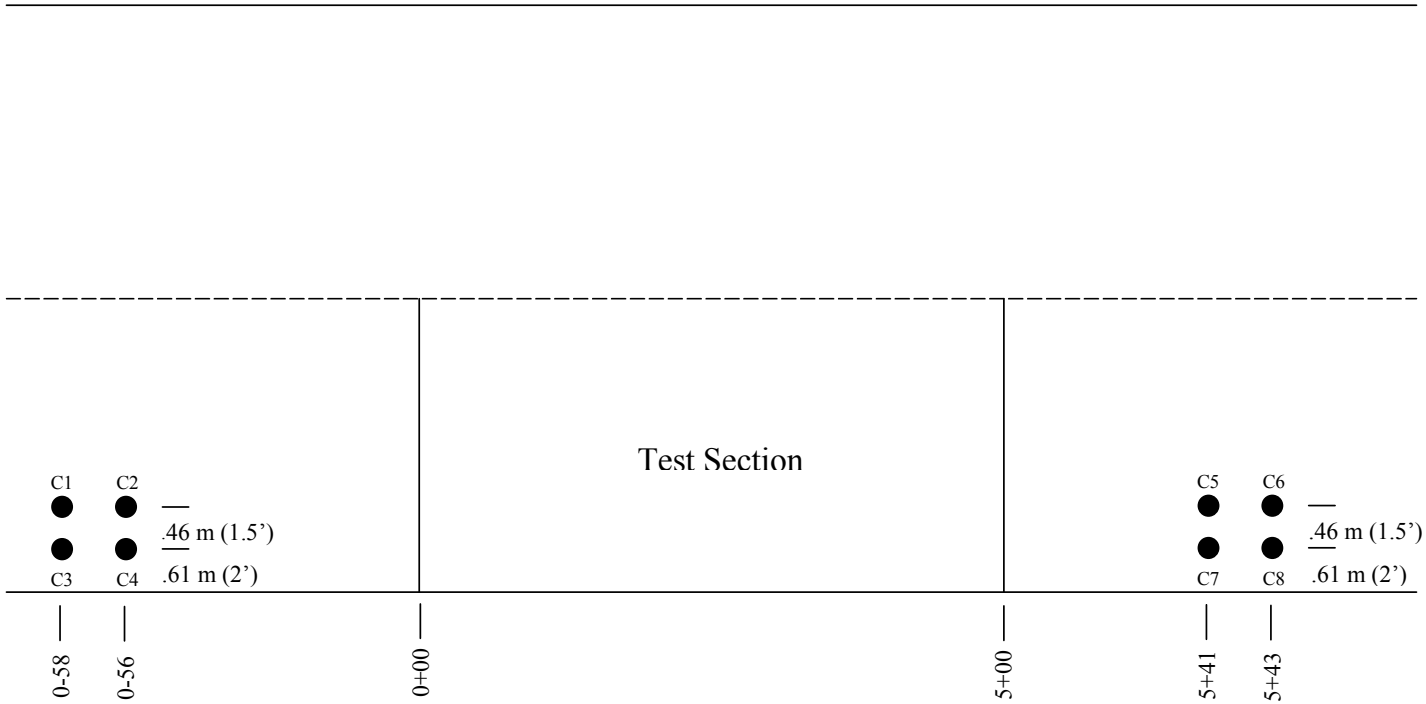


Figure 1. SMP M_r sampling plan.

configuration, it is important that the cores be as close to 101.6 mm (4 in.) in diameter as possible. However, **if no other option exists**, larger cores may be sampled and the samples will be cored to 101.6 mm (4 in.) in the laboratory. The sample numbers will be CA01, CA02, CA03, and CA04 for locations C1, C2, C3, and C4 in the approach end of the section and CA05, CA06, CA07, and CA08 for locations C5, C6, C7, and C8 in the leave end of the test section. If core holes from previous sampling are present in the proposed sampling area, core locations shall be moved closer to the test section. **Cores shall not be taken from within the boundaries of the monitoring portion of the test section (station 0+00 to station 5+00).**

The information concerning the field sampling of the pavement core is recorded on Sampling Data Sheet 2, Log of Pavement Core (only for use at c-type core locations). A summary of the sampling performed for one particular test section shall be recorded on Field Operations Information Form 1 (Laboratory Shipment Samples Inventory) and Field Operations Information Form 2 (Summary of Material Samples Sent to Each Laboratory). Sampling Data Sheet 2 will subsequently be entered into the IMS. Field Operations Information Form 1 and Form 2 are not entered into the IMS; however, they are used by the RCOC for sample tracking purposes. A copy of these forms, along with instructions for completing each form, are presented in Appendix B.

A site layout plan which shows the general location of the cores should be included with the sampling data from each test section. A template is included in Appendix B.

Therefore, for a given SMP test section, the following documentation is required:

(a) Core layout plan for each test section (with stations and offsets marked),

(b) Field Operations Form 1,

(c) Field Operations Form 2,

(d) Sampling Data Sheet 2 (one per core).

Field Material Sampling and Testing

General

It is recommended that the field crew include a qualified and experienced on-site project supervisor. This supervisor should be a senior technician, geologist, or engineer with at least five years of experience in subsurface explorations and at least three equivalent years of experience in field sampling and testing of existing pavements. This person must be familiar with all aspects of the drilling and sampling program, field drilling and sampling techniques, and the timing of all field activities.

Field Operations

This section outlines procedures for field sampling and handling of material retrieved from the test site. It includes the following activities:

1. The FHWA-LTPP Regional Coordination Office shall coordinate with the participating highway agency and the contractor(s) regarding the field activities involved in sampling operations. With concurrence of the participating highway agency, the LTPP RCO shall designate a representative to assist and coordinate with the participating highway agency and contractors in ensuring that the field operations are performed in accordance with the approved field sampling and testing plan.

2. On each occasion after arriving at the test site, the responsible personnel shall lay out the sampling locations and perform the sampling operations in an appropriate sequence.

3. Representatives on the site shall record and report problems encountered during the field operations to the LTPP RCO and obtain recommendations for resolution.

4. Test samples shall be prepared for shipping together with complete logs and other records.

When appropriate, locations for coring that are considered unacceptable should be replaced with alternate locations and marked on the as-sampled layout plan.

Coring of Pavement Surface

This activity will involve coring of the asphaltic concrete surface of the test sections at the locations shown on the field material sampling plan. Exploration logs must be prepared using Sampling Data Sheet 2 in Appendix B. This coring operation will obtain 101.6 mm (4 inch) diameter cores. The coring operations shall be carried out in accordance with AASHTO T24-B6, "Obtaining and Testing Drilled Cores and Sawed Beams of Concrete."

Carbide or diamond bit drilling is to be performed. Mist or air-cooled drilling is preferred as the best method to minimize water contamination of the underlying layers. The coring may be performed by a truck mounted drill rig or other coring equipment approved by the participating highway agency. The cores shall be dried before packaging. If necessary to obtain cores of suitable quality, the pavement may be cooled by dry-ice or other means prior to coring. Cores of multiple layers of asphalt concrete shall <u>not</u> be separated in the field.

Procedures which cause damage to the cores should be avoided. For example, rods should not be inserted in the core to pull it out of the core hole. Some other means, such as wire pulls or suction cups should be employed.

Core locations shall be as shown on the sampling plan figures developed for the test site. It is especially important that the cores be taken perpendicular to the pavement surface, i.e. at a 90 degree angle to the surface, to ensure the recovery of straight, intact, smooth-surfaced specimens suitable for laboratory testing.

The suitability of the cores is based on the following criteria:

<u>Projections/Depressions</u>

The suitability of the cores with respect to projections and depressions is as follows:

Excellent - The projections/depressions on the circular surface of the core are less than 0.25 mm (0.01 inches) in height/depth. Ship these cores to the laboratory.

Good - The projections/depressions on the circular surface of the core are between 0.5 mm to 2.5 mm (0.01 to 0.1 inches) in height/depth. These cores are considered marginal and should be shipped to the laboratory only if cores rated “excellent” can not be obtained.

Poor - The projections/depressions on the circular surface of the core are more than 2.5 mm (0.1 inches) in height/depth. These cores are not acceptable and should not be shipped to the laboratory unless no other suitable cores can be obtained. Another core should be drilled to replace cores rated as "poor." After two attempts to obtain a satisfactory core have been unsuccessful, the core to be shipped to the laboratory should be selected from the "best" of the two drilled cores. The "worst" core of the two should be discarded.

Skewness

The suitability of the cores with respect to skewness is as follows:

Good - The specimen departs from perpendicularity to the vertical axis by less than 0.5 degree (1 mm in 100 mm).

Poor - The specimen departs from perpendicularity to the vertical axis by more than 0.5 degrees. These cores are not acceptable and should not be shipped to the laboratory unless no other suitable cores can be obtained. Another core should be drilled to replace cores rated as poor. If, after two tries, a suitable core cannot be obtained, select the "best" core from the two and ship to the laboratory. The "worst" core of the two should be discarded.

Collection of Samples, Marking, Packaging, and Shipping

Because of the research nature of this project and because samples will be shipped over long distances, it is extremely important that the samples are packaged carefully. The samples shall be packaged and preserved in accordance with ASTM D4220 (Group B), "Preparing and Transporting Soil Samples". Extreme care must be taken in packaging and shipping of test samples to eliminate damage to the samples or influence their properties.

General requirements for marking and packaging individual samples are as follows:

- Sample numbering system (as provided later in this section).
- Indelible ink pens of black or other suitable color shall be used for marking labels.
- Labels and tags shall be of high quality moisture resistant material.
- Cores (and their labels/tags) shall be placed in "zip-lock" storage bags or other suitable material (e.g. heavy-duty plastic or "bubble-wrap" wrap) to ensure that they are sealed from moisture, then wrapped for their entire length with tape (e.g., plastic transparent mailing tape 51 mm (2 in.) wide).

Sample Code Number

Each core sample shall be assigned a four digit number that must be recorded on the appropriate data forms. The sample number will consist of two letters on the left side and two numbers on the right side.

The first letter on the left identifies the sample type in one of the following categories:

C - core sample

The second letter from the left identifies the material type of the material in the sample in one of the following categories:

A - asphalt concrete

The numbers on the right will designate the sample number. The numbers shall be assigned consecutively for each core obtained from a given test section. For example, samples taken at C-type locations can be designated CA01, CA02, CA03, etc. for the asphalt concrete material.

Labels and Tags

Each sample shall be labeled before packing in boxes and cartons. As a minimum, the following information shall be included on tags and labels:

STATE CODE
TEST SECTION NO.
CORE/SAMPLE LOCATION (as marked on sample layout plans)
SAMPLE NUMBER (four digit code)
DATE (mm-dd-yy, sampling date)
FIELD SET (one digit number which will be 2 or higher, designating the round of sampling for a particular test section)

Packaging

Suggestions for labeling and combining the samples for shipment are as follows:

1. All samples of like material (e.g., asphaltic concrete surface) shall be placed in separate boxes or separate compartments of one box.

2. Each sample shall have a label or tag attached that clearly identifies the material, the project number/test section from which it was recovered, and the sample number.

3. Each core shall be surrounded by "bubble-wrap" or other acceptable cushioning material on all sides within the shipping box.

4. Shipping boxes shall be made of wood of suitable grade and construction to withstand shipping and subsequent moving without breakage of the box or damaging of the samples.

5. All boxes shall be adequately secured by nails or screws prior to shipping.

6. All necessary documentation related to the samples being shipped shall also be included in the shipment. A duplicate set of all documentation shall be sent in a separate package to the laboratory to confirm the box inventory.

Shipping

All samples should be shipped within 5 days to the laboratory designated herein. Each box shall be labeled to include the State Code, Section Number, type(s) of samples, box number (for each series of boxes for the specific project to each delivery point). The boxes should be

labeled "Handle with Care" or similar wording. Samples shall be protected against freezing and overheating.

It is recommended that each shipment be insured for an amount to cover at least twice the cost of the field work performed at the site to obtain the samples.

A copy of the bill of lading clearly showing the shipment of boxes and a receipt signed by the shipping organization shall be sent to the appropriate FHWA LTPP Regional Coordination Office.

All of the above guidelines are designed to protect the integrity of the material samples to the highest degree possible within economic limits. These materials are very important to the success of the LTPP program and should be treated with as much care as possible. Cooperation from all participants is needed to ensure that these specimens are shipped to the laboratory with a minimum of damage.

Patching and Clean-up

Following the completion of the sampling of the asphalt surface layer, the sampling personnel shall be especially careful to remove all debris created by the operations. Field sampling personnel shall also repair and restore all core locations by replacing all material and compacting the layer as per the participating agency practice.

Logs and Reports

Accurate and detailed record keeping is essential for the materials sampling and testing program. During the field sampling operations, two types of forms must be completed. These are the Field Operations Information Forms and the Sampling Data Sheets. Field Operations Information Forms are used to record general information concerning the pavement test sections and the materials samples. Sampling Data Sheets are used to record the actual information for each sample. A person should be designated to record data at each site on the appropriate data sheets, insure the accuracy and integrity of the collected data and forward the data sheets to the appropriate personnel. This person should have a thorough understanding of the content of the data sheets and the procedures for completing the sheets. If these forms are completed by a person other than the LTPP representative, the data sheets must be reviewed by the LTPP representative prior to forwarding the sheets to the appropriate personnel.

A log entry shall be completed for each core hole. The depth of each coring operation and the average length of the recovered core shall be recorded to the nearest 2.5 mm (0.1 in.). The data sheet (Sampling Data Sheet 2) for these logs is included in Appendix B of this document. These logs shall show the general type of material in accordance with terminology described in Appendix B of the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing. The general code "700" shall be used to identify asphalt concrete. Remarks shall include difficulties encountered in coring, defects observed in the core (such as cracks, voids and disintegration), and other pertinent observations.

Assembly of Data Sheets and Transmittal

The following is a description of the format that should be used for the assembly of the data sheets from each test site. The forms will appear in the final assembled data packet in the order illustrated in Appendix C. The title page will be the first (top) sheet of the data packet and it should include the following information:

1 - LTPP Region
2 - State
3 - State Code
4 - Section Number
5 - Experiment Name
6 - Highway Number
7 - Date(s) of Field Material Sampling and Field Testing
8 - Submitting Contractor/Agency
9 - Total Sheets, including the Title Page.

To determine the number of sheets (item 9 above) all of the pages in the packet should be counted. The pages should then be numbered consecutively starting with the title page. For example, if there are 100 pages in the packet, the title page would be "page 1 of 100" followed by "page 2 of 100" and so forth until the last page would read: "page 100 of 100". This will insure that any lost sheets can be quickly identified and found.

After the packet has been assembled and numbered, the original and appropriate number of duplicates should be made. The original and one copy should be forwarded to the LTPP Regional Coordination Office. Also, copies should be forwarded to the participating highway agency and the laboratories designated to perform the laboratory tests on the samples.

APPENDIX B
FIELD MATERIALS SAMPLING DATA FORMS

This appendix contains sampling data forms for use in recording the field data associated with this effort.

MATERIAL SAMPLING DATA SHEETS

Material sampling data sheets include the following:

Sampling Data Sheet No.	Description
2	Pavement Core Log (c-type locations)

Field Operations Information Form No.	Description
1	Laboratory Shipment Samples Inventory
2	Summary of Material Samples Sent to Each Laboratory

Most of the LTPP Material Sampling and Field Testing data sheets use the same top block of information related to the test section and project.

SHEET NUMBER. Since multiple data sheets will be required for the samples and tests from the multiple sampling areas on the project, room is provided on all data forms to sequentially order the data sheets. The first field is the sequential number of the data sheet and the second field is the total number of data sheets submitted.

LTPP REGION. Indicate which LTPP region the state or province is located, North Atlantic, North Central, Southern, or Western.

STATE. Indicate the name of the state, District of Columbia, Puerto Rico, or the Canadian Province the project is located in. Alternatively, use the two letter abbreviation as shown in Table C.1 of the SHRP-LTPP Guide for Field Material Sampling, Testing and Handling.

STATE CODE. Enter the two-digit numeric code corresponding to the state or province as shown in Table C.1 of the SHRP-LTPP Guide for Field Material Sampling, Testing and Handling.

PROJECT CODE. The two digit project code. For a GPS section the four digit LTPP SECTION ID should be divided into two-two digit fields and the first two digits (from the left) should be entered as the SPS PROJECT CODE and the last two digits entered as the TEST SECTION NO.

TEST SECTION NO. The two digit number assigned to the test section.

EXPERIMENT NO. The experiment number for the project (optional entry).

ROUTE/HIGHWAY. Record the signed designation for the route or highway the project is located upon.

Lane. Record a "1" if sampling occurs on the outside lane and a "2" if sampling occurs on the inside lane. Drilling and sampling shall always occur on the outside lane.

Direction. Record the direction of travel at the project site. Use the following abbreviations:

E for eastbound traffic direction
W for westbound traffic direction
N for northbound traffic direction
S for southbound traffic direction
NE for northeastern bound traffic direction
SE for southeastern bound traffic direction
SW for southwestern bound traffic direction
NW for northwestern bound traffic direction.

SAMPLE/TEST LOCATION. Check "Before Section" if the sampling location is before the beginning of the test section indicated under TEST SECTION NUMBER on the form (station 0-). Check "After Section" if the sampling location is after the end of the test section indicated on the form (station 5+).

FIELD SET NO. The field set number is a sequentially assigned number to indicate the

different time periods in which material samples and field testing were conducted on the project. As a general rule, the same field set number should be applied to all material samples and field tests conducted in a continuous 30 day period, unless a construction event occurs between the two sampling sessions.

FIELD OPERATION INFORMATION FORM 1
LABORATORY SHIPMENT SAMPLES INVENTORY

This form is intended to provide a record of field activity and no information from this form will be included in the data base. This form provides the necessary information on where each sample was shipped for testing. Also, it provides a detailed inventory of material samples shipped to each materials testing laboratory. Sample location numbers and sample numbers should be obtained from the appropriate Sampling Data Sheets.

For core samples, record the diameter of the core in the "Sample Size" column in inches. Enter "core", in the "Sample Type" column as appropriate. Enter AC in the "Sample Material" column. The "Sample condition" should indicate a brief description as to the overall quality of the sample - cores: good, poor, fractured.

Enter the laboratory number, as noted at the bottom of the form, each sample is sent to under the LAB column.

FIELD OPERATION INFORMATION FORM 2
SUMMARY OF MATERIAL SAMPLES SENT TO EACH LABORATORY

This form provides a summary of the information provided on Field Operations Information Form 1 by testing laboratory. A separate form should be completed for each set of samples sent to each laboratory.

This form requires the samples to be aggregated into layers designated with a layer number. The layer number assigned to each layer is shown in the left hand column. A description of the pavement layer material and sample type is provided in the next column on the right, followed by the total number of samples by sample type.

SAMPLING DATA SHEET 2
LOG OF PAVEMENT CORE AT C-TYPE LOCATIONS

This form is used to log data from the 102 mm (4-inch) diameter pavement cores extracted from C-Type core locations. Each sheet can be used to record data for cores taken from six different core hole locations in one sampling area. A separate sheet should be used to record core data from each sampling area. Space is provided in each column to record data for up to 4 layers from one core hole. The pavement surface layer core should be recorded first, followed by other layers in the column. The first column from the left should always start with the lowest numbered core hole in the sampling area.

OPERATOR. Record the coring equipment operator's name.

EQUIPMENT USED. Indicate the generic type of the coring equipment used.

CORING DATE. Record the month, date, and year the core was taken.

CORE BARREL SIZE. Record the rated inside diameter of the core barrel to the nearest tenth of an inch.

COOLING MEDIUM. Record the material used for cooling during the coring operation.

CORE HOLE NO. Enter the core hole sample code number following the sample coding system as specified in the materials sampling plan developed for the project.

LOCATION: STATION. This is the station number of the core, relative to the test section specified under TEST SECTION NO. on the form. This number should be greater than 5+00 for sampling locations that occur after the test section specified, and less than 0+00 for sampling locations which occur before the test section specified.

LOCATION: OFFSET. This is the distance from the interface of the pavement lane and the outside shoulder to the core location (generally measured from the outside edge of the white pavement edge stripe). This distance should be indicated to the nearest tenth of a foot.

CORE RECOVERED. Circle the appropriate response to indicate if an intact and suitable

core was recovered from the indicated core hole.

REPLACEMENT CORE HOLE NO. Record the sample number of the core that will replace a core which was deemed unacceptable during field sampling operations. This entry should only be used when a "No" was recorded in the "Core Recovered" data entry space of this form.

CORE SAMPLE NO. Record the core sample number for the recovered core. Separate sample numbers should be assigned to PCC and bound base layers from the same core hole, even if the bound base adheres to the PCC surface layer.

DEPTH. Depth should be measured from the pavement surface to the bottom of the material interface in the core and expressed to the nearest tenth of an inch.

MATERIAL DESCRIPTION. Enter the appropriate material description based on the generic material type. These material descriptions are contained in Table C.2, Appendix C, of the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing.

MATERIAL CODE. Enter the appropriate material code number from Table C.2 in the SHRP-LTPP Guide for Field Materials Sampling, Handling and Testing corresponding to the described type of material. This should be a code of “700" for asphaltic materials.

LTPP MATERIAL SAMPLING AND FIELD TESTING
LABORATORY SHIPMENT SAMPLES INVENTORY
FIELD OPERATIONS INFORMATION FORM 1

SHEET NUMBER _____ OF _____

LTPP REGION _____ STATE _____ ***STATE CODE*** __ __
EXPERIMENT NO:_____ ***SPS PROJECT CODE*** __ __
ROUTE/HIGHWAY_____ Lane_____ Direction_____ ***TEST SECTION NO.*** __ __
SAMPLE/TEST LOCATION: ☐ Before Section ☐ After Section ***FIELD SET NO.*** __

FIELD WORK COMPLETED ON _____-_____-_____

Note: Use additional sheets if necessary. Include summary information (Field Operations Information Form 2) and "as actual" sampling location plan sheets with this material samples inventory.

SAMPLE LOCATION	SAMPLE NUMBER	SAMPLE SIZE	SAMPLE TYPE	SAMPLE MATERIAL	SAMPLE CONDITION	LAB*
C	CA		core	AC		2711
C	CA		core	AC		2711
C	CA		core	AC		2711
C	CA		core	AC		2711

* Enter number of laboratory, as specified below, each sample was sent to:

Lab No.(1) Braun Intertec, Minneapolis, MN, LTPP code 2711

GENERAL REMARKS:_____
_____
_____

CERTIFIED

_____
Field Crew Chief
Affiliation:_____

VERIFIED AND APPROVED

_____
LTPP Representative
Affiliation:_____

DATE

_____-_____-19___
Month- Day- Year

LTPP MATERIAL SAMPLING AND FIELD TESTING SHEET NUMBER _____ OF _____
SUMMARY OF MATERIAL SAMPLES SENT TO EACH LABORATORY
FIELD OPERATIONS INFORMATION FORM 2

LTPP REGION _____ STATE _____ ***STATE CODE*** __ __
EXPERIMENT NO: _____ ***SPS PROJECT CODE*** __ __
ROUTE/HIGHWAY_____ Lane_____ Direction_____ ***TEST SECTION NO.*** __ __
SAMPLE/TEST LOCATION: ☐ Before Section ☐ After Section ***FIELD SET NO.*** __

LABORATORY _____ WORK COMPLETED ON ____-____-____

NOTE: This is a summary of material samples sent to each laboratory based on the information from Field Operations Information Form 1. Complete one form for each laboratory that material samples were sent.

LAYER NO. (From Subgrade)	**MATERIAL/SAMPLE TYPE**	**TOTAL NUMBER OF SAMPLES**
_____	AC CORES (surface)/4" Diameter	_____

GENERAL REMARKS:_____

_____

CERTIFIED VERIFIED AND APPROVED DATE

_____ _____ _____-____-19___
Field Crew Chief LTPP Representative Month- Day- Year
Affiliation:_____ Affiliation:_____

LTPP MATERIAL SAMPLING AND FIELD TESTING SHEET NUMBER _____ OF _____
PAVEMENT CORE LOG AT C-TYPE CORE LOCATIONS
SAMPLING DATA SHEET 2

LTPP REGION _____ STATE _____ ***STATE CODE*** __ __
EXPERIMENT NO _____ ***SPS PROJECT CODE*** __ __
ROUTE/HIGHWAY_____ Lane_____ Direction_____ ***TEST SECTION NO.*** __ __
SAMPLE/TEST LOCATION: ☐ Before Section ☐ After Section ***FIELD SET NO.*** __

OPERATOR_____ EQUIPMENT USED_____ ***CORING DATE*** ___-___-___

CORE BARREL: Tip Type_____ Cooling Medium_____

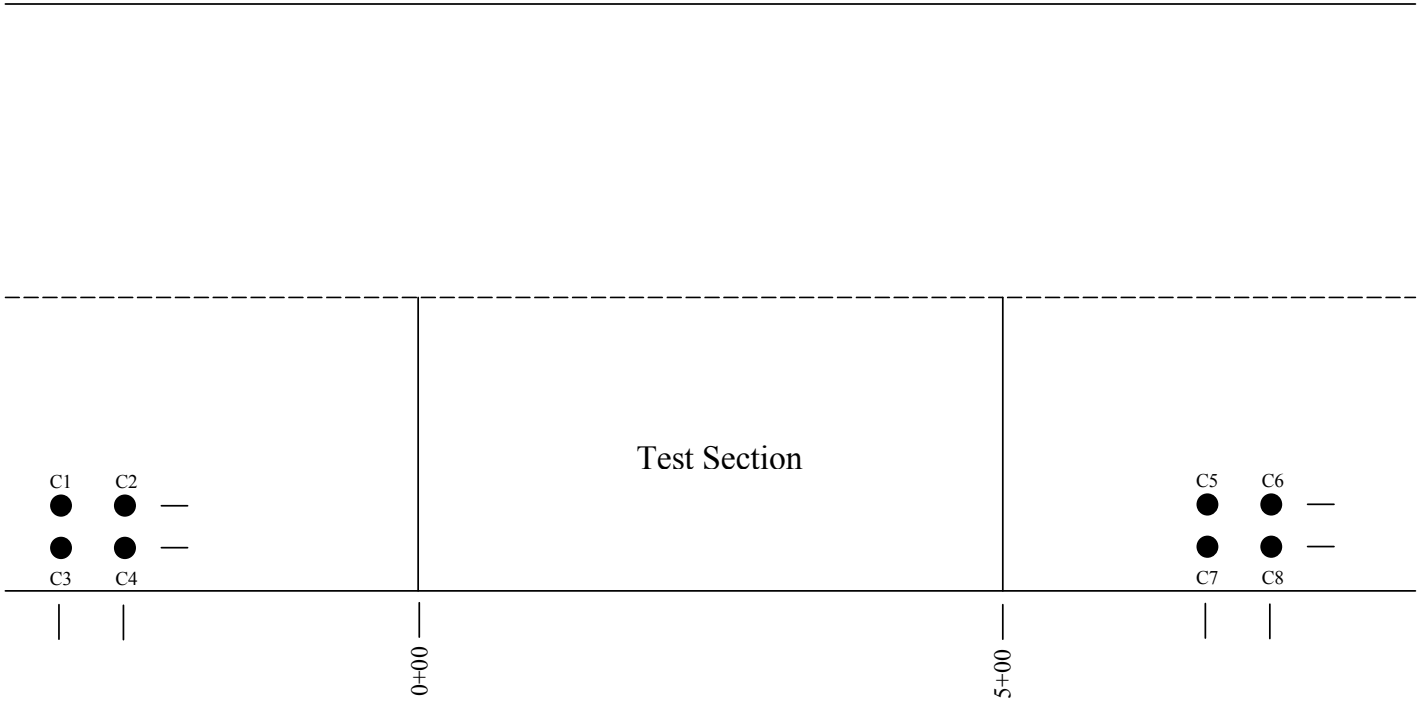
Note: Record information for all cores extracted from each core hole in one column in the table below. Use a separate sheet for each sampling area. "Depth" should be measured from the pavement surface to the bottom of the core and recorded to the nearest tenth of an inch.

CORE HOLE NUMBER							
LOCATION: (a) STATION							
(b) OFFSET (Feet, O/S)							
Core Recovered?	***YES/NO***	***YES/NO***	***YES/NO***	***YES/NO***	***YES/NO***	***YES/NO***	
Replacement Core Hole No.							
Core Size (inch Diam.)	***4***	***4***	***4***	***4***	***4***	***4***	
Core Sample No.							
Depth (Inches)							
Material Description							
Material Code							
Core Size (inch Diam)	***4***	***4***	***4***	***4***	***4***	***4***	
Core Sample No.							
Depth (Inches)							
Material Description							
Material Code							
Core Size (inch Diam.)	***4***	***4***	***4***	***4***	***4***	***4***	
Core Sample No.							
Depth (Inches)							
Material Description							
Material Code							
Core Size (inch Diam.)	***4***	***4***	***4***	***4***	***4***	***4***	
Core Sample No.							
Depth (Inches)							
Material Description							
Material Code							
Remarks							

GENERAL REMARKS:_____

CERTIFIED VERIFIED AND APPROVED DATE

_____ _____ _____-____-19___
Field Crew Chief LTPP Representative Month- Day- Year
Affiliation:_____ Affiliation:_____



As-sampled layout plan template.

LTPP REGION: NA / NC / S / W (CIRCLE ONE)

STATE: ___ ___

STATE CODE: ___ ___

SECTION ID: ___ ___ ___ ___ ___ ___

EXPERIMENT NAME: _____

HIGHWAY NUMBER: _____

DATE OF FIELD SAMPLING: ___ ___/___ ___/___ ___ ___ ___

SUBMITTING AGENCY: _____

TOTAL SHEETS INCLUDING THIS PAGE: ___ ___ ___

Cover page template.

APPENDIX B
EXAMPLE FIELD DATA PACKET