

INNOVATIONS AND BEST PRACTICES IN PENNDOT DISTRICT 9-0

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CONSTRUCTION SERVICES ENGINEER

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DISTRICT 9-0 PAPA BUS TOUR

- Roadway Committee
- Hands on Local Acceptance
- New Products
- General Pavement Strategies
- Success Stories and Lessons Learned



9-0 ROADWAY COMMITTEE

- **9-0 Roadway Committee**
 - 5 members includes Design, Construction and Maintenance
 - Chair – Ed Steinbugl, P.E., Maintenance Services Engineer
 - John Ciprich, P.E., Design Services Engineer
 - Garth Bridenbaugh, P.E., Construction Services Engineer
 - Larry Riggleman, District Materials Manager
 - Doug Bagley, District Pavement Manager



9-0 ROADWAY COMMITTEE

- Goal - provide ranking for pavement project selection
- Three primary sources of information
 - County maintenance input
 - Field reviews by the roadway management committee
 - Data from BOMO's roadway inventory & testing



9-0 ROADWAY COMMITTEE

• “The List”

- SR’s broken into logical segments
- Info. e.g. ADT, ADTT, BPN, last year resurfaced
- BOMO’s roadway inventory and testing info. entered into “The List” (IRI, OPI, OOC)

B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF
CO	SR	BEG SEG	BEG OFF	END SEG	END OFF	BEGIN DESC.	END DESC.	SEG MILES	AVG SURF YEAR	AVG BPN	HIGH / LOW TREAT	AVG ADT	AVE TRK %	AVG TRK ADT	AVG IRI	IRI	AVG OPI	OPI	OOC	DATA SCORE	VISUAL SCORE (POSSIBLE 5)	TOTAL SCORE (100 POSSIBLE)	ON THE DOI? (Y or N)	DOI PROGRAM	DOI PERIOD	PREVIOUS 5-YEAR PLAN REFURFACE YEAR (Proposed Year in Italic)	RESURFACE YEAR (TIP, 409)	2021 RC Ranking	RC Field Viewed	RC Funding Recommendation
5	1033	10	0	10	1323	US 30	SR 1001	0.3	2004	3	L	3806	8.0	304	163	Fair	65	Fair	Y	55.5	15.0	70.5	N			2025	2025	7	Y	TIP
5	30	380	0	481	1421	SR 4010	SR 8014	11.3	2005	3	H	9264	12.1	1122	92	Exc	85	Good	Y	39.5	25.0	64.5	N				2027	1	Y	TIP
5	1029	10	0	10	637	SR 1004	SR 1044	0.1	2013	3	L	8611	5.0	431	204	Poor	82	Good	N	64.6		64.6	Y	DOI	3					
5	30	490	0	621	2720	SR 8014	Juniata Rvr Brdg	15.4	2004	3	H	5507	17.1	940	85	Exc	87	Good	Y	38.9	23.0	61.9	N				2026	2	Y	TIP
5	220	10	0	100	2024	Maryland State Line	Narrow Lane	5.4	2007	2	H	4611	18.0	830	91	Good	85	Good	Y	44.6	15.0	59.6	N				2024	4	Y	TIP
5	56	180	0	280	3674	SR 4032	Trib Dunnings Crk	5.8	2009	2	H	5805	10.2	591	87	Good	91	Good	Y	47.8	10.0	57.8	Y	BASE	3		2024	5	Y	TIP
5	56	140	0	170	3119	PA 96	SR 4032	2.0	2009	2	H	5029	8.0	402	93	Good	86	Good	Y	44.3	12.0	56.3	N				2024	5	Y	TIP
5	96	10	0	150	1038	Maryland State Line	SR 3004	7.7	1998	3	H	2219	5.7	126	127	Good	93	Exc	Y	32.1	24.0	56.1	Y	DOI	3	2024	2026	3	Y	TIP
5	1038	10	0	10	3004	PA 36	SR 1017	0.6	2001	4	L	367	3.0	11	244	Poor	73	Good	Y	43.3	10.0	53.3	N				2026	4	Y	Current TIP, change to 409



9-0 ROADWAY COMMITTEE

- Roadway Committee solicits input from each County Maintenance org for their priority routes (all networks)



9-0 ROADWAY COMMITTEE

- Roadway Committee performs field reviews
- Data scoring/county maintenance input considered
- Meets to determine final rankings
- Final rankings sent to planning and programming for updating the TIP
- Final rankings sent to maintenance for planning their funding of projects



HANDS ON LOCAL ACCEPTANCE

- District 9-0 has been doing hands on local acceptance for over a decade
- Most contractors/producers request use of HOLA
- AASHTO re:source On-Site Laboratory Assessments



HANDS ON LOCAL ACCEPTANCE

Tons Accepted by Year

YEAR	HOLA	LTS
2023*	71,956	22,510
2022	68,379	120,523
2021	31,362	160,938
2020	40,932	55,782
2019	57,066	30,372
2018	292,390	46,045
2017	67,420	79,347

* As of 7/18/2023



HANDS ON LOCAL ACCEPTANCE

- **Benefits of HOLA**
 - Quick turnaround time (avg. 48 hours from box delivery to CAMMS report)
 - Producer sees samples (any sampling issues can be quickly addressed)
 - Lab assessments by independent party on a regular basis
 - Workforce development - inspector stays sharp on lab procedures



NEW PRODUCTS

- Void Reducing Asphalt Membrane (VRAM)



NEW PRODUCTS

- VRAM (J-Band has been provided)
 - ECMS 22816 I-70 36,628 LF @ \$4.85 (added to experimental work plan)
 - ECMS 91536 I-70 76,417 LF @ \$3.00 (half widths one lane a time milling)
 - ECMS 91537 I-70 129,294 LF @ \$3.25 (half widths one lane a time milling)



Half width J-Band on I-70



NEW PRODUCTS

- VRAM – We plan to use this product on our composite pavement interstates and look-alikes at the centerline. Our goals:
 - Improved performance/service life
 - Reduced/delayed crack sealing
 - Less interference with durable pavement markings



NEW PRODUCTS

- **Mastic for Centerline Joint Repairs**
 - First 9-0 use on US 22 Cambria County in 2023
 - Effective application
 - Durable repair option for large scale centerline joint distresses with wide cracking/raveling



GENERAL PAVEMENT STRATEGIES

Asphalt Pavements

- Common past overlays – 120 lbs/SY 9.5 mm leveling, 180 lbs/SY 9.5 mm wearing course
- Interstates/expressways – Mostly SMA with some 6.3 mm thin lift in recent years
- Starting more 180 lbs/SY 9.5 wearing overlays
- Full Depth Reclamation on select roadways with base, subgrade issues (high cost)
- Seal coat network 6-year cycle



GENERAL PAVEMENT STRATEGIES

Concrete Pavements

- CPR/Next Generation Concrete Surface
- CPR and Asphalt Overlay
- Crack and Seat/Break and Seat



Lessons Learned

- 6.3 mm thin lift directly on concrete 9-0 has experienced some bonding issues in some cases but not others
- Potential issues: hard tack grade, milling texture at underpasses, new concrete difficult to achieve bond



Lessons Learned

- 6.3 mm thin lift overlay on composite pavement with heavy CPR patching
- Difficulty achieving smooth ride due to numerous patches and no milling item for the pavement length



Lessons Learned

- 6.3 mm thin lift overlay at 1” depth at underpasses with clearance requirements
- Texture too deep from standard milling machine
- Delamination occurred
- Learned that thin lifts require micro-mill to achieve a much less aggressive profile
- Stopped the practice of placing thin lift at these underpasses



Success Stories

- 6.3 mm thin lift on asphalt pavements
- Smooth surface, nice alternative to mill and overlay



Success Stories

- Full depth reclamation has been successful on low volume routes with significant base/subgrade issues
- Slot milling edges has helped keep profile down



Success Stories

- District 9 let three base repair projects for 2023
- Projects are to prep roads for seal coat program
- Total of 54,968 tons, \$7.06 million all inclusive

