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# MISSOURI SHRP LTPP MONITORING SECTIONS

STRATEGIC HIGHWAY RESEARCH PROGRAM



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# MISSOURI SHRP LTPP MONITORING SECTIONS

STRATEGIC HIGHWAY RESEARCH PROGRAM



*Compiled By*  
MISSOURI HIGHWAY AND TRANSPORTATION DEPARTMENT  
DIVISION OF MATERIALS AND RESEARCH

RESEARCH SECTION

*Issued December 1989*  
*Revised September 1990*  
*Revised March 1992*

## INTRODUCTION TO SHRP

The Strategic Highway Research Program was a highly focused, five year, \$150 million research program, funded under the Surface Transportation and Uniform Relocation Assistance Act of 1987. SHRP was supported through a mutual agreement among the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the National Research Council, and administered as an independent unit of the National Research Council. The program provided contracts for applied research providing timely solutions for specific operational problems facing highway officials and practitioners.

SHRP's program covered the following four technical areas: **ASPHALT (A); CONCRETE AND STRUCTURES (C); HIGHWAY OPERATIONS (H); LONG TERM PAVEMENT PERFORMANCE (P).**<sup>1</sup>

June 30, 1992 will mark the end of SHRP's fifth full fiscal year of operation. Effective June 30, 1992, the Long Term Pavement Performance (LTPP) will be transferred to the FHWA. SHRP's other three program areas will close on June 30, 1993, with program wide implementation transferring to FHWA on that date. Congress authorized FHWA to spend \$108 million over the next six years for continuation of LTPP and for SHRP implementation activities under the 1991 Intermodal Surface Transportation Efficiency Act.

This booklet outlines the 20 Missouri sites in the LTPP Study and 5 Missouri sites for Special Pavement Studies which are a part of the technical area.

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<sup>1</sup> "Third Annual Work Program FY 1990", National Research Council, Strategic Highway Research Program, Washington, D.C.

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## GLOSSARY

AADT	-	Annual Average Daily Traffic
AC	-	Asphaltic Concrete
CRCP	-	Continuous Reinforced Concrete Pavement
C.T.A.B.	-	Cement Treated Aggregate Base
GPS	-	General Pavement Study
JPCP	-	Jointed Plain Concrete Pavement
KESALS	-	One Thousand Eighteen-Kip Equivalent Single Axle Loads Per Year Per Lane
LTPP	-	Long Term Pavement Performance
O.G.B.B.	-	Open Graded Bituminous Base
PCC	-	Portland Cement Concrete
RPCCP	-	Reinforced Portland Cement Concrete Pavement
S.C.	-	Seal Coat
SHRP	-	Strategic Highway Research Program
SPS	-	Specific Pavement Study
S.S.B.	-	Sand Soil Base
S.S.C.T.B.	-	Sand Soil Cement Treated Base

## INTRODUCTION TO LONG TERM PAVEMENT PERFORMANCE

### Goal and Objectives

The objective for LTPP studies established by the "Strategic Transportation Research Study" and adopted by the Advisory Committee for Pavement Performance as their goal was:

"To increase pavement life by investigation of various designs of pavement structures and rehabilitated pavement structures, using different materials and under different loads, environments, subgrade soil, and maintenance practices."

The specific objectives developed by the Advisory Committee are:

Evaluate existing design methods

Develop improved design methodologies and strategies for the rehabilitation of existing pavements

Develop improved design equations for new and reconstructed pavements

Determine the effects of (1) loading, (2), environment, (3) material properties and variability, (4) construction quality, and (5) maintenance levels on pavement distress and performance.

Determine the effects of specific design features on pavement performance.

Establish a national long-term pavement data base to support SHRP objectives and future needs

It is expected that accomplishment of these objectives will resolve most of the difficulties currently experienced in implementing successful pavement management systems.

All states were asked to "be involved" in the Long Term Pavement Performance Studies. Missouri is interested in "General Pavement Studies (GPS)", i.e., in service pavements, and "Specific Pavement Studies (SPS)".

General pavement studies (GPS) include nine separate experiments which are:

1. Asphaltic concrete on granular base
2. Asphalt concrete on bound bases, asphalt treated, cement treated, and soil cement treated.

3. Jointed Plain Concrete Pavement - JPCP
4. Jointed Reinforced Concrete Pavement - JRCP
5. Continuously Reinforced Concrete Pavement - CRCP
- 6A. Existing asphalt concrete overlay of asphalt concrete pavement
- 6B. Planned asphalt concrete overlay of asphalt concrete pavement
- 7A. Existing asphaltic concrete overlay of portland cement concrete pavement
- 7B. Planned asphaltic concrete overlay of portland cement concrete pavement
8. Project deleted (Bonded PCC Overlay of PCC Pavement)
9. Unbonded portland cement concrete overlay of portland cement concrete pavement

Missouri submitted 69 candidate projects based on type of soil (coarse or fine subgrade), type of design or rehabilitation, traffic, (ADT 2500 or greater), length (minimum of 1500 feet with no steep grades or curves, no culverts or drains), design thickness, no added lanes, and original date of construction (1965 or later for rigid pavement and 1970 for flexible pavements or rehabilitated pavements). In addition, the projects were selected geographically and included projects in 44 counties. It was anticipated that when selected, Missouri would have from 5 to 15 projects.

Specific pavement studies will be pavements to be built or rehabs with a study for various items such as effects of preventive maintenance, load equivalence factors, effects of subsurface drainage, environmental distress and hot or cold recycling.

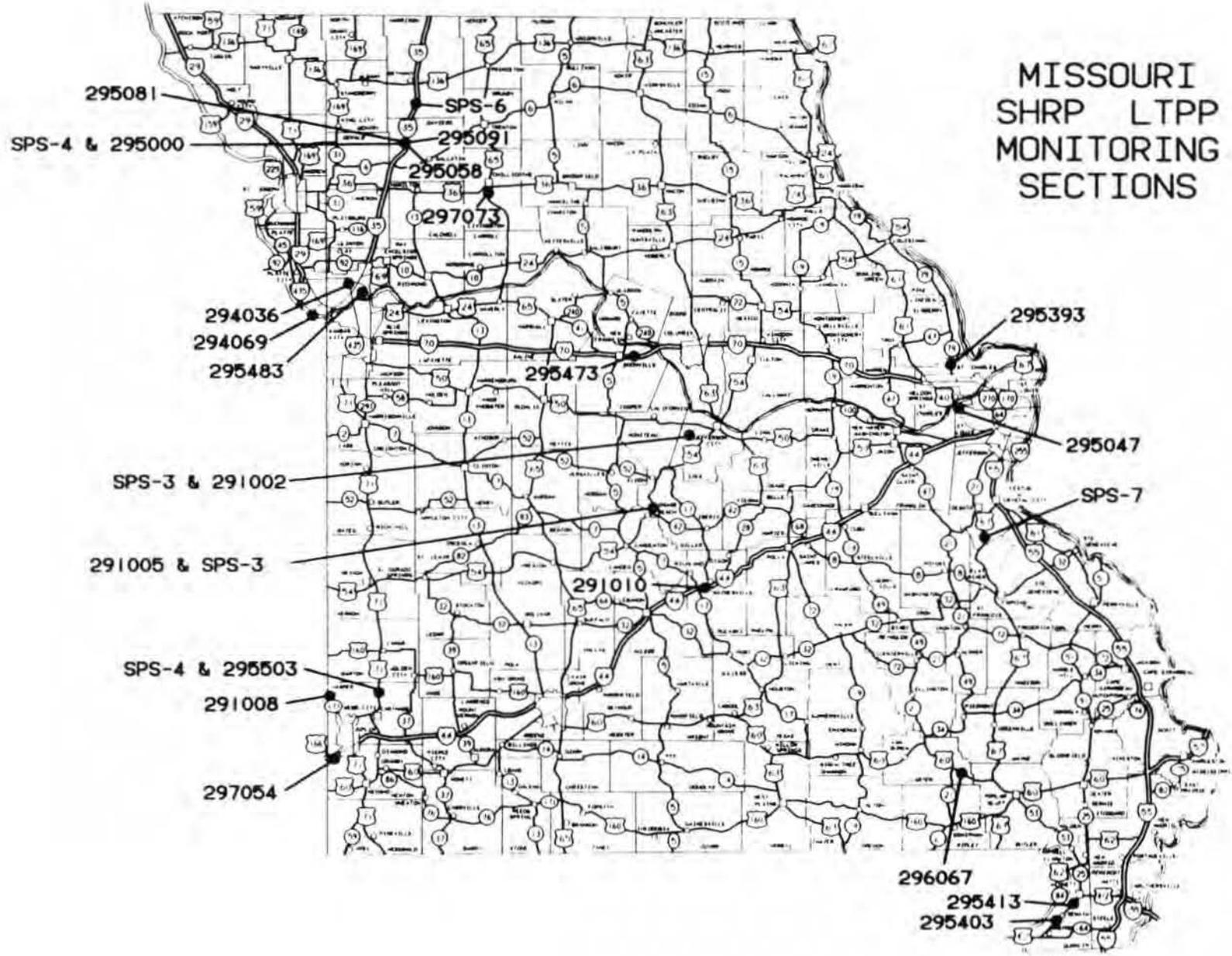
The nine (9) Specific Pavement Studies (SPS) are as follows:

1. Flexible Pavement Structural Parameters
2. Rigid Pavement Structural Parameters
3. Flexible Pavement Preventive Maintenance Treatments
4. Rigid Pavement Preventive Maintenance Treatments

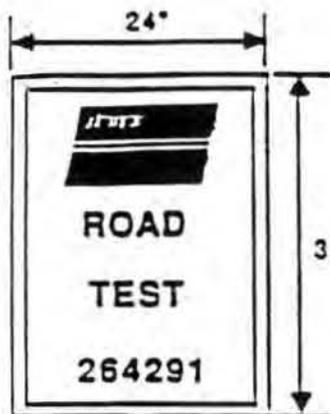
5. Rehabilitation of Asphaltic Concrete Pavements
6. Rehabilitation of Jointed Portland Cement Concrete Pavements
7. Bonded Portland Cement Concrete Overlay of Portland Cement Concrete Pavements
8. Environmental Effects on Flexible and Rigid Pavements
9. Asphalt Program Studies

What follows is an overview of the 20 projects selected by SHRP for the general pavement study and the projects Missouri has elected to participate in the specific pavement study.

# MISSOURI SHRP LTPP MONITORING SECTIONS



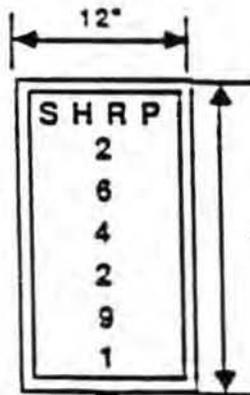
MARCH 1992



Sign A Detail

**Notes:**

- Blue Background
- White letters
- White Border, 1" wide  
1/2" offset from edge
- Letters and numbers  
4" high
- SHRP logo 6" by 9"

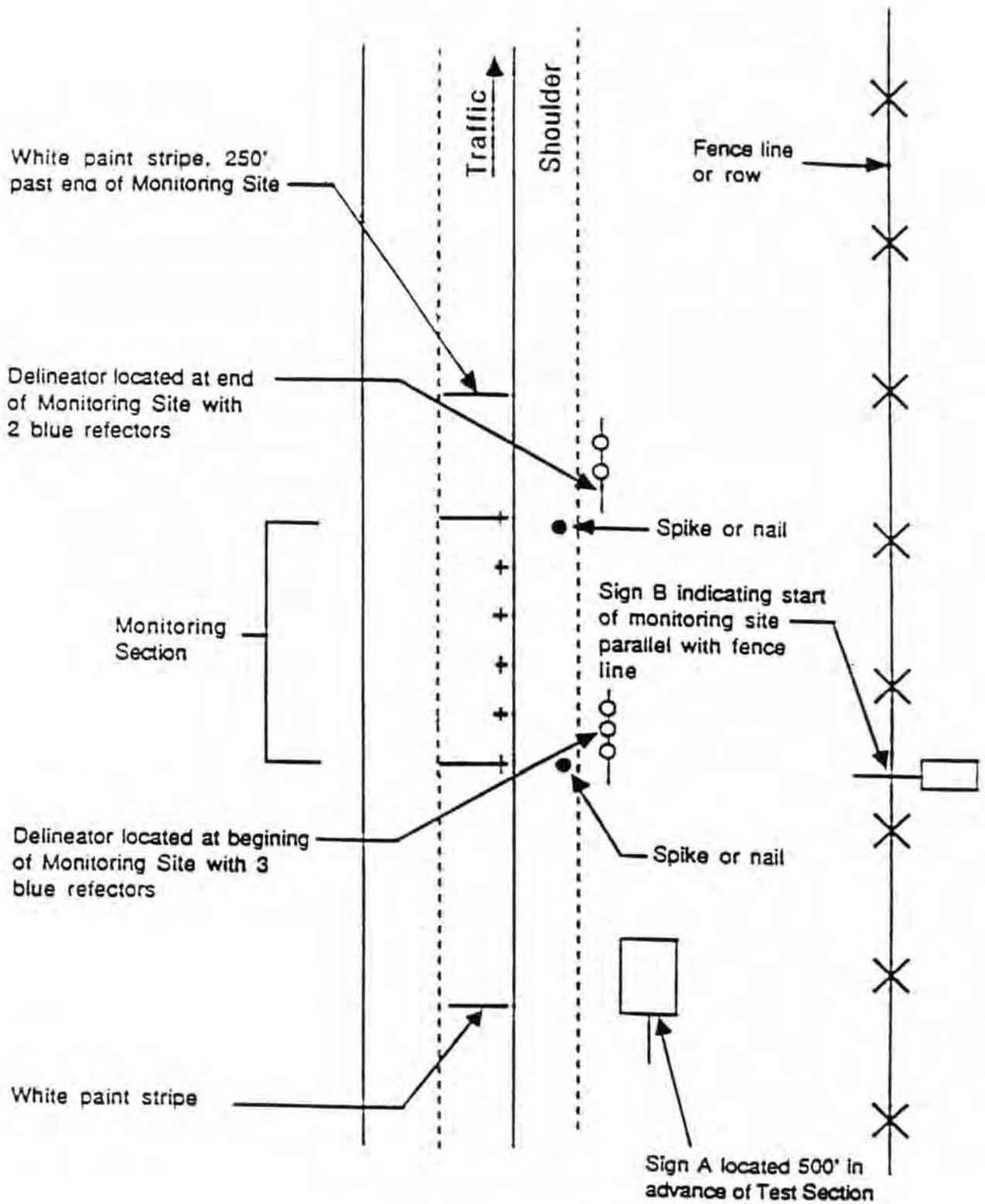


Sign B Detail

**Notes:**

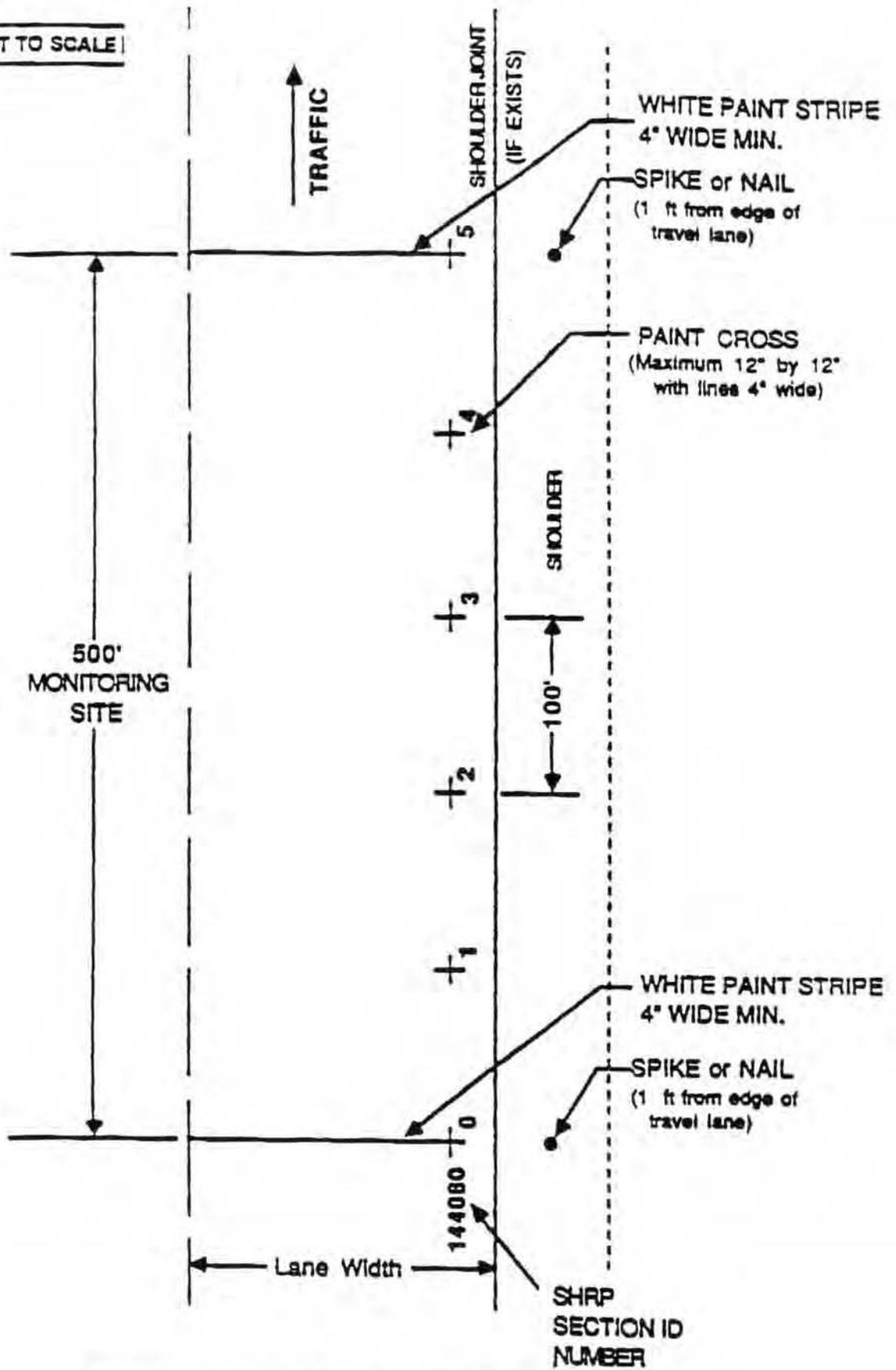
- Blue Background
- White Letters
- White Border 1/2" wide  
1/2" offset from edge
- Letters and numbers  
1 1/2" high

Sign details



General Layout of test section showing sign locations

NOT TO SCALE



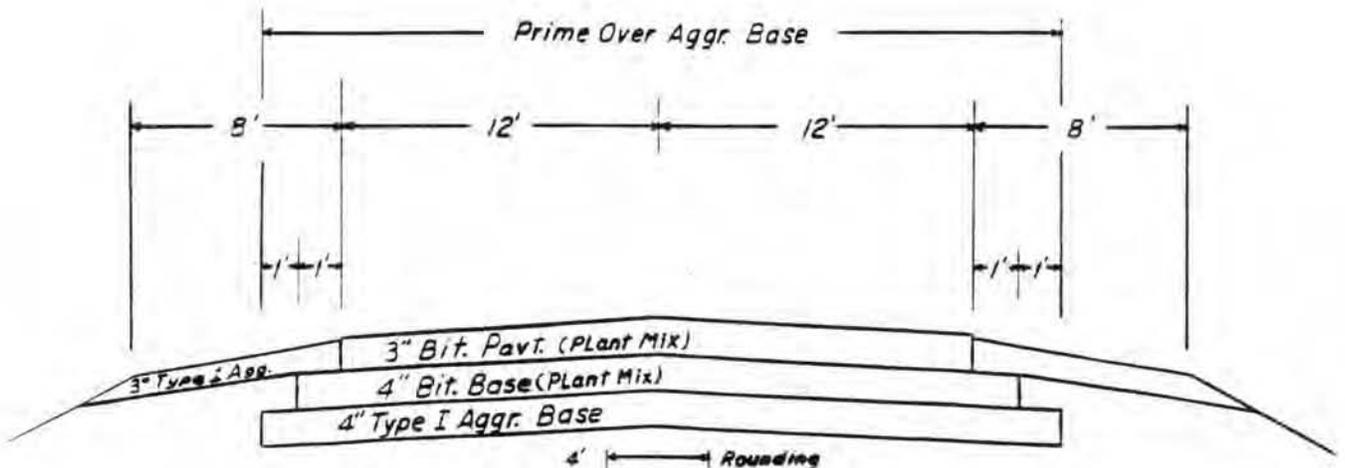
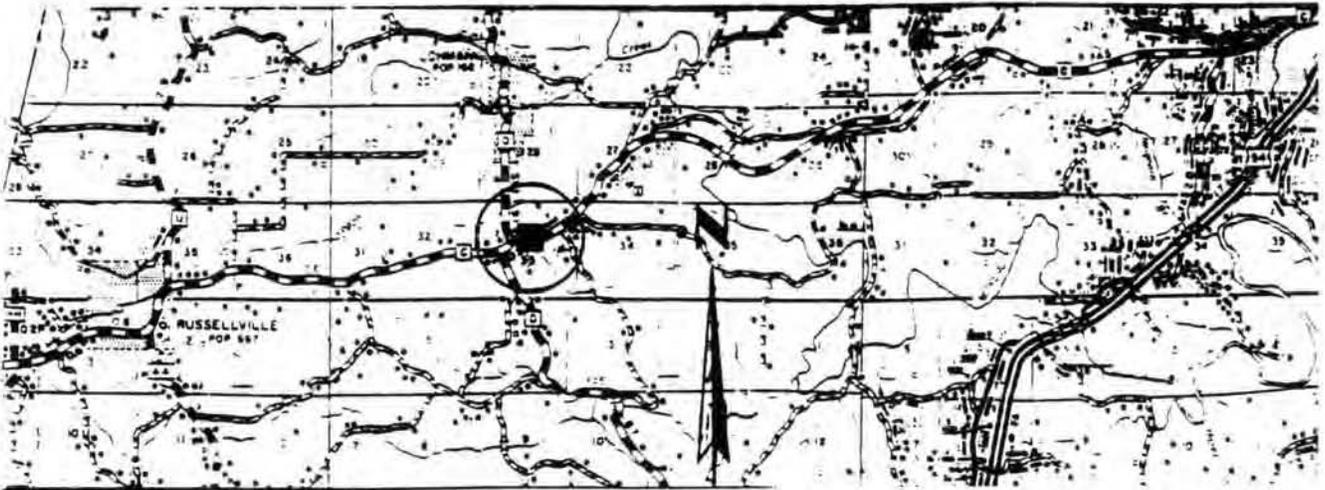
Details of monitoring site paint configuration

**GPS**

STRATEGIC HIGHWAY RESEARCH PROGRAM  
SHRP IDENT. NO. 291002  
Long Term Pavement Performance Studies (LTPP)  
General Pavement Studies (GPS)  
GPS-1  
Route C, Cole County

This site is located 0.3 mile east of Route D in the westbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in April 1986 under Project No. RS-RSEGC-169(2). AADT (1985) = 1960. KESALS (1985) = 19.

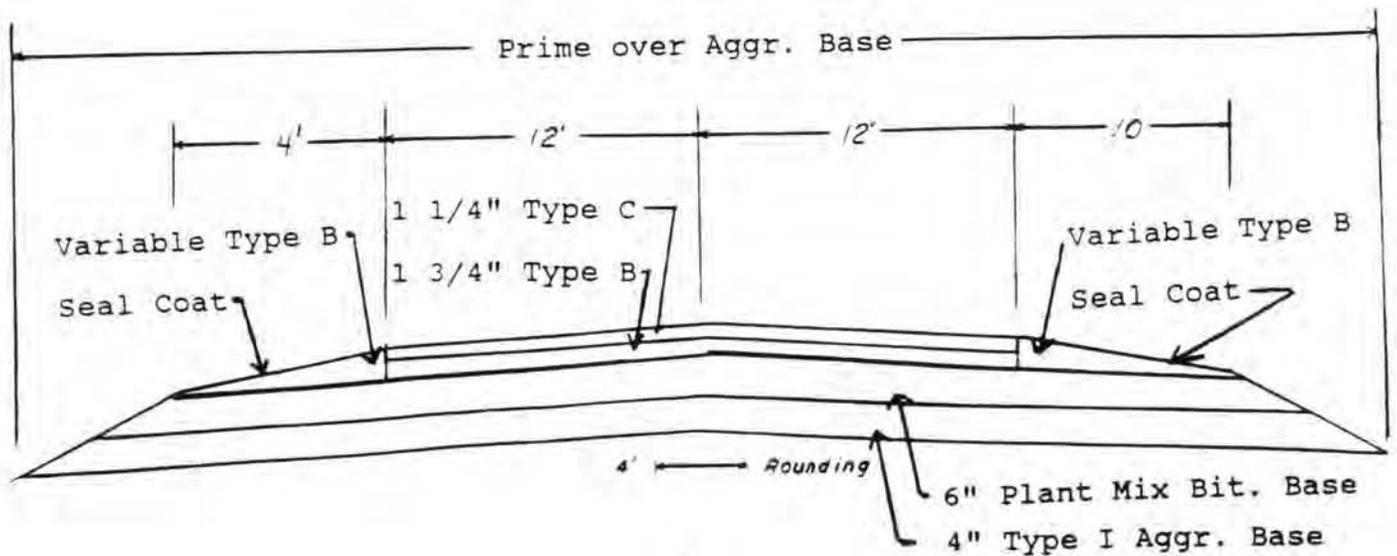
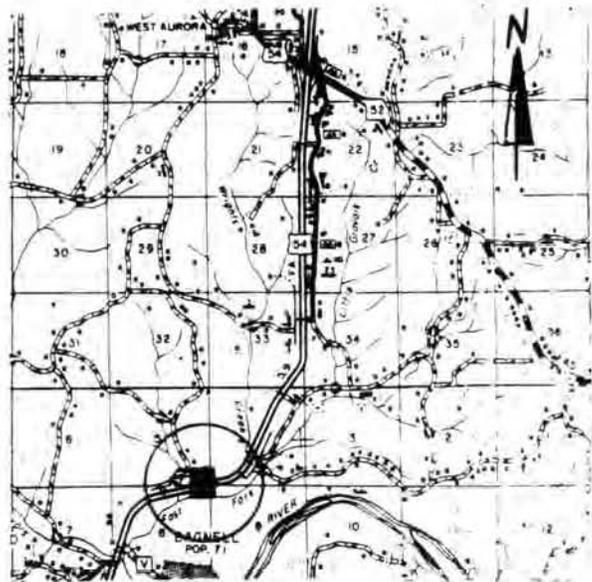
A Specific Pavement Study No. 3 (SPS-3) which is entitled "Flexible Pavement Preventive Maintenance Treatments" is located near this site. Details are on page 33.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
 SHRP IDENT. NO. 291005  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-1  
 Route 54, Miller County

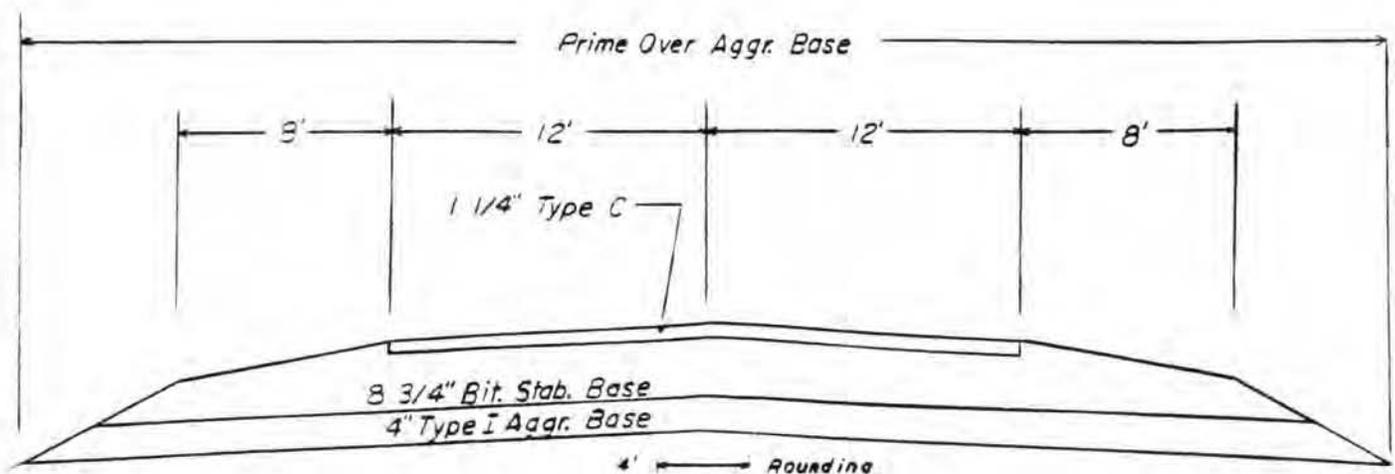
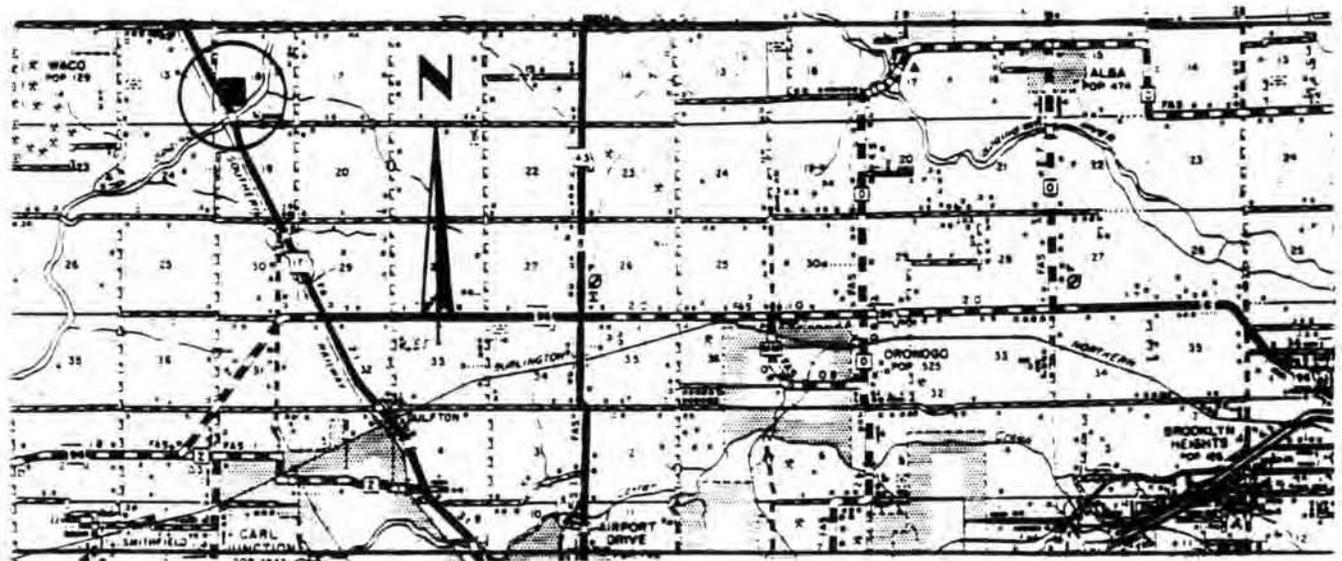
This site is located 4.8 miles west of Route 52 west in the westbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the sites. A solid white line traverses the pavement with the SHRP ID NO. on the edge of pavement at the beginning of the 500' control section. The pavement was constructed in 1974 under Project No. F-54-3(26). AADT (1985) = 7170. KESALS (1988) = 80.

A Specific Pavement Study No. 3 (SPS-3) which is entitled "Flexible Pavement Preventive Maintenance Treatments" is located near this site. Details are on page 30.



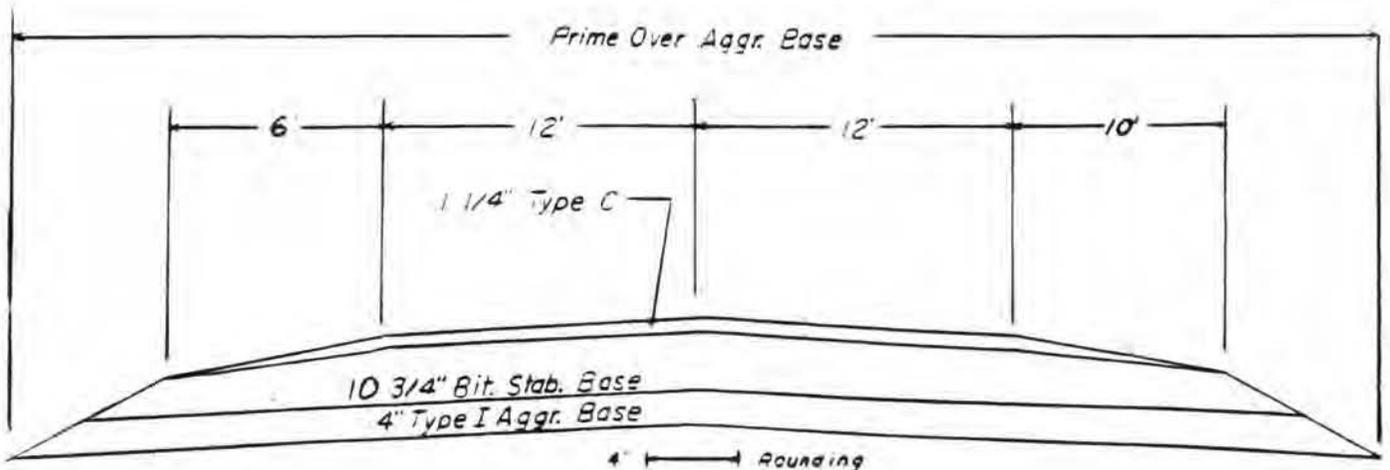
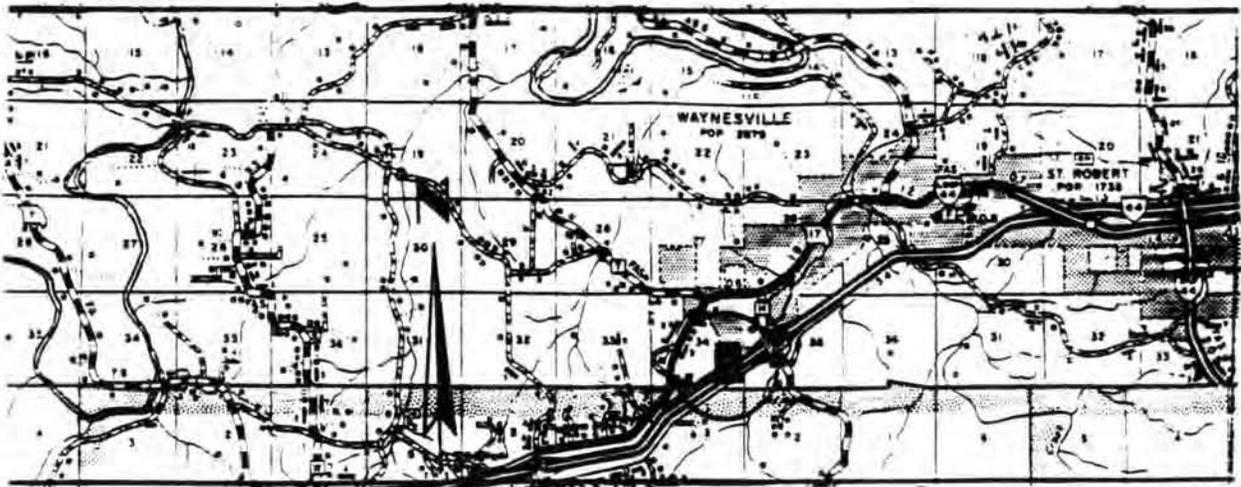
STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 291008**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-1  
 Route 171, Jasper County

This site is located 0.8 mile south of Route KK in the southbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1986 under Project No. BRF-171-1(4). AADT (1985) = 3770. KESALS (1985) = 52.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
SHRP IDENT. NO. 291010  
Long Term Pavement Performance Studies (LTPP)  
General Pavement Studies (GPS)  
GPS-1  
Route I-44, Pulaski County

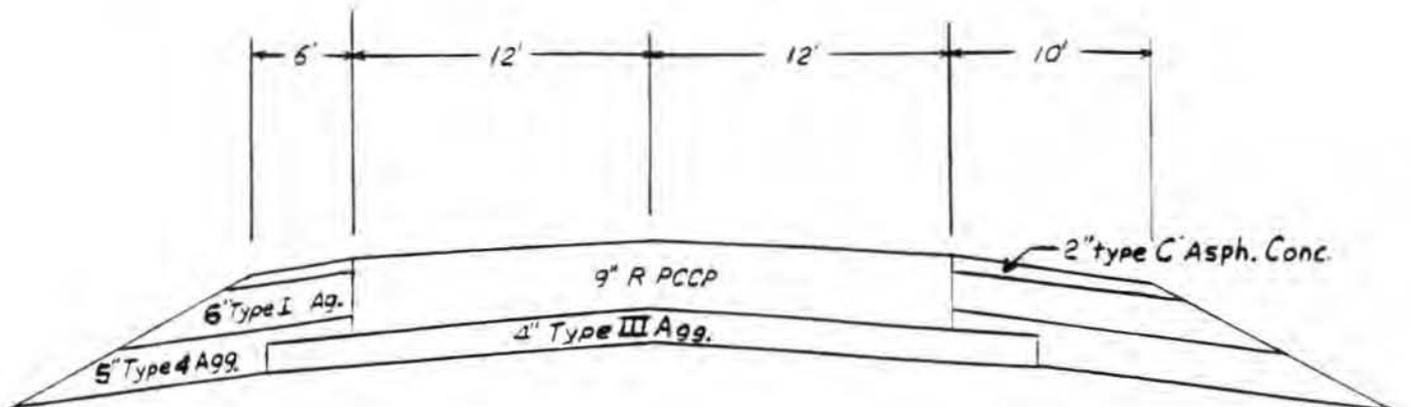
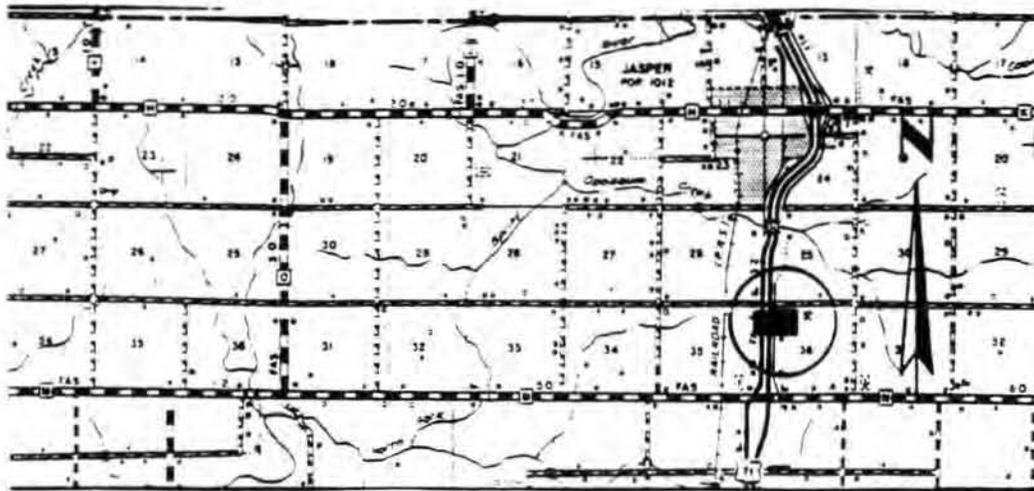
This site is location 0.3 mile west of Route H and 2.65 miles east of Route 17 in the eastbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1980 under Project No. I-44-2(84). AADT (1985) = 15432. KESALS (1985) = 319.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 294031**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-4  
 Route 71, Jasper County

This site is located 1.0 miles south of the Opossum Creek Bridge in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1983 under Project No. F-71-2(35). AADT (1985) = 8023. KESALS (1985) = 327.

This site was in the northbound lane. In August 1990, this section of the roadway became the southbound lane as a new northbound lane was completed.

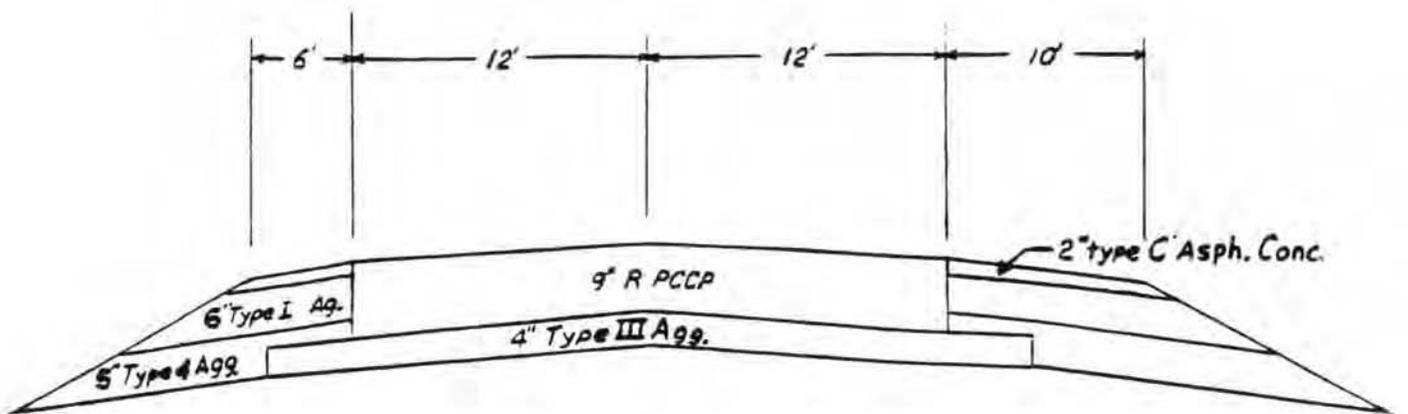
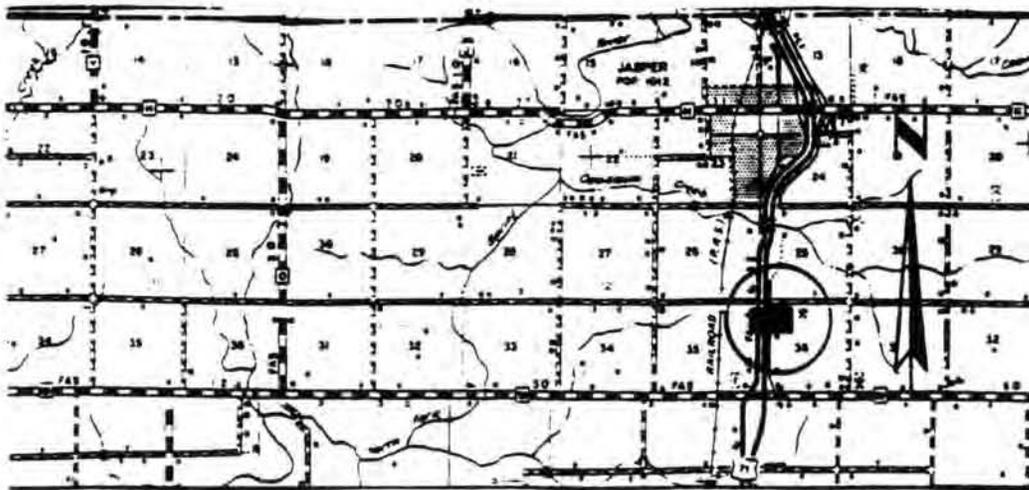


STRATEGIC HIGHWAY RESEARCH PROGRAM  
SHRP IDENT. NO. 295503  
Long Term Pavement Performance Studies (LTPP)  
General Pavement Studies (GPS)  
GPS-4  
Route 71, Jasper County

This site is located 1.0 miles south of the Opossum Creek Bridge in the southbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1983 under Project No. F-71-2(35). AADT (1985) = 8023. KESALS (1985) = 327.

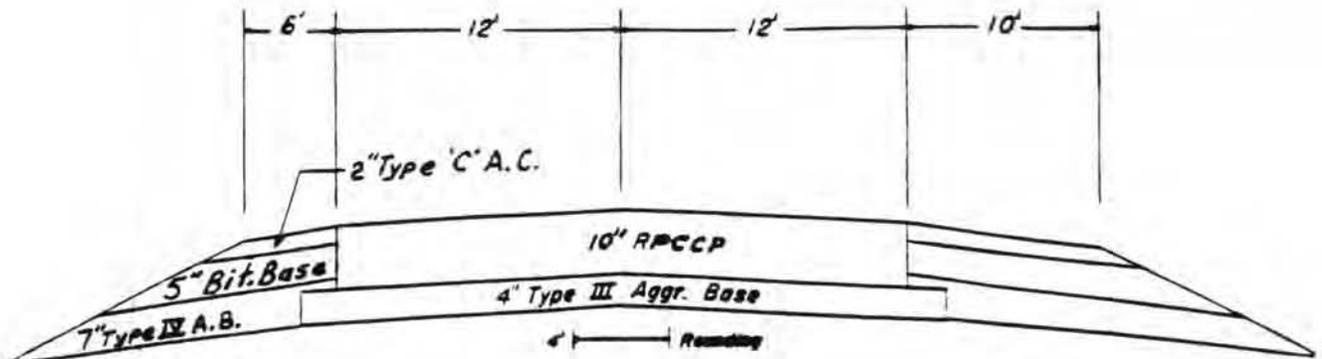
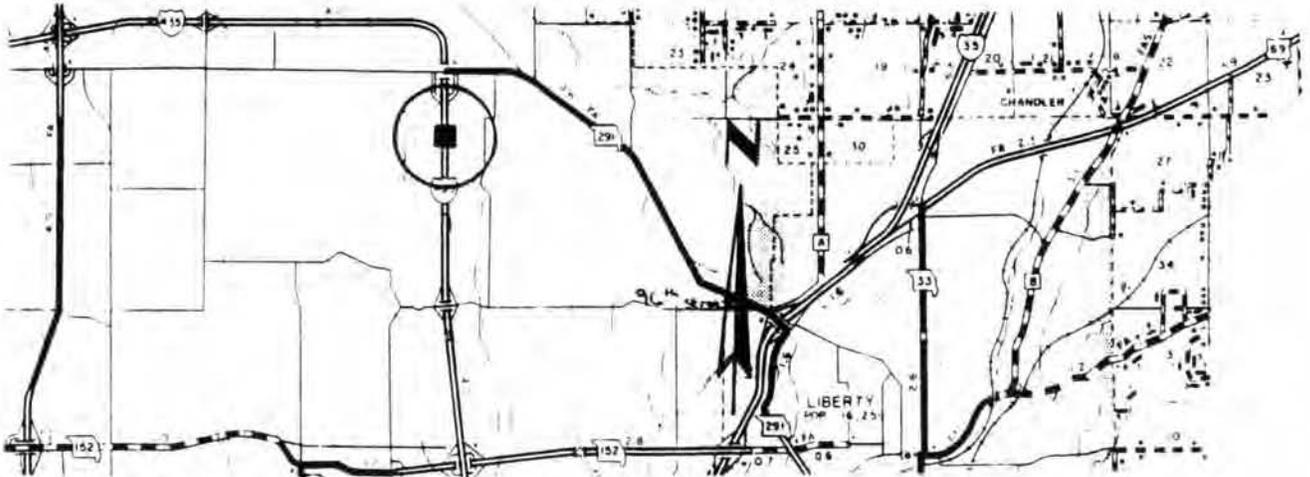
This pavement was initially utilized as the northbound lane. In August 1990, this section of the roadway became the southbound lane as a new northbound lane was completed. This section was established adjacent to the deleted Section No. 294031, shown on page 12.

A Specific Study No. 4 (SPS-4) which is entitled "Rigid Pavement Preventative Maintenance Treatments" is located near this site. Details are on page 38.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 294036**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-4  
 Route I-435, Clay County

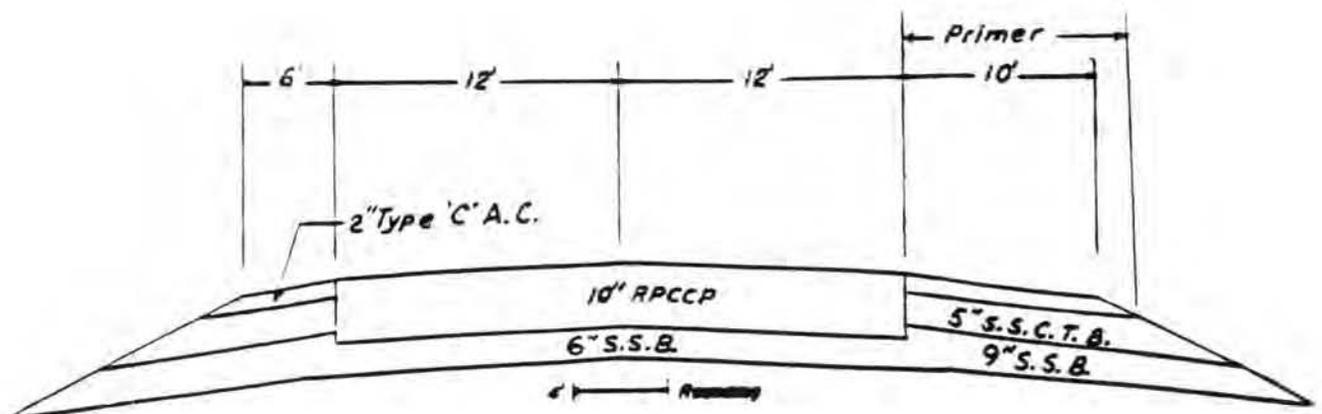
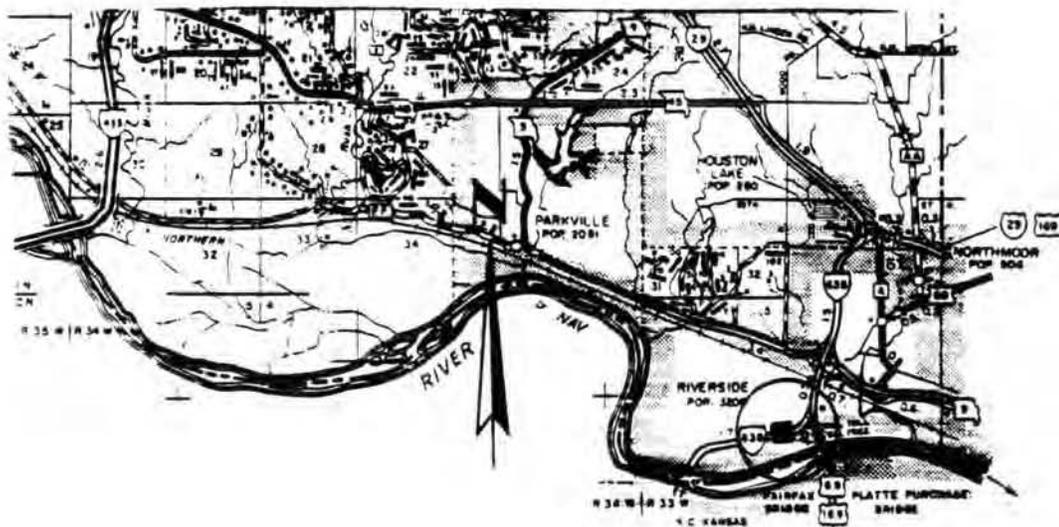
This site is located 0.15 north of 108th Street Bridge and 0.85 mile south of Route 291 in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 294069**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-7B  
 Route I-635, Platte County

This site is located 0.5 mile south of Route 169 South Junction and 0.4 mile north of Missouri River Bridge in the southbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1974 under Project No. I-635-1(98)5. AADT (1985) = 35100. KESALS (1985) = 447.

This site was rehabilitated in 1991 by Project F.A.-635-1(247) which shifted this site from the GPS-4 cell to the GPS-7B cell.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
 SHRP IDENT. NO. 295000  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-4  
 Route I-35, Daviess County

This site is located 0.9 mile north of Route 69 in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1977 under Project No. I-35-2(35)68. AADT (1985) = 8380. KESALS (1985) = 355.

A Specific Study No. 4 (SPS-4) which is entitled "Rigid Pavement Preventive Maintenance Treatments" is located near this site. Details are on page 36.

This site is located within a test section created as part of a study numbered MCHRP 78-1, Research Investigation No. 77-2. Layout details of this study are shown on page 17.

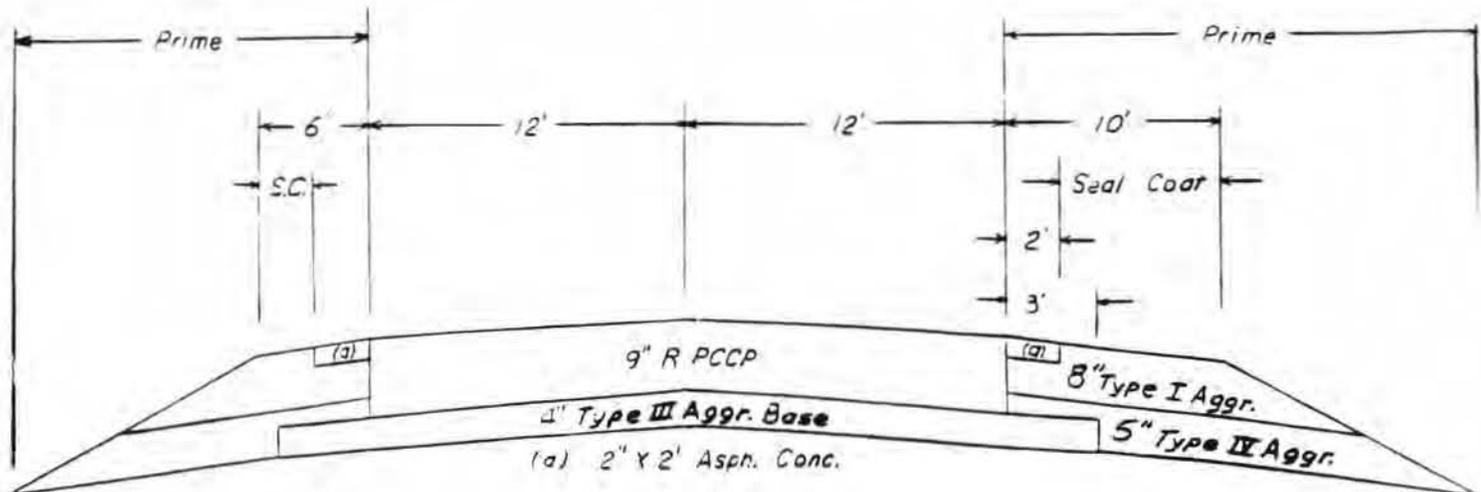
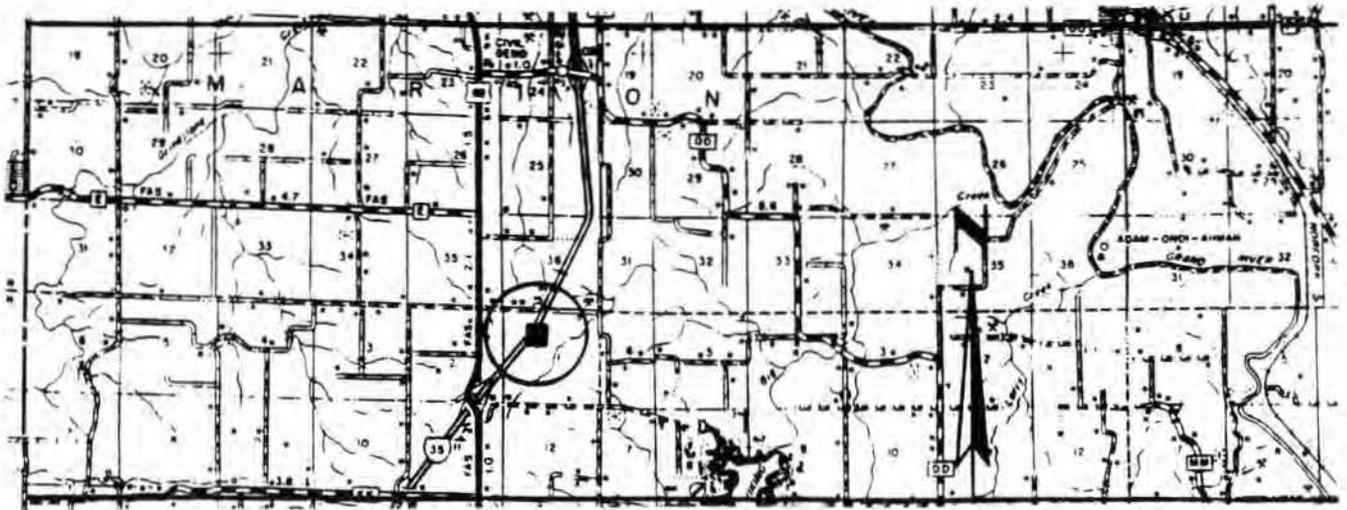
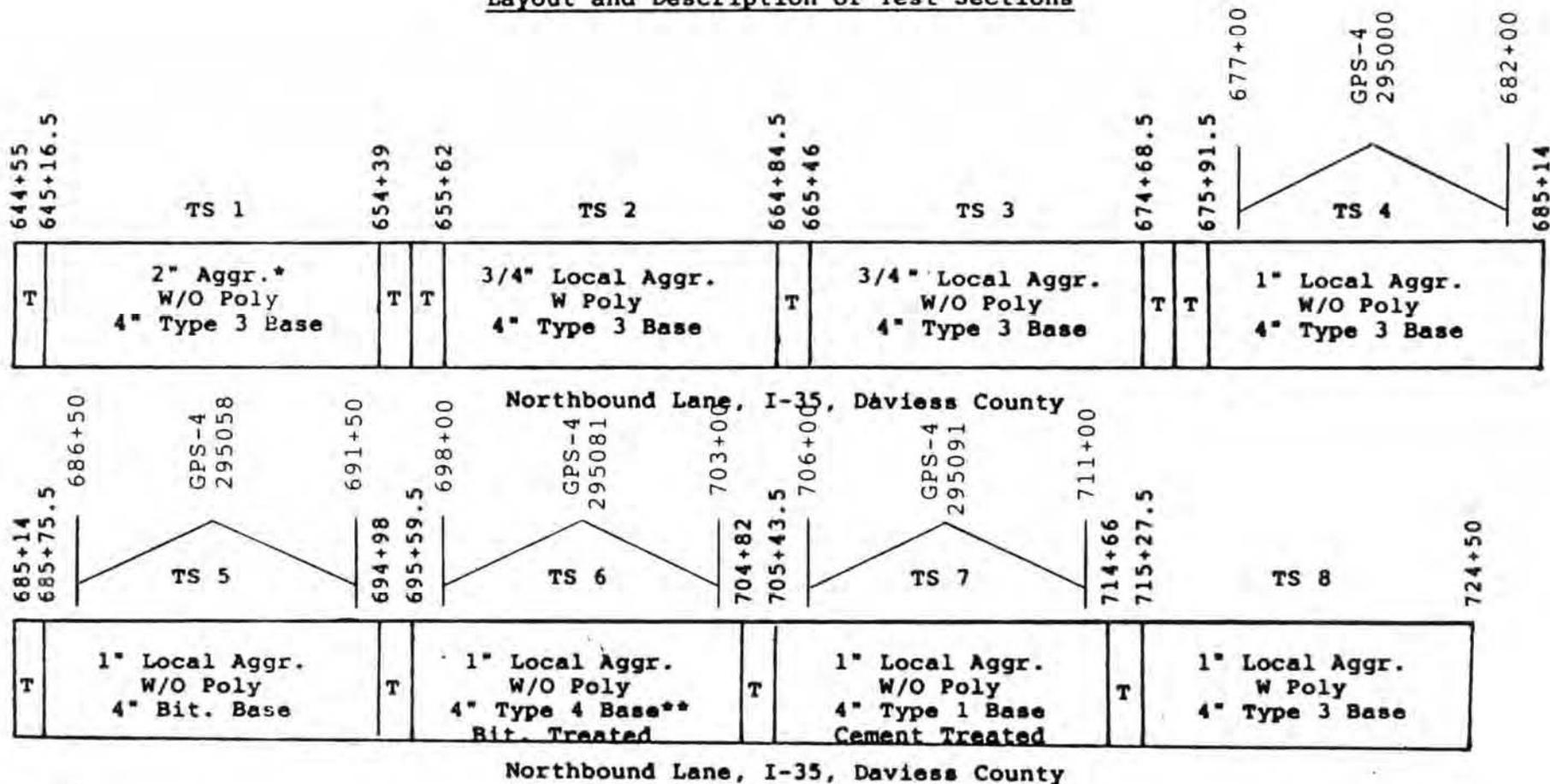


FIGURE 3

Layout and Description of Test Sections



LEGEND:

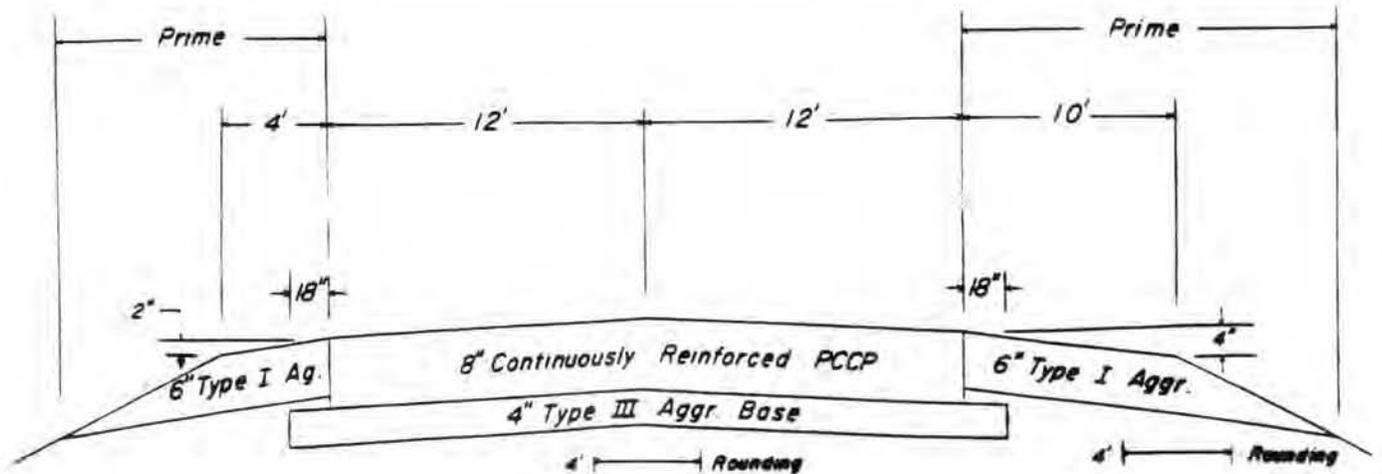
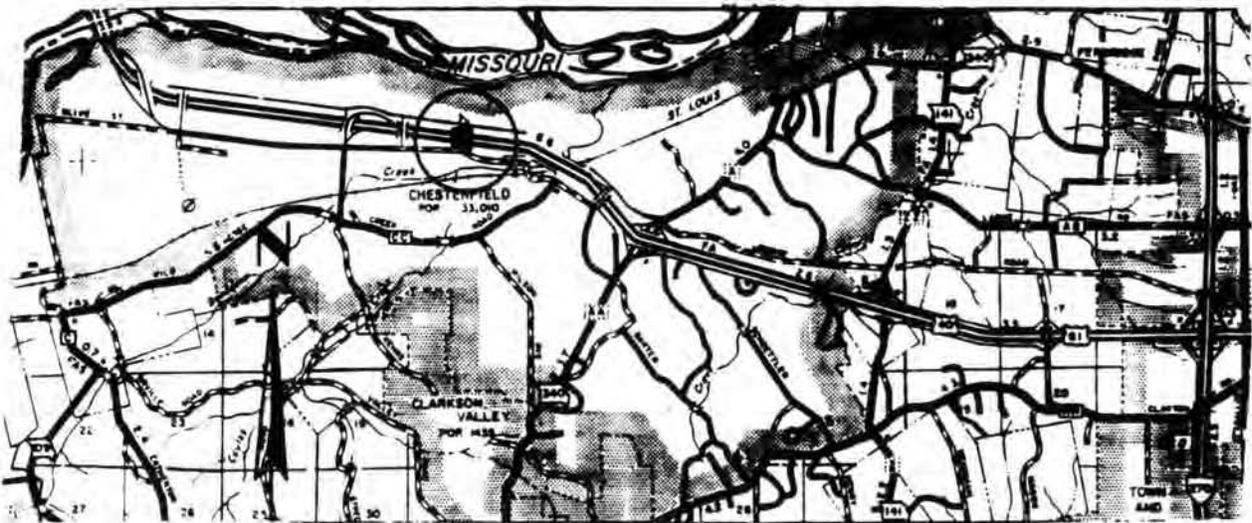
- \* Aggregate with no known history of "D" Cracking (Burlington Limestone)
  - \*\* Open graded aggregate base.
  - T = Transition Slab
- NOTE: Stationing shown is for centerline of northbound lane.

SPS-4 Site  
Starts 736+40



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 295047**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-5  
 Route 40, St. Louis County

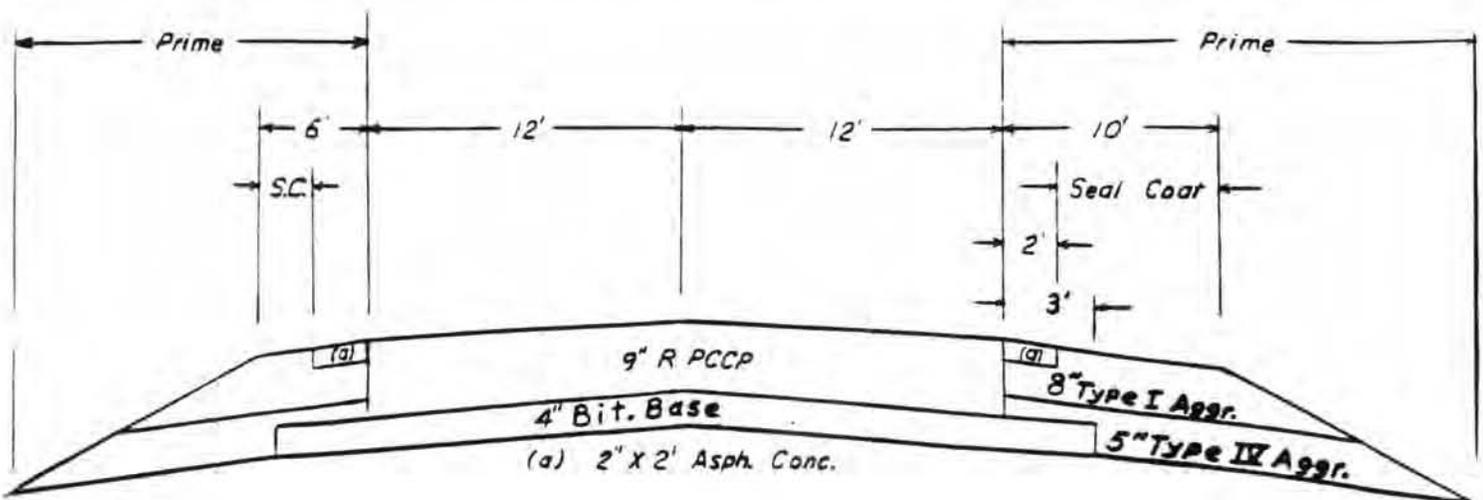
This site is located 0.8 mile west of R.R. Bridge in the eastbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 295058**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-4  
 Route I-35, Daviess County

This site is located 1.1 miles north of Route 69 in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1977 under Project No. I-35-2(35)68. AADT (1985) = 8380. KESALS (1985) = 355.

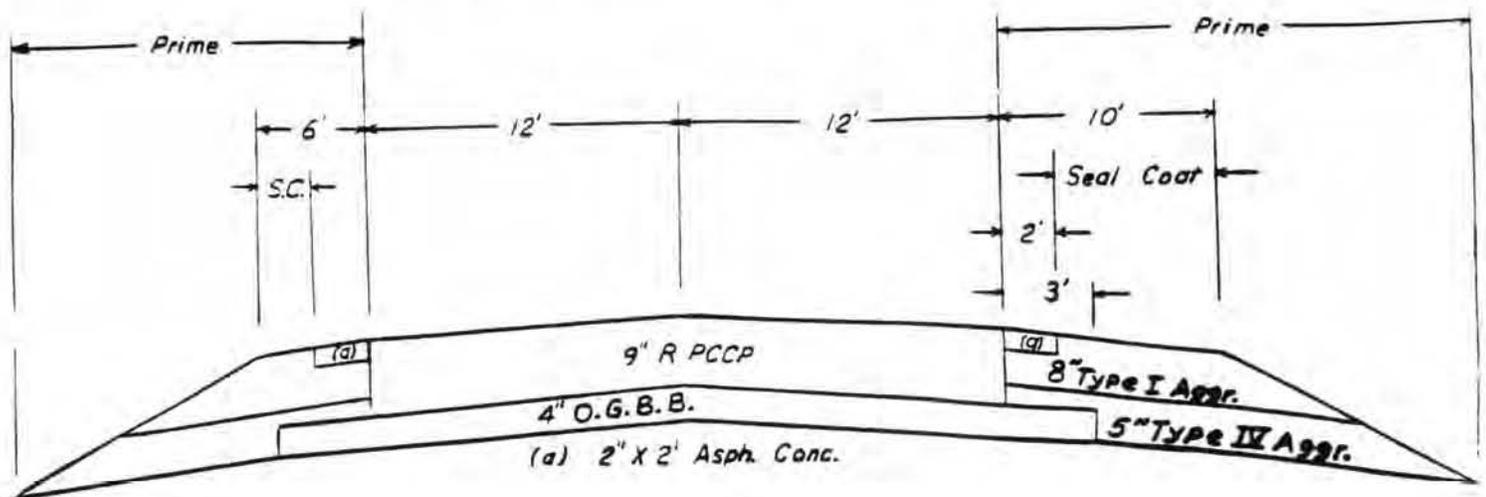
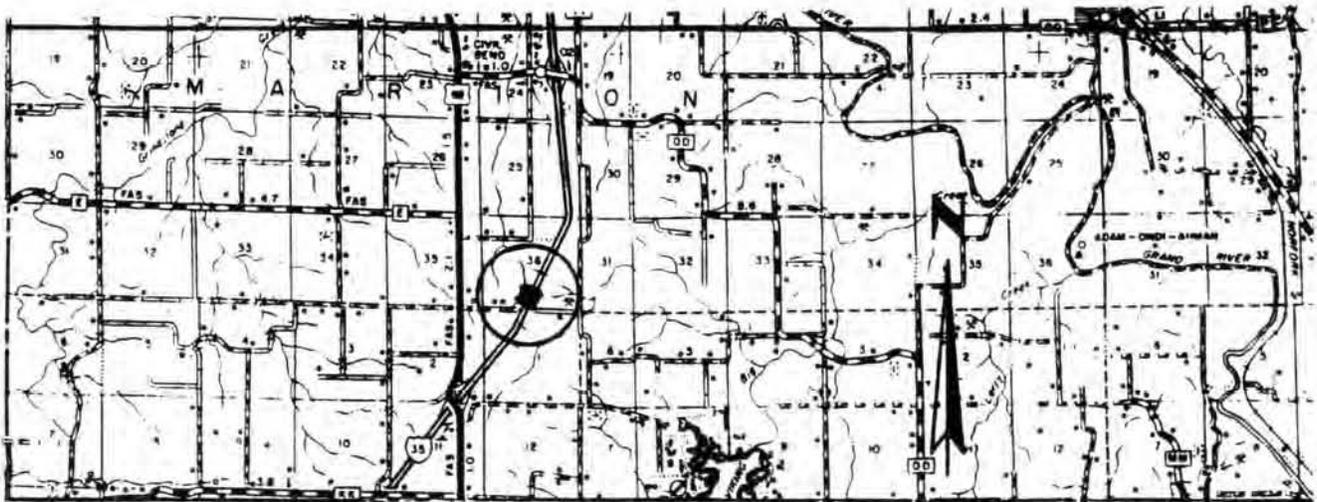
This site is located within a test section created as part of a study numbered MCHRP 78-1, Research Investigation No. 77-2. Layout details of this study are shown on page 17.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 295081**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-4  
 Route I-35, Daviess County

This site is located 1.3 miles north of Route 69 in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1977 under Project No. I-35-2(35)68. AADT (1985) = 8380. KESALS (1985) = 355.

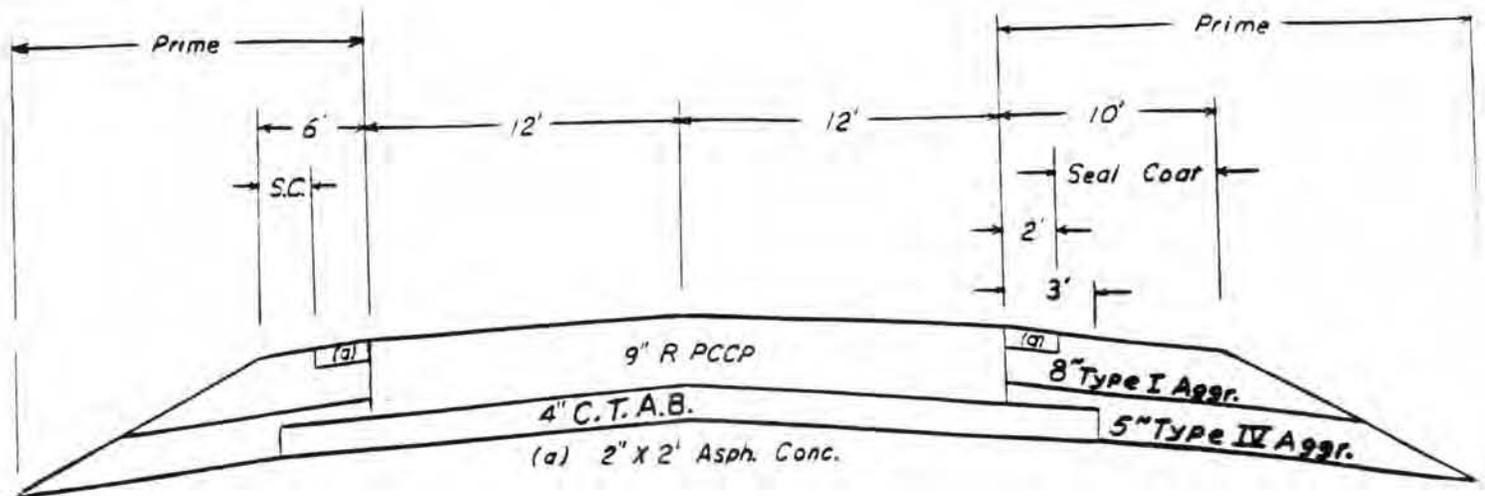
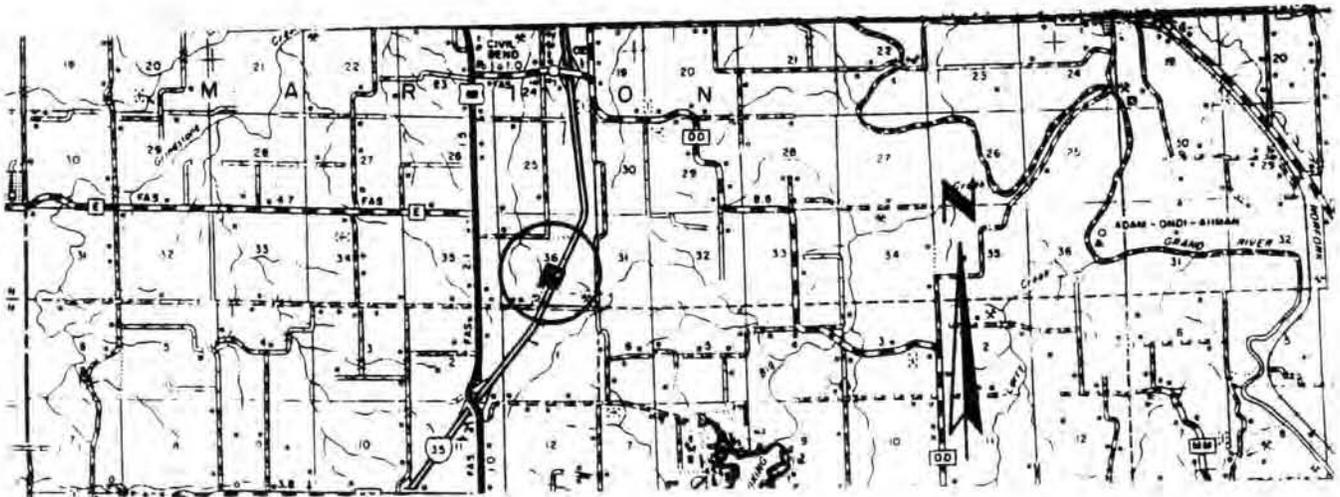
This site is located within a test section created as part of a study numbered MCHRP 78-1, Research Investigation No. 77-2. Layout details of this study are shown on page 17.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
 SHRP IDENT. NO. 295091  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-4  
 Route I-35, Daviess County

This site is located 1.5 miles north of Route 69 in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1977 under Project No. I-35-2(35)68. AADT (1985) = 8380. KESALS (1985) = 355.

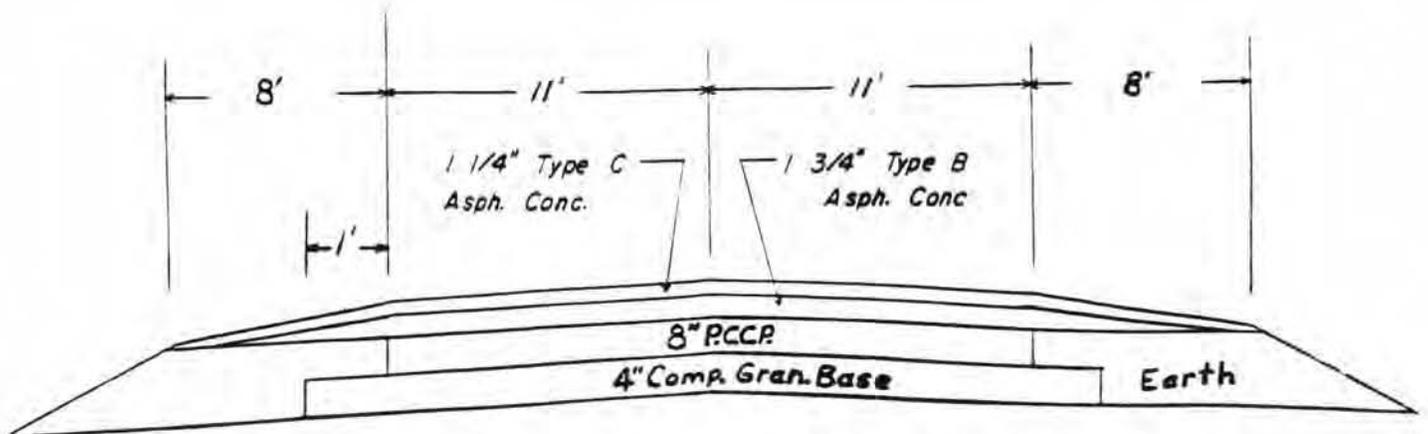
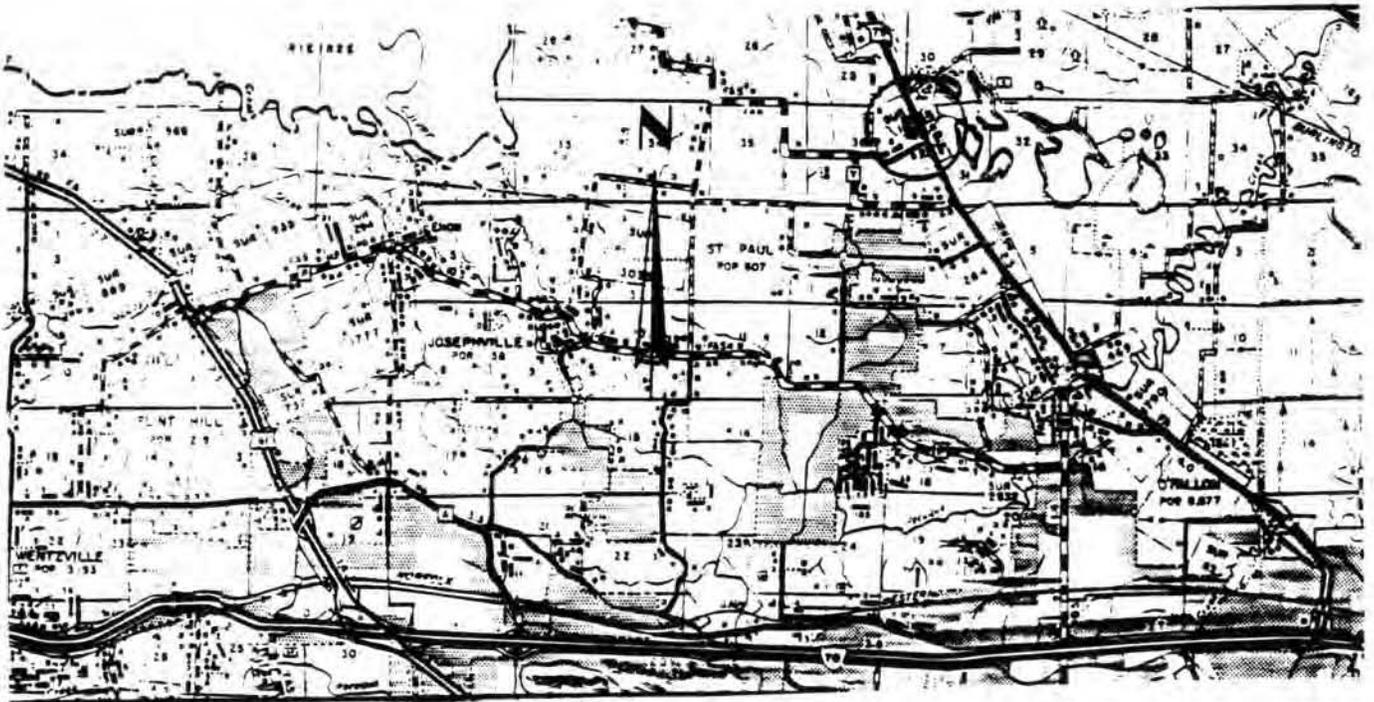
This site is located within a test section created as part of a study numbered MCHRP 78-1, Research Investigation No. 77-2. Layout details of this study are shown on page 17.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
SHRP IDENT. NO. 295393  
Long Term Pavement Performance Studies (LTPP)  
General Pavement Studies (GPS)  
GPS-7B  
Route 79, St. Charles County

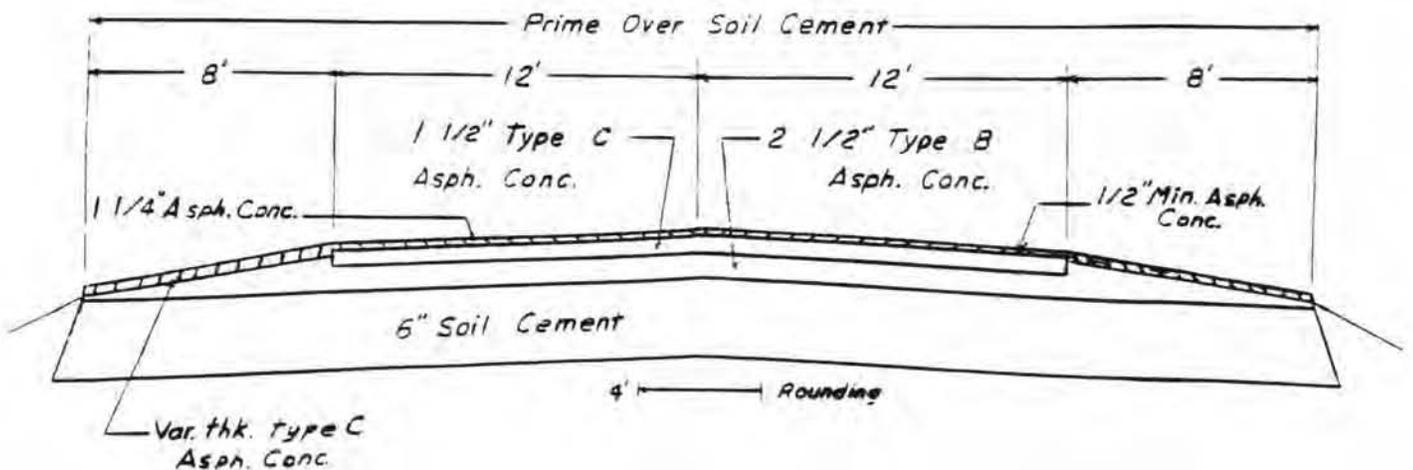
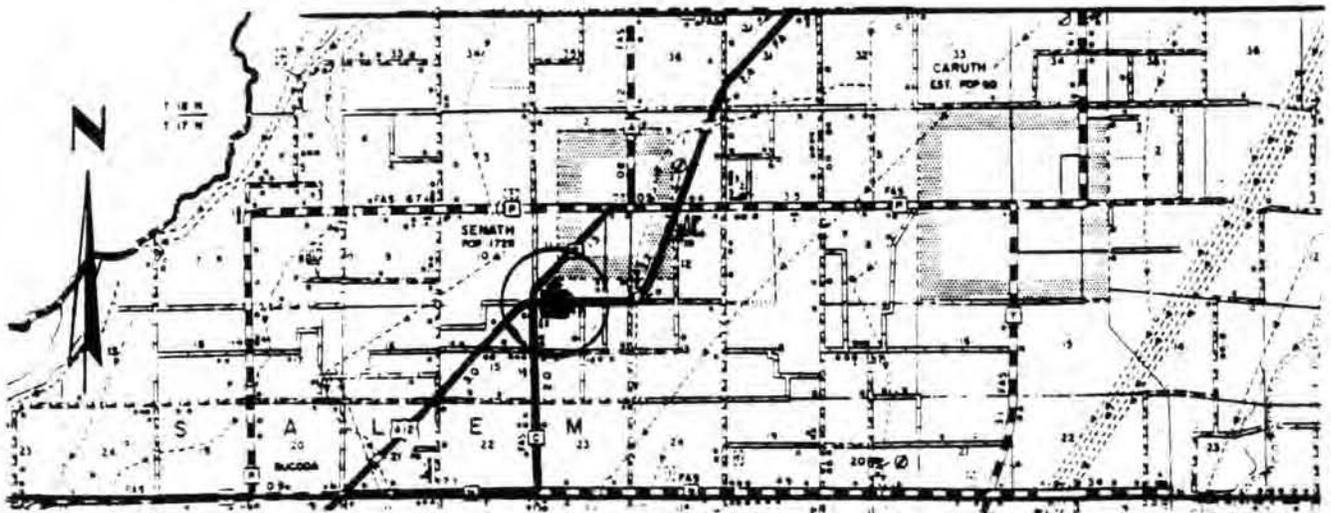
This site is located 0.1 mile north of Route Y in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1957 under Project No. 79-F-299(5). AADT (1987) = 8500. KESALS (1987) = 50.

This site was rehabilitated by Project No. 6-P-884 in 1990.



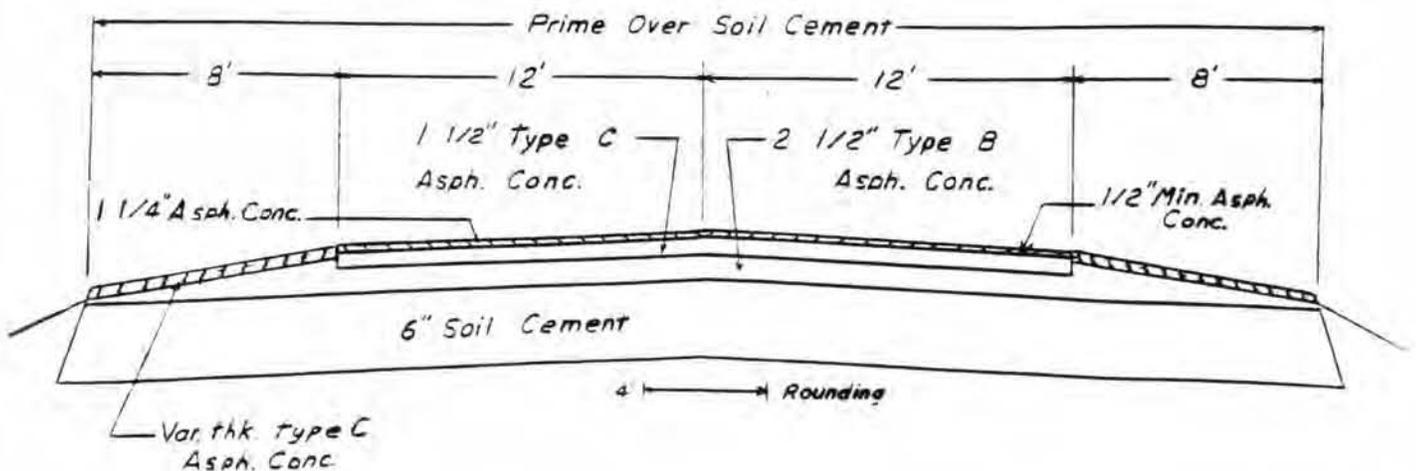
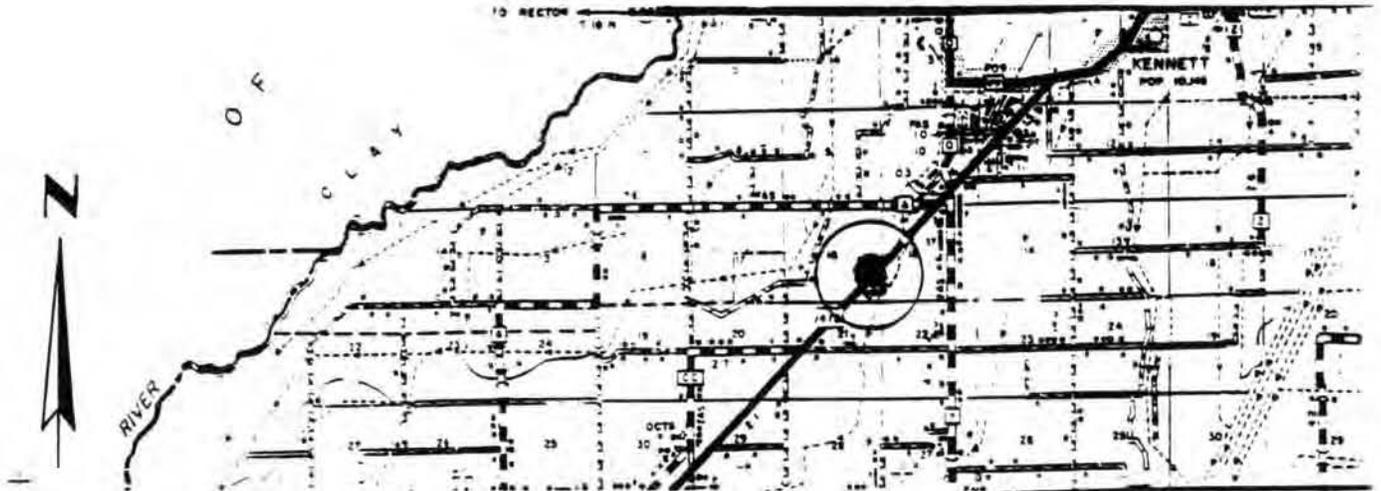
STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 295403**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-6B  
 Route 412, Dunklin County

This site is located 0.2 mile north of Route C in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1967 under Project No. CO35-25(4). This site was rehabilitated by Project No. F-25-1(24) in 1989. AADT (1985) = 3100. KESALS (1985) = 90.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
 SHRP IDENT. NO. 295413  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-6B  
 Route 412, Dunklin County

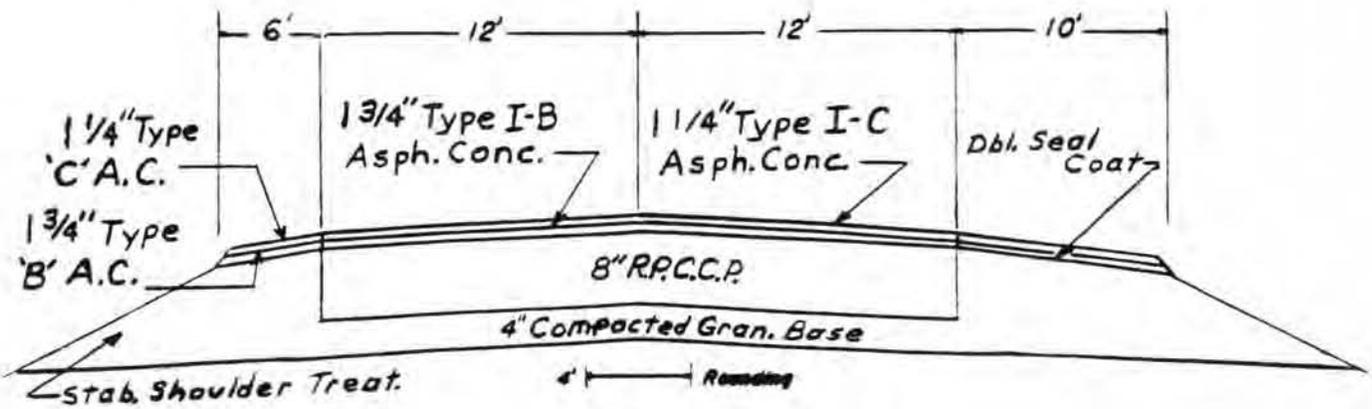
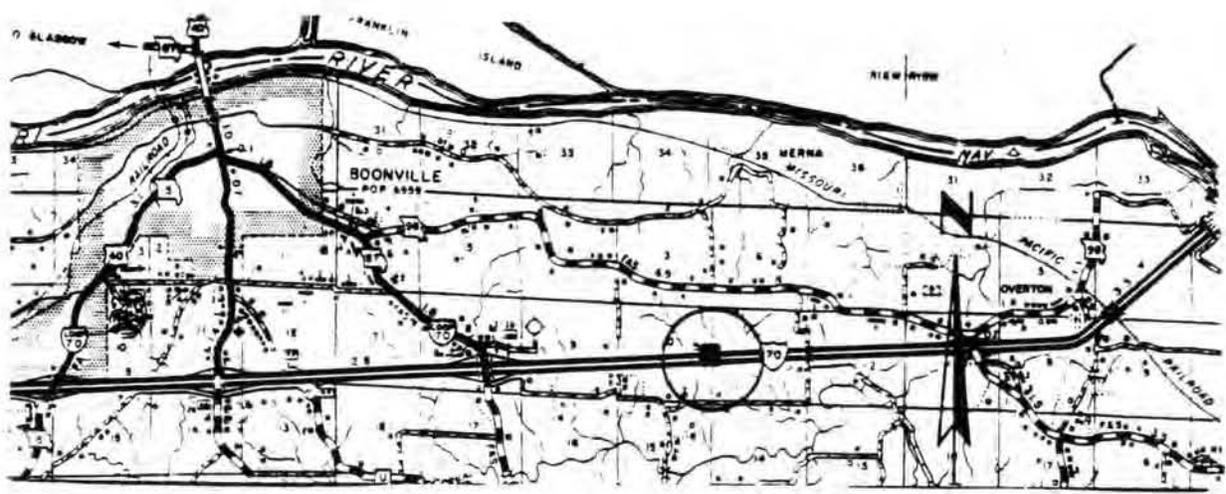
This site is located 1.05 miles north of Route CC in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1965 under Project No. F-25-1(5). This site was rehabilitated by Project No. F-25-1(23), Sec. B, in 1989. AADT (1987) = 5200. KESALS (1987) = 125.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 295473**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-7B  
 Route I-70, Cooper County

This site is located 2.2 miles east of Route 87 in the westbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1960 under Project No. I-IG-70-3(25)105. AADT (1987) = 9200. KESALS = 400.

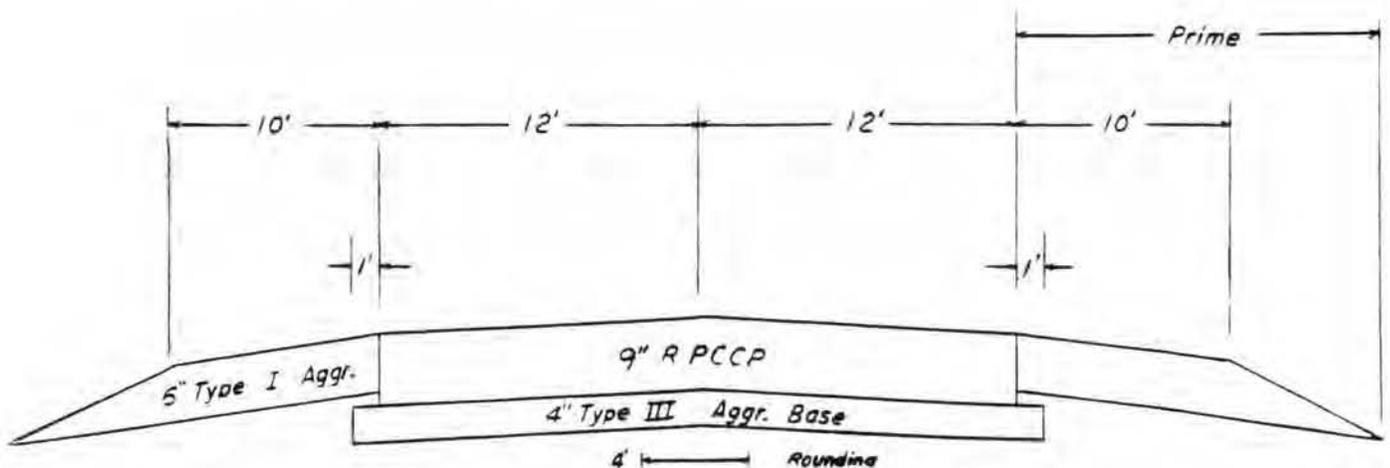
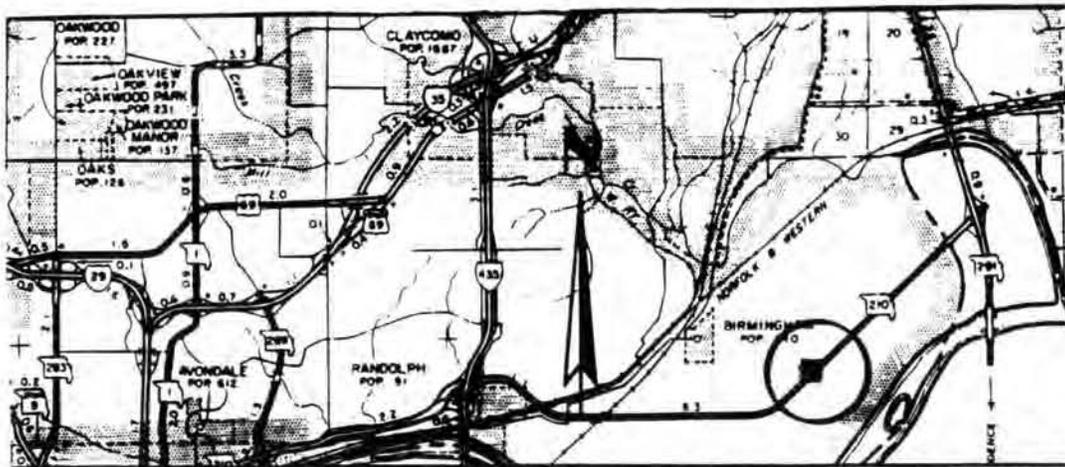
This site was rehabilitated by Project No. IR-70-3(140). Project was started in 1989 and finished in 1990. Samples by SHRP contractor taken after Type I-B mixture was placed.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 295483**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-7B  
 Route 210, Clay County

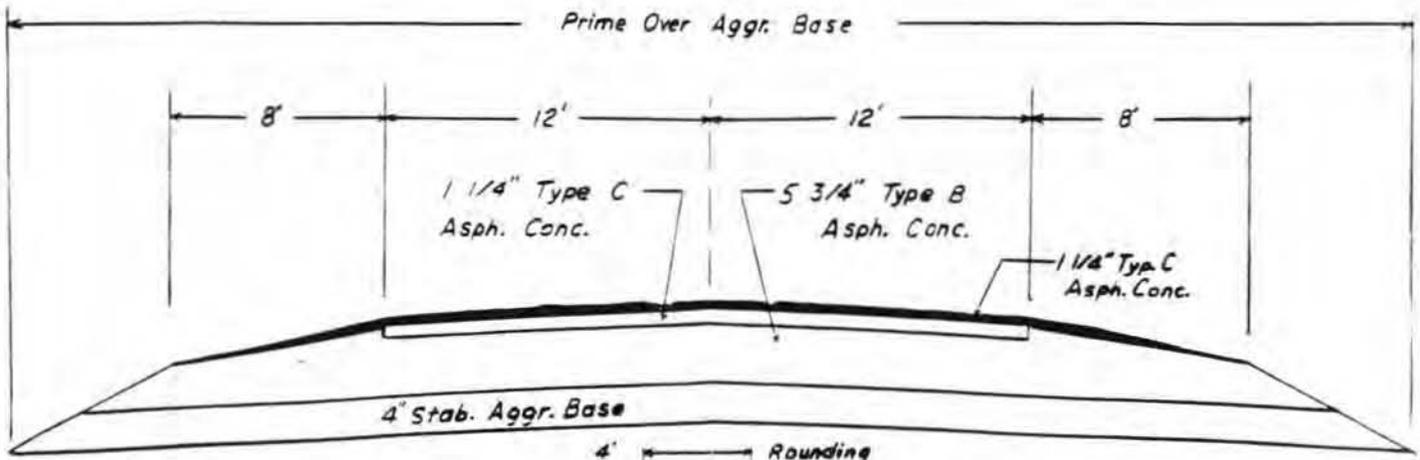
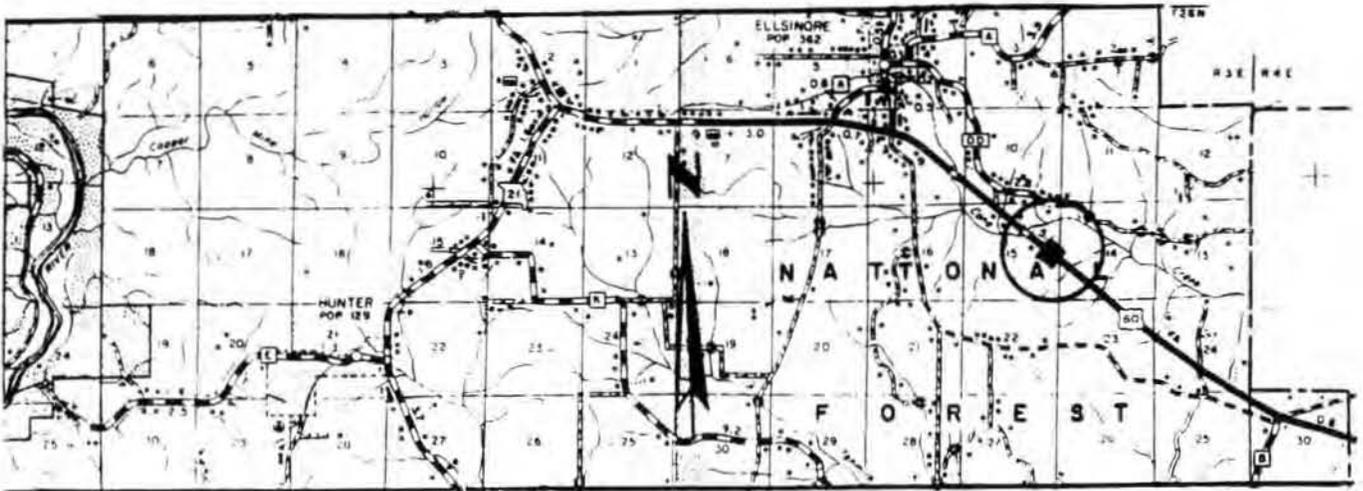
This site is located 3.6 miles east of end of divided pavement in the westbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1973 under Project No. 210-SU-SUG-7-647(7). AADT (1987) = 8700. KESALS (1987) = 205.

This site was rehabilitated by Project No. F.A. 3315(401) in 1991.



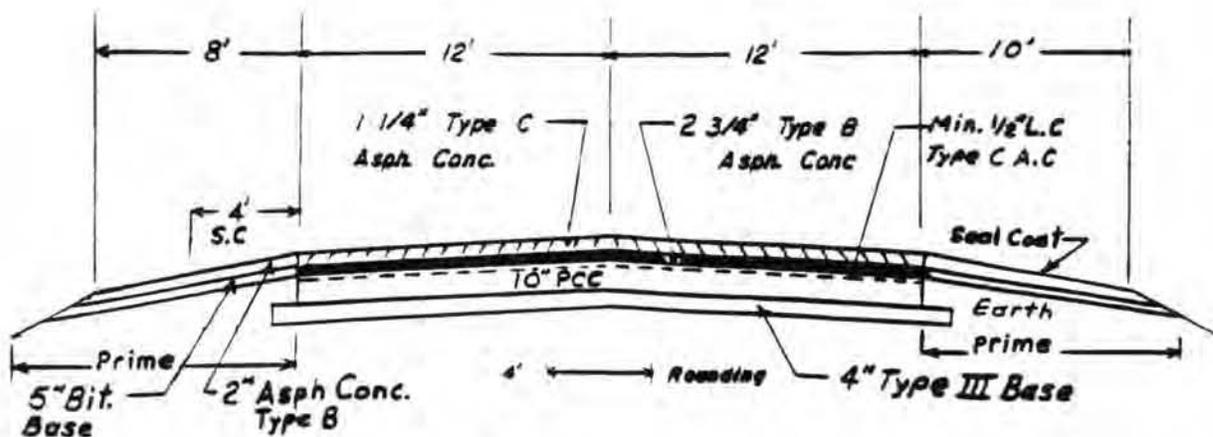
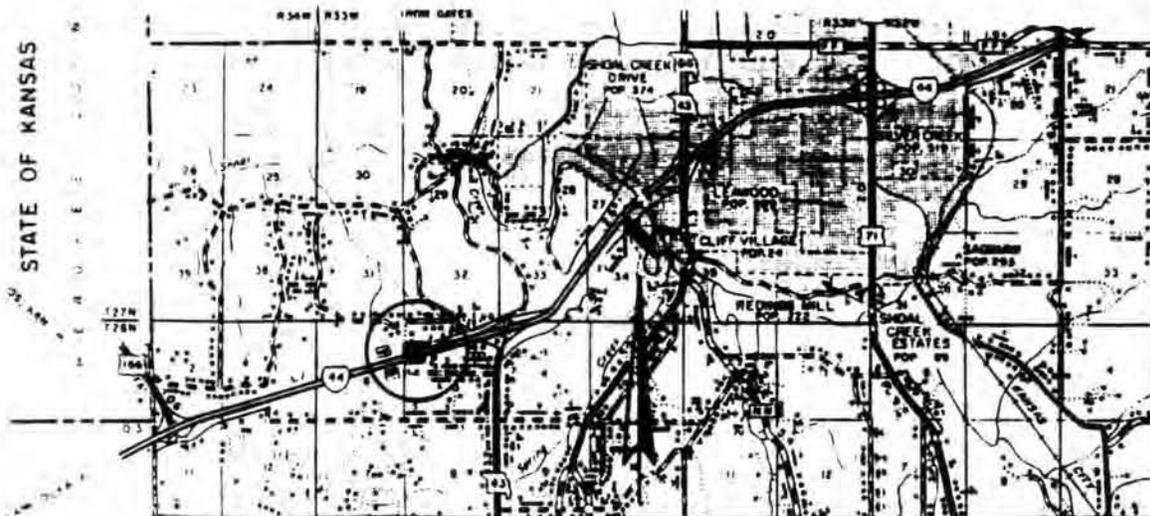
STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SHRP IDENT. NO. 296067**  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-6A  
 Route 60, Carter County

This site is located 2.92 miles west of Route B in the eastbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1965 under Project No. Sec. 18(2). Overlaid in 1981 under Project No. I-PMS-60-3(40). AADT (1985) = 2840. KESALS (1985) = 55.



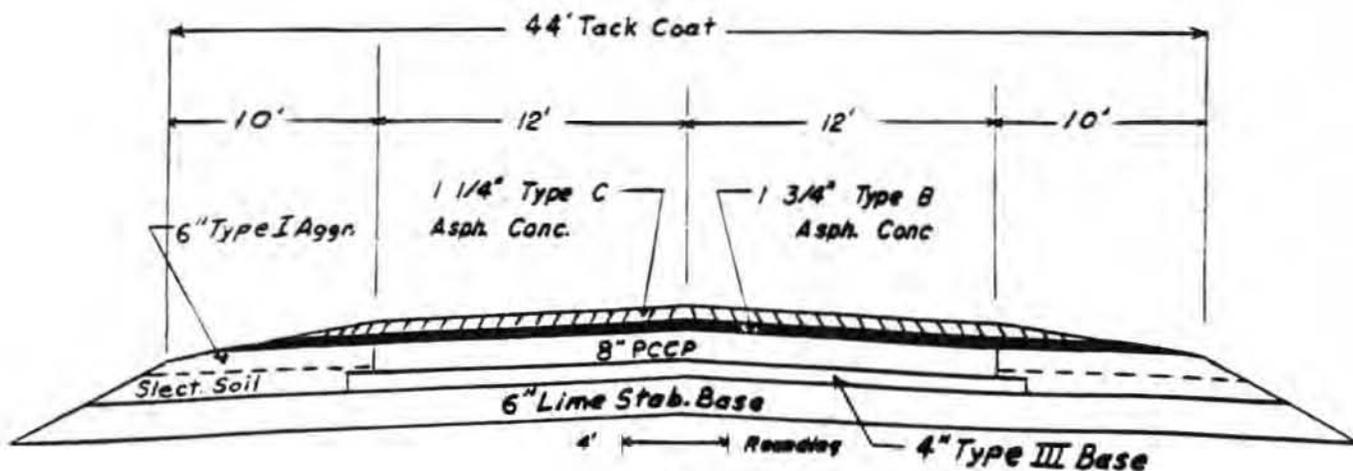
STRATEGIC HIGHWAY RESEARCH PROGRAM  
 SHRP IDENT. NO. 297054  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-7A  
 Route I-44, Newton County

This site is located 0.25 mile west of weigh station and 0.45 mile east of rest area exit in eastbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1957 under Project No. IN-FI-432(3). Overlaid in 1972 under Project No. I-FI-44-1(36). AADT (1985) = 11900. KESALS (1985) = 336.



STRATEGIC HIGHWAY RESEARCH PROGRAM  
 SHRP IDENT. NO. 297073  
 Long Term Pavement Performance Studies (LTPP)  
 General Pavement Studies (GPS)  
 GPS-7A  
 Route 65, Livingston County

This site is located 0.5 mile south of Route 36 in the northbound lane. A blue sign with the SHRP Logo and the SHRP ID No., facing traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1965 under Project No. Sec. 59(2). Overlaid in 1981 under Project No. FR-PMS-65-4(17). AADT (1986) = 3120. KESALS (1986) = 90.



**SPS**

STRATEGIC HIGHWAY RESEARCH PROGRAM

SPS-3A

Long Term Pavement Performance Studies (LTPP)

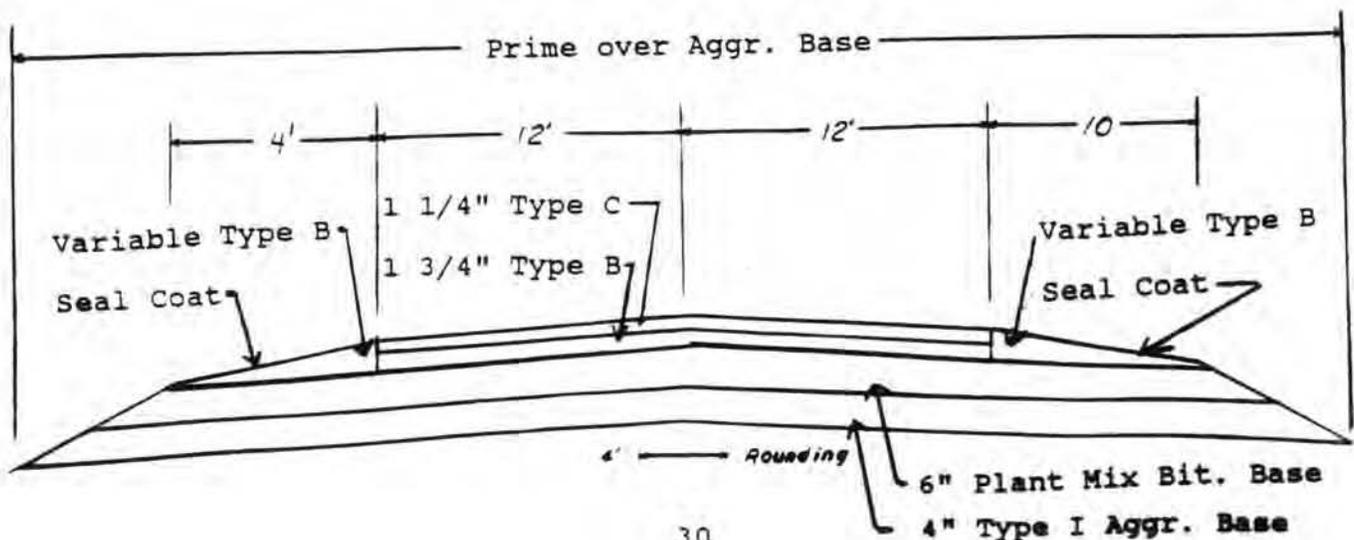
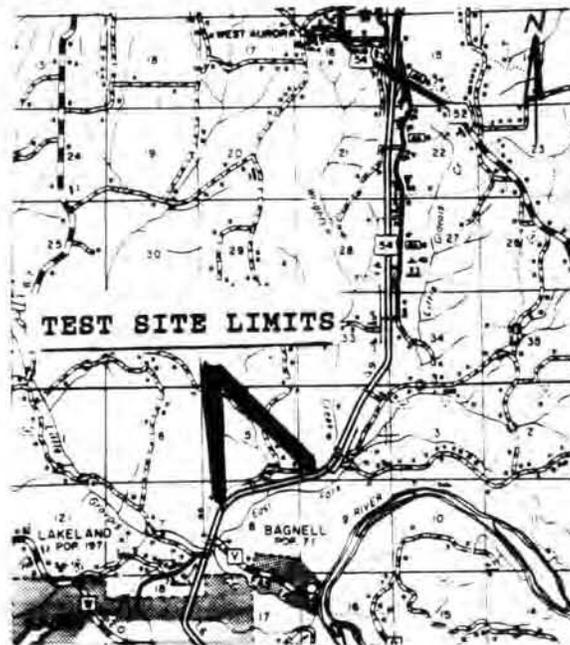
Specific Pavement Studies (SPS)

FLEXIBLE PAVEMENT PREVENTIVE MAINTENANCE TREATMENTS

Route 54, Miller County

The test section sites are located between 4.6 and 5.8 miles west of Route 52 west, in the westbound lane. Blue signs with the SHRP Logo, SPS-3, Treatment, and Section Number, face traffic, and are used to locate the test sections. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' study sections. The pavement was constructed in 1974 under Project No. F-54-3(26). AADT (1985) = 7170. KESALS (1988) = 80.

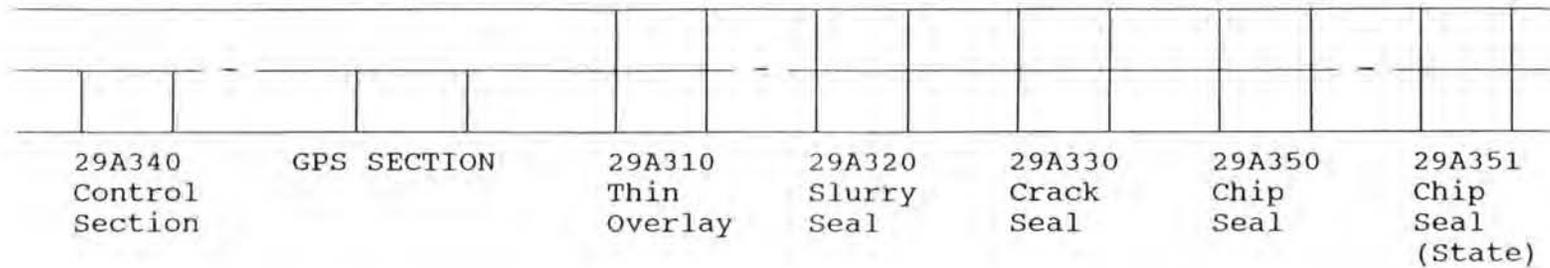
There is a General Pavement Study site located near the SPS sites. It is Site Number 291005.



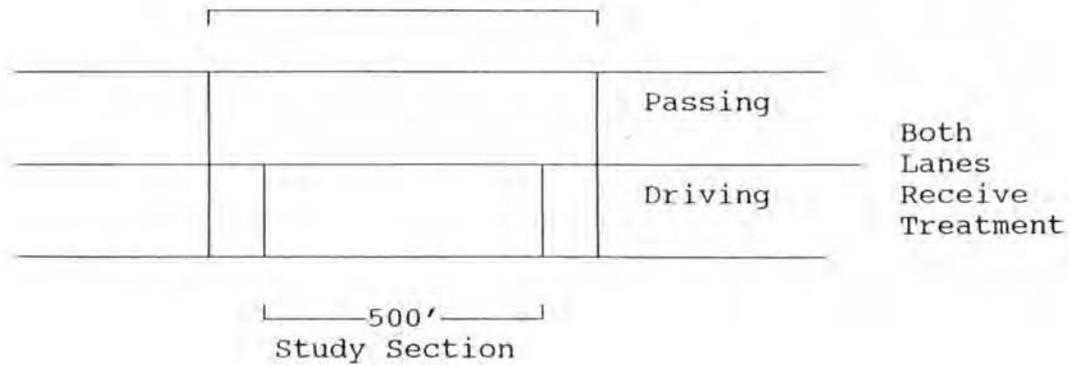
**SPS-3A**  
 ROUTE 54, MILLER COUNTY  
 Treatment Layout

Westbound Lanes Only

TRAFFIC FLOW



Typical  
 AREA OF TREATMENT (500' plus minimum 100' transition zone each side)



SPS-3A

TEST SITE CONSTRUCTION

The test sections:

- 29A320 - Slurry Seal
- 29A330 - Crack Seal
- 29A350 - Chip Seal

were built under a region contract by Delta Asphalt Paving, Inc., of Council Bluffs, Iowa. The reason for this was to have uniform construction techniques and materials for all the test sections in the North Central Region. The construction was inspected by the Federal Highway Administration, Central Federal Lands Highway Division.

Test Section 29A310, thin overlay, was constructed by Richardson & Bass Construction of Columbia, Missouri, and inspected by the Research Section.

Test Section 29A351, Chip Seal (State), was constructed by District 5 Maintenance and Traffic forces and inspected by the Research Section.

Semi-annual inspections of this test site will be conducted.

STRATEGIC HIGHWAY RESEARCH PROGRAM

SPS-3B

Long Term Pavement Performance Studies (LTPP)

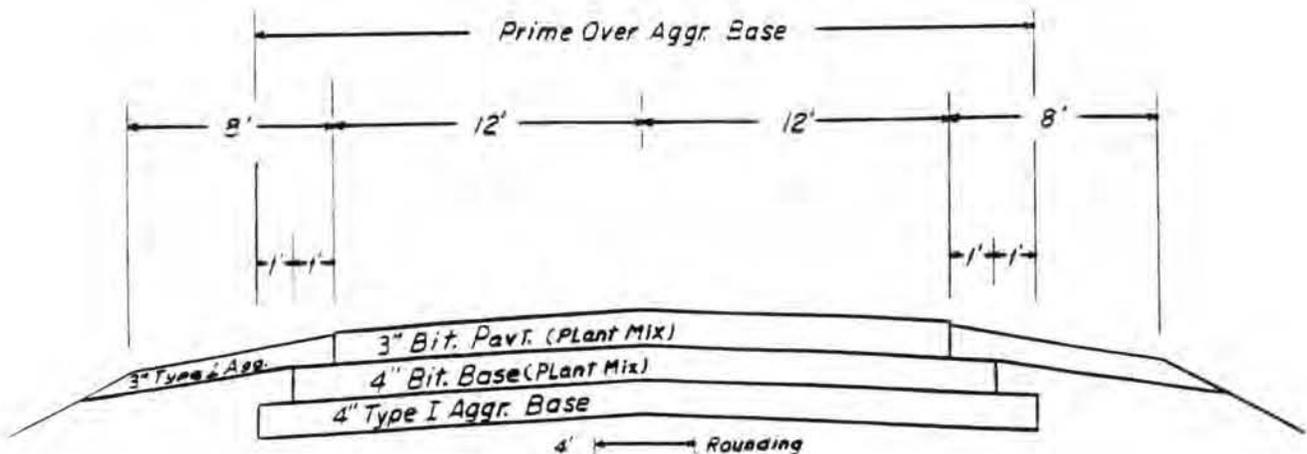
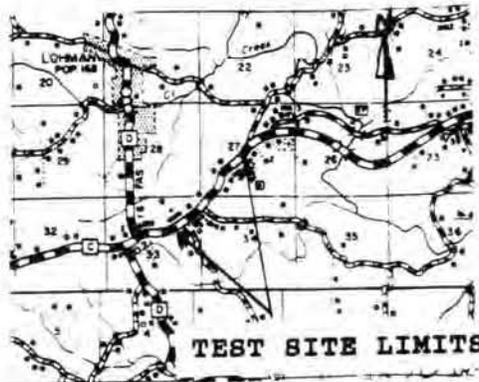
Specific Pavement Studies (SPS)

FLEXIBLE PAVEMENT PREVENTIVE MAINTENANCE TREATMENTS

Route C, Cole County

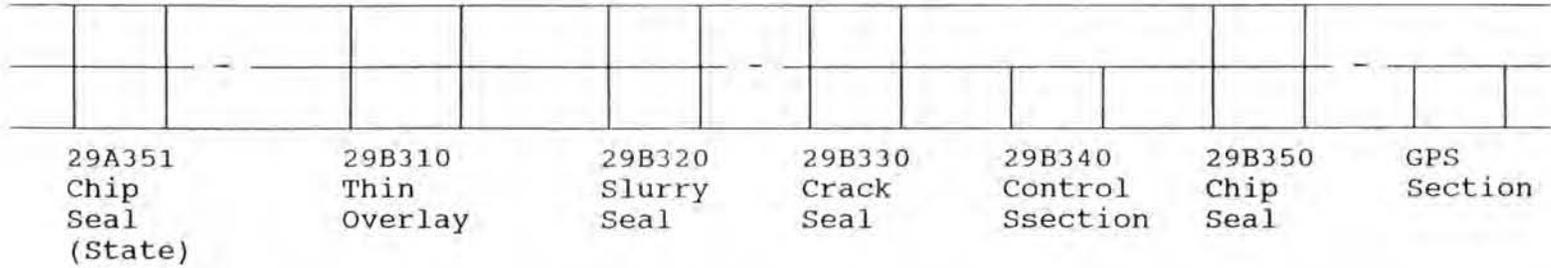
The test sections are located between 0.2 and 1.2 miles east of Route D in the eastbound lane. Blue signs with the SHRP Logo, SPS-3, Treatment and Section Number, face traffic, is used to locate the site. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' control section. The pavement was constructed in 1986 under Project No. RS-RSEGC-169(2). AADT (1985) = 1960. KESALS (1985) = 19.

There is a General Pavement Study site located near the SPS sites. It is Site Number 291002.



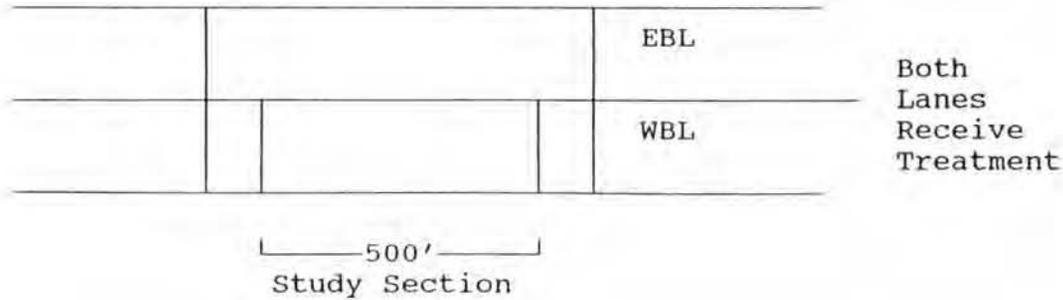
**SPS-3B**  
**ROUTE C, COLE COUNTY**  
**Treatment Layout**

2 Way Traffic



34

Typical  
**AREA OF TREATMENT** (500' plus minimum 100' transition zone each side)



SPS-3B

TEST SITE CONSTRUCTION

The test sections:

- 29B320 - Slurry Seal
- 29B330 - Crack Seal
- 29B350 - Chip Seal

were built under a region contract by Delta Asphalt Paving, Inc., of Council Bluffs, Iowa. The reason for this was to have uniform construction techniques and materials for all the test sections in the North Central Region. The construction was inspected by the Federal Highway Administration, Central Federal Lands Highway Division.

Test Section 29B310, thin overlay, was constructed by Richardson & Bass Construction of Columbia, Missouri, and inspected by the Research Section.

Test Section 29B351, Chip Seal (State), was constructed by District 5 Maintenance and Traffic forces and inspected by the Research Section.

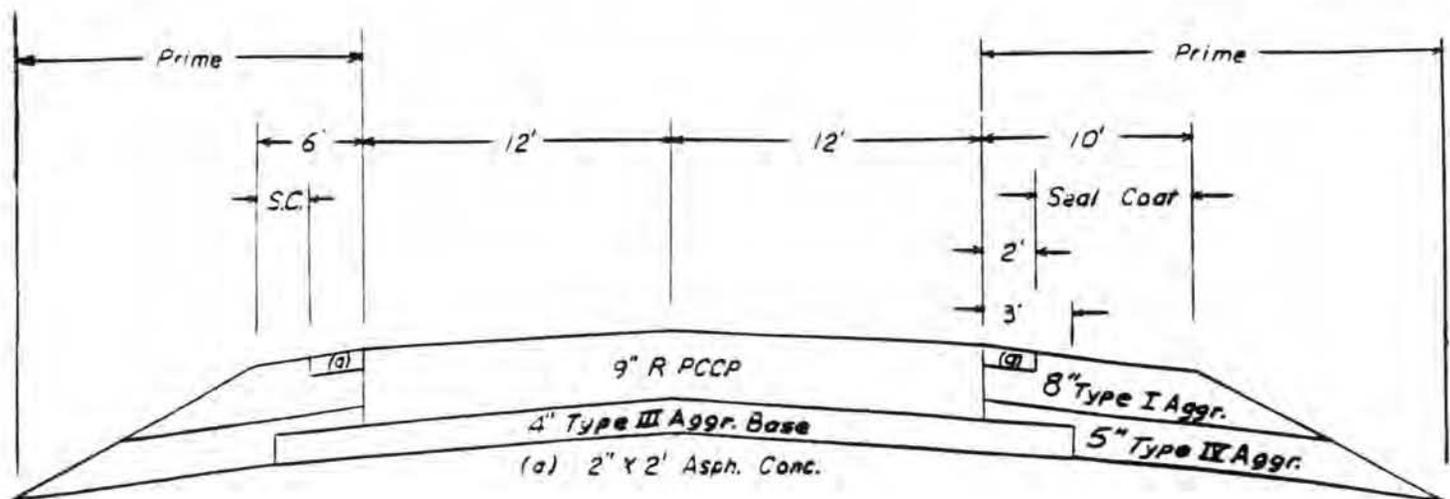
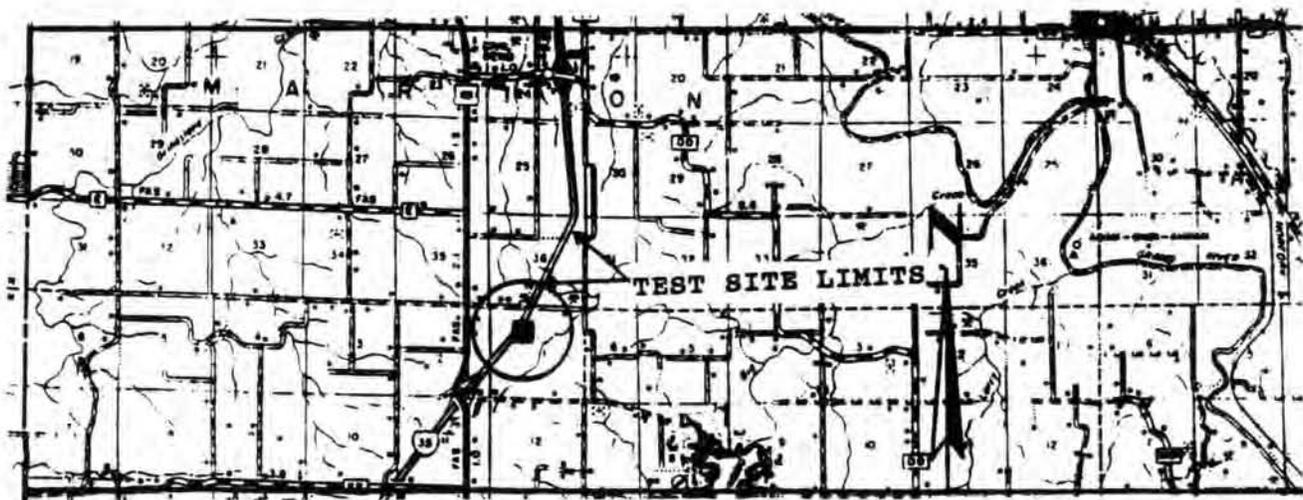
Semi-annual inspections of this test site will be conducted.

STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SPS-4A**  
 Long Term Pavement Performance (LTPP)  
 Specific Pavement Studies (SPS)  
 RIGID PAVEMENT PREVENTIVE MAINTENANCE TREATMENTS  
 Route I-35, Daviess County

The site is 1.7 miles north of Route 69 in the northbound lanes. Blue signs with the SHRP Logo, SPS-4, Treatment, and Section Number facing traffic are used to locate these sites. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' study sections. The pavement was constructed in 1977 under Project No. I-35-2(35)68. AADT (1985) = 8380. KESALS (1985) = 355.

There is a General Pavement Study site located near the SPS sites. It is Site Number 295000.

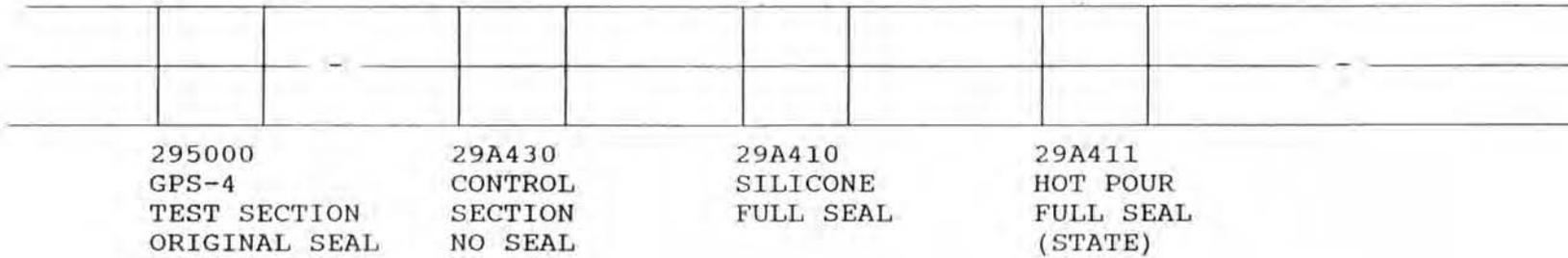
Test Sections 29A410, 29A411, and 29A430 were built by Maintenance and Traffic forces.



SPS-4A

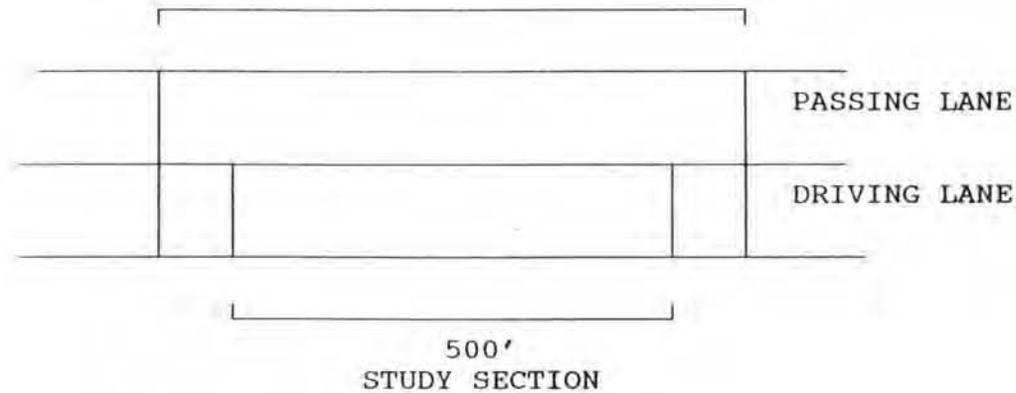
ROUTE I-35, DAVIESS COUNTY  
TREATMENT LAYOUT

ONE WAY TRAFFIC  
NORTH BOUND LANE



37

TYPICAL  
AREA OF TREATMENT  
(500' PLUS A SLAB LENGTH TRANSITION ZONE ON EACH END)



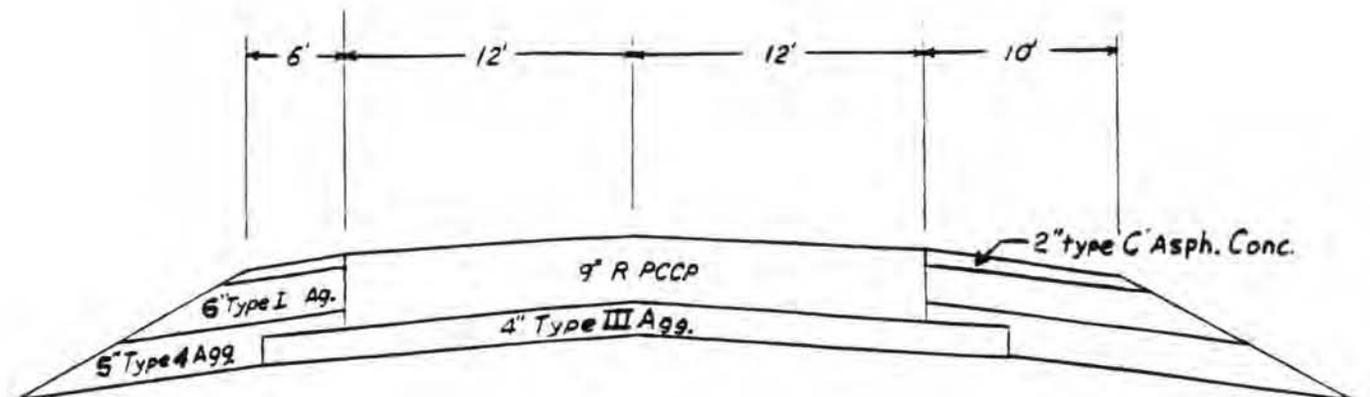
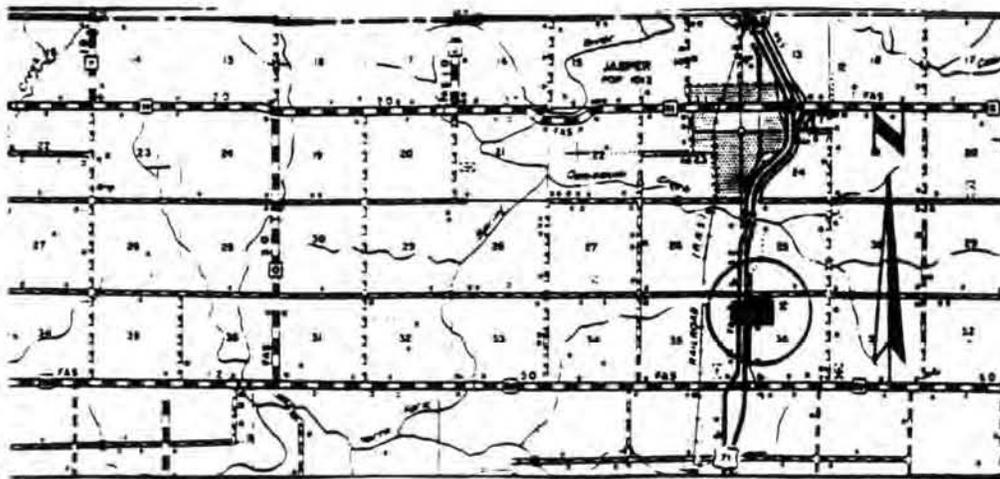
BOTH LANES RECIEVE TREATMENT

STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SPS-4B**  
 Long Term Pavement Performance (LTPP)  
 Specific Pavement Studies (SPS)  
 RIGID PAVEMENT PREVENTIVE MAINTENANCE TREATMENTS  
 Route 71, Jasper County

This site is located 1.0 miles south of the Opossum Creek Bridge in the southbound lane. Blue signs with the SHRP Logo, SPS-4, Treatment, and Section Number facing traffic, are used to locate these sites. A solid white line traverses the pavement with the SHRP ID NO. on the edge of pavement at the beginning of the 500' study sections. The pavement was constructed in 1983 under Project No. F-71-2(35). AADT (1985) = 8023. KESALS (1985) = 327.

There is a General Pavement Study site located near the SPS sites. It is Site Number 295503.

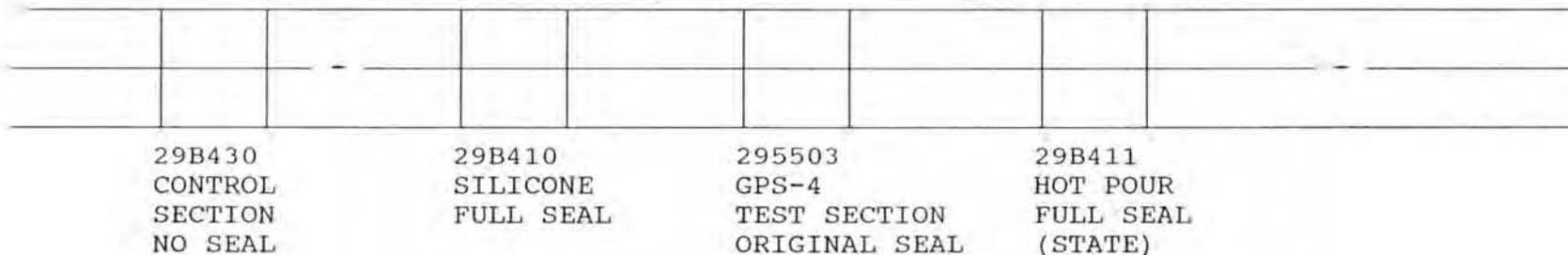
Test Sections 29B410, 29B411, and 29B430 were built by Maintenance and Traffic forces.



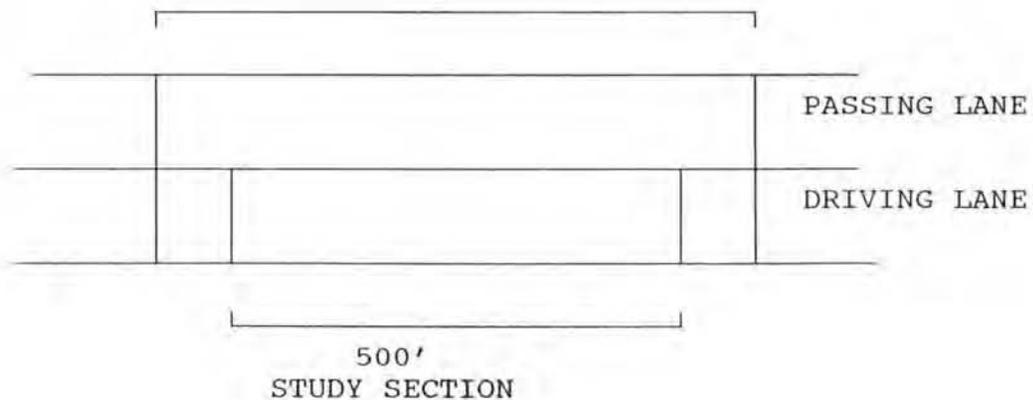
**SPS-4B**

ROUTE 71, JASPER COUNTY  
TREATMENT LAYOUT

ONE WAY TRAFFIC  
SOUTH BOUND LANE



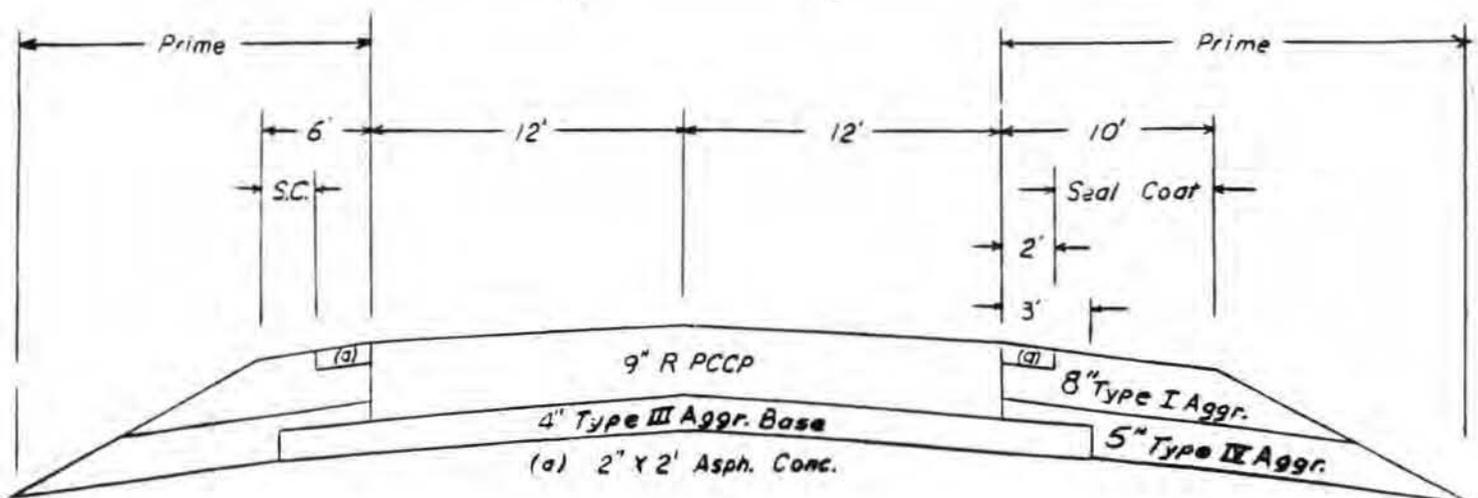
TYPICAL  
AREA OF TREATMENT  
(500' PLUS A SLAB LENGTH TRANSITION ZONE ON EACH END)



BOTH LANES RECIEVE TREATMENT

STRATEGIC HIGHWAY RESEARCH PROGRAM  
**SPS-6**  
 Long Term Pavement Performance Studies (LTPP)  
 Specific Pavement Study (SPS)  
 REHABILITATION OF JOINTED PORTLAND CEMENT CONCRETE PAVEMENTS  
 Route I-35, Harrison County

This site is location 0.2 miles south of Route 13 in the southbound lane. Blue signs with the SHRP Logo and the SHRP ID No., facing traffic, are used to locate the test sections. A solid white line traverses the pavement with the SHRP ID NO. on the edge of the pavement at the beginning of the 500' or 1000' study sections. The pavement was constructed in 1975 under Project No. I-35-2(37)B. AADT (1990) = 9771. KESALS (1990) = 426.



SHRP SPS-6  
ROUTE I-35, HARRISON COUNTY  
TEST SECTIONS

TEST SECTION DETAILS AND TREATMENT OPTIONS	Required By SHRP								Additional By Missouri							
	Control	Minimal			Intensive		Break and Seat			Rubblized				Typical	State	
Section Number (2906__)	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Section Length (100 ft.)	5	10	5	5	10	5	5	5	5	5	5	5	5	5	5	5
Overlay Thickness (in.)	0	0	4	4	0	4	4	8	4	8	4	8	4	8	5	0
Joint Sealing	X	X	N	N	R&R	N	N	N	N	N	N	N	N	N	N	X
Crack Sealing	X	X	N	N	R&R	N	N	N	N	N	N	N	N	N	N	X
Partial Depth Patch	N	X	X	X	R&R	R&R	N	N	N	N	N	N	N	N	N	N
Full Depth Patch/Joint Repair	N	X	X	X	R&R	R&R	N	N	N	N	N	N	N	N	X	X
Full Surface Diamond Grinding	N	X	N	N	A	N	N	N	N	N	N	N	N	N	N	X
Undersealing	N	N	N	N	X	X	N	N	N	N	N	N	N	N	X	x
Subdrainage	N	N	N	N	A	A	A	A	N	N	A	A	N	N	X	N
Saw and Seal	N	N	N	A	N	N	N	N	N	N	N	N	N	N	N	N
Crack/Break and Seat	N	N	N	N	N	N	A	A	A	A	N	N	N	N	N	N
Rubblized	N	N	N	N	N	N	N	N	N	N	A	A	A	A	N	N

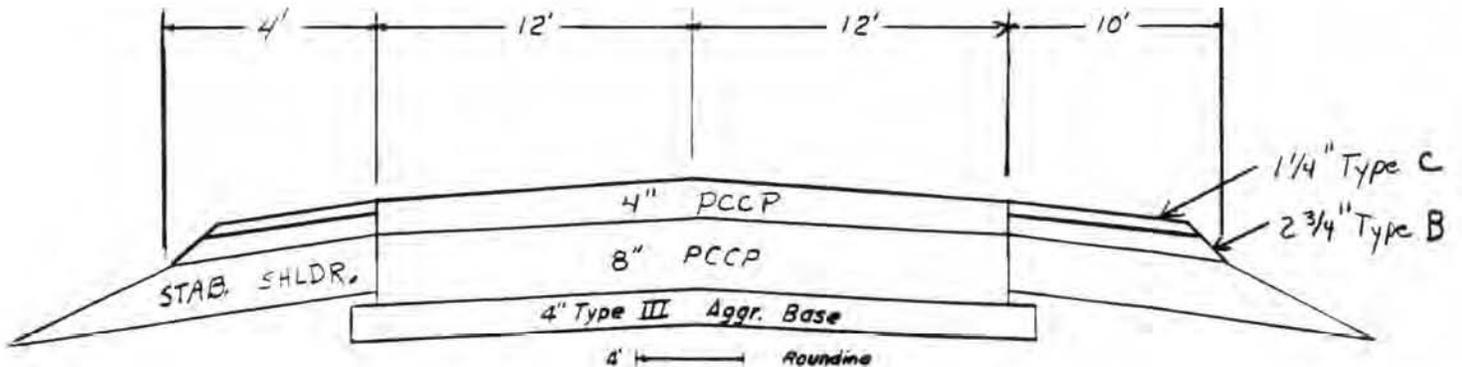
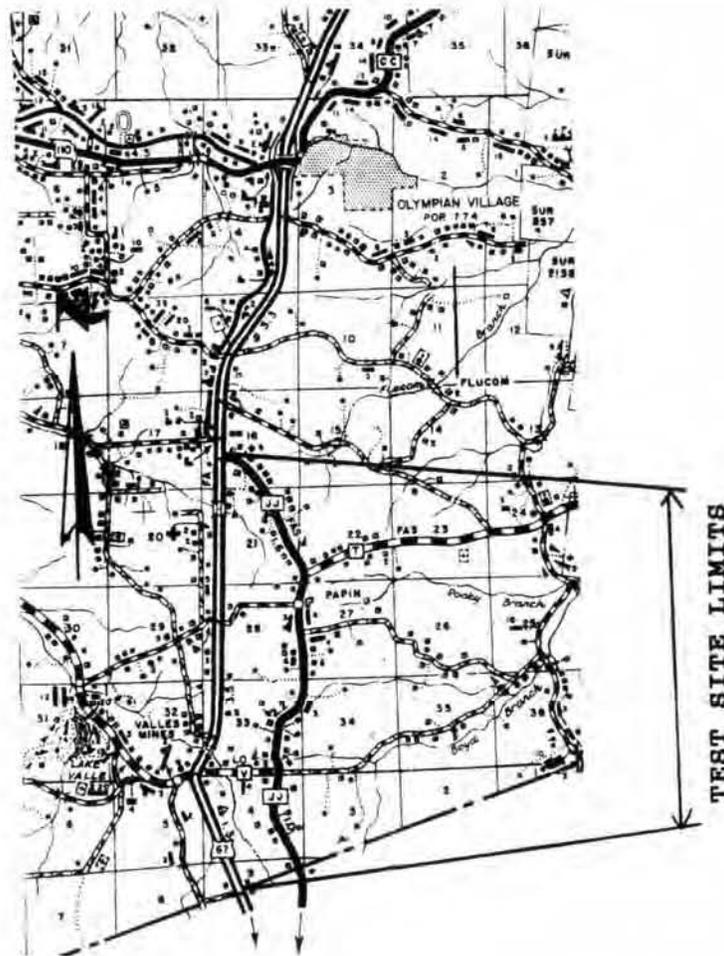
- X - Apply treatment as warranted.
- R&R - Remove and replace existing, and apply additional as warranted.
- N - Do not perform.
- B - Full depth dowelled patch or retrofit dowels in slots.
- A - Apply treatment regardless of condition or need.

STRATEGIC HIGHWAY RESEARCH PROGRAM

SPS-7

Long Term Pavement Performance Studies (LTPP)  
 Specific Pavement Studies (SPS)  
 BONDED CONCRETE OVERLAYS OF CONCRETE PAVEMENTS  
 Route 67, Jefferson County

The test sections are located between the St. Francois county line and Route JJ in the northbound lane. The original pavement was constructed in 1955 under Project No. F-185(12)SEC. A and B. AADT (1988) = 13000. KESALS (1988) = 253.



SPS-7  
TEST SITE LOCATIONS

<u>Section Number</u>	<u>Station to Station</u>	<u>Thickness</u>	<u>Surface Preparation</u>	<u>Grouted</u>
290701	1863+43 to 1857+43	0"	Control Section	No Work
290702	1673+50 to 1668+50	3"	Cold Milled	Yes
290703	1850+17 to 1845+17	3"	Cold Milled	No
290704	1728+51 to 1723+51	3"	Shotblasted	No
290705	1687+07 to 1682+07	3"	Shotblasted	Yes
290706	1615+50 to 1610+50	5"	Shotblasted	Yes
290707	1624+83 to 1619+53	5"	Shotblasted	No
290708	1638+75 to 1633+75	5"	Cold Milled	No
290709	1632+25 to 1627+25	5"	Cold Milled	Yes
290710	1857+28 to 1852+28	3"	Asphalt Overlay	Section*
290711	1812+13 to 1807+13	4"	Contractor Selected**	Yes

\*This section was added by the department to evaluate the 3" asphalt overlay to the concrete overlay.

\*\*This section's surface was prepared as the contractor selected for the majority of the project, cold milled then shotblasted.

RD LIBRARY



RD0008826