EVALUATION OF RUBBER-ASPHALT CHIP SEALS IN OREGON

Interim Report

for

FHWA Demonstration Projects Division
Contract DOT-FH-15-201

Oregon Department of Transportation
Highway Division

May, 1977

EVALUATION OF RUBBER-ASPHALT CHIP SEALS IN OREGON

Interim Report

The Oregon State Highway Division, in cooperation with the Federal Highway Administration, participated in a demonstration project on the evaluation of rubber-asphalt chip seals. The trial projects were placed in Maintenance District 11, in the vicinity of Klamath Falls. The object of project was to give this type seal coat a working test. The process has been used for several years in Arizona. Sahuaro Petroleum of Phoenix, Arizona has been the major concern behind the process.

Two small sections of rubber-asphalt chip seal were placed in the Klamath Falls area in July of 1974. The performance obtained from these trial sections was very good. When FHWA provided the opportunity for Oregon to participate in the demonstration project program to provide a more extensive test of the process, District 11 requested that the work be done in that district.

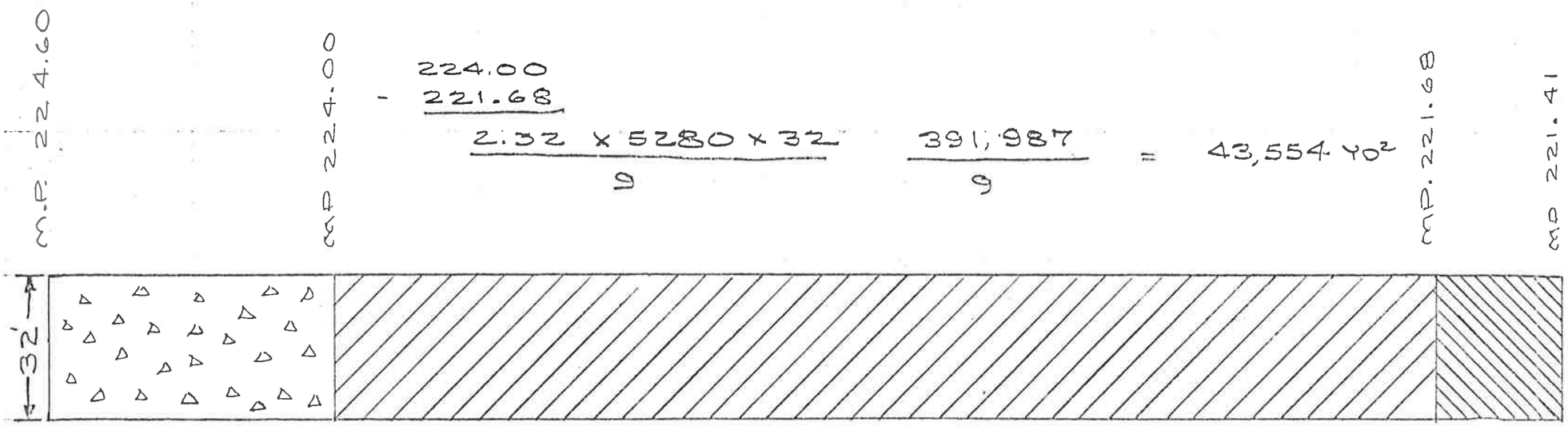
Sites were selected to evaluate three different conditions:

1. Warner Highway #431
   Milepost 16 to 18 and Milepost 23.4 to 27 (5.6 miles)
   a. A.D.T. -220
   b. Width - 20 to 22 feet
   c. Temperature - 15 F to 100 F
   d. Average rainfall - 9.33 inches
   e. Surface - Penetration Oil Mat

2. The Dalles-California Highway #4
   Milepost 221 to 224 (3 miles)
   a. A.D.T. - 2900
   b. Width - 32 feet
   c. Temperature - 19 F to 96 F
   d. Average rainfall - 29.93 inches
   e. Surface - Asphalt Concrete

$$\begin{array}{r} 224.60 \\ -\ 224.00 \\ \hline 0.60 \end{array} \times 5280 \times 32 \div 9 = 101{,}376 \div 9 = 11{,}264\ YD^2$$

$$\begin{array}{r} 224.00 \\ -\ 221.68 \\ \hline 2.32 \end{array} \times 5280 \times 32 \div 9 \qquad 391{,}987 \div 9 = 43{,}554\ YD^2$$



RUBBER CHIP SEAL

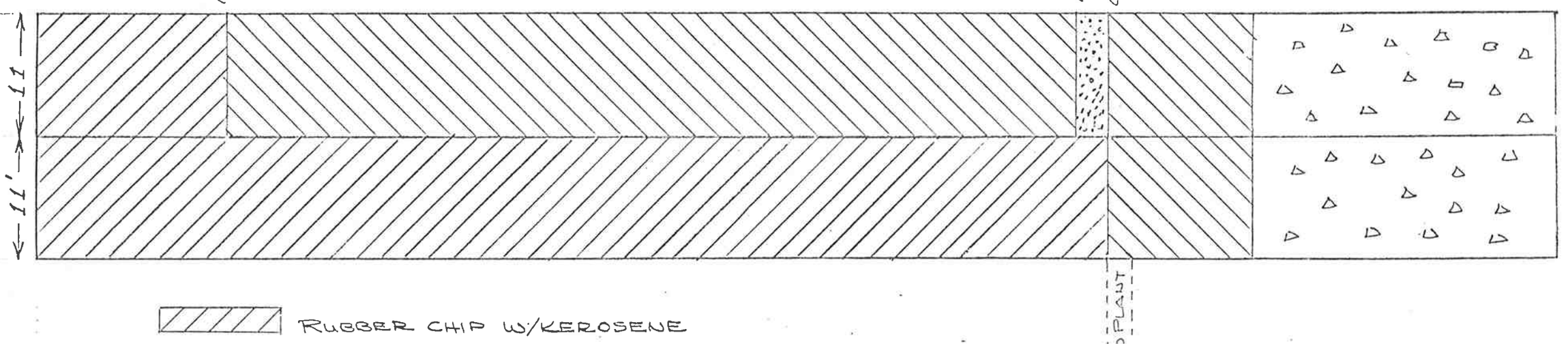
0-31 CHIP SEAL (CONTROL SECTION)

DEVULCANIZED RUBBER CHIP SEAL
THIS IS NOT PART OF FHWA PROJECT

$$\begin{array}{r} 16.31 \\ -\ 16.00 \\ \hline 0.31 \end{array} + \begin{array}{r} 17.60 \\ 16.00 \\ \hline 1.60 \end{array} = \frac{1.91 \times 5280 \times 11}{9} = \frac{110933}{9} \quad 12,326\ \text{YD}^2\ \text{W/KER.}$$

$$\begin{array}{r} 17.08 \\ -\ 16.31 \\ \hline 0.77 \end{array} + \left(\begin{array}{r} 18.00 \\ -\ 17.60 \\ \hline 0.40 \times 2 \end{array} \right) = 0.77 + 0.80 = \frac{1.57 \times 5280 \times 11}{9} = \frac{91186}{9} \quad 10,132\ \text{YD}^2\ \text{W/O KER}$$

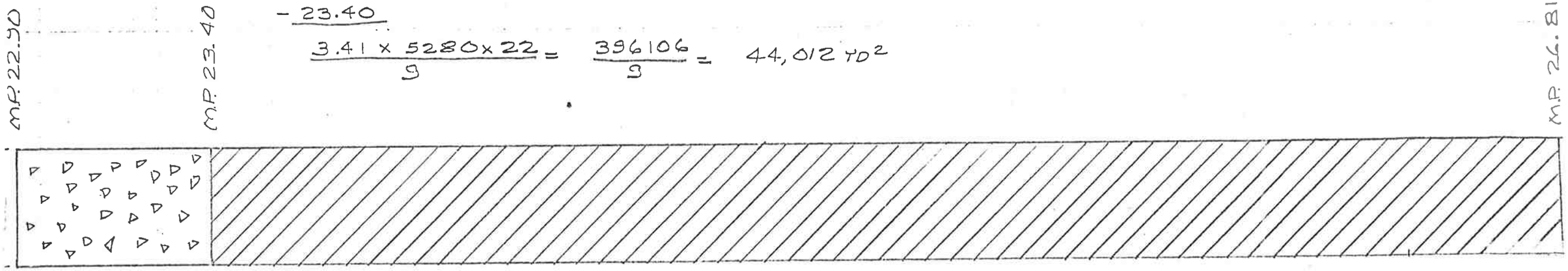
$$\begin{array}{r} 18.5 \\ -\ 18.0 \\ \hline 0.5 \end{array} \times 5280 \times 22 = \frac{58,080}{9} = 6,453\ \text{YD}^2$$



RUBBER CHIP W/KEROSENE

$$\frac{23.4 - 22.9 \times 5280 \times 22}{9} = \frac{58{,}080}{9} = 6{,}453 \text{ YD}^2$$

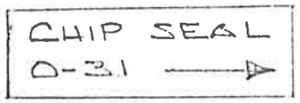
$$\frac{26.81 - 23.40 \times 5280 \times 22}{9} = \frac{396106}{9} = 44{,}012 \text{ YD}^2$$



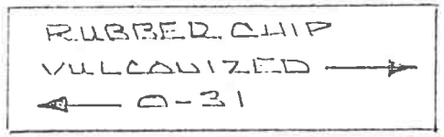
RUBBER CHIP SEAL

0-31 CHIP SEAL (CONTROL SECTION)

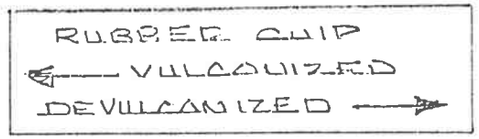
LETTERS BLACK ON WHITE
JUST SIGN NOT MILE POST!



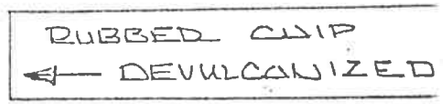
MP 224.6



MP 224.0



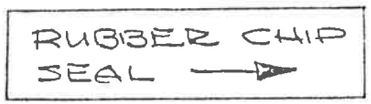
MP 221.68



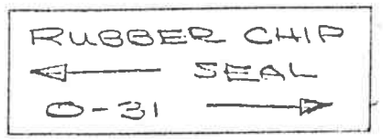
MP 221.41

THE DALLES - CALIF HWY

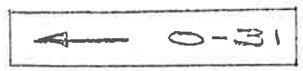
PREFIX: 7876-07



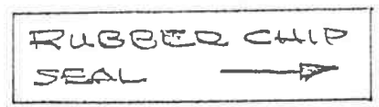
MP. 16.0



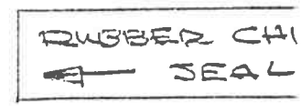
MP 18.0



MP. 18.5



MP 23.4



MP 26.81

3. The Dalles-California Highway #4
   Bridge Decks
   Milepost 272.79
   Milepost 275.06R
   Milepost 275.75

These sites provided a low volume oil mat, a high volume (trucks) asphalt concrete overlay, plus the membrane type application on concrete bridge decks.

For comparison, control sections consisting of our normal 0-31 chip seals were placed on each of the highway projects. Each control section is approximately 0.5 miles long and consists of a one-shot chip seal. Following page 8 of this report are sketches that show where the rubber-asphalt and the control sections were placed.

On July 19, 1976 construction started on the Warner Highway project near Adel. Several minor problems were encountered the first day; some involving procedures and some with the distributor. The problems were corrected with little difficulty.

On the Warner Highway, the chip seal was divided into two sections. From milepost 16.02 to milepost 18.0, 22,458 square yards were placed. Of this, kerosene was added to the rubber-asphalt mixture for 12,326 square yards. The other 10,132 square yards were placed without kerosene because the stock was depleted and since Adel is so isolated, a significant delay would have occurred in obtaining more kerosene. The material seemed to go down satisfactorily without kerosene.

The other section of chip seal on the Warner Highway extends from milepost 22.90 to milepost 26.81, containing 44,012 square yards.

The total for the Warner Highway (Adel project) was 66,470 square yards of rubber-asphalt chip seal. A summary of material quantities follows.

Quantity Breakdown:

66,470 sq. yd. placed

Liquid Asphalt (AR 1000)
129.04 Ton - Total used

Pre-Coat for Aggregate (AR 1000)
0.7% x 1270 Ton = 8.89 Ton
129.04 - 8.89 = 120.15 Ton
259 Gal/Ton x 120.15 = 31,118.85 Gal
31,118.85 Gal ÷ 66,470 yd^2 = 0.468 Gal/yd^2

Aggregate:
1270 Ton x 2000 lb/ton = 2,540,000 lbs
2,540,000 lbs ÷ 66,470 yd^2 = 38.2 lb/yd^2

Rubber:
74,640 lb ÷ 2000 lb/ton = 37.32 Ton
102.15 ÷ 37.32 = 157.4 Ton
37.32 ÷ 159.32 = 23.4%

A total of 5,709 square yards of rubberized-asphalt chip seal was placed on three bridge decks.

Quantity Breakdown:

135.5 ft. x 22 ft. = 2,981
504.0 ft. x 78 ft. = 39,312
303.0 ft. x 30 ft. = 9.090

51,383 ÷ 9 = 5709 yd^2

In addition, a roadway section 26' wide by 400' long consisting of 1156 yd^2 was placed in the maintenance yard in Klamath Falls. This material was in the distributor after shooting the bridge decks.

Material Quantities:

Liquid Asphalt - AR 1000

Total used 16.03 Ton
5709 + 1156 = 6865 yd^2
1156 ÷ 6865 = 17%
5709 ÷ 6865 = 83%

16.03 Ton x 83% = 13.3 Ton
16.03 Ton x 17% = 2.7 Ton

259 Gal/Ton x 13.3 Ton = 3,444.7 Gal
3,444.7 Gal ÷ 5708 yd^2 = 0.603 Gal/yd

Rock:
Total used 103 Ton
103 Ton x 2000 lb/ton = 206,000 lbs
206,000 ÷ 5709 = 36 lb/yd^2

Rubber:
11,400 lbs
11,400 x 83% = 9462 lbs
9462 lbs ÷ 2000 lb/ton = 4.73 Ton
4.73 Ton + 13.3 Ton = 18.03 Ton
4.73 Ton ÷ 18.03 Ton = 26.2%

On the Highway 97 project, 43,554 square yards of rubberized chip seal were placed. The rubber-asphalt seal extends from milepost 221.68 to milepost 224.00. The quantities follow:

Quantity Breakdown:

43,554 sq. yd.

Liquid Asphalt: (AR 1000)
Total used 90.15 Ton

Pre-Coat = 0.7% x 1034 Ton = 7.24 Ton
90.15 Ton ÷ 7.24 Ton = 82.91 Ton
82.91 Ton x 259 Gal/Ton = 21.474 Gal
21,474 Ton ÷ 43,554 sq. yd. = 0.493 Gal/yd^2

Rock:
1034 Ton x 2000 lbs/ton = 2,068,416 lbs
2,068,416 lbs ÷ 43,554 sq. yd. = 47.5 lb/yd^2

Rubber:
51,600 lbs ÷ 2,000 lb/ton = 25.8 Ton
25.8 + 82.91 = 108.71 Ton
25.8 ÷ 108.71 = 23.7%

The costs listed below include labor, equipment rental, materials, plant set-up, and moving costs. They do not include the 0-31 control section chip seal costs.

Cost Breakdown:

Adel:	Labor	Equip	Mat'l	Total
Laydown	$10,258	$4,588	$28,163	$53,009
Moving	2,389	225	---	2,614
Special Distributor	---	---	5,850	5,850
	$12,647	$4,813	$44,013	$61,473

$61,473 ÷ 66,470 sq. yd. = $0.925/sq. yd.

Labor: 12,647 ÷ 61,473 = 21%
Equip: 4,813 ÷ 61,473 = 8%
Materials: 44,013 ÷ 61,473 = 71%

Bridge Decks:	Labor	Equip	Mat'l	Total
Laydown	$3,098	$ 570	$4,977	$ 8,645
Patching	663	57	643	1,363
Special Distributor	---	---	1,950	1,950
	$3,761	$ 627	$7,570	$11,958

$11,958 x 83% = $9,925
Remaining 17% placed in Klamath Falls Maintenance Yard

$9,925 ÷ 5709 sq. yd. = $1.74/sq. yd.

Labor: 3,761 ÷ 11,958 = 31%
Equip: 627 ÷ 11,958 = 5%
Materials: 7,570 ÷ 11,958 = 63%

Highway 97:	Labor	Equip	Mat'l	Total
Laydown	$7,312	$2,783	$22,644	$32,739
Moving	813	236	---	1,049
Special Distributor	---	---	3,900	3,900
Stockpiling Aggregate	---	---	4,200	4,200
	$8,125	$3,019	$30,744	$41,888

$41,888 ÷ 43,554 = 0.962/sq. yd.

Labor: 8,125 ÷ 41,888 = 19%
Equip: 3,019 ÷ 41,888 = 7%
Materials: 30,774 ÷ 41,888 = 73%

SUMMARY OF COSTS

	Sq. Yd. Unit Cost	% Labor	% Equip	% Materials
Adel	$ 0.925	21%	8%	71%
Highway 97	$ 0.962	19%	7%	73%
Bridge Decks	$ 1.74	31%	5%	63%

In the above costs, the bridge deck cost is not entirely representative. The crews involved in the laydown were working four ten-hour shifts per week. Because of the high cost of distributor rental, the bridge seals were placed on a Friday. The crews were on overtime all that day. Also, the bridge installations required three full sets of signs, flagmen, and pilot cars. In addition, it was necessary to clean the structures again on the day of installation. This was caused by having the tack coat put down a day in advance and it had to be sanded the afternoon before the application of the rubber-asphalt chip seal. Tacking should be performed just prior to placing the rubber chip seal.

On the Adel (Warner Highway) project and the Highway 97 project the costs were within the expected range. Information from the Sahuaro Petroleum staff indicated contract projects they have worked on had ranged from $0.75 per square yard to $1.50 per square yard. The cost of $0.94 per square yard incurred on the Oregon highway projects may have been reduced by having a second special distributor. It took from 1 to 1.5 hours each time to load the distributor, and by having only one, this resulted in a significant waste of crew time. An evaluation would be needed to compare the extra cost of providing a second distributor with the loss of time in having only one. For large projects, a second distributor would surely be economical.

For comparison, the estimated cost for a 1" asphalt concrete overlay based on current local cost is $1.00 per square yard for Class "C" mix and $1.25 per square yard for Class "B" mix. These costs do not include the tack coat.

Pages 9, 10, and 11 that follow show the general layout of the experimental sections and calculations indicating the areas covered on each project. Page 12 shows the signs that identify the different project sections.

Pages 13 - 18 provide a summary of pavement condition for the highway test sections. Those dated during June, 1976 show the condition of the pavements before the experimental chip seals were placed. Those dated in September and December show the condition of the pavements since placing the rubber-asphalt chip seals. Considering the original pavement condition, the rubber-asphalt chip seals are performing well.

General specifications used for the hot rubber-asphalt chip seal construction follow on pages 19 - 25.

Photographs showing the construction procedure and pavement conditions at the various test sections are appended. Periodic inspections will continue.

WARNER HWY.

Cracking OREGON 140

Section Number	Test (T) or Control (C)	Beginning Station	Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1	T	16.79	50 sq. ft.	
2	T	16.86		
3	T	16.92	16 sq. ft.	Trans. 2' Long. 10'
4	T	17.1	70 sq. ft. spawling	Long. 8'
5	T	17.24		2 Long 10' ea.
6	T	17.50		1 Long Sh. 10'
7	T	17.61	10 sq. ft. Spawling, 1/2" Dip	
8	C	18.17	Some spawling	1 Trans. 10' 3/4" wide
9	C	18.2	Minor spawling	1 Trans, 10' 1 1/2" wi
10	C	18.485	25 Sq Ft Block	3 long 2' ea. 3 Trans 4' ea.
11	C	23.08	Minor spawling	1 Trans. 4' 2 long 10 2 Trans. 2' 1 long 4
12	C	23.298	Sh. cracking minor spawling	
13	C	23.327	Block 30 sq.ft.	1 Trans. 9'
14	T	24.26		Minor 5 Trans. 2'ea.
15	T	24.777	Spawling minor Block 50 sq. ft.	
16	T	25.382	Spawling 10 sq.ft. Block 30 sq. ft.	3 ea Long 6'
17	T	25.824	Spawling 4 sq ft Block 20 sq. ft.	
18	T	25.953	Sh. spawling Block 30 sq. ft.	1 trans 10' 4 long. 3'
19	T	26.126	Minor spawling Block 70 sq. ft.	3 long 2'
20	T	26.602	Deep spawling20 sq.ft. Block 25 sq. ft.	3 trans. 3' 6 long. 2'

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

Section Number	Test (T) or Control (C)	Beginning Station	Cracking Fatigue/ Block-Type Sq. Ft.	Cracking Transverse/ Longitudinal Ft.
1	T	16.79	Surface OK	
2	T	16.86	Surface OK	
3	T	16.92	Surface OK	
4	(No rubber left lane) T	17.1		
5	(No rubber left lane) T	17.24		
6	(No rubber left lane) T	17.50		
7	T	17.61	Surface OK	
8	C	18.17		Filled Trans. 10'
9	C	18.2		Filled Trans. 10'
10	C	18.485		3 Filled Long 2' 3 Filled Trans 4'
11	C	23.08	Surface OK	
12	C	23.298	1 3" sq. hole	Minor cracking alon pavement edge
13	C	23.327	Surface OK	
14	T	24.26	Surface OK	
15	T	24.777	Surface OK	
16	T	25.382	Surface OK	
17	T	25.824	Surface OK	
18	T	25.953	Surface OK	
19	T	26.126	Surface OK	
20	T	26.602	Surface OK	

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

Warner Highway

12/13/76

Section Number	Test (T) or Control (C)	Beginning Station	Cracking	
			Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1	T	16.79	SURFACE OK	
2	T	16.86	SURFACE OK	
3	T	16.92	SURFACE OK	
4				
5				
6				
7	T	17.61	SURFACE OK.	
8	C	18.17		1 TRANSVERSE 10 FT
9	C	18.20		1-TRANSVERSE 10 FT
10	C	18.485	BLOCK 6 SQFT	1 LONGITUDINAL 4 FT
11	C	23.08		1 LONGITUDINAL 3 FT 1 TRANSVERSE 1 FT
12	C	23.298	SURFACE OK	
13	C	23.327	SURFACE OK	
14	T	24.26	SURFACE OK	
15	T	24.777	SURFACE OK	
16	T	25.382	SURFACE OK	
17	T	25.824	SURFACE OK	
18	T	25.953	SURFACE OK	
19	T	26.126	SURFACE OK	
20	T	26.602	SURFACE OK	

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

6-30-76

Cracking US 97

Section Number	Test (T) or Control (C)	Beginning Station	Fatigue/Block-Type Sq. Ft.	Transverse/Longitudinal Ft.
1	T	221.117		1 long 10' 1 long 6'
2	T	221.219	Minor Spawling	1 trans 2'
3	T	221.369	sq. Block 10 ft.	trans 4' trans 8'
4	T	221.378		3 long 6'
5	T	221.483	sq. Block 20 ft.	1 long 16'
6	T	221.765	sq. Block 30 ft.	
7	T	221.903	sq. Block 8 ft.	4 trans 6' each
8	T	222.860	sq. Block 60 ft.	1 trans 10'
9	T	222.875	sq. Block 40 ft.	1 long 10' 1 trans 4'
10	T	222.953	sq. Block 155 ft.	1 trans 12'
11	T	223.145	sq. Block 120 ft.	
12	T	223.523		3 long 10'
13	T	223.751		1 trans 41' 2 long 10'
14	T	223.874		3 monor long 4' 3 minor trans 3'
15	C	224.109		2 long 10'
16	C	224.202		1 long 10' 1 trans 6'
17	C	224.227	sq. Block 16 ft.	1 trans 16' 1 trans 8'
18	C	224.347		2 trans 1'
19	C	224.385		1 trans 10' 2 lon 1 trans 4' 3'
20	C	224.493		2 trans 8'

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

9/8/76

Section Number	Test (T) or Control (C)	Beginning Station	Cracking Fatigue/ Block-Type Sq. Ft.	Cracking Transverse/ Longitudinal Ft.
1	T	221.117		
2	T	221.219		
3	T	221.369		
4	T	221.378		
5	T	221.483		1 Long 4' 1 Trans 16'
6	T	221.765	Surface OK	
7	T	221.903		1 filled trans 4'
8	T	222.860		1 filled trans 3'
9	T	222.875	Surface OK	
10	T	222.953	Surface OK	
11	T	223.145	Surface OK	
12	T	223.523	Surface OK	
13	T	223.751	Surface OK	
14	T	223.874	Surface OK	
15	C	224.109	Surface OK	
16	C	224.202		1 Trans 3'
17	C	224.227		1 Trans 3'
18	C	224.347	Surface OK	
19	C	224.385		1 Trans 6'
20	C	224.493		1 Trans 8'

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

12/2/76

Cracking US 77

Section Number	Test (T) or Control (C)	Beginning Station	Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1				
2				
3				
4				
5				
6	T	221.765	OK	
7	T	221.903		1 FILLED TRANSVERSE 4 FT
8	T	222.860		1 FILLED TRANSVERSE 3 FT
9	T	222.875		1 TRANSVERSE 2'
10	T	222.953	OK	
11	T	223.145	OK	
12	T	223.523	OK	
13	T	223.751	OK	
14	T	223.874	OK	
15	C	224.109		1 LONGITUDNAL 1 FT
16	C	224.202		1 TRANSVERS 5 FT
17	C	224.227		1 TRANSVERSE 10 FT 2 LONGITUDINAL 2 FT
18	C	224.347	OK	
19	C	224.385		1 TRANSVERSE 6 FT
20	C	224.493		1 TRANSVERSE 8 FT

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

WARNER HIGHWAY #431

7/18/77

Section Number	Test (T) or Control (C)	Beginning Station	Cracking	
			Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1	T	16.79	SURFACE OK	
2	T	16.86	SURFACE OK	
3	T	16.92	SURFACE OK	
4				
5				
6				
7	T	17.61	SURFACE OK	
8	C	18.17		1 TRANSVERSE 10 FT
9	C	18.20		1 TRANSVERSE 10 FT
10	C	18.485	BLOCK 6 SQFT	1 LONGITUDINAL 4 FT
11	C	23.08		1 LONGITUDINAL 3 F 1 TRANSVERSE 1 FT
12	C	23.298	SURFACE OK	
13	C	23.327	SURFACE OK	
14	T	24.26	SURFACE OK	
15	T	24.777	SURFACE OK	
16	T	25.382	SURFACE OK	
17	T	25.824	SURFACE OK	
18	T	25.953	SURFACE OK	
19	T	26.126	SURFACE OK	
20	T	26.602	SURFACE OK	

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

THE DALLES-CALIFORNIA HIGHWAY #7
DATE: 7/14/77

Section Number	Test (T) or Control (C)	Beginning Station	Cracking	
			Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1				
2				
3				
4				
5				
6	T	221,765	OK	OK
7	T	221.903	OK	1 TRANSVERSE 5' 1 TRANSVERSE 2'
8	T	222.860	OK	1 TRANSVERSE 1'
9	T	222.875	OK	1 TRANSVERSE 2'
10	T	222.953	OK	OK
11	T	223.145	OK	OK
12	T	223.523	OK	OK
13	T	223.751	OK	1 TRANSVERSE 6'
14	T	223.874	OK	OK
15	C	224.109	OK	1 LONGETUDINAL 6'
16	C	224.202	OK	1 TRANSVERSE 4' 1 LONGITUDINAL 1'
17	C	224.227	OK	1 TRANSVERSE 5' 1 LONGITUDINAL 10
18	C	224.347	OK	OK
19	C	224.385	OK	1 TRANSVERSE 5'
20	C	224.493	OK	1 TRANSVERSE 4'

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

DATE: 7/14/77

Section Number	Test (T) or Control (C)	Beginning Station	Cracking	
			Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1				
2				
3				
4				
5				
6	T	221,765	OK	OK
7	T	221.903	OK	1 TRANSVERSE 5' 1 TRANSVERSE 2'
8	T	222.860	OK	1 TRANSVERSE 1'
9	T	222.875	OK	1 TRANSVERSE 2'
10	T	222.953	OK	OK
11	T	223.145	OK	OK
12	T	223.523	OK	OK
13	T	223.751	OK	1 TRANSVERSE 6'
14	T	223.874	OK	OK
15	C	224.109	OK	1 LONGETUDINAL 6'
16	C	224.202	OK	1 TRANSVERSE 4' 1 LONGITUDINAL 1'
17	C	224.227	OK	1 TRANSVERSE 5' 1 LONGITUDINAL 10'
18	C	224.347	OK	OK
19	C	224.385	OK	1 TRANSVERSE 5'
20	C	224.493	OK	1 TRANSVERSE 4'

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.

WARNER HIGHWAY #431

7/18/77

Section Number	Test (T) or Control (C)	Beginning Station	Cracking	
			Fatigue/ Block-Type Sq. Ft.	Transverse/ Longitudinal Ft.
1	T	16.79	SURFACE OK	
2	T	16.86	SURFACE OK	
3 Photo only	T	16.92	SURFACE OK	
4				
5				
6				
7	T	17.61	SURFACE OK	
8	C	18.17		1 TRANSVERSE 10 FT
9	C	18.20		1 TRANSVERSE 10 FT
10	C	18.485	BLOCK 6 SQFT	1 LONGITUDINAL 4 FT
11	C	23.08		1 LONGITUDINAL 3 FT 1 TRANSVERSE 1 FT
12	C	23.298	SURFACE OK	
13	C	23.327	SURFACE OK	
14	T	24.26	SURFACE OK	
15	T	24.777	SURFACE OK	
16	T	25.382	SURFACE OK	
17	T	25.824	SURFACE OK	
18	T	25.953	SURFACE OK	
19	T	26.126	SURFACE OK	
20	T	26.602	SURFACE OK	

Overall condition of the project. Comments concerning other forms of distress (bleeding, raveling, loss of cover stone) in the test section versus the control section.