



Rocky Mountain West Pavement Preservation Partnership Meeting

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Arizona Department of Transportation

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Definitions

Pavement Preservation

- Proactive non-structural treatment
- Restores serviceability
- Extends the service life





Definitions

Pavement Rehabilitation

- Structural enhancement
- Extend the service life
- Improve load carrying capacity





ADOT Pavement Preservation



Pavement
Preservation

Crack Seal

Fog /Flush
Coat

Chip Seal

Cinder Seal

Micro-
Surfacing

Slurry Seal

Friction
Course



Flush/Fog Coat

Used to:

- Seal asphalt surface
- Rejuvenate older surface
- Reduce raveling and crack development

Emulsion

PASS QB, SS- 1





Chip Seal

2 Types

- 1) Single Chip Seal
- 2) Single Chip Seal + Fog coat

Binder

- CRS-2P

Used on

- Low volume and rural roads





Chip Seal

Used to:

- Provide new wearing surface
- Waterproof the surface
- Seal small cracks
- Reduce oxidation
- Improve skid resistance





Cinder Seal

Binder

- PASS CR (Chip Retention)

Used for

- Treating crack & moderate raveling
- Rural roads



Cinder Seal



Cinder Chip



Cinder Chip



Micro-Surfacing

Used For

- Rut, crack & void filling / sealing
- Applications on raveled, flushed and oxidized surfaces
- Minor leveling
- Urban and high volume roads
- Good in curb and gutter sections to reduce clean-up operations





Micro-Surfacing

Materials

- Polymer modified, cationic, quick setting (mixing grade) emulsified asphalt (CQS-1hP)
- A minimum of 4% polymer solids
- Type III Micro-Surfacing is used





Slurry Seal

Used For

- Sealing minor cracks and voids
- Retarding raveling
- Improving skid resistance and ride quality
- Roads with moderate traffic
- Good in curb and gutter sections to reduce clean-up operations

Materials

- Polymer modified emulsified asphalt, QS-P or CQS-P
- 2% minimum solid polymer non-latex





Crack Seal

Used to

Seal crack width $\frac{1}{4}$ inch or greater

Materials

- Polymer Modified Asphalt Rubber Crack Sealant
- Blotter (5%-10%)





Crack Seal is usually done before another treatment



Minimum 3 months time gap between Crack Seal & 2nd treatment



Open Graded Friction Course

Advantages

- Minimal generation of dust during construction
- Resists rutting due to heavy traffic
- No stone loss that might cause windshield damage
- No binder runoff
- Restores skid resistance
- Treats raveled surfaces
- Improves ride quality
- Low noise (AR-ACFC)
- Drains water





Open Graded Friction Course

Asphaltic Concrete Friction Course

Asphalt Binder

- PG 64-16
- 6% - 7% binder

Asphalt Rubber ACFC

Binder

- PG Varies with temperature
- Crumb rubber gradation Type B
- 20% crumb rubber of asphalt cement
- 9% binder





Project Selection Process

Project is selected based on info obtained from:

- Project request/scope from district
- PMS- Project Management System
- Road Review/inspection





Preventative Surface Treatment Project Request

Project Name/Location: I-8 Sentinel to West of Painted Rock

District: Yuma

Highway Name: Yuma-Casa Grande

Route: I-8

Begin MP: 82

End MP: 96

Length: _____

Staging Location/Address: East end of EB Sentinel Rest Area

Treatment Type: Crack F

Total Width of mainline lanes to be treated: 48 feet

Length of Shoulder(s) to be treated: _____

Estimated Amt: \$ 374,413

Width of Shoulder(s) to be treated: _____

Date Submitted: 8-18-2010

By: Michael Jones for Paul Patane

District Engineer Mail Dr _____

Scope of Work:

Project Request/Scope from District

Pavement: Crack fill pavement surface full-width (lanes and shoulders) in both directions using rubber crack sealant. Also, crack fill ramps and crossroad pavement surfaces full width at Exit 87 (Sentinel).

Other:

Project Justification:

The existing pavement surface is experiencing cracking. This project will seal all existing cracks 1/4" or larger using sealant. The sealing of the cracks will extend life of the pavement by preventing water from intruding into the pavement material and causing the base material to become weakened under heavy truck traffic. Cracks >1/2" shall be routed.

Traffic Control:

Traffic Control will be done by District Forces or by Separate Contract

Traffic Control will need to be made part of this contract

ir	Suf	From Mp	To Mp	Lane	L1	T1	L2	T2	L3	T3	L4	T4	L5	T5	L6	T6	L7	T7	PROJNUMBER	MO	YR	Tracs No.
		108.42	108.56		AC	40	PD	125											IM-10-2(146)	01	94	H293601C
		185	195	1	RE	35	AC	30	FR	05									IM-10-3(355)	10	99	H481901C
		169	175.8		FL	00													I 10- 3-917	08	70	PMS01280
		160.55	163.83	1	RM	03	AC	20	FC	05									IR 10- 3-142	03	83	PMS01581
		160.28	167.09	2	RE	50	AC	70	FR	05									IM 10- 3-272	10	97	H356201C
		124	124.21	2	AB	80	AC	80	FC	05									ARRA-010-B(205)A	05	11	H721101C
		162.09	163.52		AB	40	PD	140											STP-202-C(006)B	04	04	H541701C
		106.8	106.94		AB	60	PD	110											IM-10-2(146)	01	94	H293601C
		160.28	167.09	1	RE	35	AC	55	FR	05									IM 10- 3-272	10	97	H356201C
		147.93	148.4		CL	50	PD	100											I-10-3(239)	03	89	H008904C
		197.53	199.77		SM	200	AB	40	AC	35	FC	05							I 10- 3- 55	11	66	PMS01273
		153	155		SM	50	AB	40	PC	90									I 10- 3- 54	08	68	PMS01272
		164.68	167.33		SM	14	AB	40	AC	35	FC	05							I 10- 3- 69	08	68	PMS01278
		155.44	159.69		FR	10													NH-900-A(072)A	05	05	H637103C
		130.42	137.45		FR	10													010-B-NFA	06	07	H694501C
		130.42	137.48		FR	10													010-B-NFA	06	07	H694501C
		145.94	146.96		FR	10													CM-010-B(006)A	06	04	H626401C
		167.1	173.15	1	RE	45	AC	40	FR	05									IM010-C(006)A	06	04	H583901C
		167.1	173.15	2	RE	55	AC	50	FR	05									IM010-C(006)A	06	04	H583901C
		167.1	173.15	1	RE	45	AC	40	FR	05									IM010-C(006)A	06	04	H583901C
		167.1	173.15	2	RE	55	AC	50	FR	05									IM010-C(006)A	06	04	H583901C
		143.70...	148.01		FR	10													NH-900-A(017)A	08	04	H637102C
		143.70...	148.01		FR	10													NH-900-A(017)A	08	04	H637102C
		137.42...	142.82		FR	10													NH-900-A(072)A	05	05	H637103C
		137.42...	142.82		FR	10													NH-900-A(072)A	05	05	H637103C
		155.44	159.69		FR	10													NH-900-A(072)A	05	05	H637103C
		113.2	121.10...	1	RE	35	AC	30	FR	05									IM-010-B-(006)A	06	05	H612801C
		113.2	121.10...	2	RE	45	AC	40	FR	05									IM-010-B-(006)A	06	05	H612801C
		135.83	136.44	7	PC	150													ACIM-STP-010-B...	01	03	H591001C
		150.01	150.38		CL	00	PD	100											I-10-3(204)	09	88	H011504C

Pavement History from PMS

E	100	0	1	1		0	0	0		4	4	4						62	68	74		0.3	0.25	0.28		54
E	101	0	1	1		0	0	0		4	4	4						56	62	72		0.32	0.1	0.15		54
E	102	0	0	0		0	0	0		4	4	4						57	61	63		0.33	0.01	0.18		54
E	103	0	0	0		0	0	0		4	4	4						49	52	66		0.15	0.05	0.11		54
E	104	0	0	0		0	0	0		4	4	4						64	62	62		0.16	0.18	0.02		54
E	105	1	1	1		0	0	0		4	4	4						62	73	71		0.23	0.17	0.09		95
E	106	4	4	4		0	0	0		4	4	4						93	99	109		0.07	0.03	0.04		5896
E	107																	118	121	133		0.02	0	0.01		122
E	108																	122	94	128		0.08	0.02	0.06		122
E	109	0	0	0		0	0	0		3.5	3.5	3.5						57	62	77		0.13	0.07	0.16		119
E	110	0	0	0		0	0	0		4	4	4						63	62	69		0.2	0.1	0.13		116
E	111	0	1	1		0	0	0		4	4	4						61	68	68		0.18	0.01	0.11		116

Distress Data from PMS

Crk 2010	Crk 2011	Ptch 2008	Ptch 2009	Ptch 2010	Ptch 2011	Flsh 2008	Flsh 2009	Flsh 2010	Flsh 2011	Frct 2008	Frct 2009	Frct 2010	Frct 2011	Ride 2008	Ride 2009	Ride 2010	Ride 2011	Rut 2008	Rut 2009	Rut 2010	Rut 2011	MntCst 2008	MntCst 2009	MntC: 2010
2		0	0	0		3.8...	3.8...	3.8...						60	65	71		0.14...	0.07...	0.08...		144		

E	100	28321	28500			7.5	6.74			4079	4079	4079	
E	101	28321	28500			7.5	6.74			4079	4079	4079	
E	102	28321	28500			7.5	6.74			4079	4079	4079	
E	103	28321	28500			7.5	6.74			4079	4079	4079	
E	104	33614	33500			7.22	6.42			4136	4136	4136	
E	105	33614	33500			7.22	6.42			4136	4136	4136	
E	106	33614	33500			7.22	6.42			4136	4136	4136	
E	107	33614	33500			8.25	7.22			5552	5552	5552	
E	108	33614	33500			8.25	7.22			5552	5552	5552	
E	109	33614	33500			7.22	6.42			4136	4136	4136	
E	110	31852	33500			6.32	6.19			4307	4307	4307	
E	111	31852	33500			6.32	6.19			4307	4307	4307	
E	112	31852	33500			6.32	6.19			4307	4307	4307	
E	113	34000	37500			5.55	6.08			3574	3574	3574	
E	114	34000	37500			5.55	6.08			3574	3574	3574	
E	115	43649	42000			4.32	3.84			5465	5465	5465	
E	116	43649	42000			4.32	3.84			5465	5465	5465	
E	117	57205	59500			6.74	6.44			5465	5465	5465	
E	118	57205	59500			6.74	6.44			5465	5465	5465	
E	119	57205	59500			6.74	6.44			5465	5465	5465	
E	120	57205	59500			6.74	6.44			5465	5465	5465	
E	121	59108	71100			5.53	5.24			5465	5465	5465	
E	122	65839	68500			6.1	5.87			6069	6069	6069	
E	123	65839	68500			6.1	5.87			6069	6069	6069	
E	124	65839	68500			6.1	5.87			6069	6069	6069	
E	125	75906	75000			6.12	5.44			7802	7802	7802	
E	126	75906	75000			6.12	5.44			7802	7802	7802	
E	127	91711	91000			6.06	5.39			8455	8455	8455	
E	128	91711	91000			6.06	5.39			8455	8455	8455	
E	129	134965	100000			6.51	5.78			10406	10406	10406	
E	130	145728	120000			7.17	6.28			16736	16736	16736	
E	131	145728	120000			7.17	6.28			16736	16736	16736	
E	132	172209	130000			5.34	4.68			17301	17301	17301	

Traffic Data from PMS



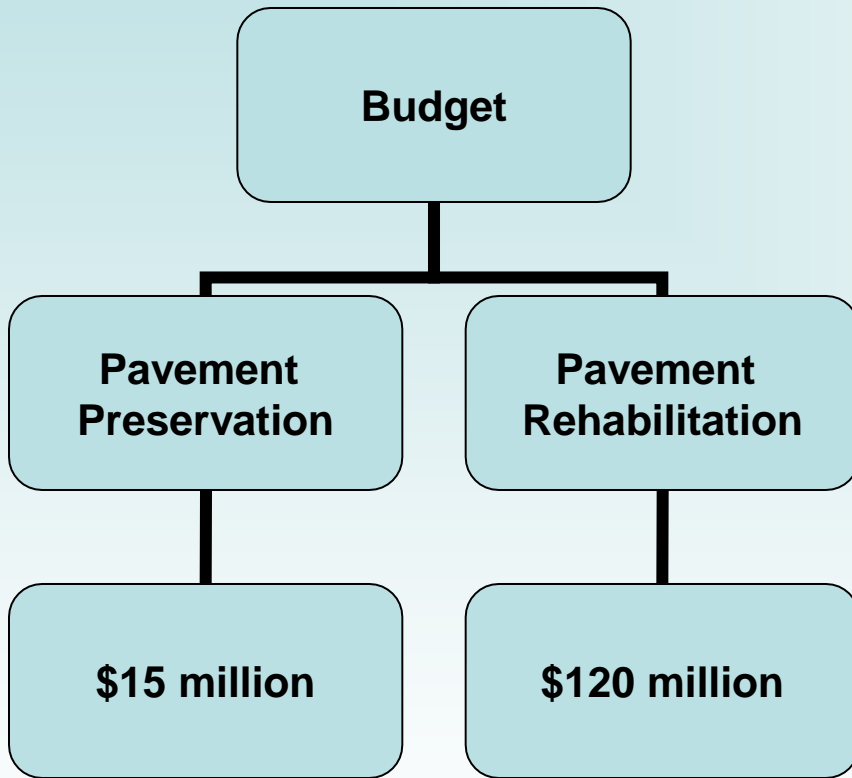
Road Review/Inspection



Road inspection from headquarter



Budget



Federal Funds are used for all projects except for cinder seal and some flush projects.





Expectations from RMWPPP

Through RMWPPP we expect to share information, views & experience :

- on issues
- to resolve issues
- to improve specifications
- to improve construction method to make pavement preservation more cost effective & efficient.





ADOT's Pavement Preservation culture

- Pavement Preservation(PP) is our permanent culture
- Our dependency on PP has significantly increased
- Budget for PP is not enough
- We are moving funds from pavement rehabilitation to PP
- That way we are delaying pavement rehabilitation and extending the life of pavement & reducing the life cycle cost





Any Question?



Mill & Fill



Cinder Seal



Recycling