

NJDOT Deck Strategies

Prior to 2005 New Jersey was one of the few remaining “bare concrete deck” States in the Northeast. Due to the overwhelming number of maintenance deck repairs being done annually needed a deck preservation strategy:

- Asphalt Overlays
- Thin Polymer Overlays

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- Asphalt Overlays
 1. Looked @ membranes both spray on and sheet type
 2. Looked at “water-proof” asphalt – known as Rosphalt
 3. Asphaltic Plug Joints over the deck joints

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- Asphalt Overlay (cont).

Based on our evaluations and trial applications we have developed a standard treatment & specification called: Bridge Deck Waterproof Surface Course – basically a generic form of Rosphalt which any asphalt supplier can provide.

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- **Asphalt Overlay (cont).**
- **Plagued by asphalt plug joint failures. The first joint system we utilized was the Deery Joint System**



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- **Asphalt Overlay (cont).**
- **Next system used was TronFlex with some success, but noticeable issues**



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- **Asphalt Overlay (cont).**
- **Currently using the Silspec 900 system a Dow Corning product with no issues**



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- Asphalt Overlay – Plug Joint (cont.)
- Based on positive feedback and results from our Maintenance staff the standard Joint treatment is:
 1. Silspec 900 by Dow Corning preferred by Maintenance as replacement application or
 2. Silicoflex or V-Seal by RJ Watson and DS Brown respectively for new applications

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- Thin Polymer Overlays are another solution to sealing existing concrete bridge decks, which New Jersey is utilizing.
- Experience with the following 3 systems:
 1. Bridgemaster by Stirling Lloyd
 2. T-18 Polymer Concr. Overlay by Transpo
 3. Kwikbond Polyester Polymer Concr. Overlay

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- **Premature failure of the Bridgemaster High Performance Polymer Slurry Overlay by Stirling Lloyd**

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- **T-18 MMA Polymer Concrete Overlay System by Transpo – In place on Rt. 72/Manahwkin Bay Viaduct**

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- **Recent application of Kwikbond Polyester Polymer Concrete overlay on Route I-80 over Route 46**

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- Everyone of the Thin Polymer Overlay type products have their “champions”. In an effort to sort out application and production issues as well as measured in field performance behaviors, NJDOT will be performing some side-by-side product evaluation on a 5 mile section of Route I-295 in Mercer County.

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<u>FHWA BRIDGE PRESERVATION 2010</u>							
<u>Route 295 NB/SB MP 56.8 to 60.4</u>							
<u>BRIDGE DECK TREATMENT COST CALCULATIONS</u>							
M.P.	BRIDGE NUMBER	BRIDGE DESCRIPTION	Area	Product	Mfgr	Unit Cost	Total Cost
57.27	0328171	I-295 NB OVER BURLINGTON STREET	5,626		Control	[\$/sq.ft.]	
57.27	0328172	I-295 SB OVER BURLINGTON STREET	5,626		Control		
57.53	0328173	I-295 NB OVER RAILROAD	7,700	T-48	Transpo Ind.	\$11.04	\$85,008.00
57.53	0328174	I-295 SB OVER RAILROAD	7,700	T-48	Transpo Ind.	\$11.04	\$85,008.00
57.77	0328175	I-295 NB OVER CROSSWICKS CREEK	99,000	Flexo-Grid	Polycarb	\$5.44	\$538,560.00
57.77	0328176	I-295 SB OVER CROSSWICKS CREEK	99,000	Flexo-Grid	Polycarb	\$5.44	\$538,560.00
58.58	1136180	OVER DUCK CREEK	47,700	PPC 1121	KwikBond	\$5.00	\$238,500.00
58.58	1136178	OVER DUCK CREEK	47,700	MLS	KwikBond	\$4.00	\$190,800.00
59.78	1136176	295 NB OVER WATSONS CREEK, PA RR, D&R CANA	74,459	TyreGrip	Ennis Paint	\$3.75	\$279,221.25
59.78	1136177	295 SB OVER WATSONS CREEK, PA RR, D&R CANA	82,195	MLS	KwikBond	\$4.00	\$328,780.00
60.23	1136153	I-295 NB OVER ROUTE I-195	15,048				0
60.23	1136154	I-295 SB OVER ROUTE I-195	23,028				0

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- New Jersey's experiences can be best be summed up as, there are many different ways to preserve and extend the useful life of bridge decks, but "one size does not fit all".
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