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National Research Council

STRATEGIC HIGHWAY RESEARCH PROGRAM

SPECIFIC PAVEMENT STUDIES
GUIDELINES FOR NOMINATION AND EVALUATION OF CANDIDATE PROJECTS FOR EXPERIMENT SPS-6 REHABILITATION OF JOINTED PORTLAND CEMENT CONCRETE PAVEMENTS

STRATEGIC HIGHWAY RESEARCH PROGRAM
818 Connecticut Avenue NW
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GUIDELINES FOR NOMINATION AND EVALUATION OF CANDIDATE PROJECTS FOR EXPERIMENT SPS-6, REHABILITATION OF JOINTED PORTLAND CEMENT CONCRETE PAVEMENTS

INTRODUCTION

This document provides guidelines and information for nominating candidate projects for the Specific Pavement Studies experiment SPS-6, Rehabilitation of Jointed Portland Cement Concrete Pavements, and outlines participation requirements. Detailed project nomination forms and instructions are included in this document. Details of the experimental design and study factors developed for this experiment through meetings with interested highway agencies and other concerned parties are contained in the SHRP document, "Specific Pavement Studies: Experimental Design and Research Plan for Experiment SPS-6, Rehabilitation of Jointed Portland Cement Concrete Pavement," April 1989.

PARTICIPATION REQUIREMENTS

Highway agencies considering participating in the SPS-6 experiment must be willing to perform the following activities:

1. Construct all seven test sections described in the experimental design document referenced above. In addition to these seven test sections, a control test section in which no treatments are applied is needed. All test sections on a project must be constructed during the same construction season. The treatments within the length of the test sections must be applied across all lanes in the direction of travel.

2. Install and operate a traffic data collection station at or near the site to measure the same traffic that passes over the test sections. As a minimum, this station must be operated to obtain continuous automatic vehicle classification and provide for four, one week sessions of seasonal weigh-in-motion each year. However, it is desirable that the station provides continuous weigh-in-motion.

3. Perform and/or provide for drilling, coring, sampling and testing of in-place pavement materials and materials used in the overlay mixtures. SHRP will provide sampling plans tailored to the site plus directives and standard protocols for laboratory tests. Costs for this work must be borne by participating agency.

4. Prepare plans, specifications, quantities, and all other documents necessary as a part of the agency's contracting procedures. The agency must also provide construction control, inspection and management in accordance with their standard quality control and assurance procedures.

5. Provide historical information on pavement inventory features, traffic levels and loads, and maintenance data similar to that required for the General Pavement Studies test sections.

6. Provide periodic traffic control for on-site data collection activities such as materials drilling and sampling, deflection measurements, and other monitoring activities.

7. Coordinate maintenance activities on the test sections to prevent application of premature treatments which alter the characteristics of the test sections and limits their use in the study.

8. Provide and maintain signing and marking of test sites.

9. Notify SHRP prior to application of overlays or other such treatments when any of the test sections reach an unsafe condition or become candidates for rehabilitation. As much lead time as possible is needed to allow terminal conditions of the test sections to be recorded.

If highway agency personnel desire to discuss the details of these participation requirements with SHRP, they should contact SHRP regional offices or headquarters.

PROJECT SELECTION CRITERIA

The following criteria will be considered in evaluating candidate projects for inclusion in this experiment:

1. The construction project must be of sufficient length to accommodate all of the experimental test sections. Transition zones between test sections on the order of 100 to 200 feet are preferred and should be considered in assessing candidate projects.

2. The project must have been originally constructed between 1965 and 1979.

3. The pavement must be between 8 to 10 inches thick.

4. The pavement must have been built on a 3 inch or thicker stabilized or unstabilized base or subbase.

5. The project under consideration must have the same structural design characteristics and be constructed with the same materials under the same construction contract.

6. The portion of the project where the proposed test sites are to be located must have been opened to traffic at the same time.

7. Candidate projects must not have had lanes or shoulders added nor widened.

8. The outside lane, which will be used as the test lane, must be at least 12 feet wide and have a constant thickness.

9. The project must not have curb and gutters within 6 feet from the outside edge of the pavement adjacent to the test lane.

10. Candidate projects must not have tied PCC shoulders.

11. Joints in the pavement must either have no load transfer devices or smooth dowel bars. Jointed slabs with load transfer devices other than dowel bars are not acceptable in the core experiment.

12. The type, extent, and severity of distress should be relative uniform over the project. Test sections must be located to avoid areas of unusual distress occurrences on the project.

13. It is desired that all of the test sections be located on subgrade soils of similar characteristics and classification. Some variation is unavoidable, but should be minimized as much as possible.

14. It is desired that projects be located on fine grained subgrade soils. Soils in the A-4, A-5, A-6 and A-7 classes are considered fine grained. Projects constructed on coarse grained subgrades will be considered to help fill voids in the experiment.

15. Test sections should be located on portions of the project which are relatively straight and have a uniform vertical grade. Horizontal curves greater than 3^0 and vertical grades greater than 4% should be avoided.

16. Ideally, all test sections should be located on shallow fills. The entire length of each test section, however, should be located completely on either a cut or a fill. Cut-fill transitions and side hill fills should be avoided within the test sections.

17. Projects in their first performance cycle which not have received a previous overlay are preferred. Pavements which have received a previous overlay may be considered provided that overlay material is removed from all test section locations including the control section.

18. Projects with retro-fitted edge drains are not desired, unless the project was in a good condition at the time of installation.

19. It is desired that the current traffic loading level in the study lane be greater than 200,000 ESAL/year. However a project on the primary system with high traffic relative to the region but less than the desired rate will be considered.

20. Culverts, pipes and other substructures beneath the pavement should be avoided within the limits of each test section. Smaller culverts (less than 3 feet diameter) and pipes deeper than 3 feet beneath the pavement structure, may be acceptable within the limits of a test section if necessitated by site constraints. However, there should be no evidence of pavement distress or distortion due to the the substructures at these locations.

21. Traffic flow over all the test sections on a project should be uniform. All sections should carry the same traffic stream. Intersections, rest stops, on-off ramps, weaving areas, quarry entrances, etc. should be avoided on and between test sections.

22. It is desired that the type of distress present on the project be typical of the distresses which occur within an agency's jurisdiction. The objective of this consideration is to avoid projects planned for rehabilitation because of "abnormal" conditions resulting from unusual construction or material related problems.

23. Pavements which are either excessively under or over designed for existing site conditions should be avoided. As a general guide, the as built thickness should be between 0.8 and 1.2 times the design thickness computed using the AASHTO Pavement Design Guide procedure.

These criteria and considerations will help identify projects in which the relative performance of the test sections to each other is due to the experimental treatments applied to the test section and not to other external factors such as changes in the existing pavement structure, subgrade, traffic patterns, drainage characteristics, existing distresses, etc. They also serve to identify projects at different locations with relatively similar types of pavements so that differences

in performance from one location to another are primarily due differences in climatic conditions and traffic levels.

It is recognized that "perfect" projects containing all of the desirable characteristics are rare. Each proposed site must be evaluated individually and compared to other candidates in order to select the best set of projects to satisfy experimental considerations. Some deviations from the desired project characteristics may be necessary in order to obtain sufficient projects for the experiment. For example, projects will be considered where it is not possible to locate all of the test sections either completely in cuts or on fills. In this case, it may be necessary to locate some test sections in cuts and others on fills. Also, on a project in rolling terrain with limited distance between intersections, it may be necessary to locate a test section over a shallow cut-fill transition (less than 10 feet difference). In this case, no change in pavement distress should be observed near the transition point. Generally, engineering judgement will be used to evaluate the impact of such non-uniformities on test section performance.

The criteria and considerations presented in this document will be used to evaluate and rank candidate projects in cases where more than the required number of projects are available. They can also be used as a guide by an agency to identify candidate projects in their jurisdiction that are most suitable for nomination.

Special consideration will be given to projects located near test sections in the GPS-3 (Jointed Plain PCC pavements), GPS-4 (Jointed Reinforced PCC pavements), GPS-7B (AC overlay of PCC pavement), or SPS-4 (Maintenance effectiveness) experiments.

NOMINATION PROCEDURE

Agencies desiring to participate in the SPS-6 experiment should review candidate projects and evaluate them against the criteria and consideration presented in this document. One or two projects are being sought in each cell to fill out the experimental design factorial shown in Figure 1. Under certain conditions, additional projects might be included into one or more of the experimental design cells. Agencies should evaluate their participation in other

	WET FREEZE		WET NO FREEZE		DRY FREEZE		DRY NO FREEZE
CONDITION	JRCP	JPCP	JRCP	JPCP	JRCP	JPCP	JPCP
FAIR	(2)*	(2)	(2)	(2)	(1)	(2)	(1)
POOR	(2)	(2)	(2)	(2)	(1)	(2)	(1)

* Numbers in parentheses indicate the number of test sites

Figure 1. SPS-6 site selection factorial.

Route Signing. Check the appropriate designation for the route the project is located on. If the route is other than an Interstate, U. S., State, or county please write in the appropriate designation in the space provided with a short explanation. For example, a Farm to Market signed route should be entered as: FM - Farm to Market. This designation should refer how the route is signed and indicated on general highway maps.

Project Location. Enter the start and end mileposts or milepoints of the project location. The milepost or milepoint refer to reference locations signed or marked along the route in the field. The start and end station locations are not required but are useful in locating the portion of the project proposed for the experimental sections on the plans.

Project Location Description. This is written description of the location of the start of the project referenced to a permanent landmark such as signed highway intersections, signed or labeled bridges, underpasses, overpasses, rest areas, and railroad crossings. The objective is to provide a reference for field crews to easily locate the section in the field. Distances from a landmark located prior to the section, in the direction of travel, and a landmark located past the start of the section should be specified. For example, "The start of the project is 1.2 miles north of overpass 20-45-431; the intersection with I-71 is located 2.3 miles north of the start of the project" (assuming the direction of travel is northbound).

County. This is the county or governmental jurisdiction unit the project is located within. If a project occurs in more than one county, indicate the county first encountered in the direction of travel.

Highway Agency District Number. This number identifies the highway agency's district, division, or region in which the project is located.

SHRP Environmental Zone. Check the general environmental zone which is appropriate for the project. Figure 2 shows the distribution of general environmental zones. If the climate at the project deviates significantly from that shown in Figure 2, check the appropriate box on the form which best describes the

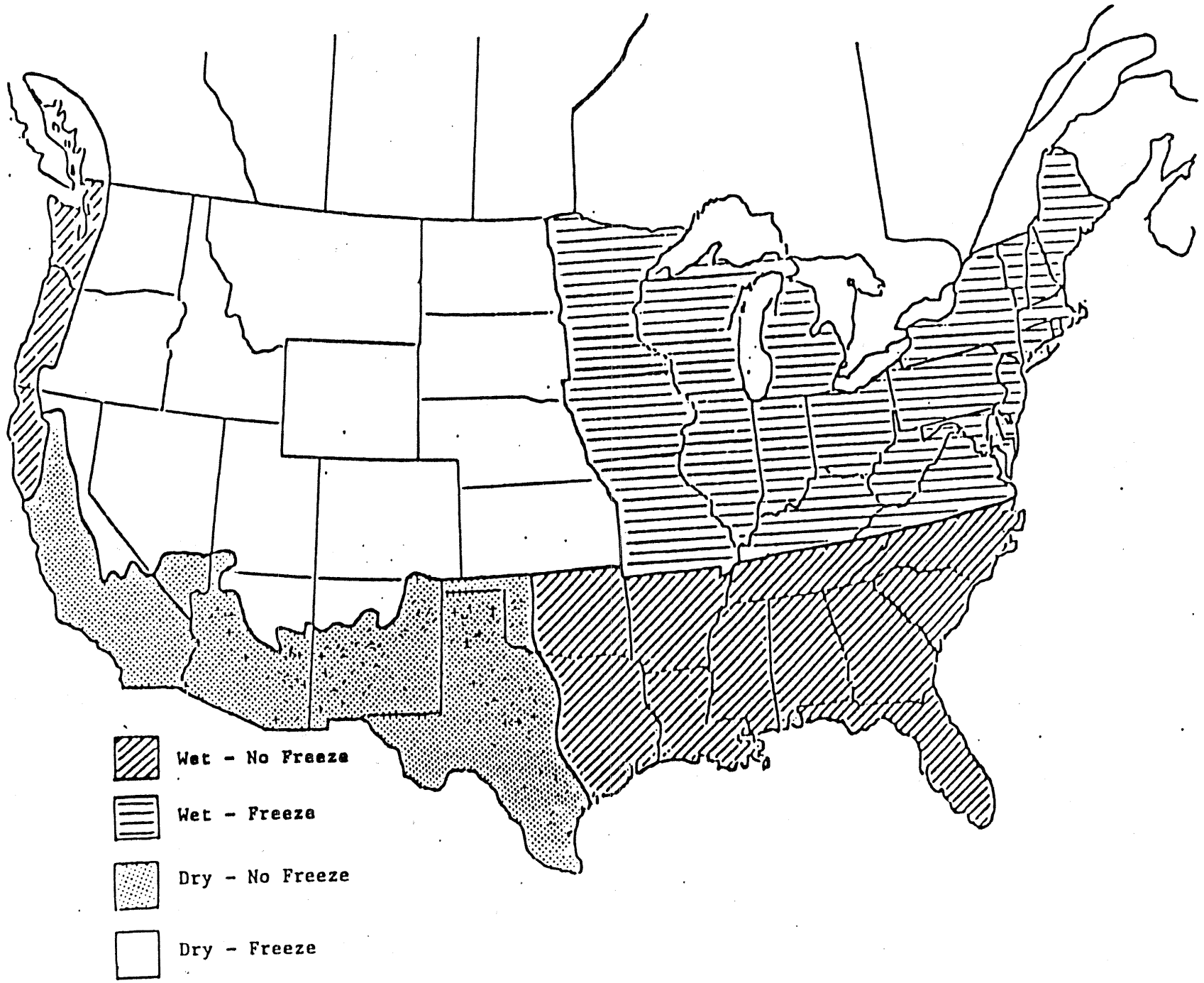


Figure 2. Environmental zones for SHRP-LTPP studies.

actual environment and attach a sheet of paper to the form which provides a short explanation on the entry.

Significant Dates

Latest Date of Approval Notification from SHRP. This is the latest date that SHRP can notify the agency of acceptance of a project into the experiment. This date represents the latest date that an agency can start preparation of construction specifications and contractual documents in order to have the test sections constructed. This should be a realistic a "drop dead date" that provides SHRP with the longest time possible to evaluate and coordinate other candidate projects so that the best spread and most suitable projects are included into the experiment.

Contract Letting Date. This is the actual date the contract is scheduled for letting.

Estimated Construction Start Date. This is the estimated date that construction on the test section portion of the project is to begin. This date is important for scheduling pre-construction activities, such as section marking, deflection tests, etc.

Project Description

Year Opened To Traffic. This is the year the portion of the project proposed for the test sections was initially opened to traffic.

Number of Lanes. This is the total number of traffic lanes in the direction of travel proposed for the test sections. Check the appropriate box to indicate if the road is divided or undivided.

Outside Lane Width. This is the approximate width, in feet, of the outside lane (nearest to the outside shoulder). The outside lane will be used as the monitoring test section due to safety considerations and difficulty in traffic control for interior lanes in order to perform periodic monitoring measurements.

Outside Shoulder Type. Check the appropriate box or describe the type of shoulder present on the project.

Outside Shoulder Width. Enter the approximate width of the outside shoulder in feet.

Subsurface Edge Drains. Check the appropriate box to indicate if edge drains where either not used, installed during initial construction of the project or were retrofitted. If the edge drains were retrofitted, indicate the date this was done.

Assessment of Present Pavement Condition. Check the box which best describes the present condition of the project relative to other pavements within the agency's jurisdiction. This subjective evaluation will be used to classify the project in to the experiment factorial for selection purposes.

Predominate Distresses. Check one or more boxes which indicate the predominate types of distress occurring on the project. In the comment space, include more specifics on the type, severity and extent of the distresses, include other significant distresses not covered by the categories provided, and comment on differences in distress patterns along the section. The SHRP Distress Identification Manual can be used as a guide to describing the distresses. Attach an additional sheet of paper to the form if more space is needed for comments.

Sheet B. Pavement Structure Information

The purpose of this sheet is to provide information on details of the of the pavement structure and materials in the existing pavement.

Pavement Structure Details

Pavement Type. Check the proper box to indicate if the existing pavement is a plain jointed or a jointed reinforced portland cement concrete pavement.

Joint Spacing. Enter the joint spacing in feet. Enter only one value if a constant joint spacing is used. Enter the sequence of spacing or range of spacings if variable sequenced or random joint spacings are used.

Joints. Check one to two boxes as appropriate to indicate if the joints are perpendicular or skewed, relative to the pavement shoulder, and if dowels or other load transfer devices are used in the joints.

PCC Flexural Strength. Enter the average 28 day flexural strength. This strength estimate should be based on the modulus of rupture at 28 days based on third point loading (AASHTO Designation T-97). Enter an estimate of the expected value of this parameter if test data at this time are not available. This value will be used in the AASHTO pavement design equation to assess the structural capacity of the pavement relative to traffic and site conditions.

Modulus of Subgrade Reaction (k). Enter the modulus of subgrade reaction (pci) used in the structural design of the concrete slab. Provide an estimate of this value if test results or inputs used in the original pavement design are not available. This may be estimated based on material type or an agency's common design practice. This value will be used in the AASHTO pavement design equation to assess the structural capacity of the pavement relative to traffic and site conditions.

Layer Number. This layer number convention starts with the naturally occurring subgrade as layer 1 and the existing surface as the highest numbered layer. Nine or fewer layers can be identified with this form.

Layer Description Code. These codes, listed under note 2 on the form, indicate the general name and function of each layer identified in the existing pavement structure.

Many agencies cover poor subgrades with one to three feet of select material. Such embankments or shallow fills should be reported as a subbase layer (code 06).

Material Type Class Code. The two digit codes identifying the type of material in each layer of the pavement structure are shown in Tables 1 through 4. The intent is general identification of materials for classification and project selection purposes.

Thickness. Indicate the thickness of each layer identified. Leave the depth of the subgrade layer blank unless the depth of the subgrade to a rigid layer is known.

Sheet C. Traffic Data and Rehabilitation Information

The traffic data will be used to evaluate and rank projects. The rehabilitation information relates to the standard rehabilitation treatments planned by the agency for the non-SHRP portion of the rehabilitation project. It should be noted that SHRP will locate and monitor a test section on the standard treatment applied by the agency.

Traffic Information

Average Annual Daily Traffic. This is the latest estimate of the annual average daily traffic (AADT), all vehicles, both directions, for the roadway at the location of the proposed project.

Percent Heavy Trucks and Combinations. This is the ratio of trucks and heavy combinations to total vehicles (AADT), expressed to the nearest tenth of a percent. This excludes all pickups, panels, and other two axle, four tired trucks. This is for traffic in both directions. It is desired that this estimate be based on traffic on the route and not just a statewide average.

Count Year of AADT Estimate. Indicate the year of the count that the AADT and percent truck estimate are based. The most recent year available should be entered.

Traffic Growth Rate. Indicate the growth rate in traffic volume on the project since opening to traffic. This rate should be expressed as an average annual percent increase. This will be used in the estimate of total traffic crossing the section since construction.

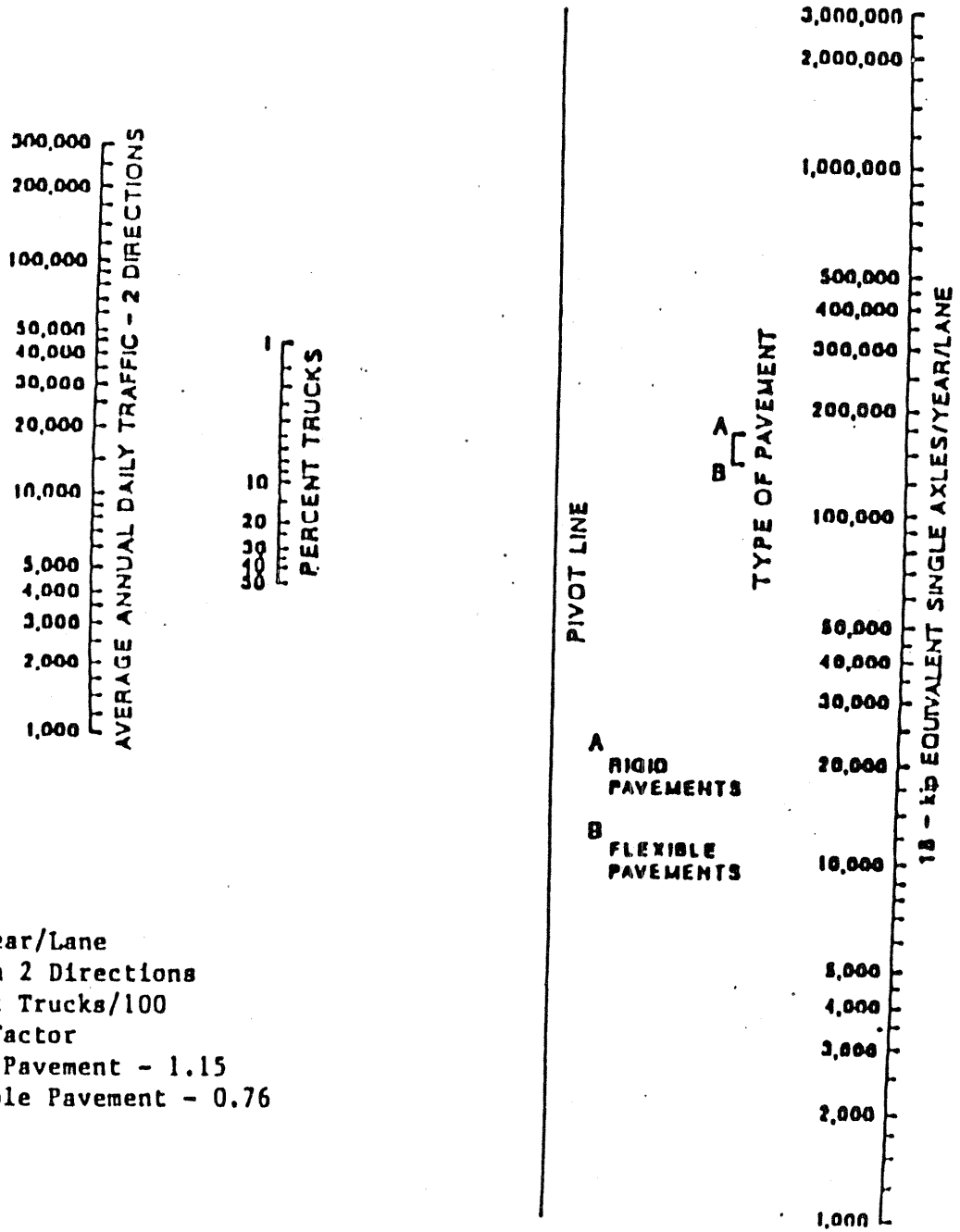
18K ESAL Rate. Provide the most recent estimate of the application rate of heavy truck loadings, in 18Kip equivalent single axle load applications, in the study lane of the proposed project. It is desired that these estimates be based on measurements on the same route as close to the project as possible. The nomographs in Figures 3 through 5 may be used to estimate the application rate where suitable weight and volume data are not available. The equations given in each nomograph may be evaluated directly with a pocket calculator if desired. The equations in these nomographs are based on are broad averages and may not be representative of the actual loadings at the project site. In the absence of other information, they can be used to screen potential sites on the basis of loading rate.

Year of ESAL Rate Estimate. Indicate the year that the ESAL rate estimate given above is based on.

Estimated Total 18K ESAL Applications. If an reasonable estimate of the total traffic loading since construction in terms of 18K ESAL applications is available for the study lane, then enter it here. Leave the space blank if no estimate is available.

Rehabilitation Information

The information in this part of the form refers to the standard rehabilitation treatment the agency has planned for the portion of the project not planned as part of the eight SHRP experimental test sections.



E = 182.5 APT

Where:

E = ESAL/Year/Lane
A = AADT in 2 Directions
P = Percent Trucks/100
T = Truck Factor
Rigid Pavement - 1.15
Flexible Pavement - 0.76

Figure 3. Nomograph to estimate ESAL/Yr on two lane facilities.

E = 182.5 APT (1.57-0.083 ln(A/2))

Where:

E = ESAL/Year/Lane
A = AADT in 2 Directions
P = Percent Trucks/100
T = Truck Factor
Rigid Pavement - 1.15
Flexible Pavement - 0.76

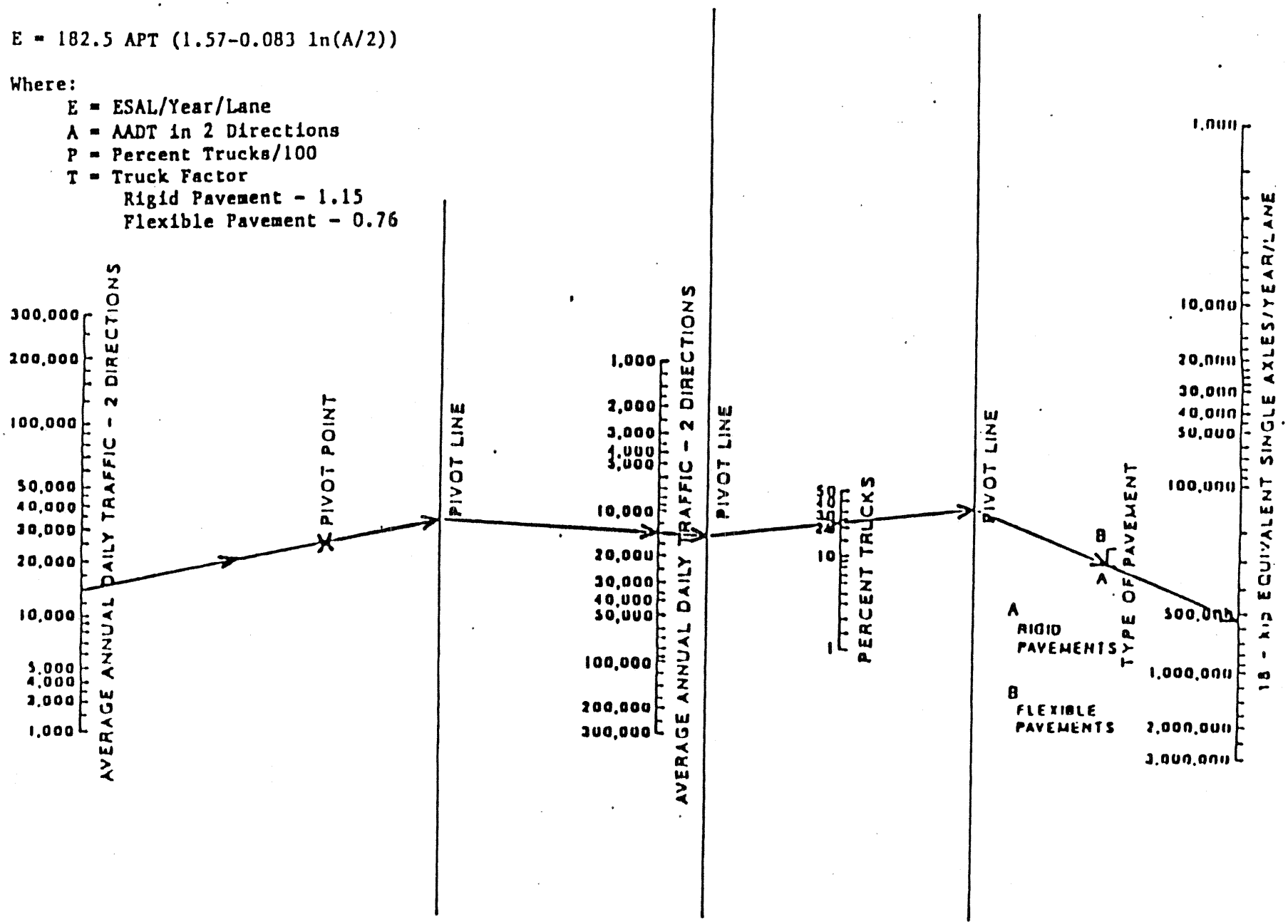


Figure 4. Nomograph to estimate ESAL/Yr on four lane facilities.

$$E = 182.5\ APT\ (1.44-0.083\ \ln(A/2))$$

Where:

E = ESAL/Year/Lane
A = AADT in 2 Directions
P = Percent Trucks/100
T = Truck Factor
Rigid Pavement - 1.15
Flexible Pavement - 0.76

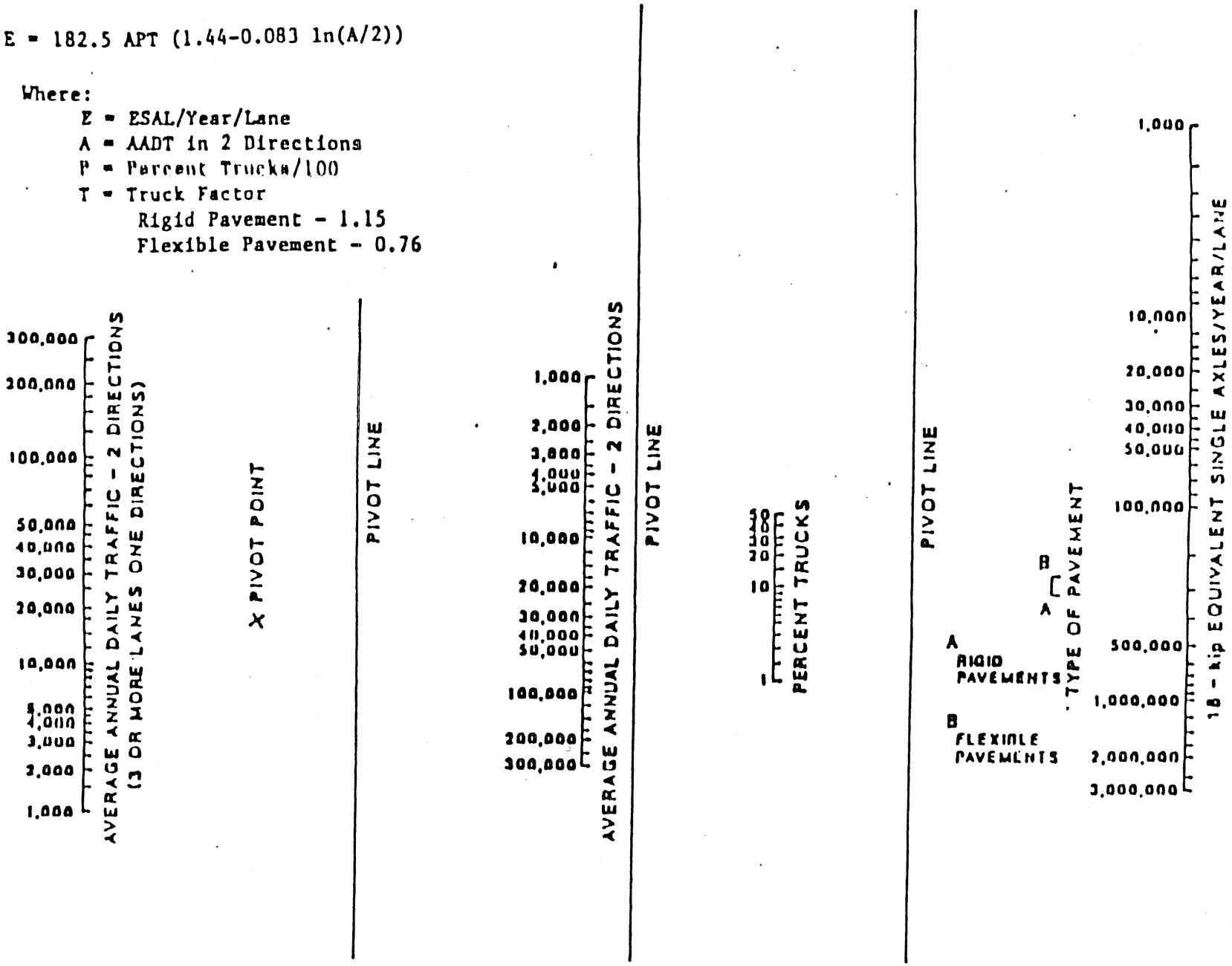


Figure 5. Nomograph to estimate ESAL/Yr on six or more lane facilities.

Primary Cause for Rehabilitation. State the primary reason the candidate project is scheduled for rehabilitation. For example, the serviceability rating or ride score may have reached a level that triggers a need for the planned rehabilitation. Alternatively, it may be the type, severity, and extent of distress that triggered the planned rehabilitation. Attach another sheet of paper if more space is need to describe.

Overlay Thickness and Material. Indicate the planned thickness and SHRP material type class code of the riding surface course and binder course of the overlay, if the rehabilitation treatment includes an overlay. It is assumed, although not required, that projects nominated for SPS-6 are a part of an agency's planned rehabilitation program and will include an overlay. If an overlay is not a part of the planned rehabilitation, leave these entries blank and provide an explanation under other construction activities to be performed during rehabilitation on the this form. It is not required that the nominated projects come from an agency's planned rehabilitation program.

Surface Preparation Prior to Overlay. Check the appropriate boxes for the surface preparation activities prior to overlay. Space is provided to indicate other activities not provided on the form, such as crack and joint sealing, crack/creak and seat, joint replacement, etc. prior to placement of the overlay. Attach a separate sheet of paper if more room is need to explain all of these activities.

Other Construction Activities to be Performed During Rehabilitation. Space is provide for a list of other construction activities to be performed concurrent with the rehabilitation planned by the agency. Of primary interest are those activities which influence the structural characteristics of the pavement structure, such as added lanes, shoulder widen, edge drains, shoulder improvement, etc. Other items which do not relate to the performance or character of the pavement structure, such as such as guardrail adjustments, lighting, bridge repairs, etc. need not be reported.

Sheet D. Test Section Layout and Other Test Sections

This sheet includes details on layout of the SHRP experimental test sections,

GPS test sections near the proposed project and supplemental test section of interest to the agency.

Test Section Layout

This information pertains to the locations of the seven SHRP experimental test sections plus the control section on the candidate project. Guidelines for test section locations are presented in the project selection criteria portion of this document.

Number of Test Sections on Cut and Fill. The as-built plan and profile sheets for the candidate project should be reviewed to determine the nature of the suitable locations for the eight test sections. It is preferred that all test sections be located either entirely in a fill or a cut. For practical planning considerations, potential test section locations within cuts or fills should be at least 50 feet longer than the length of the monitoring test section shown in the experimental design. Note that some test sections are 1,000 feet long and other 500 feet long. This extra length is to accommodate sampling of the subgrade adjacent to the monitoring portion of the test section. If all eight test sections can be located completely in a cut or fill, enter a 8 on the appropriate line. If it is not possible to locate all test sections entirely on fills or cuts and it is necessary to locate some test sections on cuts and some on fills within the project, indicate the total number of potential locations on cuts and the total number of potential locations on fills. If more than eight locations are available, indicate the total number of potential cut and fill locations available on the project.

Shortest Transition Between Test Sections. Indicate the shortest transition required between two consecutive test sections in order to fit all of the test sections within the project.

Comments on Deviations from Site Location Criteria. Provide brief comments describing significant deviation from the desired site location criteria presented in this document. Include in these comments items such as:

Test section alignment.
Unusual traffic patterns.
Intersections between test sections.
Substructures beneath test section locations.
Test section locations across cut-fill transitions.
Variations in subgrade along project.
Short transitions between test sections (< 100 feet).
Construction constraints.

Attach an additional sheet of paper to the form if more space is needed for comments.

Other SHRP Test Sections

Project Conformity to GPS 3 and 4 Criteria. If the existing pavement conforms to the criteria as either a GPS-3 or GPS-4 projects check the yes box. If the project is suitable as a GPS test section, the control section will be favorably considered for acceptance into the GPS experiment.

Agency Applied Treatment Conformity to GPS 7B Criteria. If the rehabilitation treatment applied by the agency to the portion of the project that is not a part of the 7 SPS-6 test sections conforms to the criteria for acceptance as a GPS 7B project (asphalt concrete overlay of portland cement concrete pavement), it will be favorably considered for acceptance into that study. It is not required that this treatment conform to the GPS-7B criteria for acceptance of the project into the SPS-6 experiment.

Project Suitability as SPS 4 Site. Indicate if the project is sufficiently long to incorporate SPS-4 experiment test sections in addition to the SPS-6 test sections and conforms to other site selection criteria for the SPS-4 experiment.

Agency's Interest in Project as an SPS 4 Site. Indicate if the agency is interested in the potential use of this project as an SPS-4 experiment site in addition to an SPS-6 experiment site. In the event of a positive answer to these

questions on suitability and interest in the SPS-4 experiment, this information will be shared with the personnel working in the SHRP Highways Operations research area for consideration as a candidate study site.

Distance to Nearest GPS Test Section on Same Route. If a GPS test section is located on the same route within the state or province, indicate the distance from the candidate project to the GPS test section. If no GPS test sections are located on the same route, leave this space blank.

Test Section Number of Nearest GPS Section. Enter the SHRP test section number of the GPS test section referenced in the previous entry. Leave blank if no sections are located on the same route.

Supplemental Test Sections

This information pertains to supplemental test sections that the agency proposes to construct on the same project to investigate factors of direct interest to the agency. These test sections are in addition to the SHRP SPS-6 test sections and the standard rehabilitation treatment applied by the agency to the remainder of project.

Total Number of Supplemental Test Sections. Indicate the proposed number of additional supplemental test sections of interest by the agency.

Factors to be Investigated. For each proposed supplemental test section, indicate the treatment factors to be investigate. Attach an addition sheet if more space is needed.

APPENDIX A

CANDIDATE PROJECT NOMINATION AND INFORMATION FORMS

FOR

SPS-6, REHABILIATION OF JOINTED PORTLAND CEMENT CONCRETE PAVEMENTS

SHEET A. SPS-6 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE _____

PROJECT LOCATION

ROUTE NUMBER _____

ROUTE SIGNING [] Interstate [] U.S. [] State [] County

Other _____

PROJECT LOCATION Start Milepost _____ End Milepost _____

Start Station _____ End Station _____

PROJECT LOCATION DESCRIPTION _____

_____

_____

COUNTY _____

HIGHWAY AGENCY DISTRICT NUMBER _____

SHRP ENVIRONMENTAL ZONE

[] WET FREEZE [] WET NO-FREEZE [] DRY FREEZE [] DRY NO-FREEZE

SIGNIFICANT DATES

LATEST DATE OF APPROVAL NOTIFICATION FROM SHRP _____

CONTRACT LETTING DATE _____

ESTIMATED CONSTRUCTION START DATE _____

PROJECT DESCRIPTION

YEAR OPENED TO TRAFFIC _____

NUMBER OF LANES (One Direction) _____

[] Divided [] Undivided

OUTSIDE LANE WIDTH (Feet) _____

OUTSIDE SHOULDER TYPE

[] Turf [] Granular [] Asphalt Concrete [] Surface Treatment

[] PCC [] Tied PCC [] Curb and Gutter Other _____

OUTSIDE SHOULDER WIDTH (Feet) _____

SUBSURFACE EDGE DRAINS [] Placed at initial construction [] Not Used

[] Retrofitted Retrofit Date _____

ASSESSMENT OF PRESENT PAVEMENT CONDITION [] Fair [] Poor

PREDOMINATE DISTRESSES

[] D Cracking [] Other Cracking [] Faulting [] Pumping [] Joint Failure

Comments _____

_____

SHEET B. SPS-6 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE _____

PAVEMENT STRUCTURE DETAILS

PCC PAVEMENT TYPE [] Jointed Plain [] Jointed Reinforced

JOINT SPACING (Feet) _____

JOINTS [] Perpendicular [] Skewed [] Doweled [] Other Load Transfer

PCC FLEXURAL STRENGTH (Psi) _____

MODULUS OF SUBGRADE REACTION (k) _____

PAVEMENT STRUCTURE LAYER DESCRIPTIONS

LAYER[1] NO.	LAYER[2] DESCRIPTION CODE	MATERIAL TYPE[3] CLASS CODE	THICKNESS[4] (INCHES)
1	SUBGRADE (7)	___ ___	___ ___ ___
2	___ ___	___ ___	___ ___.___
3	___ ___	___ ___	___ ___.___
4	___ ___	___ ___	___ ___.___
5	___ ___	___ ___	___ ___.___
6	___ ___	___ ___	___ ___.___
7	___ ___	___ ___	___ ___.___
8	___ ___	___ ___	___ ___.___
9	___ ___	___ ___	___ ___.___

NOTES

1. Layer 1 is the natural occurring subgrade soil. The existing surface will have the largest assigned layer number.
2. Layer description codes:

Overlay 01	Base Layer 05	Porous Friction Course . 09
Seal Coat 02	Subbase Layer 06	Surface Treatment 10
Original Surface . 03	Subgrade 07	Embankment (Fill) 11
Subsurface HMAC .. 04	Interlayer 08	

3. Refer to Tables 1 through 4 for material class codes.
4. If subgrade depth to a rigid layer is known, enter this depth for subgrade, otherwise leave blank for subgrade layer.

SHEET C. SPS-6 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE _____

TRAFFIC DATA

ANNUAL AVERAGE DAILY TRAFFIC (TWO DIRECTION) _____

% HEAVY TRUCKS AND COMBINATIONS (OF AADT) _____

COUNT YEAR OF AADT ESTIMATE _____

TRAFFIC GROWTH RATE SINCE PROJECT OPENED TO TRAFFIC (%/YR) _____

18K ESAL RATE IN PROPOSED STUDY LANE (1,000 ESAL/YR) _____

YEAR OF ESAL RATE ESTIMATE _____

ESTIMATED TOTAL 18K ESAL APPLICATIONS IN STUDY LANE[1] _____

REHABILITATION INFORMATION[2]

PRIMARY CAUSE FOR REHABILITATION _____

_____

_____

OVERLAY	Thickness (Inches)	Material Type Class Code
Surface Course	_____	_____
Binder Course	_____	_____

Saw and Seal above joints? [] Yes [] No

SURFACE PREPARATION PRIOR TO OVERLAY

[] Joint Sealing [] Crack Sealing [] Undersealing [] Crack & Seat

[] Patching [] Joint Replacement % Joints Replaced _____

Other _____

_____

_____

OTHER CONSTRUCTION ACTIVITIES TO BE PERFORMED DURING REHABILITATION

_____

_____

_____

_____

_____

NOTES

1. Leave blank if estimate is not available.

2. This information concerns the planned rehabilitation work to be performed by the agency on the non-experimental portions of the project.

SHEET D. SPS-6 CANDIDATE PROJECT NOMINATION AND INFORMATION FORM

STATE _____

TEST SECTION LAYOUT

NUMBER OF TEST SECTIONS ENTIRELY ON: FILL _____ CUT _____

SHORTEST TRANSITION BETWEEN CONSECUTIVE TEST SECTIONS (Feet) _____

COMMENTS ON DEVIATIONS FROM DESIRED SITE LOCATION CRITERIA _____

OTHER SHRP TEST SECTIONS

DOES PROJECT CONFORM TO GPS-3 OR GPS-4 PROJECT CRITERIA? [] YES [] NO

DOES AGENCY APPLIED TREATMENT QUALIFY FOR GPS-7B? [] YES [] NO

IS PROJECT SUITABLE FOR SPS-4 TEST SECTIONS? [] YES [] NO

IS AGENCY INTERESTED IN USE OF PROJECT AS SPS-4 SITE? [] YES [] NO

DISTANCE TO NEAREST GPS TEST SECTION ON SAME ROUTE (Miles) _____

NEAREST GPS TEST SECTION NUMBER _____

SUPPLEMENTAL TEST SECTIONS

IF SUPPLEMENTAL EXPERIMENTAL TEST SECTIONS ARE PROPOSED, COMPLETE THE FOLLOWING

TOTAL NUMBER OF SUPPLEMENTAL TEST SECTIONS _____

FACTORS TO BE INVESTIGATED _____

Table 1. Pavement surface material type classification codes.

MATERIAL TYPE	CODE
Hot Mixed, Hot Laid, Asphalt Concrete, Dense graded	01
Hot Mixed, Hot Laid, Asphalt Concrete, Open Graded (Porous Friction Course)	02
Sand Asphalt	03
Jointed Plain Portland Cement Concrete	04
Jointed Reinforced Portland Cement Concrete	05
Continuously Reinforced Portland Cement Concrete	06
Prestressed Portland Cement Concrete	07
Fiber Reinforced Portland Cement Concrete	08
Plant Mix, Cold Laid, Emulsified Asphalt Material	09
Plant Mix, Cold Laid, Cutback Asphalt Material	10
Single Surface Treatment	11
Double Surface Treatment	12
Hot Recycled, Central Plant Mix, Asphalt Concrete	13
Central Plant Mix, Cold Laid, Recycled Asphalt Concrete	14
Mixed-in-place, Cold Laid, Recycled Asphalt Concrete	15
Heater Scarification/Recompaction, Recycled Asphalt Concrete	16
Jointed Plain Recycled Portland Cement Concrete	17
Jointed Reinforced Recycled Portland Cement Concrete	18
Other	20

Table 2. Base and subbase material type classification codes.

MATERIAL TYPE	CODE
No Base (Pavement Directly on Subgrade)	21
Uncrushed Gravel	22
Crushed Stone, Gravel or Slag	23
Sand	24
Soil-Aggregate Mixture, Predominately Fine-Grained Soil	25
Soil-Aggregate Mixture, Predominately Coarse-Grained Soil	26
Soil Cement	27
BITUMINOUS BOUND BASE OR SUBBASE MATERIALS	
Dense Graded, Hot laid, Central Plant Mix	28
Dense Graded, Cold Laid, Central Plant Mix	29
Dense Graded, Cold Laid, Mixed-in-Place	30
Open Graded, Hot Laid, Central Plant Mix	31
Open Graded, Cold Laid, Central Plant Mix	32
Open Graded, Cold Laid, Mixed-in-place	33
Recycled Asphalt Concrete, Plant Mix, Hot Laid	34
Recycled Asphalt Concrete, Plant Mix, Cold Laid	35
Recycled Asphalt Concrete, Mixed-in-Place	36
Sand Asphalt	46
Cement Aggregate Mixture	37
Lean Concrete (< 3 sacks/cy)	38
Recycled Portland Cement Concrete	39
Sand-Shell Mixture	40
Limerock, Caliche (Soft Carbonate Rock)	41
Lime-Treated Subgrade Soil	42
Cement Treated Subgrade Soil	43
Pozzolanic-Aggregate Mixture	44

Table 3. Subgrade soil description codes.

MATERIAL TYPE	CODE
FINE-GRAINED SUBGRADE SOILS	
Clay (Liquid Limit > 50)	51
Sandy Clay	52
Silty Clay	53
Silt	54
Sandy Silt	55
Clayey Silt	56
COARSE-GRAINED SOILS	
Sand	57
Poorly Graded Sand	58
Silty Sand	59
Clayey Sand	60
Gravel	61
Poorly Graded Gravel	62
Clayey Gravel	63
Shale	64
Rock	65